# ENVIRONMENT PLAN



## Bass Strait Producing Environment Plan

AUGO-EV-EMM-000



Esso Australia Resources Pty Ltd acknowledges Aboriginal and Torres Strait Islander people as the Traditional Custodians of the land and acknowledges and pays respect to their Elders, past and present. Esso Australia Resources Pty Ltd is committed to safe and inclusive workplaces, policies and services for people of LGBTIQ+ communities and their families.

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TABLE OF CONTENTS

1 Introduction ..... 27
1.1 Scope ..... 29
1.2 Titleholder details ..... 33
1.3 Legislative framework ..... 33
1.4 Government guidelines ..... 48
1.5 Industry guidelines and codes of practice ..... 49
1.6 Environment Plan summary ..... 56
2 Description of the activity ..... 57
2.1 Location ..... 57
2.2 Timing of the activities ..... 57
2.3 Property inventory and current status ..... 58
2.4 Hydrocarbon types ..... 72
2.5 Platform operations ..... 76
2.6 Subsea facility operation ..... 98
2.7 Pipeline operations ..... 98
2.8 Wellwork ..... 99
2.9 Inspection, maintenance and repair ..... 102
2.10 Support operations ..... 111
2.11 Major projects ..... 112
2.12 Overview of compliance with Section 572 ..... 112
2.13 Overview of compliance with Section 270 ..... 114
2.14 Environmental surveys and monitoring ..... 114
2.15 Bass Strait decommissioning program ..... 115
3 Description of the environment ..... 118
3.1 Environment that May Be Affected ..... 120
3.2 Values and sensitivities in the Area of Described Environment ..... 120
4 Relevant persons consultation ..... 168
4.1 Consultation requirements ..... 169
4.2 Esso's consultation methodology ..... 172
4.3 Methodology as applied to the scope of this Environment Plan ..... 184
4.4 Relevant persons feedback ..... 200
4.5 Ongoing consultation ..... 200
4.6 Reporting ..... 201
5 Environmental impact and risk assessment methodology ..... 203
5.1 Overview ..... 203
5.2 Definitions ..... 203
5.3 Identification and characterisation of environmental aspects ..... 204

5.4 Environmental impact assessment ..... 204
5.5 Environmental risk assessment ..... 210
5.6 Demonstration of As Low As Reasonably Practicable ..... 212
5.7 Demonstration of acceptable level ..... 214
6 Environmental impact assessment ..... 217
6.1 Seabed disturbance ..... 219
6.2 Physical presence – Interference with other marine users ..... 225
6.3 Sound emissions ..... 230
6.4 Light emissions ..... 263
6.5 Air emissions ..... 273
6.6 Routine discharge – Domestic wastes and drainage ..... 305
6.7 Routine discharge – Operational fluids and solids ..... 317
6.8 Planned discharge – Wellwork solids and fluids ..... 342
6.9 Planned discharge (contingency) – Produced formation water at Marlin B ..... 355
7 Environmental risk assessment ..... 387
7.1 Physical Presence - Collision with marine fauna ..... 389
7.2 Physical presence – Introduction of invasive marine species ..... 395
7.3 Unplanned seabed disturbance – Dropped objects ..... 403
7.4 Unplanned release – Loss of containment of hazardous substances ..... 408
7.5 Unplanned release – Waste ..... 417
7.6 Unplanned release – Loss of containment of marine diesel oil – Vessel collision ..... 427
7.7 Unplanned release – Loss of containment of hydrocarbons – Pipeline rupture ..... 473
7.8 Unplanned release – Loss of containment of hydrocarbons – Loss of well control ..... 505
8 Implementation strategy ..... 569
8.1 Systems, Practice and Procedures ..... 569
8.2 Standards of Business Conduct ..... 569
8.3 Environmental Management System ..... 570
8.4 OIMS System 1-1: Leading, Managing and Driving Performance ..... 577
8.5 OIMS System 2-1: Risk Assessment and Management (PDCA: Plan, Do) ..... 586
8.6 OIMS Element 3: Designing, Constructing and Preparing Assets (Facilities) for Start Up ..... 586
8.7 OIMS System 4-1: Information Management (PDCA: Do) ..... 587
8.8 OIMS System 5-1: Selecting, Training, Engaging and Enabling People ..... 587
8.9 OIMS System 6-1: Operating and Maintenance Procedures (PDCA: Do) ..... 590
8.10 OIMS System 6-2: Facility Integrity Management System (PDCA: Do) ..... 590
8.11 OIMS System 6-3: Well Management (PDCA: Plan, Do, Act) ..... 602
8.12 OIMS System 6-4: Work Management ..... 604
8.13 OIMS System 6-5: Environmental and Regulatory Management ..... 605
8.14 OIMS System 7-1: Managing Changes (PDCA: Do) ..... 621

8.15 OIMS System 8-1: Selecting and Engaging with Third-Party Providers....621
8.16 OIMS System 9-1: Learning from Operating Experience and Incidents....622
8.17 OIMS System 10-1: Community Risk Management (PDCA: Plan, Do, Check, Act)....627
8.18 OIMS System 10-2: Preparing for Emergencies....627
8.19 OIMS System 11-1: Assessing and Driving Effectiveness (PDCA: Check, Act)....638
9 Bibliography....639
Appendix A: Description of the Environment in the EMBA....662
Appendix B: Platform details....663
Appendix C: EPBC Act Listed Species in the Operational Area/Area of Described Environment and Environment That May Be Affected....664
Appendix D: EPBC Act Protected Matters Report – Operational Area/Area of Described Environment....680
Appendix E: EPBC Act Protected Matters Report – Environment That May Be Affected....681
Appendix F: Consultation report (Summary)....682
Appendix F-1 Relevant persons consultation levels....689
Appendix F-2 Consultation report (Summary)....723
Appendix G: Sufficient information materials....912
Appendix G-1 Information Bulletin #1 (July 2025)....913
Appendix G-2 Email sent on 28 July 2025....914
Appendix G-3 Community information session flyer (August 2025)....915
Appendix G-4 Community information session flyer (November 2025)....916
Appendix G-5 Community information session presentation (August 2025)....917
Appendix G-6 Community information session presentation (November 2025)....918
Appendix H: Advertisement materials....919
Appendix H-1 Newspaper advertisements – August 2025....920
Appendix H-2 Newspaper Advertisements November-2025....921
Appendix I: JASCO Sound Modelling 2023 and 2025 Addendum....922
Appendix J: Assessment against the management actions of the AMPs....923
Appendix K: EPO, controls, EPS summary....942

## LIST OF FIGURES

Figure 1-1 Overview of producing facilities....28
Figure 1-2 Lifecycle of a facility....30
Figure 2-1 General platform schematic....76
Figure 2-2 General flare and vent sources....82
Figure 2-3 Schematic of open drain system....84
Figure 3-1 Esso producing assets and ADE....119
Figure 3-2 Foraging BIAs for the black-browed albatross and the Buller's albatross overlapped by the ADE....134

Figure 3-3 Foraging BIAs for the Campbell albatross and the Indian yellow-nosed albatross overlapped by the ADE ..... 135
Figure 3-4 Foraging BIAs for the shy albatross and the wandering albatross overlapped by the ADE ..... 136
Figure 3-5 Foraging BIAs for the common diving-petrel and the short-tailed shearwater overlapped by the ADE ..... 137
Figure 3-6 Foraging BIA for the PBW overlapped by the ADE ..... 138
Figure 3-7 Migration BIA for the SRW overlapped by the ADE with Atlas of living Australia sighting data 139
Figure 3-8 Reproduction BIA for the white shark overlapped by the ADE with Atlas of living Australia sighting data ..... 140
Figure 3-9 KEFs overlapped by and in proximity to the ADE ..... 141
Figure 3-10 Shipwrecks within and in proximity to the ADE ..... 142
Figure 3-11 Bathymetry in the ADE ..... 143
Figure 3-12 Bass Strait Central Scallop Zone Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE ..... 144
Figure 3-13 Eastern Tuna and Billfish Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE ..... 145
Figure 3-14 Small Pelagic Fishery zone and maximum area fished in 2023 overlapped by the ADE ..... 146
Figure 3-15 SESSF – CTS – Danish seine sector zone and 2019 - 2023 fishing intensity overlapped by the ADE ..... 147
Figure 3-16 SESSF – CTS – Otter board sector zone and 2019 - 2023 fishing intensity overlapped by the ADE ..... 148
Figure 3-17 SESSF – Shark hook sector zone and 2019 - 2023 fishing intensity in proximity to the ADE ..... 149
Figure 3-18 SESSF – Shark gillnet sector zone and 2019 - 2023 fishing intensity overlapped by the ADE ..... 150
Figure 3-19 SESSF – Scalefish hook sector zone and maximum area fished in 2023 overlapped by the ADE ..... 151
Figure 3-20 Southern Bluefin Tuna Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE ..... 152
Figure 3-21 Southern Squid Jig Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE ..... 153
Figure 3-22 Victorian Abalone Fishery zones overlapped by the ADE ..... 154
Figure 3-23 Victorian Giant Crab Fishery zones and 2021 - 2025 fishing data overlapped by the ADE ..... 155
Figure 3-24 Victorian Rock Lobster Fishery zones and 2021 - 2025 fishing data overlapped by the ADE ..... 156
Figure 3-25 Victorian Pipi Fishery zones and 2021 - 2025 fishing data overlapped by the ADE ..... 157
Figure 3-26 Victorian Wrasse Fishery zone and 2021 - 2025 fishing data overlapped by the ADE ..... 158
Figure 3-27 Victorian Sea Urchin Fishery zones overlapped by the ADE ..... 159
Figure 3-28 Victorian Scallop Fishery zone and 2021 - 2025 fishing data overlapped by the ADE ..... 160
Figure 3-29 Victorian Octopus Fishery zones and 2021 - 2025 fishing data overlapped by the ADE ..... 161
Figure 3-30 Victorian inshore trawl fishery zone and 2021 - 2025 fishing data overlapped by the ADE ..... 162
Figure 3-31 Victorian Ocean Trawl Fishery zone and 2021 - 2025 fishing data overlapped by the ADE ..... 163
Figure 3-32 Renewable energy zone and licences overlapped by the ADE ..... 164
Figure 3-33 Titles and permits within and around the ADE ..... 165
Figure 3-34 Shipping traffic within and around the ADE ..... 166

Figure 3-35 UXO zone overlapped by the ADE ..... 167
Figure 4-1 Esso's approach to consultation ..... 175
Figure 5-1 Risk matrix ..... 212
Figure 5-2 ALARP decision support framework, based on OGUK (OGUK, 2014) ..... 213
Figure 6-1 Summary of impacts ..... 217
Figure 6-2 Hearing groups and overlap with sound sources relevant to this activity ..... 241
Figure 6-3: Forecast Longford Gas Plant winter capacity, 2025 to 2034 (TJ/d) from AEMO 2025 Victorian Gas Planning Report (AEMO, 2025) ..... 286
Figure 6-4 MLB closed pile discharge dilution ..... 321
Figure 6-5 WTN closed pile discharge dilution ..... 321
Figure 6-6 ROV footage from WTN closed pile window (2017) ..... 327
Figure 7-1 Summary of risks ..... 387
Figure 7-2 Current known distribution (in red) of New Zealand screw shell (*Maoricolpus roseus*) in south-eastern Australian waters (CSIRO, 2004) ..... 397
Figure 7-3 Predicted weathering and fate for a 280m$^3$ surface release of MDO at BTA over 30 days (RPS, 2019) ..... 430
Figure 7-4 Predicted weathering and fate for a 280m$^3$ surface release of MDO at KPA over 30 days (RPS, 2019) ..... 431
Figure 7-5 Zones of potential oil exposure on the sea surface, in the event of a 280m$^3$ surface release of MDO over six hours at KPA, tracked for 30 days ..... 437
Figure 7-6 Zones of potential instantaneous dissolved hydrocarbon exposure in the event of a 280m$^3$ surface release of MDO over six hours at KPA, tracked for 30 days ..... 438
Figure 7-7 Zone of potential instantaneous entrained hydrocarbon exposure in the event of a 280m$^3$ surface release of MDO over six hours at KPA, tracked for 30 days ..... 438
Figure 7-8 Zones of potential oil exposure on the sea surface, in the event of a 280m$^3$ surface release of MDO over six hours at BTA, tracked for 30 days ..... 441
Figure 7-9 Maximum potential shoreline loading for the low (≥10g/m$^2$), moderate (≥100g/m$^2$) and high (≥1000g/m$^2$) thresholds based on a 280m$^3$ surface release of MDO over six hours at BTA, ..... 442
Figure 7-10 Zones of potential instantaneous dissolved hydrocarbon exposure in the event of a 280m$^3$ surface release of MDO over six hours at BTA, tracked for 30 days ..... 443
Figure 7-11 Zone of potential instantaneous entrained hydrocarbon exposure in the event of a 280m$^3$ surface release of MDO over six hours at BTA, tracked for 30 days ..... 443
Figure 7-12 Predicted weathering and fates for the simulation with the largest swept area of floating oil above 10g/m$^2$ ..... 477
Figure 7-13 Predicted weathering and fates for the simulation with the largest volume of oil ashore and the largest area of dissolved hydrocarbons above 50ppb ..... 478
Figure 7-14 Predicted weathering and fates for the simulation with the longest length of shoreline with accumulation above 100g/m$^2$ ..... 478
Figure 7-15 Predicted weathering and fates graph for the simulation with the largest area of entrained hydrocarbons above 100ppb ..... 479
Figure 7-16 Zones of potential floating oil exposure in the event of a 1123m$^3$ subsea release of condensate over one hour following a rupture of the MLA500 pipeline ..... 482
Figure 7-17 Maximum potential shoreline loading in the event of a 1123 m$^3$ subsea release of condensate over one hour following a rupture of the MLA500 pipeline ..... 483

Figure 7-18 Zones of potential dissolved hydrocarbon exposure at 0 - 10m in the event of a 1123m$^3$ subsea release of condensate over one hour following a rupture of the MLA500 pipeline ..... 483

Figure 7-19 Zones of potential entrained hydrocarbon exposure (10 and 100ppb) at 0 - 10m in the event of a 1123m$^3$ subsea release of condensate over one hour following a rupture of the MLA500 pipeline ..... 484

Figure 7-20 Zones of potential entrained hydrocarbon (1000ppb) exposure 0 - 10m in the event of a 1123m$^3$ subsea release of condensate over one hour following a rupture of the MLA500 pipeline ..... 484

Figure 7-21 Predicted weathering and fates for the Scenario 1 simulation with the largest swept area of floating oil above 10g/m$^2$ ..... 512

Figure 7-22 Predicted weathering and fates for the Scenario 2 simulation with the largest swept area of floating oil above 10g/m$^2$ ..... 512

Figure 7-23 Predicted weathering and fates for the Scenario 1 simulation with the largest volume of oil ashore ..... 513

Figure 7-24 Predicted weathering and fates for the Scenario 1 simulation with the longest length of shoreline accumulation above 100g/m$^2$ ..... 513

Figure 7-25 Predicted weathering and fates for the Scenario 2 simulation with the longest length of shoreline accumulation above 100g/m$^2$ ..... 514

Figure 7-26 Predicted weathering and fates for the Scenario 1 simulation with the largest area of entrained hydrocarbons above 100ppb ..... 514

Figure 7-27 Predicted weathering and fates for the Scenario 2 simulation with the largest area of entrained hydrocarbons above 100ppb ..... 515

Figure 7-28 Predicted weathering and fates for the Scenario 1 simulation with the largest area of dissolved hydrocarbons above 50ppb ..... 515

Figure 7-29 Predicted weathering and fates for the Scenario 3 simulation with the largest volume of oil ashore ..... 516

Figure 7-30 Predicted weathering and fates for the Scenario 3 simulation with the longest length of shoreline with accumulation above 100g/m$^2$ ..... 517

Figure 7-31 Predicted weathering and fates for the Scenario 3 simulation with the largest area of entrained hydrocarbons above 100ppb ..... 517

Figure 7-32 Predicted weathering and fates for the Scenario 3 simulation with the largest area of dissolved hydrocarbons above 50ppb ..... 518

Figure 7-33 Predicted weathering and fates for the Scenario 4 simulation with the largest swept area of floating oil above 10g/m$^2$ ..... 519

Figure 7-34 Predicted weathering and fates for the Scenario 5 simulation with the largest swept area of floating oil above 10g/m$^2$ ..... 519

Figure 7-35 Predicted weathering and fates for the Scenario 4 simulation with the largest volume of oil ashore ..... 520

Figure 7-36 Predicted weathering and fates for the Scenario 5 simulation with the largest volume of oil ashore ..... 520

Figure 7-37 Predicted weathering and fates for the Scenario 5 simulation with the longest length of shoreline with accumulation above 100g/m$^2$ ..... 521

Figure 7-38 Predicted weathering and fates for the Scenario 4 simulation with the largest area of entrained hydrocarbons above 100ppb ..... 521

Figure 7-39 Predicted weathering and fates for the Scenario 4 simulation with the largest area of entrained hydrocarbons above 50ppb ..... 522

Figure 7-40 Predicted weathering and fates for the Scenario 5 simulation with the largest area of entrained hydrocarbons above 100ppb ..... 522
Figure 7-41 Zones of potential floating oil exposure in the event of a 35,839m$^3$ surface release of condensate over 98 days at MLA ..... 529
Figure 7-42 Maximum potential shoreline loading in the event of a 35,839m$^3$ surface release of condensate over 98 days at MLA ..... 529
Figure 7-43 Zones of potential dissolved hydrocarbon exposure at 0 - 10m, in the event of a 35,839m$^3$ surface release of condensate over 98 days at MLA ..... 530
Figure 7-44 Zones of potential entrained hydrocarbon exposure at 0 - 10m in the event of a 35,839m$^3$ surface release of condensate over 98 at MLA ..... 530
Figure 7-45 Zones of potential floating oil exposure in the event of a 144,054m$^3$ surface release of condensate over 98 days at MLA ..... 531
Figure 7-46 Maximum potential shoreline loading in the event of a 144,054m$^3$ surface release of condensate over 98 days at MLA ..... 531
Figure 7-47 Zones of potential dissolved hydrocarbon exposure at 0 - 10m, in the event of a 144,054m$^3$ surface release of condensate over 98 days at MLA ..... 532
Figure 7-48 Zones of potential entrained hydrocarbon exposure at 0 - 10 m in the event of a 144,054m$^3$ surface release of condensate over 98 days at MLA ..... 532
Figure 7-49 Zones of potential floating oil exposure in the event of a 1324m$^3$ surface release of crude over 98 days at TNA ..... 533
Figure 7-50 Maximum potential shoreline loading in the event of a 1324m$^3$ surface release of crude over 98 days at TNA ..... 533
Figure 7-51 Zones of potential dissolved hydrocarbon exposure at 0 - 10 m, in the event of a 1324$^3$ surface release of crude over 98 days at TNA ..... 534
Figure 7-52 Zones of potential entrained hydrocarbon exposure at 0 - 10m in the event of a 1324$^3$ surface release of crude over 98 days at TNA ..... 534
Figure 7-53 Zones of potential floating oil exposure in the event of a 41,448m$^3$ surface release of condensate over 98 days at TNA ..... 535
Figure 7-54 Maximum potential shoreline loading in the event of a 41,448m$^3$ surface release of condensate over 98 days at TNA ..... 535
Figure 7-55 Zones of potential dissolved hydrocarbon exposure at 0 - 10 m, in the event of a 41,448m$^3$ surface release of condensate over 98 days at WTN ..... 536
Figure 7-56 Zones of potential entrained hydrocarbon exposure at 0 - 10 m in the event of a 41,448m$^3$ surface release of condensate over 98 days at WTN ..... 536
Figure 7-57 Zones of potential floating oil exposure in the event of a 23,373m$^3$ surface release of condensate over 98 days at WTN ..... 537
Figure 7-58 Maximum potential shoreline loading in the event of a 23,373m$^3$ surface release of condensate over 98 days at SNA ..... 537
Figure 7-59 Zones of potential dissolved hydrocarbon exposure at 0 - 10 m, in the event of a 23,373m$^3$ surface release of condensate over 98 days at SNA ..... 538
Figure 7-60 Zones of potential entrained hydrocarbon exposure at 0 - 10 m in the event of a 23,373m$^3$ surface release of condensate over 98 at SNA ..... 538
Figure 8-1 OIMS Framework ..... 572
Figure 8-2 Organisational chart ..... 585
Figure 8-3 FIMS process model and tools ..... 592

Figure 8-4 Example list of Equipment Degradation Documents (EDD) used to create Equipment Strategies ..... 593
Figure 8-5 Examples of specific technical resources used to create Equipment Strategies relevant to Corrosion and Control Chemical Injection ..... 594
Figure 8-6 Environmental Business Planning integration into the annual business planning process ..... 606
Figure 8-7 The Environmental Planning process cycle ..... 607
Figure 8-8 Line of evidence 1 – Statistical analysis of composition ..... 610
Figure 8-9 Line of evidence 2 – Microtox testing ..... 611
Figure 8-10 Line of evidence 3 – WET testing ..... 612
Figure 8-11 SCB structure ..... 636

## LIST OF TABLES

Table 1-1 Stages of activity ..... 31
Table 1-2 Key Commonwealth legislation ..... 34
Table 1-3 Key Victorian legislation ..... 42
Table 1-4 Key NSW legislation ..... 44
Table 1-5 Key Tasmanian legislation ..... 45
Table 1-6 Commonwealth legislation enacting the MARPOL Convention ..... 50
Table 1-7 EP summary ..... 56
Table 2-1 Facilities (Platforms) ..... 58
Table 2-2 Facilities (Subsea) ..... 61
Table 2-3 Primary Pipelines ..... 62
Table 2-4 Umbilicals ..... 64
Table 2-5 Well status description ..... 65
Table 2-6 Summary well status by facility (as of March 2026) ..... 65
Table 2-7 Detailed well status (as at March 2026) ..... 66
Table 2-8 Major offshore property types ..... 72
Table 2-9 Producing reservoir compositions (percentages) ..... 73
Table 2-10 Hydrocarbon types and properties ..... 74
Table 2-11 General platform topsides layout ..... 76
Table 2-12 Gas compression equipment ..... 78
Table 2-13 Power generation equipment ..... 79
Table 2-14 Average daily fuel gas usage and forecast ($kSm^3/d$) ..... 79
Table 2-15 Average historical composition of the hydrocarbons during production (mol%) ..... 80
Table 2-16 Actual average flare rates and forecast ($kSm^3/d$) ..... 81
Table 2-17 2025 Bass Strait producing platforms gas venting summary ($kSm^3$) ..... 83
Table 2-18 ODSPs and CDSPs ..... 86
Table 2-19 Pile feeds ..... 89

Table 2-20 Hydrocarbon inventories of non-process equipment ..... 93
Table 2-21 Crane specifications ..... 96
Table 2-22 Fire-fighting foam summary ..... 96
Table 2-23 PFW discharge summary ..... 97
Table 2-24 Methods during facility IMR ..... 102
Table 2-25 Inspection methods during pipeline and subsea IMR ..... 107
Table 2-26 Typical subsea maintenance activities ..... 108
Table 2-27 Indicative vessel specifications (*Skandi Feistein*) ..... 111
Table 2-28 Overview of compliance with Section 572 of the OPGGS Act ..... 112
Table 2-29 Indicative Bass Strait decommissioning timeline ..... 116
Table 3-1 Thresholds used to define the EMBA (NOPSEMA, 2019) ..... 120
Table 3-2 Values and sensitivities within the ADE ..... 121
Table 4-1 Definitions ..... 172
Table 4-2 Relevant persons identification methods ..... 185
Table 4-3 Regulation 25(1)(d) Relevant persons identification methods ..... 185
Table 4-4 Relevant person representatives ..... 188
Table 4-5 Information bulletin issue dates ..... 189
Table 4-6 Consultations undertaken with all relevant persons ..... 189
Table 4-7 Community information session flyer locations ..... 190
Table 4-8 Community information session advertisement news outlets ..... 192
Table 4-9 Consultation period community information sessions and attendance ..... 193
Table 4-10 Relevant Commonwealth agencies ..... 194
Table 4-11 Broad-based information sharing mechanisms ..... 199
Table 4-12 Ongoing consultation plan ..... 200
Table 5-1 Definitions ..... 203
Table 5-2 Evaluation of environmental effect dimensions ..... 204
Table 5-3 Evaluation of sensitivity dimensions ..... 205
Table 5-4 Evaluation of community effect dimensions ..... 206
Table 5-5 Evaluation of community sensitivity dimensions ..... 207
Table 5-6 Determination of environmental and public impact consequence ..... 209
Table 5-7 Likelihood Categories ..... 210
Table 5-8 Demonstration of acceptability test ..... 214
Table 6-1 Summary of activity and aspect interactions ..... 218
Table 6-2 Summary impact assessment ..... 219
Table 6-3 Sources of seabed disturbance ..... 219
Table 6-4 Impact assessment for seabed disturbance ..... 222
Table 6-5 Pathways for interference with other marine users ..... 225
Table 6-6 Impact assessment for interaction with other marine users ..... 227

Table 6-7 Sources of underwater sound emissions ..... 230
Table 6-8 Summary of underwater sound sources ..... 231
Table 6-9 Acoustic terminology ..... 232
Table 6-10 SSS, MBES and SBP frequency ranges and source levels ..... 237
Table 6-11 Summary of underwater sound EMBAs for LFC for each activity and sound source ..... 239
Table 6-12 Marine mammal hearing groups ..... 243
Table 6-13 Criteria for effects of non-impulsive noise exposure, including vessel noise, for marine mammals: unweighted SPL and weighted $SEL_{24h}$ thresholds ..... 243
Table 6-14 Criteria for continuous sound exposure for fish ..... 243
Table 6-15 Acoustic effects of continuous noise on turtles, weighted SEL (Finneran, et al., 2017) ..... 244
Table 6-16 Maximum-over-depth distances (in km) to frequency weighted 24-hour sound exposure level ($SEL_{24h}$) based PTS/auditory injury and TTS for marine mammals using NMFS (2024) thresholds ..... 245
Table 6-17 Assessment of CMPBW ..... 247
Table 6-18 Analysis of activities against the *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024) ..... 248
Table 6-19 Impact assessment for underwater sound ..... 255
Table 6-20 Sources of light emissions ..... 263
Table 6-21 Seabird BIAs within the ADE ..... 265
Table 6-22 Assessment of the light management options for seabirds from the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023) ..... 267
Table 6-23 Impact assessment for light emissions ..... 269
Table 6-24 Sources of air emissions ..... 273
Table 6-25 Summary of emissions 2021 - 2025 ..... 276
Table 6-26 Summary of emissions 2021 - 2025 by facility ..... 276
Table 6-27 Air emission from Esso's offshore facilities - Bass Strait (2019 - 2024) ..... 277
Table 6-28 Bass Strait Facilities Direct GHG emissions ..... 278
Table 6-29 GHG emissions from the production platforms from 2020-2024 ..... 280
Table 6-30 Total Esso Scope 1 emissions as reported in NGER ..... 289
Table 6-31 Impact assessment for air emissions ..... 289
Table 6-32 Sources of domestic wastes and drainage ..... 306
Table 6-33 Estimated daily rates per facility ..... 307
Table 6-34 Impact assessment for utility systems, drains and vessel discharges ..... 312
Table 6-35 Sources of operational fluids and solids ..... 317
Table 6-36 Typical chemicals used in production ..... 318
Table 6-37 Pile discharge modelling (Worley Parsons, 2013) ..... 319
Table 6-38 Estimated volumetric and mass release from KPA A4 SCSSV gas weep ..... 323
Table 6-39 Impact assessment for operational fluids and solids discharges ..... 333
Table 6-40 Sources of wellwork discharge ..... 342
Table 6-41 Typical wellwork chemicals and rankings (as of January 2026) ..... 344

Table 6-42 Wellwork discharges summary ..... 346
Table 6-43 Impact assessment for discharges of wellwork solids and fluids ..... 349
Table 6-44 Activities that result in PFW discharge ..... 355
Table 6-45 PFW discharge characteristics ..... 357
Table 6-46 TNA PFW composition 2019 - 2022 ..... 358
Table 6-47 Tuna platform chemical composition data 2019 - 2022 ..... 358
Table 6-48 MLB dispersion model inputs ..... 363
Table 6-49 predicted dilution factors with distance ..... 363
Table 6-50 Compliance with water quality and ecotoxicity data ..... 363
Table 6-51 Comparison of PFW discharge parameters between TNA and MLB ..... 366
Table 6-52 Impact assessment for PFW discharges from MLB ..... 376
Table 7-1 Activities to risk mapping ..... 388
Table 7-2 Summary risk assessment ..... 389
Table 7-3 Potential sources of marine fauna collision ..... 389
Table 7-4 Risk assessment for vessel collision with marine fauna ..... 391
Table 7-5 Potential sources of IMS ..... 395
Table 7-6 Risk assessment for the introduction of IMS ..... 398
Table 7-7 Potential sources of dropped objects ..... 403
Table 7-8 Risk assessment for dropped objects ..... 404
Table 7-9 Potential sources of unplanned releases of hazardous substances ..... 408
Table 7-10 Potential scenarios leading to unplanned releases of hazardous substances and associated maximum credible volumes ..... 409
Table 7-11 Risk assessment for LOC of hazardous substances ..... 412
Table 7-12 Potential sources of unplanned waste releases ..... 417
Table 7-13 Assessment of the objectives and management actions of the Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (CoA, 2018) ..... 420
Table 7-14 Risk assessment for the unplanned release of waste ..... 423
Table 7-15 Potential sources of a LOC of MDO ..... 427
Table 7-16 Selection of worst-case discharge scenario - LOC from a vessel ..... 428
Table 7-17 Vessel collision MDO spill modelling inputs and parameters (RPS, 2019) ..... 429
Table 7-18 Spill concentration thresholds used in the OSTM study ..... 431
Table 7-19 KPA modelling output summary ..... 435
Table 7-20 BTA modelling output summary ..... 438
Table 7-21 Summary of oil contact to individual shoreline receptors ..... 442
Table 7-22 Potential risks of hydrocarbons on receptors ..... 445
Table 7-23 Spill risk on commercial fisheries ..... 463
Table 7-24 Risk assessment for unplanned LOC of MDO ..... 469
Table 7-25 Potential sources of pipeline rupture ..... 473

Table 7-26 Selection of worst-case discharge scenario for a pipeline LOC ..... 474
Table 7-27 LOC from a pipeline modelling inputs and parameters ..... 476
Table 7-28 MLA500 rupture modelling output summary ..... 479
Table 7-29 Summary of hydrocarbon contact to individual shoreline receptors ..... 481
Table 7-30 Risk of surface, shoreline and in-water hydrocarbon exposure from LOC from a pipeline ..... 486
Table 7-31 Pipeline rupture risk to commercial fisheries ..... 494
Table 7-32 Risk assessment for the LOC from a pipeline ..... 498
Table 7-33 Sources of risk for a LOWC ..... 505
Table 7-34 Selection of worst-case discharge scenario – LOWC ..... 506
Table 7-35 Properties of modelled hydrocarbons ..... 510
Table 7-36 Key modelled scenarios ..... 510
Table 7-37 Summary of key modelling results ..... 524
Table 7-38 Risk of surface, shoreline and in-water hydrocarbon exposure from LOWC ..... 540
Table 7-39 LOWC risk on commercial fisheries ..... 551
Table 7-40 Risk assessment for unplanned release - LOWC ..... 558
Table 7-41 Response time breakdown (Wet tow scenario) ..... 567
Table 7-42 Response Time Breakdown (HLV Scenario) ..... 567
Table 8-1 Description of the 11 elements within the OIMS Framework ..... 572
Table 8-2 Description of Upstream OIMS Systems applicable to this EP ..... 575
Table 8-3 Key roles and responsibilities ..... 578
Table 8-4 Overview of offshore personnel EP induction and training ..... 589
Table 8-5 FIMS program details relevant to the EP ..... 596
Table 8-6 Audits and inspections ..... 615
Table 8-7 Summary of monitoring of emissions and discharges ..... 618
Table 8-8 Routine EP reporting requirements ..... 620
Table 8-9 External incident notification and reporting requirements ..... 624
Table 8-10 Testing of oil spill response arrangements ..... 630
Table 8-11 Oil spill response competency and training ..... 632
Table 8-12 Oil spill response training ..... 634
Table 8-13 Summary of responsibilities: SCB Director/Command staff ..... 636
Table 8-14 Summary of responsibilities: On-scene Command/Staging Area ..... 637
Table J-1 EPO, Controls, EPS Summary ..... 943

## LIST OF ATTACHMENTS

ATTACHMENT 1: Sensitive Information Part

ATTACHMENT 2: *Oil Pollution Emergency Plan* (AUGO-EV-ELI-001)

ATTACHMENT 3: *Bass Strait Operational and Scientific Monitoring Program* (AUGO-EV-EPL-001)

## ABBREVIATIONS

| Abbreviation | Definition |
|---|---|
| ADE | Area of Described Environment |
| AEMO | Australian Energy Market Operator |
| AEP | Australian Energy Producers |
| AFMA | Australian Fisheries Management Authority |
| AIATSIS | Australian Institute of Aboriginal and Torres Strait Islander Studies |
| AIMS | Australian Institute of Marine Science |
| ALARP | As Low As Reasonably Practicable |
| AMOSC | Australian Marine Oil Spill Centre |
| AMP | Australian Marine Park |
| AMSA | Australian Maritime Safety Authority |
| ANZECC | Australian and New Zealand Environment and Conservation Council |
| API | American Petroleum Institute |
| ATBA | Area To Be Avoided |
| BIA | Biologically Important Area |
| BMB | Bream (Platform) |
| BTA | Barracouta (Platform) |
| BTEX | Benzene, Toluene, Ethylbenzene, Xylenes |
| BTW | West Barracouta (Subsea Facility) |
| CASA | Civil Aviation Safety Authority |
| CBA | Cobia (Platform) |
| CCTV | Closed Circuit Television |
| CDSP | Closed Drain Skimmer Pile |
| CEFAS | Centre for Environment, Fisheries and Aquaculture Science |
| CGS | Concrete Gravity Structure |
| $CH_4$ | Methane |
| CHARM | Chemical Hazard and Risk Management |

| Abbreviation | Definition |
|---|---|
| CIMS | Controls Integrity Management System |
| CIPM | Corrosion Integrity Program Manual |
| CIPM | *Corrosion Integrity Program Manual* (AUGO-PO-CIP-001) |
| CMMS | Computerised Maintenance Management System |
| CMPBW | *Conservation Management Plan for the Blue Whale 2015 – 2025* (Department of the Environment, 2015) |
| $CO_2$ | Carbon Dioxide |
| $CO_{2\text{-}e}$ | Carbon Dioxide Equivalent |
| COLREG | Convention on the International Regulations for Preventing Collisions at Sea 1972 |
| COMI | Crane Operations, Maintenance and Inspection Manual |
| CoP | Cessation of Production |
| Cth | Commonwealth |
| CTS | Commonwealth Trawl Sector |
| DAFF | Department of Agriculture, Fisheries and Forestry |
| DAWR | Department of Agriculture and Water Resources |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water |
| DEECA | Department of Energy, Environment and Climate Action |
| DN | Diameter |
| DNV | Det Norske Veritas |
| DoE | Department of Environment |
| DoEE | Department of Environment and Energy |
| DP | Dynamic Positioning |
| DTP | Department of Transport and Planning |
| EAPL | Esso Australia Pty Ltd |
| EDD | Equipment Degradation Document |
| EIA | Environmental Impact Assessment |
| EIG | Equipment Integrity Guideline |

| Abbreviation | Definition |
|---|---|
| EMBA | Environment That May Be Affected |
| eNGO | Environmental Non-Government Organisation |
| Environment Regulations | Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) |
| EP | Environment Plan |
| EPA | Environment Protection Authority |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Cth) |
| EPBC Regulations | Environment Protection and Biodiversity Conservation Regulations 2025 (Cth) |
| EPMOC | The Environment Plan Management of Change |
| EPO | Environmental Performance Outcome |
| EPS | Environmental Performance Standard |
| ERM | Emergency Response Manual |
| ESD | Ecologically Sustainable Development |
| ESG | Emergency Support Group |
| FCA | Federal Court of Australia |
| FCAFC | Full Court of the Federal Court of Australia |
| FIMS | Facility Integrity Management System |
| FLA | Flounder (Platform) |
| FTA | Fortesque (Platform) |
| GBJV | Gippsland Basin Joint Venture |
| GHG | Greenhouse Gas |
| GLaWAC | Gunaikurnai Land and Waters Aboriginal Corporation |
| GoM | Gulf of Mexico |
| HCP-MAP | *Hydrocarbon Control Practices Measurement and Analysis for Production Manual* |
| HLA | Halibut (Platform) |
| HLV | Heavy Lift Vessel |
| HME | Harmful to the Marine Environment |

| Abbreviation | Definition |
|---|---|
| HSE | Health, Safety and Environment |
| HVAC | Heating, Ventilation and Air Conditioning |
| IBC | Intermediate Bulk Container |
| IBM MRO | IBM Maintenance Optimisation - IBM MAXIMO Suite |
| ICS | Incident Command System |
| IMO | International Maritime Organisation |
| IMR | Inspection, Maintenance and Repair |
| IMS | Invasive Marine Species |
| IMT | Incident Management Team |
| IOGP | International Association of Oil & Gas Producers |
| IPA | Indigenous Protected Area |
| IPIECA | International Petroleum Industry Environmental Conservation Association |
| ITOPF | International Tankers Owners Pollution Federation |
| IUCN | International Union for Conservation of Nature |
| JASCO | JASCO Applied Sciences (Australia) Pty Ltd |
| KEF | Key Ecological Feature |
| KFB | Kingfish B (Platform) |
| KPA | Kipper (Subsea Facility) |
| KPI | Key Performance Indicator |
| LEFL | Lakes Entrance Fishermen Limited |
| LFC | Low Frequency Cetaceans |
| LFD | Longford |
| LOC | Loss of Containment |
| LOWC | Loss Of Well Control |
| MARPOL | International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol 1978 |
| MBES | Multi Beam Sonar |

| Abbreviation | Definition |
|---|---|
| MDO | Marine Diesel Oil |
| MEG | Monoethylene Glycol |
| MKA | Mackerel (Platform) |
| MLA | Marlin A (Platform) |
| MLB | Marlin B (Platform) |
| MMO | Marine Mammal Observer |
| MNES | Matters of National Environmental Significance |
| MOC | Management of Change |
| MODU | Mobile Offshore Drilling Unit |
| MSL | Monopole Source Level |
| MUDMAP | Far Field Dispersion Modelling |
| N/A | Not Applicable |
| NGER | National Greenhouse and Energy Reporting |
| NIW | Nationally Important Wetlands |
| NOAA | National Oceanic and Atmospheric Administration |
| Non-Producing EP | *Bass Strait Non-Producing Environment Plan* (AUGO-EV-EMM-021) |
| NOPSEMA | National Offshore Petroleum Safety and Environmental Management Authority |
| NORM | Naturally Occurring Radioactive Material |
| NPI | National Pollutant Inventory |
| NSW | New South Wales |
| OA | Operational Area |
| OCNS | Offshore Chemical Notification Scheme |
| ODSP | Open Drain Skimmer Pile |
| OGMP | Oil & Gas Methane Partnership |
| OGUK | Oil and Gas United Kingdom |
| OI | Operations Integrity |
| OIMS | Operations Integrity Management System |

| Abbreviation | Definition |
|---|---|
| OIW | Oil In Water |
| OMT | Operations, Maintenance and technical forum |
| OPEP | *Oil Pollution Emergency Plan* (AUGO-EV-ELI-001) |
| OPGGS Act | *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) |
| OSMP | *Bass Strait Operational and Scientific Monitoring Program* (AUGO-EV-EPL-001) |
| OSPAR Convention | Convention for the Protection of the Marine Environment of the North-East Atlantic |
| OSRL | Oil Spill Response Limited |
| OSTM | Ocean Surface Topography Mission |
| OSV | Offshore Support Vessel |
| OVIQ | Offshore Vessel Inspection Questionnaire |
| P&A | Plug and Abandonment |
| PAH | Polycyclic Aromatic Hydrocarbons |
| PBW | Pygmy Blue Whale *(Balaenoptera musculus brevicauda)* |
| PFOS | Perfluorooctanesulfonic Acid |
| PFW | Produced Formation Water |
| PIPM | Pipeline Integrity Program Manual |
| PIPM | *Pipeline Integrity Program Manual* (AUGO-PO-PIP-001) |
| PM | Particulate Matter |
| PSZ | Petroleum Safety Zone |
| PTS | Permanent Threshold Shift |
| Ramsar | Convention on Wetlands of International Importance especially as Waterfowl Habitat |
| RO | Reverse Osmosis |
| ROV | Remotely Operated Vehicle |
| RWP | Relief Well Plan |
| Safety Regulations | Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2024 (Cth) |
| SBP | Sub-Bottom Profiling |

| Abbreviation | Definition |
|---|---|
| SCB | Source Control Branch |
| SEL | Sound Exposure Level |
| SETFIA | South East Trawl Fishing Industry Association |
| SIMOPS | Simultaneous Operations |
| SIV | Seafood Industry Victoria |
| SMPEP | Shipboard Marine Pollution Emergency Plan |
| SMR | Subsea Material Register |
| SNA | Snapper (Platform) |
| $SO_2$ | Sulphur Dioxide |
| SOLAS | International Convention for the Safety Of Life At Sea |
| SPL | Sound Pressure Level |
| SRA | Structured Risk Assessment |
| SRW | Southern Right Whale *(Eubalaena australis)* |
| SSHE | Safety, Security, Health, Environment |
| SSS | Side Scan Sonar |
| SSSV | Subsurface Safety Valves |
| STP | Sewage Treatment Plant |
| SWP | Safe Work Practice |
| TEC | Threatened Ecological Community |
| TNA | Tuna (Platform) |
| TOC | Total Organic Carbon |
| TRA | Turrum |
| TRH | Total Recoverable Hydrocarbons |
| TRM | Technical Resource Manual |
| TTS | Temporary Threshold Shift |
| UCH | Underwater Cultural Heritage |
| UM3 | Integrated Near-Field Modelling |

| Abbreviation | Definition |
|---|---|
| UXO | Unexploded Ordnance |
| VFA | Victorian Fisheries Association |
| VHFC | Very High Frequency Cetaceans |
| VI | Chromium (VI) Compounds |
| Vic | Victoria |
| VOC | Volatile Organic Compound |
| WET | Whole Effluent Toxicity |
| WIMS | Well Integrity Management System |
| WKF | West Kingfish Platform |
| WMM | *Waste Management Manual* (AUGO-EV-EDS-002) |
| WMS | Work Management System |
| WOMP | Well Operations Management Plan |
| WTN | West Tuna Platform |

## UNITS

| Abbreviation | Unit |
|---|---|
| °C | Celsius Degrees |
| ″ | Inch |
| µg | Microgram |
| µPa | Micropascal |
| API | API gravity – The method used for measuring the density of petroleum as defined in American Petroleum Institute standards |
| B | Billion |
| bbl | Standard Barrel |
| cP | Centipose |
| dB | Decibel |
| g | Gram |
| ha | Hectare |

| Abbreviation | Unit |
|---|---|
| Hz | Hertz |
| kg | Kilogram |
| kHz | KiloHertz |
| kJ | Kilojoule |
| km | Kilometre |
| $km^2$ | Square Kilometre |
| $km^3$ | Thousand Metres Cubed |
| kn | Knots |
| ksi | Kilopound Per Square Inch |
| $KSm^3/day$ | Thousand Standard Cubic Meters Per Day |
| kW | Kilowatt |
| L | Litre |
| m | Metre |
| $m^2$ | Square Metre |
| $m^3$ | Cubic Metre |
| Mb/d | Thousand Barrels Per Day |
| Mbbl | Thousand Barrels |
| MMbbl | Million Barrels |
| MMscf/d | Million Standard Cubic Feet Per Day |
| Mol% | Mole Percent |
| Mscf/d | Thousand Standard Cubic Feet Per Day |
| MSL | Mean Sea Level |
| MSTB | Thousand Stock Tank Barrels |
| MT | Metric Tonnes |
| nm | Nautical Mile |
| PJ | Petajoule |
| PK | Zero to Peak Sound Pressure |

| Abbreviation | Unit |
|---|---|
| PK-PK | Peak-to-Peak |
| ppg | Pounds Per Gallon |
| ppm | Parts Per Million |
| psu | Practical Salinity Unit |
| RMS | Root Mean Squared |
| Tcf | Trillion Cubic Feet |

# 1 Introduction

Esso Australia Resources Pty Ltd (Esso) is the operator of joint ventures for the exploration, development and production of gas and condensate from Bass Strait, Victoria. The full offshore Bass Strait network comprises 425 wells, 19 offshore platforms and six subsea facilities that are inter-connected by over 800km of pipelines.

Esso has produced oil and gas in Bass Strait since 1969 and in this time has supplied over 50% of Australia's crude oil and liquids and over 40% of all of southeast Australia's natural gas, in the process contributing significantly to the national economy and supporting growth in industry and employment. Although the Bass Strait production network has been producing energy for more than 50 years, it remains today the largest single source of gas supply to the Australian southeast coast domestic market and has the potential to continue supplying one-third of southeast Australia's domestic gas demand through to the end of this decade.

This document is the five-yearly revision to the existing *Bass Strait Operations Environment Plan* (AUGO-EV-EMM-001) and describes and assesses the environmental impacts and risks associated with the ongoing producing facilities, including production platforms, subsea assets and pipelines (Figure 1-1). All non-production infrastructure activities are detailed in the *Bass Strait Non-Producing Environment Plan* (AUGO-EV-EMM-021) (Non-Producing EP).

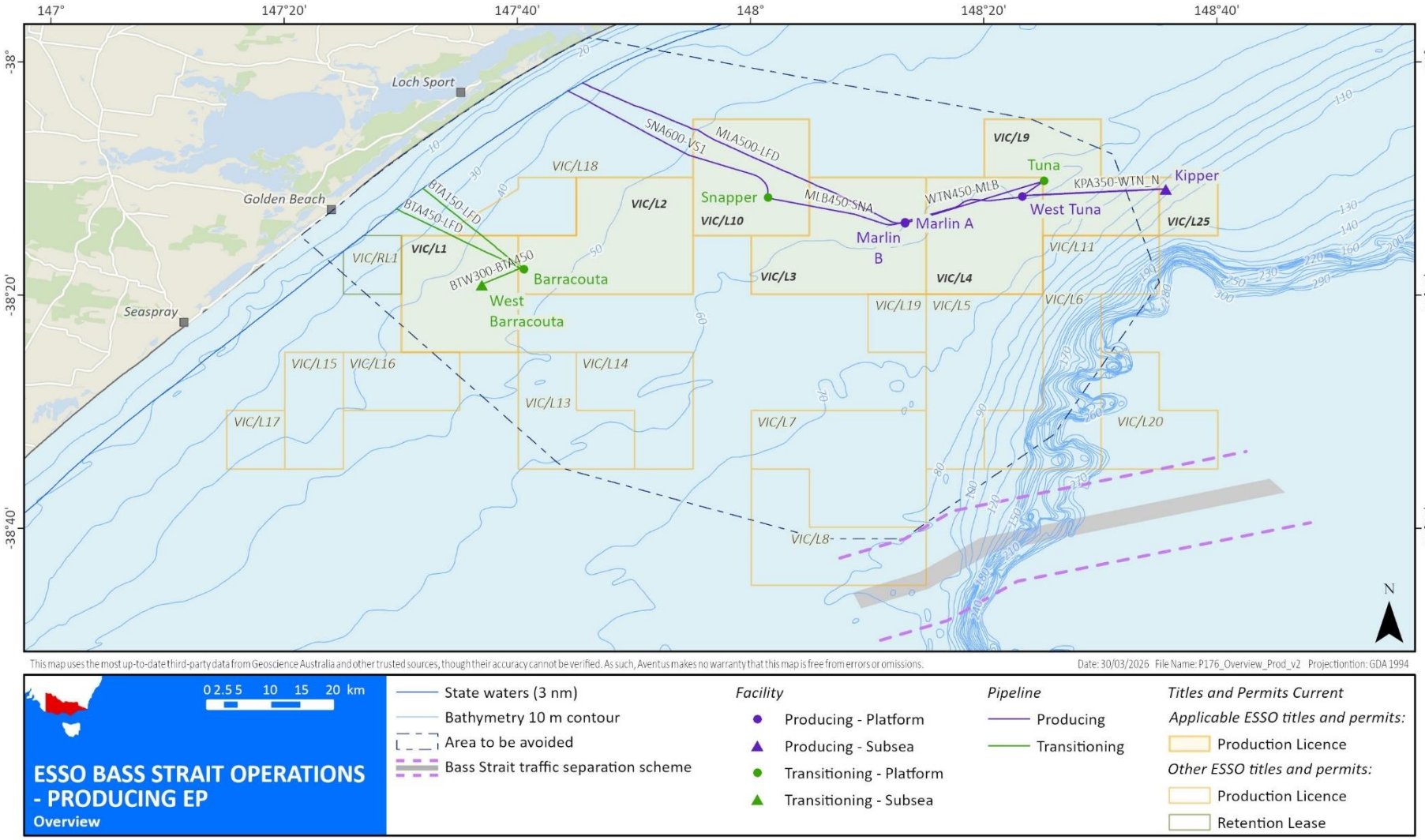



**Figure 1-1 Overview of producing facilities**

## 1.1 Scope

Esso has developed this EP to manage the environmental impacts and risks associated with the operation and maintenance of the six producing offshore platforms and two producing subsea facilities and associated pipelines. The facilities are:

- Platforms:
    - Barracouta (BTA)
    - Marlin A (MLA)
    - Marlin B (MLB)
    - Snapper (SNA)
    - Tuna (TNA)
    - West Tuna (WTN).
- Subsea facilities:
    - Kipper (KPA)
    - West Barracouta (BTW).

See Table 2-3 for the list of producing pipelines. See Section 2.3 for a more detailed description of the current property inventory covered by this EP.

Activities included in the scope of this EP include:

Production of condensate and gas (via wells managed from platform and standalone subsea facilities) which is transported to shore via pipelines through the following activities:

- platform operations as outlined in Section 2.5
- pipeline operations as described in Section 2.7
- subsea facilities operations as described in Section 2.6
- wellwork activities, including platform-based plug and abandonment (P&A) of wells as described in Section 2.8
- inspection, maintenance and repair (IMR) activities as described in Section 2.9
- support activities (helicopters, vessels and remotely operated vehicles (ROVs)) as described in Section 2.10
- ongoing environmental monitoring as described in Section 2.14.

Activities excluded from the scope of this EP include:

- activities in State waters (operation of export pipelines). These are managed under the *Bass Strait State Waters Environment Plan* (AUGO-PO-EMP-061) under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (Vic) and associated regulations
- geophysical and geotechnical activities, which are addressed in the *Bass Strait Geophysical and Geotechnical Environment Plan* (AUGO-EV-EMM-015)
- management of onshore activities
- vessels transiting to and from the Operational Area (OA). These vessels are deemed to be operating under the *Navigation Act 2012* (Cth) and are not performing a petroleum activity
- non-producing activities, including facilities preparation for decommissioning, are in the *Bass Strait Non-Producing EP* (AUGO-EV-EMM-021)
- decommissioning activities (such as the physical removal of assets), which are covered in other project EPs
- activities using mobile offshore drilling units (MODUs), which are covered by project specific EPs
- other production activities, including infill developments to extract the remaining, undeveloped commercially viable gas within the production licences. These, if they are to occur, would be addressed in future revisions to this EP or as separate EPs.

### *1.1.1 Stages of activity*

A titleholder may choose what is involved in a particular stage of a petroleum activity and provide adequately for those activities in an EP. As defined in the National Offshore Petroleum Safety and

Environmental Management Authority (NOPSEMA) Guideline *When to submit a proposed revision of an EP* (NOPSEMA, 2024a), a new stage of an activity is defined as:

- change to the timing of the activity as described in the accepted EP
- a change to the spatial limits of the activity detailed in the accepted EP
- cessation of production
- commencement of decommissioning and removal of equipment.

Accordingly, Esso defines the stages of petroleum activity for pipelines and facilities as outlined in Figure 1-2 and Table 1-1, with this EP covering only the production stage.

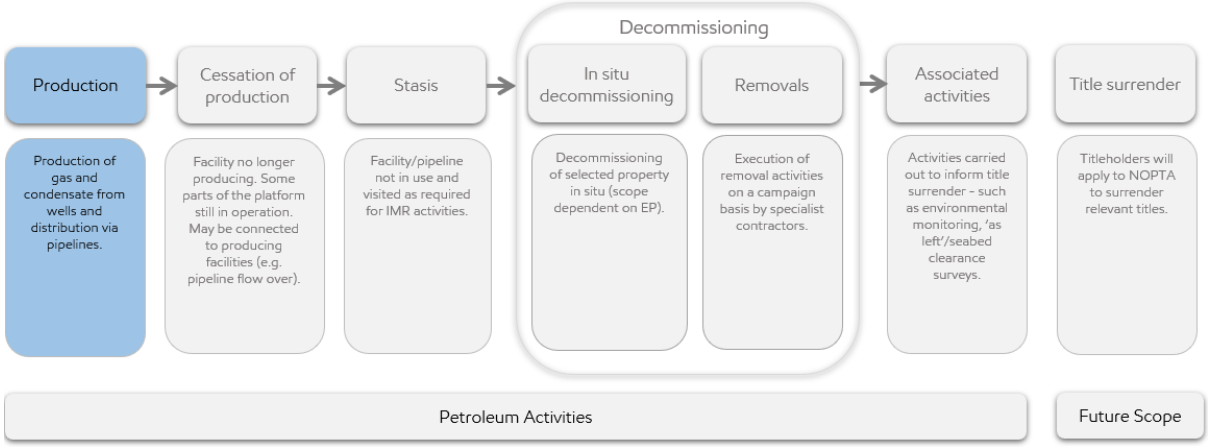



**Figure 1-2 Lifecycle of a facility**

Stages of activity within the scope of this EP include:

- Production.

Although decommissioning activities are not covered by this EP, an overview of the planning underway for the decommissioning of Bass Strait facilities, equipment and pipelines within the scope of this EP is provided in Section 2.15. The indicative decommissioning plans and schedules provided in these sections are subject to change as they are based on provisional end of field life forecasts, technical and environment study outcomes and key contracting exercises.

### *1.1.2 Transitioning facilities*

Throughout the five-year life of this EP, three of six platforms (BTA, TNA and SNA), the BTW subsea facility and three of 10 pipelines (BTA450-Shore, BTA450-Shore, BTA150-Shore) are expected to transition to a Cessation of Production (CoP) status. Once this occurs, these assets will no longer fall within the scope of this EP and will instead be managed under the Bass Strait Non-Producing EP.

As each facility and pipeline as per Section 2.3 transitions, an Environment Plan Management of Change (EPMOC) process will be undertaken to ensure that both this EP and the Bass Strait Non-Producing EP are updated to reflect the current status and ensure the scope of the infrastructure in the EP is up-to-date, as well as ensure that there are no new or significant changes to the impacts and risks or associated controls outlined in either EP. NOPSEMA will be notified of these transitioning assets via the NOPSEMA start/end of activity notification form.

**Table 1-1 Stages of activity**

| Item | Definition | | Within scope of EP | Relevant activities |
|---|---|---|---|---|
| | **Facilities (including platforms and subsea)** | **Pipelines** | | |
| Production | **This stage is a part of this EP.**<br>Facility is producing gas and condensate that is distributed via pipelines. In some instances, production may temporarily be ceased while future development plans are being evaluated. A facility will move to the CoP stage when production has ceased and there is no intention of returning to production in the future. | **This stage is a part of this EP.**<br>Pipeline used to transport gas/condensate to shore (possibly via another platform) or is used to supply other facilities with required resources (e.g. fuel gas).<br>For clarity, the production stage includes pipelines (primary, secondary, and associated umbilicals) that are used to transport gas/condensate to shore from an upstream facility which is still in production stage. Transport of gas/condensate in a pipeline during the production stage may 'flow over' or supply resources to a platform which is in CoP stage. A pipeline may remain in service while the associated platform has ceased production to allow flow over of product from other platforms. | Yes | • Operations (Section 2.5)<br>• Wellwork (Section2.8)<br>• IMR (Section 2.9)<br>• Support operations (Section 2.10) |
| CoP | **This stage is not part of this EP.**<br>Key change from prior stage:<br>The CoP stage commences when a facility is no longer producing gas and condensate (wells are shut-in). There are a number of activities within the CoP stage:<br>Care and Preservation prior to well P&A:<br>• wells are shut–in except in certain circumstances such as for supply of fuel gas for power generation<br>• systems are being maintained and/or preserved where they are required for future P&A and decommissioning activities and/or to facilitate upstream asset ongoing production<br>• wells continue to be monitored as per the well integrity maintenance system (WIMS) and risk assessments undertaken as required prior to P&A. Wells may be plugged and secured using a wireline rig to preserve wellbore integrity for the period prior to P&A.<br>Once platforms are de-staffed, periodic platform visits are conducted as required to complete operations and maintenance tasks (e.g. WIMS testing, well operations, restart equipment that has shut down, top up lubricating oils, launch/receive pigs, re-establish communications) to facilitate upstream platform operations and/or maintain equipment for future decommissioning preparation activities. Platform visits may be conducted as day trips, or by temporarily re-staffing the facility for several weeks.<br>Well P&A and well conductor pull:<br>• wells will be P&A'd during the CoP stage. Timing of P&A is dependent on the risk profile of the well<br>• well conductors will be removed either post P&A or as part of the decommissioning stage<br>• some systems on the platform are still in operation with temporary or permanent connections (e.g. power, air, safety systems, fuel systems, pig launcher/receivers, cathodic protection, etc.)<br>Care and Preservation post-well P&A (as applicable):<br>• platforms are normally de-staffed, with platform visits conducted as required to complete operations and maintenance tasks (e.g. restart equipment that has shut down, top up lubricating oils, launch/receive pigs, re-establish communications) to facilitate upstream platform operations and/or maintain equipment for future decommissioning preparation activities. Platform visits may be conducted as day trips, or by temporarily re-staffing the facility for several weeks.<br>Preparation for decommissioning:<br>• activities are being undertaken to prepare the platform for decommissioning in parallel with IMR to preserve the facility for the Stasis Mode stage | **This stage is not part of this EP.**<br>In the CoP stage, pipelines are no longer used to transport gas or condensate to shore or to supply other facilities with resources.<br>Some pipelines, while in CoP stage, may still be used to support activities in the lead up to decommissioning (e.g. for wellwork and/or platform flushing and draining and ultimately for pipeline flushing).<br>Normal maintenance and inspection operations, excluding regular pigging activities, will continue for pipelines that remain in service while they are in CoP stage.<br>During the CoP stage:<br>• risk-based inspection and/or maintenance activities will be undertaken to prepare pipelines for decommissioning<br>• pipelines will be filled with inhibited water (i.e. treated with chemicals) suitable for the period until decommissioning<br>• sections of risers and pipelines, including below first valve on and last valves off and/or underwater, may be removed in preparation for platform or pipeline decommissioning. | No | N/A |

| Item | Definition | | Within scope of EP | Relevant activities |
|---|---|---|---|---|
| | **Facilities (including platforms and subsea)** | **Pipelines** | | |
| | • facilities will be progressively isolated from fuel gas and flow-over/export pipeline connections.<br>The overall duration of CoP is dependent on current and potential future use requirements of the facility. Due to the high level of interconnectedness of the Bass Strait facilities, some platforms are used to allow pipeline 'flow over' to or from producing facilities. Some platform systems will also be used to facilitate the preparation of other facilities for decommissioning such as the flushing of pipelines and umbilicals, and removal of topsides hydrocarbons. | | | |
| Stasis (minimal visits) | **This stage is not part of this EP.**<br>Key change from prior stage<br>Activities to prepare facility for a period of minimal activity and decommissioning are complete.<br>• Facilities are isolated from fuel gas and flow-over/export pipeline connections.<br>• Facilities are considered to be 'not in use, nor to be used' in connection with the operations (as per Section 572 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act) when Stasis Mode is reached.<br>• Facility is ready for decommissioning.<br>The duration for which a platform will remain in Stasis is dependent the timing of decommissioning campaigns.<br>Platform visits may be undertaken to complete IMR activities to maintain facilities prior to future decommissioning.<br>Site surveys may also be conducted using a drone or from an OSV with a walk to work capability. The site survey may be used to assist in developing the required make safe activities (prior to removing a facility).<br>An approved Stasis Safety Case is in place. | **This stage is not part of this EP.**<br>Pipeline is ready for decommissioning.<br>Pipelines are considered to be 'not in use, nor to be used' in connection with the operations (as per Section 572(3) of the OPGGS Act) when Stasis is reached.<br>Pipeline is filled with seawater or inhibited water suitable for the period until decommissioning. | No | N/A |
| Decommissioning | **This stage is not part of this EP.**<br>Dependent on technical, environmental and execution studies, regulatory approvals and feedback from stakeholders, decommissioning may include:<br>• complete removal<br>• partial removal<br>• decommissioning in-situ or at another designated location.<br>Decommissioning activities will be undertaken on a campaign basis by specialised third-party contractors with the appropriate vessels, equipment and expertise to undertake this work.<br>The EP for Campaign #1 Execution is available on the NOPSEMA website here, with further decommissioning EPs to be developed. | **This stage is not part of this EP.**<br>Dependent on technical, environmental and execution studies, regulatory approvals and feedback from stakeholders, decommissioning may include:<br>• complete removal<br>• partial removal<br>• in situ decommissioning.<br>Subsea asset decommissioning activities will be undertaken on a campaign basis by specialised third-party contractors with the appropriate vessels, equipment and expertise to undertake this work.<br>The EP for Campaign #1 Execution is available on the NOPSEMA website here, with further decommissioning EPs to be developed. | No | Not applicable to this EP.<br>Decommissioning activities will be addressed in separate permissioning documents. |
| Associated activities | **This stage is part of this EP.**<br>Non-petroleum activities such as surveys and environmental monitoring may be undertaken following decommissioning activities to help inform title surrender. | **This stage is part of this EP.**<br>Non-petroleum activities such as surveys and environmental monitoring may be undertaken following decommissioning activities to help inform title surrender. | Yes | Section 2.14 |

## 1.2 Titleholder details

Esso, a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is the operator for the Gippsland Basin Joint Venture (GBJV) (Esso and Woodside Energy (Bass Strait) Pty Ltd). Esso receives services, including personnel, from Esso Australia Pty Ltd (EAPL), also referred to herein as "Company", which is also a wholly owned subsidiary of ExxonMobil Australia Pty Ltd.

Petroleum Production Licences applicable to this EP are:

- VIC L/1, VIC L/2, VIC L/3, VIC L/4, VIC L/9, VIC L/10, and VIC/L25.

Pipeline licenses applicable to this EP are:

- VIC PL/1, VIC PL/2, VIC PL/4, VIC PL/9, VIC PL/13, VIC PL/27, VIC PL/39, VIC PL/40, and VIC PL/41.

The nominated registered office for the proponent is as follows:

| |
|---|
| Esso Australia Resources Pty Ltd (ACN 091 829 819) |
| Level 9, 664 Collins Street, Docklands VIC 3008 |

The environmental contact for this activity is:

| |
|---|
| Stuart Fisher, Offshore Risk, Environment and Regulatory Supervisor |
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NOPSEMA will be notified of a change in titleholder, a change in the environmental contact or a change in the contact details for either the titleholder or the environmental contact in accordance with Regulation 23(3) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth), referred to herein as the Environment Regulations.

## 1.3 Legislative framework

The principal offshore legislation for hydrocarbon production activities in Commonwealth waters (i.e. beyond 3nm from the shoreline to the outer extent of the Australian Exclusive Economic Zone at 200nm) is the OPGGS Act. The OPGGS Act is administered by NOPSEMA.

### *1.3.1 Relevant legislation*

In accordance with Regulation 21(4), relevant Commonwealth legislation as it applies to the operation of facilities and petroleum pipelines and projects is provided in Table 1-2.

No part of the activity is located within Victorian, New South Wales (NSW), or Tasmanian State waters (between the low water mark and the 3nm limit) and as such, no environmental approvals for the activity are required from these State governments. State legislation is only relevant to this activity in the unlikely case of a large hydrocarbon release, as the Environment That May Be Affected (EMBA) intersects State waters. Therefore, legislation relevant to marine pollution in Victoria is detailed in Table 1-3, legislation relevant to marine pollution in NSW is detailed in Table 1-4 and legislation relevant to marine pollution in Tasmania is detailed in Table 1-5.

**Table 1-2 Key Commonwealth legislation**

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) | This Act provides for the preservation and protection from injury or desecration areas and objects that are of significance to Aboriginal people, under which the Minister may make a declaration to protect such areas and objects. Under the Act, discovery of Aboriginal remains must be reported to the Environment Minister. | No known sites of Aboriginal heritage significance occur within the OAs. May be relevant in the event of a hydrocarbon spill requiring shoreline access for clean-up purposes. | N/A | Department of Climate Change, Energy, the Environment and Water (DCCEEW) |
| *Australian Maritime Safety Authority Act 1990* (Cth) | Facilitates international cooperation and mutual assistance in preparing and responding to a major oil spill incident and encourages countries to develop and maintain an adequate capability to deal with oil pollution emergencies. Requirements are given effect through the Australian Maritime Safety Authority (AMSA). | Oil spill preparedness and response plans for dealing with a potential worst case scenario spill is described in Section 8.18.2 including consultation and coordination of activities with AMSA. | International Convention on Oil Pollution Preparedness, Response and Co-operation) 1990. | AMSA |
| *Biosecurity Act 2015* (Cth)<br>and associated regulations including the Biosecurity Amendment (Biofouling Management) Regulations 2021 (Cth) | The Act is about managing diseases and pests that may cause harm to human, animal or plant health or the environment. It empowers authorities to monitor, authorise, respond to and control biosecurity risks for the movement of goods, vessels and people to prevent the introduction, establishment or spread of diseases or pests affecting human beings, animals, or plants.<br>The Biosecurity Amendment (Biofouling Management) Regulations 2021 (Cth) entered into force on 15 June 2022 and require that vessel operators provide information on biofouling management practices prior to arriving in Australia. | The risk of introduction of IMS is considered and managed for all vessels covered under this activity as described in this EP. | International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004.<br>Convention on Biological Diversity 1992.<br>United Nations Convention on the Law of the Sea 1982. | Department of Agriculture, Fisheries and Forestry (DAFF) |
| *Civil Aviation Act 1988* (Cth) | The Act sets up the Civil Aviation Safety Authority (CASA) with functions to regulate the safety of civil aviation, including the carrying of dangerous goods, airworthiness standards for | Rotary wing aircraft servicing the Gippsland facilities operate under the requirements of the CASA. This | Chicago Convention 1944. | CASA |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| and associated regulations including Civil Aviation Safety Regulations 1998 (Cth) | aviation, maintenance; general operational and flight rules; and aerial application operations. | contributes to safe operation and transport of goods, thereby reducing risk of incidents which could have environmental impacts as described in this EP. | | |
| *Climate Change Act 2022 (Cth)* | The Climate Change Act establishes and advances a progressive response to climate change by implementing emission reduction targets by 43% in 2030 below 2005 levels and net zero by 2050. | A description of emissions related to this activity and the associated impact assessment is presented in Section 6.5. | The Paris Agreement 2016 | DCCEEW |
| *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)<br><br>and<br><br>Environment Protection and Biodiversity Conservation Regulations 2025 (Cth) (EPBC Regulations) | This Act focuses on Matters of National Environmental Significance (MNES), streamlines the Commonwealth environmental assessment and approval process and provides an integrated system for biodiversity conservation and management of protected areas. There are nine MNES, these being:<br>• World Heritage properties<br>• National Heritage Places<br>• Wetlands of international importance (listed under the Ramsar Convention)<br>• Listed threatened species and ecological communities<br>• Listed migratory species (protected under international agreements)<br>• Commonwealth marine areas<br>• Great Barrier Reef Marine Park<br>• Nuclear actions (including uranium mines)<br>• Water resources (that relate to unconventional gas development and large coal mining development).<br><br>On 28 February 2014, NOPSEMA became the sole designated assessor of petroleum and greenhouse gas (GHG) activities in | Relevant MNES are covered in Appendix A.<br><br>The EPBC Act Protected Matters Search Tool is utilised to identify MNES and other relevant data.<br><br>Approved conservation advice and management plans relating to listed species or threatened ecological communities have been identified and considered where appropriate. | Republic of Korea-Australia Migratory Bird Agreement 2006.<br><br>1992 Convention on Biological Diversity.<br><br>Agenda 21 - Published by the United Nations in 1992.<br><br>China/Australia Migratory Bird Agreement 1986.<br><br>Convention on the Conservation of Migratory Species of Wild Animals 1979 (Bonn Convention). | DCCEEW<br><br>For petroleum activities in Commonwealth waters, NOPSEMA |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| | Commonwealth waters in accordance with the Minister for the Environment's endorsement of NOPSEMA' s environmental authorisation process under Section 146 of the EPBC Act.<br><br>Reforms to the EPBC Act based on the EPBC Act Reforms Bill 2025, includes amongst other things, provisions for NOPSEMA to undertake assessments under an authorisation framework. Actions approved under that framework are to be not inconsistent with any applicable National Environmental Standard (including MNES) as prescribed by regulations.<br><br>At the time of writing, draft publications include National Environmental Standards (MNES) 2025 and the National Environmental Standards (Offsets) 2025. | | Japan/Australia Migratory Bird Agreement 1974.<br><br>Convention on International Trade in Endangered Species of Wildlife and Flora 1973.<br><br>Convention Concerning the Protection of the World Cultural and Natural Heritage 1972.<br><br>International Convention on Whaling 1946. | |
| *Environment Protection (Sea Dumping) Act 1981* (Cth) | Prevents the deliberate disposal of wastes (loading, dumping, and incineration) at sea from vessels, aircraft, and facilities. | Activities described in this EP are controlled to prevent actions that would contravene this Act. Relevant control measures, as well as the implementation strategy is described in this EP. | International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL).<br><br>Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Convention). | DCCEEW |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| *Fisheries Management Act 1991* (Cth) | This Act aims to implement efficient and cost-effective fisheries management on behalf of the Commonwealth, ensure that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development (ESD), maximise the net economic returns to the Australian community from the management of Australian fisheries, ensure accountability to the fishing industry and to the Australian community in in the Australian Fisheries Management Authority's (AFMA's) management of fisheries resources, and achieve government targets in relation to the recovery of the costs of AFMA. | Provides the regulatory and other mechanisms to support any necessary fisheries management decisions in the event of a hydrocarbon spill in Commonwealth waters. | N/A | AFMA |
| *Industrial Chemicals Environmental Management (Register) Act 2021* (Cth) | The Australian Government has listed perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid, perfluoro hexane sulfonate and related substances on the Industrial Chemicals Environmental Management Register (Schedule 7) and has set standards in relation to prohibiting their import, export, manufacture, use and disposal. These chemicals are typically found in firefighting foams. These standards came into effect from 1 July 2025. | Esso maintains a firefighting foams inventory and confirms PFOS containing firefighting foams are no longer stocked. Although some aqueous film-forming foams contain polyfluoroalkyl and polyfluoroalkyl substances products, removal will occur in upcoming campaigns. | Industrial Chemicals Environmental (Register) Instrument 22 | DCCEEW |
| *Maritime Legislation Amendment (Prevention of Air Pollution from Ships) Act 2007* (Cth) | This Act implements the requirements of MARPOL 73/78 Annex VI for shipping in Commonwealth waters as per Marine Order 97 (Marine pollution prevention – air pollution) 2022. | Low sulphur diesel fuels to be used by platforms and support vessels. | MARPOL Annex VI | AMSA |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* (Cth)<br>and<br>*Marine Safety (Domestic Commercial Vessel) National Law Regulations 2013 (Cth)* | This Act provides for a national system for Domestic Commercial Vessels between states and territories to ensure their safe operation. This system provides for Marine Orders and National Standards to be adopted for Domestic Commercial Vessels of different classes.<br>This law does not over-ride state legislation with respect to marine environmental management, dangerous goods management, speed limits, navigation aids, rules for prevention of collisions, monitoring of marine communications systems, workplace health and safety or emergency management and response. | The platforms and support vessels will adhere to the relevant MOs while operating within Commonwealth waters. | N/A | AMSA |
| *National Environment Protection Council Act 1994* (Cth)<br>and<br>*National Environment Protection (National Pollutant Inventory) Measure 1998* (Cth) | The council develops (in conjunction with other state authorities through the Intergovernmental Agreement on the Environment) consistent environmental standards to be adopted between states. These requirements take the form of National Environment Pollution Measures such as the National Pollutant Inventory (NPI). | Reporting of emissions required by the NPI is conducted annually for all Esso operated activities. | N/A | National Environment Protection Council |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| *National Greenhouse and Energy Reporting Act 2007* (Cth) | Provides for the reporting and dissemination of information related to GHG emissions, GHG projects, energy production and energy consumption. | Reporting of GHG emissions and energy use is reported annually for all Esso operated activities. | United Nations Framework Convention on Climate Change,1992, and the Kyoto Protocol, 1997. | Clean Energy Regulator |
| *National Greenhouse and Energy Reporting Regulations 2008*<br><br>*National Greenhouse and Energy Reporting (Measurement) Determination 2008* | The reporting regulations outline what information a company must provide in its reports and how to apply the *National Greenhouse and Energy Reporting Act 2007* (Cth).<br><br>The NGER (Measurement) Determination sets out methods, criteria and measurement standards for calculating emissions and energy data. The Measurement Determination is updated each year. | Annual submission covering Gippsland activities provided to Clean Energy Regulator | N/A | Clean Energy Regulator |
| *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015* | The Safeguard Mechanism was reformed in 2023 and is one of the key statutory instruments for regulating Australia's GHG emissions in line with Australia's Nationally Determined Contributions under the Paris Agreement. The reforms apply a decline rate to facilities' baselines so that they are reduced predictably and gradually over time on a trajectory consistent with achieving Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050 (DCCEEW, 2025a). | Esso has applied for and received a baseline and emissions intensity schedule for the products of the NGER facility and will be subject to the baseline decline rate. | United Nations Framework Convention on Climate Change,1992, Paris Agreement and the Kyoto Protocol | Clean Energy Regulator |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| *Native Title Act 1993* (Cth) | Allows for recognition of Native Title through a claims and mediation process and sets up regimes for obtaining interests in lands or waters where native title may exist. | There are currently no Native Title claims within the Oas. May be relevant if a Native Title claim is determined in the future. | N/A | Attorney-General's Department |
| *Navigation Act 2012* (Cth) | Regulates ship-related activities and invokes certain requirements of MARPOL relating to equipment and construction of ships. | Vessels operating under this EP comply with the requirements of the Act. | MARPOL (certain sections).<br>Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREGs). | Department of Infrastructure, Transport, Regional Development, Communications and the Arts |
| *OPGGS Act*<br>and<br>Environment Regulations | The OPGGS Act addresses all licensing, health, safety, environmental and royalty issues for offshore petroleum exploration and recovery operations in Commonwealth waters.<br>The Environment Regulations ensure that petroleum activities are carried out in a manner consistent with the principles of ESD set out in Section 3A of the EPBC Act and by which the environmental impacts and risks of the activity will be reduced to As Low As Reasonably Practicable (ALARP) and will be of an acceptable level. | All facilities described and assessed in this EP operate in accordance with the Environment Regulations. | N/A | NOPSEMA |
| *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006* (Cth) | Regulates the use of harmful anti-fouling systems employed on vessels and their effects on the marine environment. | The risk of introduction of invasive marine species (IMS) is considered and managed for all vessels covered under this activity as described in this EP. This includes consideration of appropriate anti-fouling systems. | International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001. | AMSA |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) | Regulates ship-related operational activities and invokes certain requirements of MARPOL relating to discharge of noxious liquid substances, sewage, garbage, air pollution, etc. | Activities described in this EP are controlled to prevent actions that would contravene this Act. Relevant control measures and the implementation strategy is described in this EP. | MARPOL, including the incorporation of all of the amendments that have been adopted by the Marine Environment Protection Committee and have entered into force. | AMSA |
| *Protection of the Sea (Shipping Levy) Act 1981* (Cth) | Provides that where, at any time during a quarter when a ship with tonnage length of no less than 24m was in an Australia port, there was on board the ship a quantity of oil in bulk weighing more than 10t, a levy is imposed in respect of the ship for the quarter. | The support vessels will adhere to the shipping levy, as required. | N/A | AMSA |
| *Protection of the Sea (Civil Liability for Bunker Oil Pollution Damage) Act 2008* (Cth) | Sets up a compensation scheme for those who suffer damage caused by spills of oil that is carried as fuel in ships' bunkers. There is an obligation on ships >1000 gross tonnes to carry insurance certificates when leaving/entering Australian ports or leaving/entering an offshore facility within Australian coastal waters. | The support vessels will adhere to the shipping levy, as required. | International convention on civil liability for bunker oil pollution damage, 2001(Bunkers Convention) | AMSA |
| *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* (Cth) | Regulates the manufacture, importation and use of ozone depleting substances. | The support vessels will have a register of ozone-depleting substances (ODS). | United Nations Framework Convention on Climate Change 1994.<br>Montreal Protocol on Substances that Deplete the Ozone Layer 1987. | DCCEEW |

| Legislation | Coverage and applicability to activity | Relevance to this EP | International Convention enacted | Administering authority |
|---|---|---|---|---|
| *Recycling and Waste Reduction Act 2020* (Cth) | This Act supports action to regulate the export of certain waste materials from Australia.<br>In particular, the Recycling and Waste Reduction (Mandatory Product Stewardship – Mercury-added Products) Rules 2021 made under the Act give effect to Australia's obligations under Article 4(5) of the Minamata Convention. | For this activity, the Act applies to trace quantities of mercury that may be contained within cement. | Minimata Convention on Mercury (2013) | DCCEEW |
| *Underwater Cultural Heritage Act 2018* (Cth) (UCH Act) | Provides for the protection of Australia's shipwrecks and has broadened protection to sunken aircraft and other types of underwater cultural heritage (UCH) including Australia's Aboriginal and Torres Strait Islander UCH in Commonwealth waters. Projects that damage or interfere with a historic shipwreck or relic in Australian waters or with a submerged aircraft or associated artefacts in Commonwealth waters require a permit. | There are several shipwrecks located with the Area of Described Environment (ADE) as outlined in Section 3.2. | Agreement between the Netherlands and Australia concerning old Dutch Shipwrecks 1972. | DCCEEW |

**Table 1-3 Key Victorian legislation**

| Legislation | Administering authority | Coverage and applicability to activity |
|---|---|---|
| *Catchment and Land Protection Act 1994* (Vic) | Department of Energy, Environment and Climate Action (DEECA) | This Act sets up a framework for the integrated management and protection of catchments. |
| *Dangerous Goods Act 1985* (Vic) | Department of Treasury and Finance, WorkSafe Victoria | This Act, the associated Dangerous Goods (Storage and Handling) Regulations 2012 (Vic) and the *Code of practice for the storage and handling of dangerous goods* (WorkSafe Victoria, 2013) promotes the safety of persons and property in relation to the manufacture, storage, transfer, transport, sale, purchase and use of dangerous goods and the import of explosives and other dangerous goods. |
| *Environment Protection Act 2017* (Vic) | Environment Protection Authority (EPA) (Vic) | This Act is the key Victorian legislation regulating emissions to the environment within Victoria (relevant for waste transfer and disposal, National Pollutant Inventory reporting). |

| Legislation | Administering authority | Coverage and applicability to activity |
|---|---|---|
| *Emergency Management Act 1986* (Vic) | Department of Justice and Community Safety Police and Emergency Management Victoria | This Act ensures that the components of emergency management (prevention, response and recovery) are organised to facilitate planning, preparedness, operational coordination and community participation. |
| *Heritage Act 2017* (Vic) | Heritage Victoria | This Act protects the heritage values of shipwrecks and relics within State waters. |
| *Land Titles Validation Act 1994* (Vic) | Attorney General's Office | This Act validates past acts, provides for compensation rights for the holders of native title which has been affected by past acts, and confirms certain existing rights. The Act also confirms ownership by the Crown of natural resources, the right to regulate water flows and existing fishing rights under State law; and public access to waterways, beds and banks of waterways, coastal waters, beaches and public areas. |
| *Marine and Coastal Act 2018* (Vic) | DEECA | This Act provides for coordinated strategic planning and management for Victorian coast, the preparation and implementation of management plans for coastal Crown land and a coordinated approach to approvals for use and development of coastal Crown land. |
| *Marine Safety Act 2010* (Vic) | Transport Safety Victoria | This Act provides for safe marine operations in Victoria. |
| *National Parks Act 1975* (Vic) | DEECA | This Act provides for the protection, use and management of Victoria's national and other parks. |
| *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (Vic)<br>and<br>Offshore Petroleum and Greenhouse Gas Storage Regulations 2021 (Vic) | NOPSEMA and DEECA | This Act and Regulations apply to petroleum operations effectively within 3nm of the Victorian coast and address licensing, health, safety, environmental and royalty issues for offshore petroleum exploration and development operations. Waters greater than 3nm offshore from the coast are Commonwealth waters and are covered by Commonwealth legislation (i.e. OPGGS Act). The Commonwealth and Victorian legislation are, by agreement, very similar with regard to petroleum. |
| *Pollution of Waters by Oil and Noxious Substances Act 1986* (Vic) | EPA (Vic) | This Act is the Victorian state legislation giving effect to the requirements of MARPOL within State waters. |

| Legislation | Administering authority | Coverage and applicability to activity |
|---|---|---|
| *Port Management Act 1995* (Vic) | Ports Victoria | Under this Act all managers of local and commercial ports must prepare a Safety Management Plan and Environmental Management Plan (together known as SEMPs). |
| *Radiation Act 2005* (Vic) | Victorian Department of Health | This Act provides for licencing for use and management of radioactive sources and conducting radiation practice (including radiation testing). |

**Table 1-4 Key NSW legislation**

| Legislation | Administering authority | Coverage and applicability to activity |
|---|---|---|
| *Heritage Act 1977 No 136* (NSW) | Heritage Council of NSW | This Act provides for the identification, registration and interim protection of items of State heritage significance (including shipwrecks within State waters) in NSW. |
| *Marine Parks Act 1997 No 64* (NSW) | NSW Marine Parks Authority | This Act provides for the protection and management of marine areas. |
| *Marine Pollution Act 2012* (NSW) | Transport for NSW | This Act gives effect to the requirements of MARPOL within State waters. |
| *National Parks and Wildlife Act 1974 No 80* (NSW) | NSW Office of Environment and Heritage | This Act provides for the care, control and management of all national parks, historic sites, nature reserves, conservation reserves, Aboriginal areas and game reserves, and the protection and care of native flora and fauna, and Aboriginal places and objects. |
| *Ports and Maritime Administration Act 1995 No 13* (NSW) | Transport for NSW | This Act provides for the provision of marine safety services and emergency environment protection services for dealing with pollution incidents in State waters. |
| *Protection of the Environment Operations Act 1997* (NSW) | EPA (NSW) | This is the main piece of NSW environmental legislation covering water, land, air and noise pollution and waste management. |
| *Wilderness Act 1987 No 196* (NSW) | NSW Department of Planning and Environment | This Act affords declared wilderness the most secure level of protection, requiring it to be managed in a way that will maintain its wilderness values and pristine condition by limiting activities likely to damage flora, fauna and cultural heritage. |

**Table 1-5 Key Tasmanian legislation**

| Legislation | Administering authority | Coverage and applicability to activity |
|---|---|---|
| *Emergency Management Act 2006* (Tas) | Department of Police, Fire and Emergency Management | This Act establishes the Tasmanian emergency management framework that operates at state, regional and municipal levels. |
| *Environmental Management and Pollution Control Act 1994* (Tas) | Environment Protection Authority Tasmania | This is the primary environment protection and pollution control legislation in Tasmania. |
| *Historic Cultural Heritage Act 1995* (Tas) | Tasmanian Heritage Council and Historic Heritage Section of Parks and Wildlife Service Tasmania (shipwrecks) | This Act provides for the identification, assessment, protection and conservation of places having historic cultural heritage significance (including shipwrecks within State waters) in Tasmania. |
| *Marine and Safety Authority Act 1997* (Tas) | Marine and Safety Tasmania | This Act establishes Marine and Safety Tasmania as the authority responsible for the safe operation of vessels in Tasmanian waters and managing its marine facilities. |
| *National Parks and Reserves Management Act 2002* (Tas) | Parks and Wildlife Service Tasmania | This Act provides for the management of national parks and other reserved land. |
| *Pollution of Waters by Oil and Noxious Substances Act 1987* (Tas) | Environment Protection Authority Tasmania | This Act gives effect to the requirements of MARPOL within State waters. |

### *1.3.2 Federal Court decisions*

On 21 September 2022, the Federal Court of Australia (FCA) ruled in FCA 1121 (Tipakalippa v National Offshore Petroleum Safety and Environmental Management Authority (No 2), 2022) to set aside NOPSEMA's decision to accept an EP (the Santos Barossa Development Drilling and Completions EP) on the basis NOPSEMA could not be reasonably satisfied that the EP met the criteria specified in the Environment Regulations. This ruling specifically related to the undertaking of relevant person consultation, as required by Regulation 25 of the Environment Regulations. A subsequent appeal to this decision, FCAFC 193 (Santos NA Barossa Pty Ltd v Tipakalippa, 2022), was dismissed by the FCA on the 2 December 2022. From this date, the appeal decision represents the law regarding requirements for consultation in accordance with the Environment Regulations. Following the FCA decisions, NOPSEMA has developed *Consultation in the course of preparing an environment plan* (NOPSEMA, 2024b) as a guideline for industry. This guideline and the appeal decision have informed the preparation of this EP.

On 28 September 2023, the FCA ruled in FCA 1158 (Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2), 2023) to set aside NOPSEMA's decision to accept an EP (subject to conditions) on the basis NOPSEMA did not have statutory power to make the decision in circumstances where it was not reasonably satisfied that the consultation required by Regulation 11A(g) of the Environment Regulations had been carried out. NOPSEMA acknowledged the decision of the FCA on the NOPSEMA website.

On 30th April 2025, the FCA ruled on Doctors for the Environment (Australia) Incorporated v National Offshore Petroleum Safety and Environmental Management Authority (No. 2) [2025] FCA 989. Doctors for the Environment (Australia) Incorporated (DoE) applied to set aside the acceptance of an Environmental Plan accepted by NOPSEMA in relation to Woodside's Scarborough Offshore Petroleum Project, principally concerning the acceptability of control measures associated with Scope 3 GHG emissions as an indirect impact and risk to the environment from the activity. The Court upheld the decision of NOPSEMA to approve the EP under the Environmental Regulations. The Court found that NOPSEMA could take a flexible approach to the demonstration of ALARP and acceptability informed by the nature and scale of the activity as the Environmental Regulations do not imply, expressly or implicitly, that a prescribed methodology must be implemented to demonstrate that environmental impacts and risks of an activity are reduced to ALARP and are of an acceptable level. Further, the environmental performance standards adopted in the EP to manage GHG were acceptable there is no requirement for them to set a measurable level of performance by reference to quantifiable criteria as there is need for regulatory flexibility to respond to the nature and scale of the different impacts and risks of each activity under assessment. What is an acceptable impact or risk can be evaluated with respect to flexible, as opposed to a quantifiable criteria, and the Regulations do not prescribe a methodology that must be implemented to demonstrate that environmental impacts and risks of an activity will be reduced to ALARP. While titleholders are requires to describe control measures they will adopt to achieve an ALARP and accepted outcome, the control measures need not take a particular form and it is open to titleholders to propose a system or procedure that will be implemented in the future based on reviews yet to be undertaken when the EP is submitted.

### *1.3.3 Native Title*

The landmark judgements in HCA 23 (Mabo v Queensland (No 2) 175 CLR 1, 1992) was the first time Indigenous people's assertions of inherited rights to land were recognised by Australian law. The judgements of the High Court overturned the legal fiction of *terra nullius* ('land belonging to no one'), and acknowledged that Indigenous people had, and still have, laws and cultural practices, relating to land ownership, management and resource use that survived the process of British colonisation. This recognition of Indigenous 'native title' was then formally embraced in statutory law through the *Native Title Act 1993* (Cth).

On 22 October 2010, the Federal Court recognised that the Gunaikurnai people hold native title over much of Gippsland, extending 200m offshore between Lakes Entrance and Marlo. This is described in Section 1.5.1.3 of Appendix A.

On the same day, the State entered into an agreement with the Gunaikurnai people under the *Traditional Owner Settlement Act 2010* (Vic). The agreement between the State and the Gunaikurnai people was the first to be made under the *Traditional Owner Settlement Act 2010* (Vic).

The agreement area extends from West Gippsland, near Warragul, east to the Snowy River and north to the Great Dividing Range. It also extends 200m offshore. The determination of native title under the *Native Title Act 1993* (Cth) covers the same area. Both the agreement and the native title determination only affect Crown land within this area.

As part of the agreement, the Gunaikurnai people are able to undertake traditional activities such as hunting, fishing and gathering for traditional, non-commercial, domestic or communal purposes. This involves recreational fishing and game hunting without a licence, as long as the Gunaikurnai people comply with relevant laws and regulations (including any catch limits).

Native title also provides the Gunaikurnai people with the right to negotiate with anyone seeking to carry out activities that might affect their rights. These rights do not impact access for existing users of the area, such as recreational fishers and hunters. The agreement does not provide the Gunaikurnai people with any commercial hunting, fishing or forestry rights.

However, in HCA 33 (Leo Akiba on behalf of the Torres Strait Regional Seas Claim Group v Commonwealth of Australia, 2013), the HCA said that the native title claim group had the right *'to take for any purpose resources in the native title areas'*. This meant that the Native Title holders could continue to sell and trade fish as they had done under their traditional laws. It was the first time that Native Title rights were found to include commercial rights.

As a prescribed body corporate under the Native Title (Prescribed Body Corporate) Regulations 1999 (Cth), the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) is empowered to make native title decisions and negotiate agreements on behalf of the Gunaikurnai native title holders. GLaWAC must undertake a process of consultation and consent with native title holders as part of that agreement-making process.

The Gunaikurnai people lodged a native title determination application in the Federal Court on 9 December 2014 under the *Native Title Act 1993* (Cth). The application included the land and waters west of the Gunaikurnai determination area to the Tarwin West River, including Wilsons Promontory and Cape Liptrap. The Gunaikurnai name for this area, Yiruk, means rocky place. In September 2019, the Gunaikurnai withdrew the claim.

Esso acknowledges that, despite the claim withdrawal, the Gunaikurnai people hold strong connections to Yiruk with a long history of association with and caring for country, and they will continue to assert their rights and interests over this area.

As part of the Gunaikurnai people's native title, the following national parks and reserves are classified as Aboriginal title and subject to joint management between the State and the Gunaikurnai Traditional Owner Land Management Board:

- The Knob Reserve, Stratford
- Tarra Bulga National Park
- Mitchell River National Parks
- Lakes National Park
- Gippsland Lakes Coastal Park
- New Guinea Cave (within Snowy River National Park)
- Lake Tyers Catchment Area
- Buchan Caves Reserve
- Gippsland Lakes Reserve at Raymond Island
- Corringle Foreshore Reserve
- Nooramunga Marine and Coastal Park
- Avon Wilderness Park
- Baw Baw National Park
- Alpine National Park (on Gunaikurnai Country).

### *1.3.4 Sea Country*

In April 2021, the Sea Country Indigenous Protected Areas (IPAs) Program was established by the Australian Government to strengthen the conservation and protection of Australia's unique marine and coastal environments, while creating employment and economic opportunities for Indigenous Australians. Under the program, grant funding will be provided to Indigenous organisations to expand existing IPAs and create new IPAs. The Government will also support delivery of the program, including the development of a Sea Country IPA monitoring and evaluation system and the holding of a conference of Indigenous land and sea managers so they can share knowledge and experiences.

On 7 May 2022, 10 successful Sea Country IPA consultation projects were announced, including the Nanjit to Mallacoota Sea Country IPA managed by GLaWAC.

The Nanjit to Mallacoota Sea Country IPA is in coastal waters of the Gippsland region in Victoria from Nanjit, east of Wilsons Promontory, to Mallacoota, on the Victoria/NSW border. The area comprises numerous marine and coastal parks and includes the Ramsar-listed Gippsland Lakes and Raymond Island.

A Nanjit to Mallacoota Sea Country IPA Management Plan is being developed to support First Nations people to identify cultural and natural values, including the condition and any threats to these values, and plan for the conservation and management of these values.

GLaWAC is partnering with Monash University and the Arthur Rylah Institute to undertake specific research into culturally significant areas and species that occur along the coast.

While the plan is being developed, Esso has anticipated the values and sensitivities regarding Sea Country to potentially include:

- geographical features
- places with cultural and/or spiritual significance
- flora and fauna species that have a cultural and/or spiritual significance
- cultural harvesting and use of flora and fauna.

Esso has registered an interest to participate in the Nanjit to Mallacoota Sea Country IPA consultation project and understands that once the First Nations peoples' consultation phase is complete, commercial participants will be approached.

### *1.3.5 Underwater Cultural Heritage*

Guidance has been issued by DCCEEW (DCCEEW, 2024f) in relation to the application of the UCH Act *(the UCH Guidance)*. The UCH Act provides blanket protection to all archaeological remains of vessels and aircraft (including Aboriginal and Torres Strait Islander traditional watercraft) that have been wholly or partially submerged in Australian waters for 75 years or longer, including their immediate environment and associated articles, regardless of whether or not their existence or precise location is known. UCH also includes First Nations (Aboriginal and Torres Strait Islander) archaeology associated with dry-land habitation on the submerged Pleistocene landscapes on the Australian continental shelf. First Nations UCH and archaeological remains of shipwrecks or aircraft younger than 75 years can be declared by the Minister as protected under the UCH Act upon discovery, and subject to significance assessment (DCCEEW, 2024f). First Nations UCH constitutes archaeological and/or environmental traces of human existence (habitation and/or activities), which can be discovered on the seabed surface (on exposed ancient land surfaces), or within stratified sediment deposits (accumulated on subsequently buried ancient land surfaces) within the submerged paleolandscape of the present-day Australian continental shelf (DCCEEW, 2024f).

The UCH Guidance states that all actions involving seabed contact, and most actions taken in proximity to the seabed, have the potential to cause adverse impact to UCH. Hence the following obligations of the UCH Act have been addressed in this EP:

- no adverse impact to UCH without a permit – refer to Section 6.1.4.3
- notify the discovery of all suspected UCH within 21 days of discovery – refer to Section 8.16.2
- adhere to requirements of Protected Zones and obtain a permit to enter a Protected Zone should entry into a Protected Zone be required – there are no Protected Zones in the OA for this EP (refer to Section 3.2). There are three Protected Zones (submerged shipwrecks) within the EMBA (refer to Section A.1.5.2 of Appendix A).

## 1.4 Government guidelines

This EP has been developed in accordance with the NOPSEMA Guidance Note for *Environment Plan Content Requirements* (NOPSEMA, 2025a). This document provides guidance to the petroleum industry on NOPSEMA's interpretation of the Environment Regulations to assist titleholders in preparing EPs. Other relevant government guidelines that have been incorporated or taken into consideration during the preparation of this EP are listed here (and include earlier versions of documents where they have been recently updated):

- *Environment Plan Assessment* (NOPSEMA, 2024c)
- *Reducing marine pest biosecurity risks through good practice biofouling management* (NOPSEMA, 2024d)

- *Environment plan decision making* (NOPSEMA, 2024e)
- *Oil spill modelling* (NOPSEMA, 2019)
- Information Paper - Application of oil spill modelling in Environment Plans (NOPSEMA, 2025e)
- *Petroleum activities and Australian Marine Parks* (NOPSEMA, 2025b)
- *Guidance Note – ALARP* (NOPSEMA, 2025c)
- *EPBC Act Policy Statement 1.1 – Significant Impact Guidelines – Matters of National Environmental Significance* (DoE, 2013).

## 1.5 Industry guidelines and codes of practice

A number of international codes of practice and guidelines are relevant to the environmental management of the activity. Those of most relevance are described in this section.

While none of the codes of practice or guidelines described in this section have legislative force in Australia (with the exception of MARPOL and the Minamata Convention on Mercury), they are considered to represent best practice environmental management. Aspects of each code or guideline relevant to the impacts and risks presented by the activity are outlined in the demonstrations of acceptability throughout Chapters 6 and 7.

### *1.5.1 MARPOL*

The key international Convention relating to marine environmental matters is MARPOL. This Convention was adopted in November 1973 by the International Maritime Organisation (IMO), with ongoing additions and amendments. MARPOL aims to prevent and minimise pollution (routine discharges and accidents) from ships. It contains six annexes and is in force in 156 countries.

In Australian Commonwealth waters, MARPOL is given effect through the *Protection of the Sea (Prevention of Pollution from Ships) Act* 1983 (Cth) (via Marine Orders made under the *Navigation Act 2012* (Cth)) and is administered by AMSA.

Table 1-6 lists the annexes of the Convention and identifies how they are given effect under Commonwealth legislation.

**Table 1-6 Commonwealth legislation enacting the MARPOL Convention**

| MARPOL Annex (entry into force in Australia) | Commonwealth waters (*Protection of the Sea (Prevention of Pollution from Ships) Act* 1983 (Cth) and *Navigation Act 2012* (Cth)) | General requirements for operating in Commonwealth waters |
|---|---|---|
| **I**<br>Regulations for the Prevention of Pollution by Oil (1988) | AMSA Marine Orders Part 91; Marine pollution prevention – oil. | Addresses measures for preventing pollution by oil from regulated Australian vessels or foreign vessels, and specifies that:<br>• an International Oil Pollution Prevention certificate is required<br>• a Shipboard Marine Pollution Emergency Plan (SMPEP) is required<br>• an oil record book must be carried<br>• oil discharge monitoring equipment must be in place<br>• incidents involving oil discharges are reported to AMSA. |
| **II**<br>Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (1988) | AMSA Marine Orders Part 93; Marine pollution prevention – noxious liquid substances. | Addresses measures for preventing pollution by 250 noxious liquid substances carried in bulk from regulated Australian vessels or foreign vessels, and specifies that:<br>• an International Pollution Prevention certificate is required<br>• a SMPEP is required<br>• a cargo record book must be carried<br>• incidents involving noxious liquid substance discharges are reported to AMSA<br>• the discharge of residues is allowed only to reception facilities until certain concentrations and conditions (which vary with the category of substances) are complied with<br>• no discharge of residues containing noxious substances is permitted within 12 nm of the nearest land. |
| **III**<br>Prevention of Pollution by harmful Substances Carried by Sea in | AMSA Marine Orders Part 94; Marine pollution prevention – packaged harmful substances. | Addresses measures for preventing pollution by packaged harmful substances (as defined in the International Marine Dangerous Goods code, which are dangerous goods with properties adverse to the marine environment, in that they are hazardous to marine life, impair the taste of seafood and/or accumulate pollutants in aquatic organisms) from regulated Australian vessels or foreign vessels, and specifies that:<br>• the packing, marking, labelling and stowage of packaged harmful substances complies with Regulations 2 to 5 of MARPOL Annex III |

| **MARPOL Annex (entry into force in Australia)** | **Commonwealth waters (*Protection of the Sea (Prevention of Pollution from Ships) Act* 1983 (Cth) and *Navigation Act 2012* (Cth))** | **General requirements for operating in Commonwealth waters** |
|---|---|---|
| Packaged Form (1995) | | • a copy of the vessel manifest or stowage plan is provided to the port of loading prior to departure<br>• substances are only washed overboard if the Vessel Master has considered the physical, chemical and biological properties of the substance<br>• incidents involving discharges of dangerous goods are reported to AMSA. |
| **IV**<br>Prevention of Pollution by Sewage from Ships (2004) | AMSA Marine Orders Part 96; marine pollution prevention – sewage. | Addresses measures for preventing pollution by sewage from regulated Australian vessels or foreign vessels, and specifies that:<br>• an International Sewage Pollution Prevention is required<br>• the vessel is equipped with a sewage treatment plant (STP), sewage comminuting and disinfecting system and a holding tank approved by AMSA or a recognised organisation<br>• the discharge of sewage into the sea is prohibited, except when an approved STP is operating or when discharging comminuted and disinfected sewage using an approved system at a distance of more than 3nm from the nearest land<br>• sewage that is not comminuted or disinfected has to be discharged at a distance of more than 12nm from the nearest land. |
| **V**<br>Prevention of Pollution by Garbage from Ships (1990) | AMSA Marine Orders Part 95; marine pollution prevention – garbage.<br>* Not made under the *Navigation Act 2012* (Cth). | Addresses measures for preventing pollution by garbage from regulated Australian vessels or foreign vessels, and specifies that:<br>• prescribed substances (as defined in the IMO 2012 Guidelines for the Implementation of MARPOL Annex V) must not be discharged to the sea<br>• a Garbage Management Plan must be in place<br>• a Garbage Record Book must be maintained<br>• food waste must be comminuted or ground to particle size <25mm while en route and no closer than 3nm from the nearest land (or no closer than 12nm if waste is not comminuted or ground)<br>• it is prohibited to discharge wastes including plastics, cooking oil, packing materials, glass and metal. |

| MARPOL Annex (entry into force in Australia) | Commonwealth waters (*Protection of the Sea (Prevention of Pollution from Ships) Act* 1983 (Cth) and *Navigation Act 2012* (Cth)) | General requirements for operating in Commonwealth waters |
|---|---|---|
| **VI**<br>Prevention of Air Pollution from Ships (2007) | AMSA Marine Orders Part 97; marine pollution prevention – air. | Addresses measures for preventing air pollution from regulated Australian vessels or foreign vessels, and specifies that:<br>• an International Air Pollution Prevention certificate is in place<br>• an Engine International Air Pollution Prevention certificate is in place for each marine diesel engine installed<br>• an International Energy Efficiency certificate is in place<br>• specifies that incineration of waste is permitted only through a MARPOL-compliant incinerator, with no incineration of Annex I, II and III cargo residues, polychlorinated biphenyls, garbage containing traces of heavy metals, refined petroleum products and polyvinyl chlorides<br>• marine incidents are reported to AMSA<br>• sulphur content of fuel oil is no greater than 3.5%m/m<br>• a bunker delivery note must be provided to the vessel on completion of bunkering operations, with a fuel oil sample retained<br>• emissions of ozone-depleting substances must not take place and an ozone-depleting substances logbook must be maintained. |

### 1.5.2 Industry guidelines

The *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) guidelines were released in August 2020 by the International Association of Oil & Gas Producers (IOGP) and the International Petroleum Industry Environmental Conservation Association (IPIECA).

These guidelines provide descriptions of upstream oil and gas activities environmental management practices. Chapter 4 of the guidelines lists the environmental impacts and mitigation measures associated with offshore activities and provide a useful benchmark for best practice environmental management for this activity.

### 1.5.3 European Commission guidance

The *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) aims to identify best available techniques and best risk management approaches for key environmental issues associated with onshore and offshore oil and gas exploration and production activities. The best available techniques included are not prescriptive nor exhaustive but included as a point of comparison with documents such as this EP to ensure the desired environmental outcomes commensurate with best available techniques can be achieved (noting the European, rather than Australian context).

### 1.5.4 World Bank Group guidelines

The *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) is a technical reference document with general and industry-specific examples of good international industry practice. These guidelines are applied when one or more members of the World Bank Group are involved in a project.

The document contains measures considered to be achievable in new facilities, using existing technology, at reasonable costs. The guidelines are designed to be tailored to the applicable hazards and risks established for a given project.

While the World Bank Group is not involved in financing or assessing this activity, control measures adopted for this activity that adhere to these guidelines can be referenced as examples of best practice environmental management.

### 1.5.5 Australian Energy Producers codes of practice

In Australia, the petroleum exploration and production industry operates to the industry *Code of Environmental Practice* (APPEA, 2008), developed by the Australian Energy Producers (AEP, formerly APPEA). This code provides guidelines for activities that are not formally regulated and have evolved from the collective knowledge and experience of the oil and gas industry, both nationally and internationally.

The *Code of Environmental Practice* (APPEA, 2008) covers general environmental objectives for the industry, including planning and design, assessment of environmental risks, emergency response planning, training and inductions, auditing and consultation, and communication. For the offshore sector specifically, it covers issues relating to geophysical surveys, drilling and development and production.

The *Code of Environmental Practice* (APPEA, 2008) has been used as a reference for the Environmental Impact Assessment (EIA) and Environmental Risk Assessment in this EP to ensure that all necessary environmental issues and controls for petroleum exploration have been incorporated into the management of this activity.

### 1.5.6 IOGP best practice

The IOGP has a membership including companies that produce more than one-third of the world's oil and gas. The IOGP provides a forum where members identify and share knowledge and good practices to achieve improvements in health, safety, environment, security and social responsibility. The IOGP's aim is to work on behalf of oil and gas exploration and production companies to promote safe, responsible and sustainable operations. The IOGP's work is embodied in publications that are made freely available on its website (www.iogp.org).

Esso is an IOGP member and the relevant guidelines have been referenced in this EP.

### *1.5.7 2030 Agenda for Sustainable Development*

*Transforming our World: The 2030 Agenda for Sustainable Development* (United Nations, 2015) is a roadmap for global development efforts towards 2030 and beyond, and Australia endorses the agenda. The agenda encompasses 17 sustainable development goals.

Of the 17 goals only one is relevant to the activity; Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development. Despite none of the targets or indicators relating specifically to offshore operations or energy development, the following targets are supported through the implementation of the control measures in this EP:

- Target 14.1- by 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.
- Sections 7.4, 7.5, 7.6, 7.7 and 7.8 evaluate the potential risks of marine pollution (i.e. waste items and accidental spills) that could occur during the activity. With all controls adopted, all pollution risks are assessed as very unlikely or very highly unlikely to occur.

### *1.5.8 Minamata Convention*

The Minamata Convention on Mercury is an international treaty that seeks to protect human health and the environment from emissions and releases of mercury and mercury compounds caused by humans. Australia ratified the convention on 7 December 2021. Countries that have ratified the convention are bound to put controls in place to manage the discharges, emissions and disposal or mercury and mercury compounds. In Australia, the convention is regulated via the *Recycling and Waste Reduction Act 2020* (Cth). In particular, the Recycling and Waste Reduction (Mandatory Product Stewardship – Mercury-added Products) Rules 2021 (Cth) made under the Act give effect to Australia's obligations under Article 4(5) of the Minamata Convention on Mercury.

Mercury is a toxic heavy metal that can harm the immune system, brain, heart, kidney and lungs of humans and animals, and cause serious harm to ecosystems through bioaccumulation. The effects of mercury exposure can occur at low concentrations. For this activity, the Minamata Convention on Mercury applies to trace quantities of mercury that may be contained within drilling fluids and cement. This is addressed in Section 6.8 of this EP.

### *1.5.9 The Paris Agreement*

Australia is party to the Paris Agreement that came into force in 2016.

The Paris Agreement aims to strengthen the global response to the threat of climate change by:

- holding the increase in the global average temperature to well below 2°C above pre-industrial levels; and pursuing efforts to limit temperature increase to 1.5°C
- increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHG emissions development, in a manner that does not threaten food production
- making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development.

Under the Paris Agreement, Australia and all other parties must submit emissions reduction commitments to the United Nations Framework Convention on Climate Change every five years. Australia's latest target (submitted in September 2025) is to reduce emissions by 62-70% below 2005 levels by 2035.

The Department of Foreign Affairs and Trade works closely with the government to support international cooperation on climate change action (including the Paris Agreement).

The activity aligns with Australia's Paris Agreement targets and is addressed in Section 6.5 of this EP.

### *1.5.10 World Bank Zero Routine Flaring Initiative*

The World Bank's Zero Routine Flaring by 2030 Initiative commits governments and oil companies to end routine flaring - defined as flaring that occurs during normal oil production operations when there is insufficient capacity to re-inject, use on-site, or send the gas to market - by no later than 2030. The Initiative aims to eliminate this practice through improved regulation, investment in gas-capture solutions, and

development of viable gas-utilisation markets, noting that venting is not an acceptable substitute and that only safety-related or non-routine flaring should continue and be minimised.

### *1.5.11 Oil & Gas Methane Partnership 2.0*

The Oil & Gas Methane Partnership 2.0 (OGMP 2.0) is the UN Environment Programme's flagship, measurement-based methane reporting and mitigation framework for the oil and gas sector, and is the only comprehensive international standard covering all material methane sources across operated and non-operated assets. Member companies commit to accurate, transparent methane quantification and to reporting based on direct measurement rather than estimates, creating a credible basis for emissions reduction planning and regulatory alignment. The framework reflects international best practice for methane management, particularly Measurement, Reporting and Verification and is being integrated into emerging methane-reduction policies worldwide.

### *1.5.12 Domestic Energy Policy*

#### 1.5.12.1 Future Gas Strategy

The *Future Gas Strategy* (Commonwealth of Australia , 2024) maps the Australian Government's plan for how gas will support the economy's transition to net zero. The Strategy is Australia's plan for gas production and consumption in Australia and explains the principles the Australian Government will use to guide policymaking about gas to support the transition to net zero.

The strategy adopts six principles and six actions that will guide policy actions to achieve the strategy's aims. The following principle and action that is most relevant to the activity is as follows:

- Principle 1: Australia is committed to supporting global emissions reductions to reduce the impacts of climate change and will reach net zero emissions by 2050
    - action arising from this principle is working with regulators and industry to reduce and, where possible, eliminate gas venting and flaring, unless required for safety purposes. Section 6.5 of this EP discusses how air emissions for the activity are managed to ALARP.

#### 1.5.12.2 Australian Energy Market Operator Integrated System Plan

The Australian Energy Market Operator (AEMO) Integrated System Plan is a national, long-term roadmap that outlines the optimal mix of generation, storage and transmission required for Australia's transition to a secure, reliable and net-zero electricity system by 2050. It incorporates Commonwealth and State environmental and energy policies into its modelling, ensuring alignment with Australia's emissions-reduction trajectory and broader climate commitments. The Integrated System Plan identifies the investments and development pathways needed to replace retiring coal generation with renewables and storage at least cost, supporting substantial long-term emissions reductions in the electricity sector. As such, it provides important contextual information for offshore Environment Plans by signalling future system infrastructure, transmission interfaces and policy settings relevant to project planning and cumulative impact

#### 1.5.12.3 Net Zero Plan

The Australian Government's Net Zero Plan outlines the national pathway for achieving Australia's 2035 emissions reduction target and net zero GHG emissions by 2050. The Plan identifies five economy-wide decarbonisation priorities:

1. Clean electricity across the economy
2. Lowering emissions through electrification and efficiency
3. Expanding the use of clean fuels
4. Accelerating deployment of new technologies
5. Scaling up net carbon removals.

The Plan notes that natural gas will continue to contribute to Australia's energy system and economy during the transition, but that its role will evolve, with overall use declining over time. The transition pace will vary across sectors depending on the relative cost of electricity versus natural gas, the availability of alternative technologies and fuels, and asset turnover cycles.

As part of developing the Plan, the Government has set a 2035 national emissions reduction target of 62 - 70% below 2005 levels.

Implementation of the Plan will be supported by six sectoral emissions reduction plans, covering:

1. Electricity and energy
2. Agriculture and land
3. Built environment
4. Industry
5. Resources
6. Transport.

The Resources Sector Plan is directly relevant to Scope 1 GHG emissions from petroleum exploration, production, and decommissioning activities. The Electricity and Energy Sector Plan addresses emissions associated with the consumption of energy products, including domestic gas use.

## 1.6 Environment Plan summary

This EP has been structured in accordance with Regulations 35(6) and 35(7) of the Environment Regulations, as outlined in Table 1-7.

**Table 1-7 EP summary**

| EP summary requirement | Section of EP |
|---|---|
| The location of the activity | Section 2 |
| A description of the receiving environment | Section 3 and Appendix A |
| A description of the activity | Section 2 |
| Description of the environmental impacts and risks | Section 6 and Section 7 |
| The control measures for the activity | Section 6 and Section 7 |
| The arrangement for ongoing monitoring of the titleholder's environmental performance | Section 8.13 |
| Response arrangements in the *Oil Pollution Emergency Plan* (AUGO-EV-ELI-001) (OPEP) | Attachment 2 |
| Consultation undertaken and plans for ongoing consultation | Section 4 and Attachment 1 |
| Details on the titleholder's nominated liaison person for the activity | Section 1.1.1 |

# 2 Description of the activity

The primary purpose of the producing offshore facilities is to extract and process gas and gas liquids (condensate) in order to transport it onshore for further processing and distribution to customers. In order to do this, a wide variety of activities are undertaken to directly and indirectly support gas production.

This section describes the activities within the scope of this EP per Section 1.1.

## 2.1 Location

The Gippsland Basin is located in Bass Strait, offshore Victoria's east coast. The producing assets and permit areas are illustrated in Figure 1-1.

The producing infrastructure includes six platforms and two subsea facilities, with water depths ranging from 46m (BTW) to 95m (KPA). There is also a network of subsea pipelines, ranging from water depths of approximately 20m where two of the pipelines (BTA450-LFD and BTA150-LFD) cross the Victorian State waters boundary, to 95m at the KPA facility.

An Area to Be Avoided (ATBA) (Figure 1-1) is defined in Schedule 2 of the OPGGS Act and is administered by NOPSEMA. It excludes unauthorised vessels greater than 200t or 24m in length from entering the area around the Bass Strait platforms without permission. All the facilities are located within the ATBA, apart from the KPA subsea facilities (located 5km east of the ATBA).

A traffic separation scheme operates to the south of the ATBA to control coastal shipping. None of the facilities overlap the traffic separation scheme with KPA being the closet (located 42km away).

## 2.2 Timing of the activities

This EP is a revision to the in-force *Bass Strait Operations Environment Plan* (AUGO-EV-EMM-001). This EP is intended to remain in force in accordance with Regulation 36 of the Environment Regulations.

For relevant activities during the life of the EP for each licence, see Section 2.3.

## 2.3 Property inventory and current status

### *2.3.1 Operational facilities*

#### 2.3.1.1 Platform facilities

Table 2-1 lists the platforms applicable to this EP.

**Table 2-1 Facilities (Platforms)**

| License | Facility | Description | Staffing status (max persons on board) | Location | Relevant activities during life of EP* | Status at March 2026 | Expected status 2031 | Indicative decommissioning timing |
|---|---|---|---|---|---|---|---|---|
| VIC/L2 | BTA | Eight-leg steel piled jacket with topsides comprising, 10 conductor slots, 10 conductors and 10 wells drilled.<br>Wells inject hydrocarbon liquid into the reservoir when gas demand exceeds hydrocarbon liquid processing capacity.<br>BTA is the host platform for production from the West Barracouta subsea facility. | Staffed [24] | 38° 17′ 53" S; 147° 40′ 28" E<br>23km from the coast.<br>46m water depth. | Platform operations (Section 2.5)<br>Wellwork (Section 2.8)<br>IMR (Section 2.9). | Production | CoP | Decommissioning Campaign #2 (approximately 2035) |
| VIC/L3 | MLA | Eight-leg steel piled jacket with topside. MLA and MLB are connected by a bridge with upper and lower walkways.<br>24 slots, 24 conductors and 24 wells drilled. The wells in service are gas producers and gas and liquid reinjection wells. Oil production has ceased. | Staffed [93] | 38° 13′ 54″ S,<br>148° 13′ 09″ E<br>42km from the coast. | Platform operations (Section 2.5)<br>Wellwork (Section 2.8) | Production | Production | Decommissioning Campaign #2 (approximately 2035) |

| License | Facility | Description | Staffing status (max persons on board) | Location | Relevant activities during life of EP* | Status at March 2026 | Expected status 2031 | Indicative decommissioning timing |
|---|---|---|---|---|---|---|---|---|
| | | | | 59m water depth. | IMR (Section 2.9). | | | |
| VIC/L3 | MLB | Eight-leg steel piled jacket topside. MLA and MLB are connected by an upper and lower walkway bridge.<br>18 conductor slots, seven conductors and five wells drilled. Wells in service include gas production wells and gas injection wells. Oil production has ceased. | N/A (staffed from MLA) | 38° 13′ 46″ S, 148° 13′ 16″ E<br>42km from the coast.<br>59m water depth | Platform operations (Section 2.5)<br>Wellwork (Section 2.8)<br>IMR (Section 2.9). | Production | Production | Decommissioning Campaign #2 (approximately 2035) |
| VIC/L4 | WTN | Three-leg concrete gravity structure (CGS) with topside.<br>Each of the northern legs of the CGS are designed with 24 well conductor slots. In total 48 conductors and 47 wells drilled. The wells in service are gas injectors, liquid injectors and gas producers. Oil production has ceased.<br>WTN is the host platform for the KPA subsea facility and is connected to KPA via the KPA350N and KPA350S pipelines and to MLB via the WTN450 pipeline. These pipelines are attached to WTN via a Riser Access Tower, | Staffed<br>[82] | 38° 11′ 37" S, 148° 23′ 15″ E<br>Riser Access Tower (38° 11′ 29" S, 148° 23′ 23″ E)<br>45 km from the coast. | Platform operations (Section 2.5)<br>Wellwork (Section 2.8)<br>IMR (Section 2.9). | Production | Production | Decommissioning Campaign #2 (approximately 2035). |

| License | Facility | Description | Staffing status (max persons on board) | Location | Relevant activities during life of EP* | Status at March 2026 | Expected status 2031 | Indicative decommissioning timing |
|---|---|---|---|---|---|---|---|---|
| | | located approximately 60 m to the northeast of WTN and connected by a bridge. | | 61m water depth | | | | |
| VIC/L9 | TNA | Eight-leg steel piled jacket with topside.<br>33 slots, 33 conductors and 33 wells drilled. Wells in service are gas producers, gas injectors and liquid injectors. Oil production has ceased. | Staffed [51] | 38° 10′ 16″ S; 148° 25′ 05″ E<br>43km from the coast.<br>59m water depth. | Platform operations (Section 2.5)<br>Wellwork (Section 2.8)<br>IMR (Section 2.9). | Production | CoP | Decommissioning Campaign #2 (approximately 2035) |
| VIC/L10 | SNA | Eight-leg steel piled jacket with topside.<br>45 slots, 39 conductors and 33 wells drilled. Wells in service are gas producers and liquid injectors. Oil production has ceased. | Staffed [60] | 38° 11′ 42″ S; 148° 01′ 26″ E<br>32km from the coast.<br>55m water depth. | Platform operations (Section 2.5)<br>Wellwork (Section 2.8)<br>IMR (Section 2.9). | Production | CoP | Decommissioning Campaign #2 (approximately 2035) |

*Relevant activity in the context of this EP is a levied activity in accordance with NOPSEMA Environment Plan Levies and Cost Recovery Policy.

#### 2.3.1.2 Subsea facilities

Table 2-2 lists the subsea facilities applicable to this EP.

**Table 2-2 Facilities (Subsea)**

| License | Facility | Description | Location | Relevant activities during life of EP* | Status March 2026 | Expected Status 2031 | Indicative decommissioning timing |
|---|---|---|---|---|---|---|---|
| VIC/L01 | BTW | Consists of two subsea gas wells and associated trees with trawl protection frames connected via flexible jumpers and flying leads to a flowline end manifold and umbilical termination assembly. Controlled from BTA via an electrohydraulic umbilical.<br>Directly connected to the BTA450 pipeline. | 38° 19′ 06″ S, 147° 36′ 53″ E<br>22km from the coast.<br>46m water depth. | Subsea facility operations (Section 2.6)<br>IMR (Section 2.9). | Production | CoP | Well P&A planned for 2035, including removal of subsea trees, trawl protection frames and flying leads.<br>Flowline end manifold, umbilical termination assembly and flexible jumpers planned to be removed 2038+.<br>Refer to Table 2-3 and Table 2-4 for decommissioning timing for the BTW300-BTA450Tee pipeline and BTW electrohydraulic umbilical. |
| VIC/L25 | KPA | Consists of three subsea wells connected to WTN via the WTN- Riser Access Tower.<br>On the seafloor are four trawl protection frames, and four subsea coolers connected by flexible jumpers and flying leads to a production manifold. | 38°10′ 51″ S; 148° 35′ 37″ E<br>41km from the coast.<br>95m water depth. | Subsea facility operations (Section 2.6)<br>IMR (Section 2.9). | Production | Production | Well P&A planned for 2035, including removal of subsea trees, trawl protection frames, subsea coolers, flexible jumpers, flying leads and production manifold.<br>Refer to Table 2-3 and Table 2-4 for decommissioning timing for the KPA350 -WTN North and South pipelines and KPA electrical and chemical umbilical. |

### *2.3.2 Pipelines*

#### 2.3.2.1 Primary pipelines

Table 2-3 lists the primary pipelines applicable to this EP. These pipelines do not cross and are not crossed by third-party pipelines or electricity or telecommunications cables (these occur to west of the ADE). All pipelines with the exception of the BTW300 are made from of carbon steel with concrete weight coating. There are a number of flexible pipelines made from corrosion resistant alloys coated with polyethylene sheath. There are concrete mattresses placed along the pipeline route to provide buoyancy control.

**Table 2-3 Primary Pipelines**

| Licence(s) | Pipeline name | From | To | Length (km) in Cth waters | Nominal outside diameter (DN) (mm) | Current product | Relevant activities during life of EP* | Status at March 2026 | Expected status 2031 | Indicative decommissioning timing |
|---|---|---|---|---|---|---|---|---|---|---|
| VIC/PL1, VIC/PL1(V) | BTA450-Shore | BTA | Shore | 18.7 (24.5 overall) | 450 | Gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | CoP | 2038+ |
| VIC/PL1 | BTW300-BTA450Tee | BTW | BTA450Tee | 5.6 | 300 | Gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | CoP | 2038+ |
| VIC/PL2, VIC/PL2(V) | MLA500-Shore | MLA | Shore | 46.4 (52.6 overall) | 500 | Gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | Production | 2038+ |
| VIC/PL4, VIC/PL4(V) | BTA150-Shore | BTA | Shore | 18.1 (24.5 overall) | 150 | Condensate and liquified petroleum gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | CoP | 2038+ |

| Licence(s) | Pipeline name | From | To | Length (km) in Cth waters | Nominal outside diameter (DN) (mm) | Current product | Relevant activities during life of EP* | Status at March 2026 | Expected status 2031 | Indicative decommissioning timing |
|---|---|---|---|---|---|---|---|---|---|---|
| VIC/PL9 | TNA300-MLA | TNA | MLA | 18.7 | 300 | Gas, previously in oil service | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | Production | 2038+ |
| VIC/PL13, VIC/PL13(V) | SNA600-Shore | SNA | Shore | 31.3 (36.6 overall) | 600 | Gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | Production | 2038+ |
| VIC/PL27 | TNA100-WTN | TNA | WTN | 3.6 | 100 | Not in use | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | Production | 2038 + |
| VIC/PL39 | KPA350-WTN (North and south) | KPA | WTN | 18.1 each | both 350 | Gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | Production | 2038 + |
| VIC/PL40 | WTN450-MLB | WTN | MLB | 16.5 | 450 | Gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | Production | 2038 + |
| VIC/PL41 | MLB450-SNA | MLB | SNA | 18.3 | 450 | Gas | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Production | Production | 2038 + |

*Relevant activity in the context of this EP is a levied activity in accordance with NOPSEMA Environment Plan Levies and Cost Recovery Policy.

#### 2.3.2.2 Umbilicals

Table 2-4 outlines the umbilicals applicable to this EP.

**Table 2-4 Umbilicals**

| Licences | Name | Description | From | To | Length (km) | Relevant activities during life of EP* | Status at May 2026 | Expected status in 2031 | Indicative decommissioning timing |
|---|---|---|---|---|---|---|---|---|---|
| VIC/L1 and VIC/L2 | BTA – BTW electrohydraulic umbilical | Electrical/hydraulic umbilical | BTA | BTW | 5.9 | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Operating | CoP | 2038+ |
| VIC/L4, VIC-L9 and VIC/L25 | WTN – KPA EU | Electrical umbilical | WTN | KPA | 18.3 | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Operating | Operating | 2038+ |
| VIC/L4, VIC-L9 and VIC/L25 | WTN – KPA fluids umbilical | Fluids umbilical | WTN | KPA | 18.3 | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Operating | Operating | 2038+ |
| VIC/L10 | MLB450 SSIV umbilical | Umbilical to operate subsea valve | In MLB450 near SNA | | 0.08 | Pipeline operations (Section 2.7)<br>IMR (Section 2.9). | Operating | Operating | 2038+ |

*Relevant activity in the context of this EP is a levied activity in accordance with NOPSEMA Environment Plan Levies and Cost Recovery Policy.

### *2.3.3 Wells*

A description of the status of wells is provided in Table 2-5. The Well Operations Management Plan (WOMP) for each facility (which is assessed and accepted by NOPSEMA) provides a detailed description of the wells at each facility and how they are managed.

**Table 2-5 Well status description**

| Wells (per description in Section 3.1 of the WOMP) | |
|---|---|
| Active | Wells that flow naturally to the surface or are assisted by gas lift injection. |
| Shut-in | Production from, or injection into, a well has ceased without isolating the well from the reservoir, with the intention that the operation can be resumed within one year. |
| Suspended | Production from, or injection into, a well has ceased by isolating the tubing from the reservoir, with the intention that the operation can be resumed either after a period that is:<br>• short term (hour/days/weeks) or<br>• long term (months/years).<br>Depending on the planned suspension duration, non-permanent barriers such as wireline plugs and kill weight fluid may be employed. |
| Temporarily abandoned | Reservoir has been isolated with a temporary P&A, such as cement. |
| Abandoned | Reservoir has been isolated and P&A has been completed in accordance with the requirements in the WOMP. |

As of March 2026, there are a total of 48 active, 66 suspended, 21 shut-in, 17 temporarily abandoned and five abandoned wells. A summary of the status of wells at each platform or subsea facility is provided in Table 2-6 and detailed in full in Table 2-7.

**Table 2-6 Summary well status by facility (as of March 2026)**

| Facility | Active | Suspended | Shut-in | Temporarily abandoned | Abandoned |
|---|---|---|---|---|---|
| **Platforms** | | | | | |
| BTA | 2 | 5 | 2 | 1 | - |
| MLA | 8 | 4 | 3 | 8 | 1 |
| MLB | 4 | 1 | - | - | - |
| SNA | 8 | 17 | 3 | 1 | 4 |
| TNA | 12 | 8 | 8 | 5 | - |
| WTN | 9 | 31 | 5 | 2 | - |
| **Subsea** | | | | | |
| BTW | 2 | - | - | - | - |

| Facility | Active | Suspended | Shut-in | Temporarily abandoned | Abandoned |
|---|---|---|---|---|---|
| KPA | 3 | - | - | - | - |
| **TOTAL** | **48** | **66** | **21** | **17** | **6** |

**Table 2-7 Detailed well status (as at March 2026)**

| Licence | Well name | Status |
|---|---|---|
| VIC/L1 | BARRACOUTA A1 | Shut In |
| VIC/L2 | BARRACOUTA A10 | Shut In |
| VIC/L2 | BARRACOUTA A2 | Suspended |
| VIC/L2 | BARRACOUTA A3W | Temporarily abandoned |
| VIC/L2 | BARRACOUTA A4AST1 | Active |
| VIC/L2 | BARRACOUTA A5 | Suspended |
| VIC/L2 | BARRACOUTA A6 | Suspended |
| VIC/L2 | BARRACOUTA A7 | Suspended |
| VIC/L2 | BARRACOUTA A8 | Suspended |
| VIC/L2 | BARRACOUTA A9 | Active |
| VIC/L1 | WEST BARRACOUTA W1 | Active |
| VIC/L1 | WEST BARRACOUTA W2 | Active |
| VIC/L9 | KIPPER A2 | Active |
| VIC/L25 | KIPPER A4 | Active |
| VIC/L25 | KIPPER A3 | Active |
| VIC/L3 | MARLIN 1 | Abandoned |
| VIC/L3 | MARLIN A1 | Suspended |
| VIC/L3 | MARLIN A10AST1 | Active |
| VIC/L3 | MARLIN A11 | Active |
| VIC/L3 | MARLIN A12 | Suspended |
| VIC/L3 | MARLIN A13 | Shut-in |
| VIC/L3 | MARLIN A14 | Active |

| Licence | Well name | Status |
|---|---|---|
| VIC/L3 | MARLIN A15 | Temporarily Abandoned |
| VIC/L3 | MARLIN A16 | Temporarily Abandoned |
| VIC/L3 | MARLIN A17 | Temporarily Abandoned |
| VIC/L3 | MARLIN A18 | Shut-in |
| VIC/L3 | MARLIN A19 | Active |
| VIC/L3 | MARLIN A20 | Shut-in |
| VIC/L3 | MARLIN A21 | Temporarily Abandoned |
| VIC/L3 | MARLIN A22A | Suspended |
| VIC/L3 | MARLIN A23A | Active |
| VIC/L3 | MARLIN A24A | Suspended |
| VIC/L3 | MARLIN A2A | Temporarily Abandoned |
| VIC/L3 | MARLIN A3 | Temporarily Abandoned |
| VIC/L3 | MARLIN A4 | Temporarily Abandoned |
| VIC/L3 | MARLIN A5 | Active |
| VIC/L3 | MARLIN A6A | Active |
| VIC/L3 | MARLIN A7 | Abandoned |
| VIC/L3 | MARLIN A8 | Active |
| VIC/L3 | MARLIN A9 | Temporarily Abandoned |
| VIC/L10 | SNAPPER M29 | Temporarily abandoned |
| VIC/L10 | SNAPPER M31ST1 | Suspended |
| VIC/L10 | SNAPPER M33A | Shut-in |
| VIC/L10 | SNAPPER A10 | Suspended |
| VIC/L10 | SNAPPER A11AST1 | Suspended |
| VIC/L10 | SNAPPER A12 | Active |
| VIC/L10 | SNAPPER A13 | Active |
| VIC/L10 | SNAPPER A14B | Suspended |
| VIC/L10 | SNAPPER A15 | Shut-in |

| Licence | Well name | Status |
|---|---|---|
| VIC/L10 | SNAPPER A16 | Suspended |
| VIC/L10 | SNAPPER A17 | Active |
| VIC/L10 | SNAPPER A18 | Active |
| VIC/L10 | SNAPPER A19A | Suspended |
| VIC/L10 | SNAPPER A1A | Active |
| VIC/L10 | SNAPPER A2 | Suspended |
| VIC/L10 | SNAPPER A20A | Active |
| VIC/L10 | SNAPPER A21A | Shut-in |
| VIC/L10 | SNAPPER A22 | Suspended |
| VIC/L10 | SNAPPER A23B | Suspended |
| VIC/L10 | SNAPPER A24A | Abandoned |
| VIC/L10 | SNAPPER A25 | Suspended |
| VIC/L10 | SNAPPER A26A | Suspended |
| VIC/L10 | SNAPPER A27 | Active |
| VIC/L10 | SNAPPER A28 | Suspended |
| VIC/L10 | SNAPPER A3 | Suspended |
| VIC/L10 | SNAPPER A36 | Abandoned |
| VIC/L10 | SNAPPER A39A | Suspended |
| VIC/L10 | SNAPPER A4 | Suspended |
| VIC/L10 | SNAPPER A5A | Suspended |
| VIC/L10 | SNAPPER A6 | Suspended |
| VIC/L10 | SNAPPER A7A | Abandoned |
| VIC/L10 | SNAPPER A8 | Active |
| VIC/L10 | SNAPPER A9 | Abandoned |
| VIC/L4 | TUNA A1 | Suspended |
| VIC/L9 | TUNA A10AST1 | Suspended |
| VIC/L4 | TUNA A11B | Active |

| Licence | Well name | Status |
|---|---|---|
| VIC/L4 | TUNA A12 | Suspended |
| VIC/L9 | TUNA A13 | Shut-in |
| VIC/L4 | TUNA A14A | Active |
| VIC/L9 | TUNA A15A | Active |
| VIC/L4 | TUNA A16 | Suspended |
| VIC/L9 | TUNA A17A | Suspended |
| VIC/L9 | TUNA A18 | Active |
| VIC/L9 | TUNA A19ST1 | Temporarily Abandoned |
| VIC/L4 | TUNA A2 | Shut-in |
| VIC/L9 | TUNA A20A | Active |
| VIC/L4 | TUNA A21 | Active |
| VIC/L9 | TUNA A22 | Active |
| VIC/L5 | TUNA A23 | Suspended |
| VIC/L9 | TUNA A24 | Active |
| VIC/L9 | TUNA A25 | Shut-in |
| VIC/L9 | TUNA A26ST1 | Active |
| VIC/L9 | TUNA A27 | Active |
| VIC/L4 | TUNA A29 | Shut-in |
| VIC/L9 | TUNA A30 | Temporarily Abandoned |
| VIC/L9 | TUNA A31A | Temporarily Abandoned |
| VIC/L5 | TUNA A32 | Temporarily Abandoned |
| VIC/L5 | TUNA A33 | Suspended |
| VIC/L9 | TUNA A34 | Shut-in |
| VIC/L4 | TUNA A3A | Suspended |
| VIC/L9 | TUNA A4A | Active |
| VIC/L4 | TUNA A5A | Active |
| VIC/L9 | TUNA A6 | Active |

| Licence | Well name | Status |
|---|---|---|
| VIC/L4 | TUNA A7 | Suspended |
| VIC/L9 | TUNA A8 | Suspended |
| VIC/L9 | TUNA A9A | Temporarily Abandoned |
| VIC/L3 | MARLIN B10ST1 | Active |
| VIC/L3 | MARLIN B15 | Active |
| VIC/L3 | MARLIN B16 | Active |
| VIC/L3 | MARLIN B4 | Active |
| VIC/L3 | MARLIN B9 | Suspended |
| VIC/L4 | WEST TUNA W1 | Suspended |
| VIC/L4 | WEST TUNA W10 | Active |
| VIC/L4 | WEST TUNA W11 | Suspended |
| VIC/L4 | WEST TUNA W12 | Suspended |
| VIC/L4 | WEST TUNA W13ST1 | Suspended |
| VIC/L4 | WEST TUNA W14 | Shut-in |
| VIC/L4 | WEST TUNA W15 | Suspended |
| VIC/L4 | WEST TUNA W17 | Suspended |
| VIC/L4 | WEST TUNA W18ST1 | Suspended |
| VIC/L4 | WEST TUNA W19 | Temporarily Abandoned |
| VIC/L4 | WEST TUNA W2 | Suspended |
| VIC/L4 | WEST TUNA W20 | Active |
| VIC/L4 | WEST TUNA W21 | Suspended |
| VIC/L4 | WEST TUNA W22 | Suspended |
| VIC/L4 | WEST TUNA W23 | Shut-in |
| VIC/L4 | WEST TUNA W24 | Suspended |
| VIC/L4 | WEST TUNA W25 | Active |
| VIC/L4 | WEST TUNA W26 | Suspended |
| VIC/L9 | WEST TUNA W27 | Active |

| Licence | Well name | Status |
|---|---|---|
| VIC/L4 | WEST TUNA W28 | Active |
| VIC/L4 | WEST TUNA W29 | Suspended |
| VIC/L4 | WEST TUNA W3 | Suspended |
| VIC/L4 | WEST TUNA W30 | Suspended |
| VIC/L4 | WEST TUNA W31 | Suspended |
| VIC/L4 | WEST TUNA W32 | Suspended |
| VIC/L4 | WEST TUNA W33A | Active |
| VIC/L4 | WEST TUNA W34 | Shut-in |
| VIC/L4 | WEST TUNA W35 | Active |
| VIC/L4 | WEST TUNA W36 | Active |
| VIC/L4 | WEST TUNA W37 | Suspended |
| VIC/L4 | WEST TUNA W38A | Suspended |
| VIC/L4 | WEST TUNA W39 | Suspended |
| VIC/L4 | WEST TUNA W40 | Suspended |
| VIC/L4 | WEST TUNA W41 | Suspended |
| VIC/L4 | WEST TUNA W42 | Suspended |
| VIC/L4 | WEST TUNA W43 | Suspended |
| VIC/L4 | WEST TUNA W44 | Temporarily abandoned |
| VIC/L4 | WEST TUNA W45 | Suspended |
| VIC/L4 | WEST TUNA W46 | Suspended |
| VIC/L4 | WEST TUNA W47 | Suspended |
| VIC/L4 | WEST TUNA W48A | Suspended |
| VIC/L4 | WEST TUNA W4A | Suspended |
| VIC/L4 | WEST TUNA W5 | Suspended |
| VIC/L4 | WEST TUNA W6 | Active |
| VIC/L4 | WEST TUNA W7 | Active |
| VIC/L4 | WEST TUNA W8A | Suspended |

| Licence | Well name | Status |
|---|---|---|
| VIC/L4 | WEST TUNA W9 | Suspended |

### *2.3.4 Management of property inventory*

Esso maintains appropriate records of all property brought onto its offshore petroleum titles. Due to the widely varying nature of the property, such records are held across several separate data stores appropriate to the specific business activity and area of operation or specialty. Table 2-8 summarises the major relevant offshore property types and the current primary data store for each.

**Table 2-8 Major offshore property types**

| Property type | Primary data store | Description | Data store owner |
|---|---|---|---|
| Wells | Wellview | Contains all operational, technical and physical records for exploration and development wells. | Global database |
| Pipelines | Pipeline Register | Contains technical and physical pipeline data, survey and inspection status etc. | Esso Pipelines group |
| Subsea Equipment | Subsea Material Register (SMR) | Contains details of all subsea structures, jumpers, umbilicals, support structures and debris etc. | Esso Decommissioning Planning group |
| Platforms | As-built drawings | Available for each platform structure including risers, conductors, topsides etc. as relevant. | Esso Facilities Surveillance group |

There are a number of secondary data sets that are often cross-referenced to the above when collating property information in the course of ongoing business. These may include, but are not limited to underwater surveys and inspections, computerised maintenance management system (CMMS) database, ROV videos and other operational records.

Each of the above primary data stores have a business owner and are maintained in support of ongoing business activities. The form, function and detail of each data store varies, however they can be queried to provide appropriate summaries or otherwise, of equipment and property by title.

## 2.4 Hydrocarbon types

The facilities described in this EP produce gas and condensate.

Since the cessation of crude oil processing at Longford in 2024, only gas and gas condensate are currently produced from the Bass Strait hydrocarbon fields. The composition of the current and future producing reservoirs is outlined in Table 2-9.

As some wells will require P&A in future, for worst case discharge modelling purposes (see Section 7.8), it is possible that there may be some contact with a residual oil reservoir. The hydrocarbon types and properties listed in Table 2-10 reflect the range of fluid properties of Bass Strait operations and possible worst case discharge types from a P&A campaign.

Over time, there will be a reduction in reservoir pressures due to ongoing production. It is unlikely that these changes will impact composition at atmospheric temperatures and pressures. Therefore, the data available is considered to represent current conditions.

**Table 2-9 Producing reservoir compositions (percentages)**

| Field | Reservoir | $N_2$ | $CO_2$ | C1 | C2 | C3 | C4 | C5 | C6+ |
|---|---|---|---|---|---|---|---|---|---|
| TRA | L60 - 99 | 0.39 | 9.13 | 74.17 | 6.08 | 4.15 | 1.98 | 0.86 | 3.24 |
| TRA | L100 | 0.19 | 7 | 76.5 | 6.57 | 3.96 | 1.85 | 0.81 | 3.13 |
| TRA | L103-400 | 0.43 | 13.92 | 72.31 | 5.84 | 3.5 | 1.48 | 0.62 | 1.9 |
| TRA | L 420 | 0.19 | 7 | 76.5 | 6.57 | 3.96 | 1.85 | 0.81 | 3.13 |
| TRA | TRA 500 | 0.18 | 10.76 | 74.75 | 6.05 | 3.7 | 1.72 | 0.61 | 2.23 |
| MLA | MLA N-1 | 0.58 | 2.12 | 80.91 | 6.83 | 4.45 | 2.3 | 1.03 | 1.78 |
| TRA | NTRA | 0.18 | 12.6 | 71.9 | 6.17 | 3.71 | 1.74 | 0.76 | 2.94 |
| BTA/BTW | BTA N-1 | 1.8 | 0.6 | 85.67 | 5.74 | 2.95 | 1.82 | 0.78 | 0.64 |
| BTA | BTAD | 0.32 | 5.59 | 74.7 | 7.35 | 5.03 | 2.26 | 1 | 3.75 |
| KPA | S | 0.18 | 10.2 | 76.89 | 6.22 | 2.8 | 1.15 | 0.54 | 2.02 |
| TNA/WTN | M-1 | 1.89 | 4.3 | 80.29 | 6.25 | 3.89 | 1.96 | 0.76 | 0.66 |
| BFA | L | 0.46 | 4.74 | 75.19 | 7.88 | 5.53 | 2.62 | 0.97 | 2.61 |
| SNA | N-1 | 0.58 | 1.52 | 86.57 | 6.2 | 2.41 | 0.94 | 0.49 | 1.29 |

**Table 2-10 Hydrocarbon types and properties**

| Field | Platform | Phase | Type | Analogue | API | Pour point (°C) | Wax content (%) | Oil classification |
|---|---|---|---|---|---|---|---|---|
| Tuna/West Tuna M-1 | TNA | Production | Condensate | Barracouta condensate | 67.5 | Not available | 0.1* | Group 1 |
| West Tuna M-1 | WTN | Production | Condensate | Barracouta condensate | 67.5 | Not available | 0.1* | Group 1 |
| Snapper N-1 | SNA | Production | Condensate | Barracouta condensate | 64.5 | Not available | Not available | Group 1 |
| Marlin | MLA | Production | Condensate | Barracouta condensate | 63.1 | Not available | Not available | Group 1 |
| Kipper | Subsea tied to WTN | Production | Condensate | Kipper condensate | 54.5 | -39 | 2.3 | Group 1 |
| Turrum | MLA and MLB | Production | Condensate | Kipper condensate | 50.8 | Not available | 4.3* | Group 1 |
| Barracouta | BTA | Production | Condensate | Barracouta condensate | 51.6 | -39 | 1.8 | Group 1 |
| Moonfish | SNA | P&A/plugged and secured | Crude Oil | Moonfish crude | 27.8 | 27 | 38.5 | Group 4 |
| Tuna L and Tuna T | TNA | P&A/plugged and secured | Crude Oil | Moonfish crude | 40.4 | 24 | 39.4 | Group 4 |
| West Tuna R and S | WTN | P&A/plugged and secured | Crude Oil | Moonfish crude | 35.6 | 37 | 26.8 | Group 4 |

**Definitions**

American Petroleum Institute gravity (API): API gravity is an inverse measure of a petroleum liquid's density relative to that of water and it is used to compare densities of petroleum liquids. An API value >10 indicates that the petroleum liquid is lighter than water and will float, whilst an API value of <10 means that it is heavier than water and will sink.

Distillation characteristics (wax content): Distillation characteristics of an oil describe its volatility (i.e. tendency to evaporate). Distillation characteristics are expressed as the proportions of the parent oil that distil within given temperatures. Wax content is a measure of bituminous waxy or asphaltenic residues that do not readily distil even at high temperatures. A high wax content indicates a higher viscosity whilst a lower wax content indicates a lower viscosity. Viscosity of an oil is its resistance to flow. High viscosity oils flow less easily than those of lower viscosity. All oils become more viscous as the temperature falls.

Pour Point: The pour point is the temperature below which an oil no longer flows and is a function of its wax and ashphaltene content (ITOPF, 2011). Average water temperature for the Bass Strait is 15.7°C (per RPS reports) and 14°C has been used as the winter sea temperature for dispersant effectiveness testing. Therefore, it is assumed that hydrocarbons with a pour point >14°C will be liquid at ambient temperatures.

Oil Classification (ITOPF, 2025):

Group 1: non-persistent light oils: Group 1 oils have a high volatility meaning they evaporate or naturally disperse within one to two days with little to no residue after evaporation. Group 1 oils spread rapidly (i.e. do not persist) due to their low viscosity. Clean up response is usually not required beyond monitoring. Impacts to marine life may be severe, but localised.

Group 2: persistent light oils: Group 2 oils have a moderate volatility meaning they will generally leave a residue (up to 1/3 of the spill amount) after a few days. Group 2 oils may spread and form emulsions (i.e. persist) due to their moderate viscosity. Shorelines could be impacted and clean up can be effective.

Group 3: medium oils: Group 3 oils have a low volatility meaning that up to 1/3 will evaporate within 24 hours. Group 3 oils spread relatively slowly, can form thick slicks and are sticky (i.e. persistent). Intertidal areas can become contaminated, and birds and mammals have the potential to be severely impacted. Clean-up is most effective when done promptly.

Group 4: heavy oils: Group 4 oils experience little to no evaporation and are extremely viscous meaning they do not spread far, are sticky/tarry (i.e. persistent) and may solidify or sink. Intertidal areas can become heavily contaminated, and birds and mammals have the potential to be severely impacted. Clean up can be challenging and long-lasting.

* Estimated based on composition

## 2.5 Platform operations

### *2.5.1 Description of assets*

The producing platforms, except for WTN, all have a tubular steel base structure (or jacket) that is fastened to the seabed by piles. The jackets support the 'topsides', which include the production facilities, living quarters for the personnel working on the platform and a helicopter deck. The WTN platform has a CGS to support the platform, as detailed in Section 2.3.

Figure 2-1 shows a general schematic of a platform.

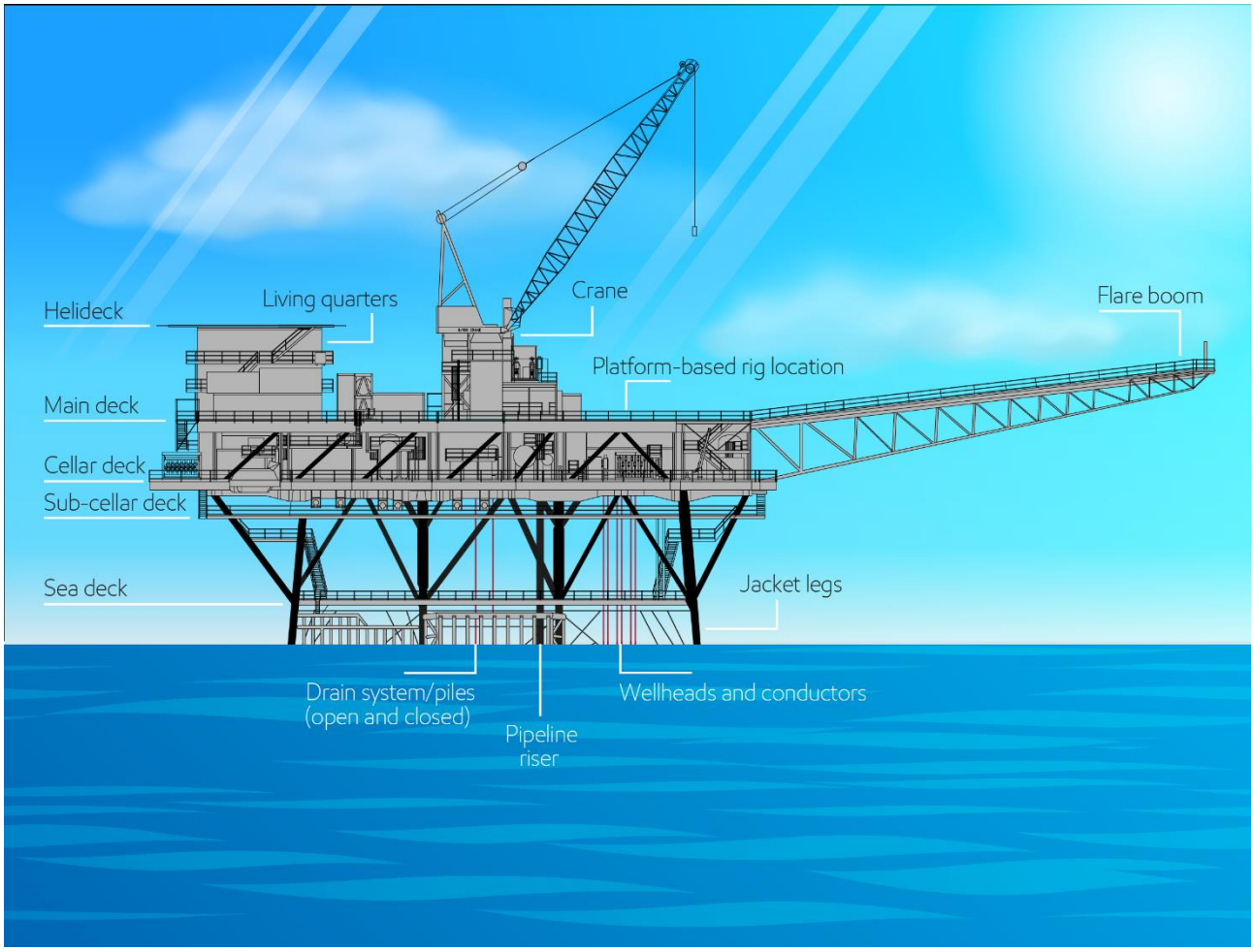



**Figure 2-1 General platform schematic**

Appendix B includes a photo and key statistics for each of the producing platforms and subsea facilities.

Table 2-11 outlines a general description of the platforms with key features. All platforms vary in design and house features in different locations.

**Table 2-11 General platform topsides layout**

| Equipment/area | Description/contents |
|---|---|
| Living quarters | • Control room, radio room and offices.<br>• Shared bedrooms.<br>• Ablutions, laundry and galley.<br>• Recreation room(s).<br>• Macerators for disposal of food scraps.<br>• Sewage treatment. |

| Equipment/area | Description/contents |
|---|---|
| Helideck | The helideck is located above the living quarters. |
| Flare boom | The flare boom is a truss structure that extends from the main deck and is equipped with pipelines that connect to the gas source and a burner at the tip. A continuous pilot is installed to ignite flared gas. |
| Crane | Each platform is equipped with a minimum of one crane to undertake lifts for operation and maintenance activities (two cranes at WTN, three cranes at MLC). |
| Laydown area | The laydown area is a designated space for equipment and loads to be placed during vessel to platform transfers. |
| Wellheads and Production manifolds | • Wellheads.<br>• Flowlines.<br>• Manifolds. |
| Gas compression<br>(except BTA, SNA, TNA) | • Scrubbers.<br>• Compressors.<br>• Fin fan coolers.<br>• Gas-driven turbine.<br>• Compressor seal systems. |
| Gas metering and pipelines | • Pig launcher.<br>• Shut off valves (First Valve On/Last Valve Off). |
| Relief, vent and flare system | • Knock out vessels.<br>• Flare tip. |
| Closed drain system | • Closed pile vessel.<br>• Skimmer vessel.<br>• Pile pumps. |
| Open drain system | • Open pile vessel.<br>• Skimmer vessel.<br>• Pile pumps. |
| Fuel gas system | Separator vessels. |
| Diesel reticulation Systems | • Storage tanks (including crane towers).<br>• Diesel pumps.<br>• Filters. |
| Firefighting Systems | • Foam storage.<br>• Diesel-driven fire pumps.<br>• Air start vessels. |
| Air system | • Knock-out vessels.<br>• Filters. |
| Glycol system | • Storage tanks.<br>• Storage vessels.<br>• Pumps. |

| Equipment/area | Description/contents |
|---|---|
| Methanol system | • Storage tanks.<br>• Storage vessels.<br>• Pumps. |
| Potable water system | • Storage tanks.<br>• Reverse osmosis (RO) systems.<br>• Filters. |
| Lube oil system | • Storage tanks.<br>• Storage bulkies.<br>• Pumps.<br>• Filters. |
| Chemical storage | • Storage tanks.<br>• Storage bulkies.<br>• Pumps.<br>• Filters. |
| Power generation | • Diesel turbines.<br>• Gas turbines. |

### *2.5.2 Fuel gas system*

Fuel gas is a stream of natural gas taken from the production system on the platforms. It is taken downstream of the separators, to ensure free liquids have been removed, so that it burns safely and efficiently.

Fuel gas is predominantly used for the following platform processes:

- gas compression
- power generation.

Fuel gas is also used in smaller volumes for the following:

- flare pilot and relief header purge
- open and closed drain system purge
- bubbler tube level indication (piles)
- blanket and/or motive gas for glycol and methanol storage vessels.

Fuel gas can also be sent to other platforms via pipeline, where required.

#### 2.5.2.1 Gas compression

Fuel gas is supplied to gas compressor turbines. A summary of the gas compressor equipment in service is provided in Table 2-12.

**Table 2-12 Gas compression equipment**

| Platform | Equipment |
|---|---|
| BTA | N/A |
| MLA | N/A |
| MLB | 2 x two-stage gas compressors (MBC-2400/2401, MBC-2402/2403) |
| SNA | N/A |

| Platform | Equipment |
|---|---|
| TNA | N/A |
| WTN | 2 x two-stage gas compressors (WTC-2400/2410, WTC-2420/2430) – WTN gas production<br>1 x single stage gas compressor (WTC-2470) – KPA gas production |

#### 2.5.2.2 Power generation

Electricity used to power the platforms is supplied by on-board generators. These generators use either fuel gas or diesel.

A summary of the power generation equipment is provided in Table 2-13.

**Table 2-13 Power generation equipment**

| Platform | Equipment |
|---|---|
| BTA | • 2 x fuel gas generators (BAM-620, BAM-630)<br>• 1 x standby diesel generator (BAM-640N) |
| MLA | • 1 x fuel gas generator (MAG-650)<br>• 1 x standby diesel generator (MAG-670) |
| MLB | • 2 x dual fuel gas generators (MBG-1700, MBG-1701)<br>• 1 x standby diesel generator (MBG-1702) |
| SNA | • 2 x fuel gas generators (SAG-250, SAG-260)<br>• 1 x standby diesel generator (SAG-270) |
| TNA | • 2 x fuel gas generators (TUG-250, TUG-260)<br>• 1 x standby diesel generator (TUG-270) |
| WTN | • 2 x fuel gas generators (WTG-1700, WTN-1710)<br>• 1 x standby diesel generator (WTG-1740) |

#### 2.5.2.3 Fuel gas usage and forward estimates

Actual fuel use and forward estimates of fuel gas use are provided in Table 2-14.

**Table 2-14 Average daily fuel gas usage and forecast ($kSm^3/d$)**

| Platform | Actual | Forecast | | | | | |
|---|---|---|---|---|---|---|---|
| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| BTA | 3.1 | 4 | 4 | 4 | 4 | 0 | 0 |
| MLA+MLB | 67.6 | 86 | 104 | 104 | 104 | 104 | 104 |
| SNA | 7.5 | 6 | 0 | 0 | 0 | 0 | 0 |
| TNA | 11.4 | 6 | 6 | 6 | 6 | 6 | 6 |
| WTN | 77.7 | 88 | 88 | 88 | 88 | 88 | 88 |
| **Total** | **167.4** | **191** | **202** | **202** | **202** | **198** | **198** |

2026 fuel gas forecasts assume all fuel gas consuming machinery being at maximum load 24/7.

For 2027 to 2031, fuel gas forecasts have been generated based on the Emissions Forecasting Protocol from first principles (machinery fuel gas design basis) based on expected machinery uptime and load. Machinery fuel gas assumptions were cross-checked against historical data. Forecast machinery uptime assumptions were taken from the 25 corporate plan long-term activity schedule. Forecast machinery load is based on platform gas production forecasts.

TNA, SNA and BTA no longer have compressors operating as their LP systems have been shut down. From assumed dates of CoP, diesel is assumed to be the source of energy for platform power generation for SNA and BTA however fuel gas is still assumed to be the source of energy for platform power generation on TNA post CoP.

### *2.5.3 Flare and vent system*

A flare system is present on all platforms, using cantilevered flare booms on the north side of each platform. For the MLA facility, the flare system ties into the flare on MLB. A flare is a safety-critical combustion system designed to burn off excess or unwanted gases that cannot be safely processed, stored, or used. Its primary purpose is to relieve pressure in the facility during events such as equipment over-pressurisation, emergency shutdowns, maintenance activities, or process upsets, preventing hazardous gas accumulation and reducing explosion risk. The gases are collected via relief and blowdown systems and routed to the flare, where they are safely combusted at a remote point to convert hydrocarbons - particularly methane - into less harmful combustion products.

Each flare has a flare scrubber located at the base of the flare boom. The flare scrubber removes bulk liquid from the gas stream to prevent burning of liquids at the flare tip. Liquids removed from the flare scrubber are directed to the closed skimmer pile. The average composition of hydrocarbon production for each of the platforms is provided in Table 2-15 and is consistent with production gas composition.

**Table 2-15 Average historical composition of the hydrocarbons during production (mol%)**

| Component | BTA | MLA/MLB | SNA | TNA/WTN | KPA |
|---|---|---|---|---|---|
| $N_2$ | 1.8 | 0.4 | 0.6 | 1.9 | 0.2 |
| $CO_2$ | 0.6 | 13.9 | 1.5 | 4.3 | 10.2 |
| $H_2S$ | 55ppm | 15ppm | 50ppm | 50ppm | 0 ppm |
| $C_1$ | 85.7 | 72.3 | 86.6 | 80.3 | 76.9 |
| $C_2$ | 5.7 | 5.8 | 6.2 | 6.3 | 6.2 |
| $C_3$ | 3 | 3.5 | 2.4 | 3.9 | 2.8 |
| $C_4$ | 1.8 | 1.5 | 0.9 | 2.0 | 1.2 |
| $C_5$ | 0.8 | 0.6 | 0.5 | 0.8 | 0.5 |
| $C_6$+ | 0.6 | 1.9 | 1.3 | 0.7 | 2.0 |
| Total | 100 | 100 | 100 | 100 | 100 |

#### 2.5.3.1 Routine flaring

Routine flaring, per the definition in the World Bank Zero Routine Flaring Initiative, is defined as flaring that occurs during normal production operations when there is insufficient capacity to re-inject, use on-site, or send the gas to market. It explicitly excludes flaring conducted for safety reasons or non-routine/emergency events.

Under normal operating conditions, there is no routine flaring from the Bass Strait facilities.

#### 2.5.3.2 Non-routine (emergency) flaring

Non-routine flaring is flaring that occurs for legitimate safety-related reasons rather than as part of normal operations. This includes flaring required to:

- relieve over-pressure in processing equipment via safety/relief valves
- manage process upsets
- support emergency shutdowns, maintenance depressurisation, or
- prevent unsafe accumulation of hydrocarbons during abnormal operational conditions.

Non-routine flaring is distinguished from routine flaring because it is infrequent, unplanned, and performed to protect life, assets, and environmental integrity. Flare systems are designed for a maximum flow rate capacity such that the entire platform is able to be de-inventoried rapidly.

#### 2.5.3.3 Non-routine (planned safety) flaring

In addition to safety-related emergency flaring, offshore facilities undertake several forms of planned, non-routine flaring that are required to maintain safe operating conditions. These flaring activities are not considered routine flaring (as defined by the World Bank), because they are not part of normal production operations and are performed for safety or operational integrity reasons, not due to insufficient infrastructure to manage associated gas.

*PILOT GAS FLARING*

During routine platform operations, the flare tip is continuously kept alight using a pilot flame, supplied by a small flow of fuel gas. This ensures the flare system is always ready to safely combust any gases released during pressure-relief events. Continuous pilot burning is a standard safety requirement to keep the flare system functional and immediately responsive. If the pilot flame is extinguished - for example by strong winds - it is relit as soon as practicable to restore flare availability.

*PURGE GAS FLARING*

Purge gas is a small, continuous flow of gas injected into the flare system to prevent air ingress into the flare header and stack, which could otherwise allow the formation of explosive mixtures. Purge gas maintains a hydrocarbon-rich atmosphere and prevents burn back (flame travel back into the flare system), making it an important safety measure.

*PLANNED MAINTENANCE FLARING*

During scheduled maintenance and planned platform shutdowns, equipment may need to be depressurised, blown down, or isolated, which requires controlled flaring of residual hydrocarbons to ensure the system is gas-free and safe for personnel. Planned maintenance flaring is temporary, infrequent, and undertaken only to enable safe execution of maintenance tasks. Industry guidance recognises maintenance depressurisation as a legitimate use of flare systems that remains necessary to protect equipment and personnel during non-routine operations.

#### 2.5.3.4 Flaring rates and forward estimates

Actual flaring data for the 2025 calendar year and the annual flaring forecasts from 2026 until 2031 for the platforms are provided in Table 2-16.

**Table 2-16 Actual average flare rates and forecast ($kSm^3/d$)**

| Facility | Actual | Forecast | | | | | |
|---|---|---|---|---|---|---|---|
| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| BTA | 0.3 | 1 | 1 | 1 | 1 | 0 | 0 |
| MLA/MLB | 2.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| SNA | 0.1 | 1 | 0 | 0 | 0 | 0 | 0 |
| TNA | 1.8 | 1 | 1 | 1 | 1 | 1 | 1 |
| WTN | 2.4 | 1 | 1 | 1 | 1 | 1 | 1 |

| Facility | Actual | Forecast | | | | | |
|---|---|---|---|---|---|---|---|
| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| **Total** | **6.8** | **5** | **4** | **4** | **4** | **3** | **3** |

For 2026 - 2031, forecasts were generated in accordance with the Emissions Forecasting Protocol using first principles based on design purge and pilot rates and an allowance for planned maintenance activities aligned with the 2025 Company Plan long term activity schedule (based off historical data). No unplanned flaring is considered in the forecast.

Post CoP, it is assumed that there is no purge and pilot gas on SNA and BTA. However, for TNA, it is assumed to maintain purge and pilot gas following CoP.

#### 2.5.3.5 Vent system

There are small volumes of gas that are vented via dedicated lines that terminate on the flare boom. These vent sources include:

- low pressure compressor vents, which vent the final remnants of low pressure gas after a shutdown event
- open and closed pile vents, which are part of the system to maintain an inert atmosphere in the piles
- jacket strut vents, which are part of the system to maintain an inert atmosphere in the strut
- flexible pipeline gas vents which allow any gas that has permeated the inner sheath of the flexible line to escape before it damages the sheath.

Typical sources of vented gas are shown in Figure 2-2.

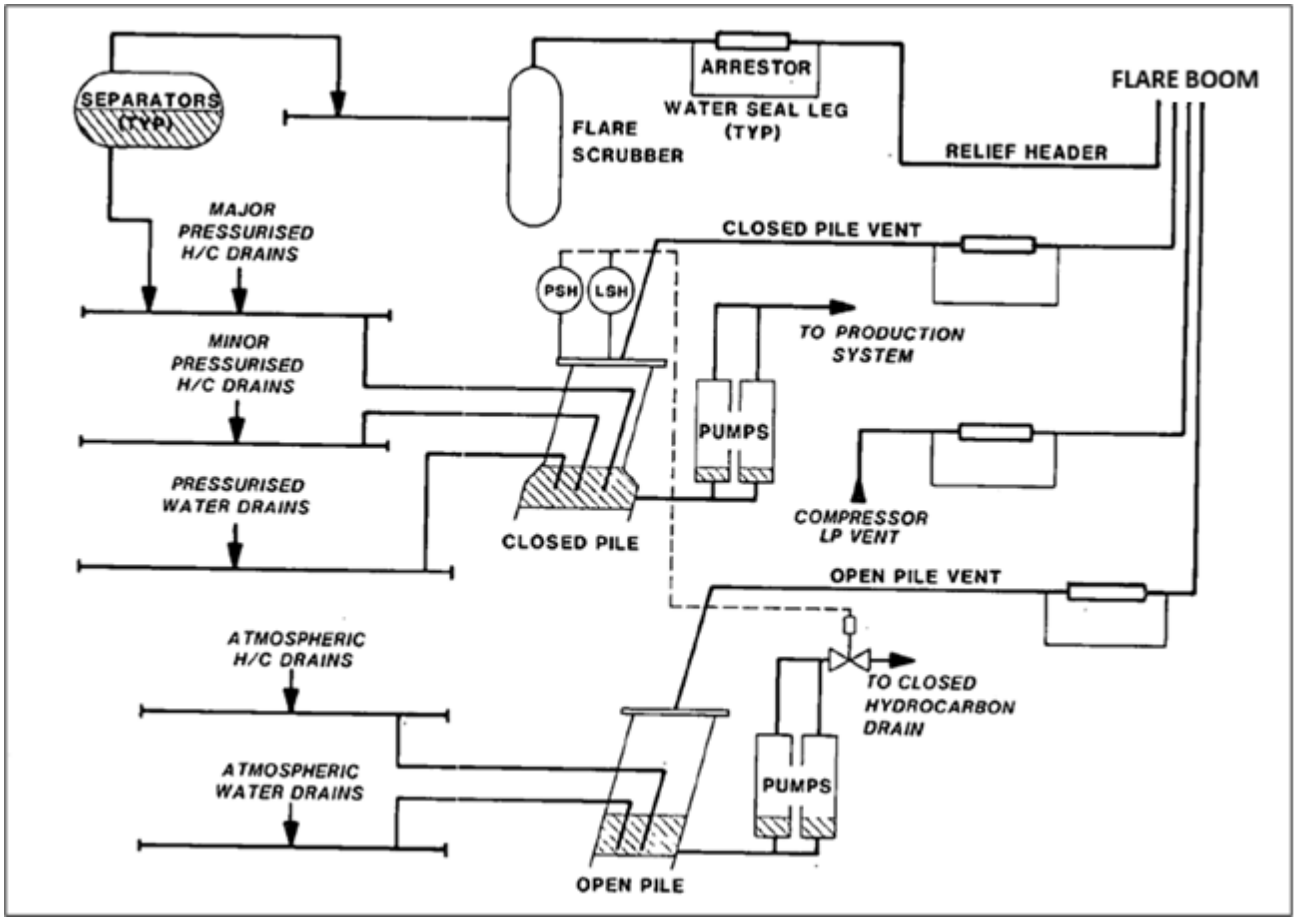



**Figure 2-2 General flare and vent sources**

The typical quantity of venting from the producing platforms, based on 2025 performance, is outlined in Table 2-17.

**Table 2-17 2025 Bass Strait producing platforms gas venting summary (kSm³)**

| Facility | Open pile | Closed pile | Compressor | Other | Total |
|---|---|---|---|---|---|
| BTA | 10.6 | 11.8 | - | - | 17.3 |
| MLA | 8.5 | 4.0 | - | 4.2 | 24.7 |
| MLB | 167 | 177 | 12.9 | 129.8 | 487 |
| SNA | 3.3 | 5.3 | - | - | 14.7 |
| TNA | 7.3 | 5.0 | - | 1.6 | 15.7 |
| WTN | 0 [1] | 0 [1] | 5.1 | 0 | 5.1 |

Note 1: WTN uses nitrogen for pile purges

### *2.5.4 Drain and pile system*

There are three distinct drain systems on the platforms, being deluge, open and closed drains (also known as skimmer piles), as described here.

Deluge drains that:

- dispose of excess deluge water directly overboard.

Open drain (low pressure) systems that handle:

- chemicals, oils and waste from bunded areas or designated containment areas
- residual chemicals and hydrocarbons from process equipment draining
- rainwater or sea spray runoff on decks from deck drains.

Closed drain (high pressure) systems that:

- drain process equipment at higher than atmospheric pressure such as wellheads, separators and flowlines, process equipment and instrument bridles
- handle oils, chemicals and water in process streams, such as drainage from pressured equipment including pig launchers/receivers and separators
- are dosed with biocides, emulsion breakers, and other process chemicals.

Skimmer piles are used to separate hydrocarbons from liquids directed to the open and closed drain. The open and closed drain systems each have their own skimmer pile caisson that interfaces with the sea via the pile window. Hydrocarbon vapours and liquids migrate to the top of each pile and settle out on top of the water. The piles run at atmospheric pressure.

Hydrocarbon liquids from the open drain system are pumped to the closed drain skimmer pile. Hydrocarbon liquids from the closed drain skimmer pile are recycled to the process or into the pipeline.

Figure 2-3 illustrates the open drain and pile system with feeds from deck drains. Feeds to the closed pile system originate from pressurised equipment. Details of feeds to the pile systems are described in section 2.5.4.3.

Feeds to the pile are either the same or lower density than water. As they enter the pile they displace existing water in the pile downwards, resulting in the displaced water being discharged from the subsea window. As hydrocarbons are pumped out of the pile, the volume is replaced with fresh seawater from the subsea window.

The rate and/or duration of discharges to the pile are managed dependent on specific pile volumes on the platforms, to ensure levels are maintained in order to eliminate the risk of a hydrocarbon release through the subsea pile window of the pile systems.

A summary of the current piles is provided in Table 2-18

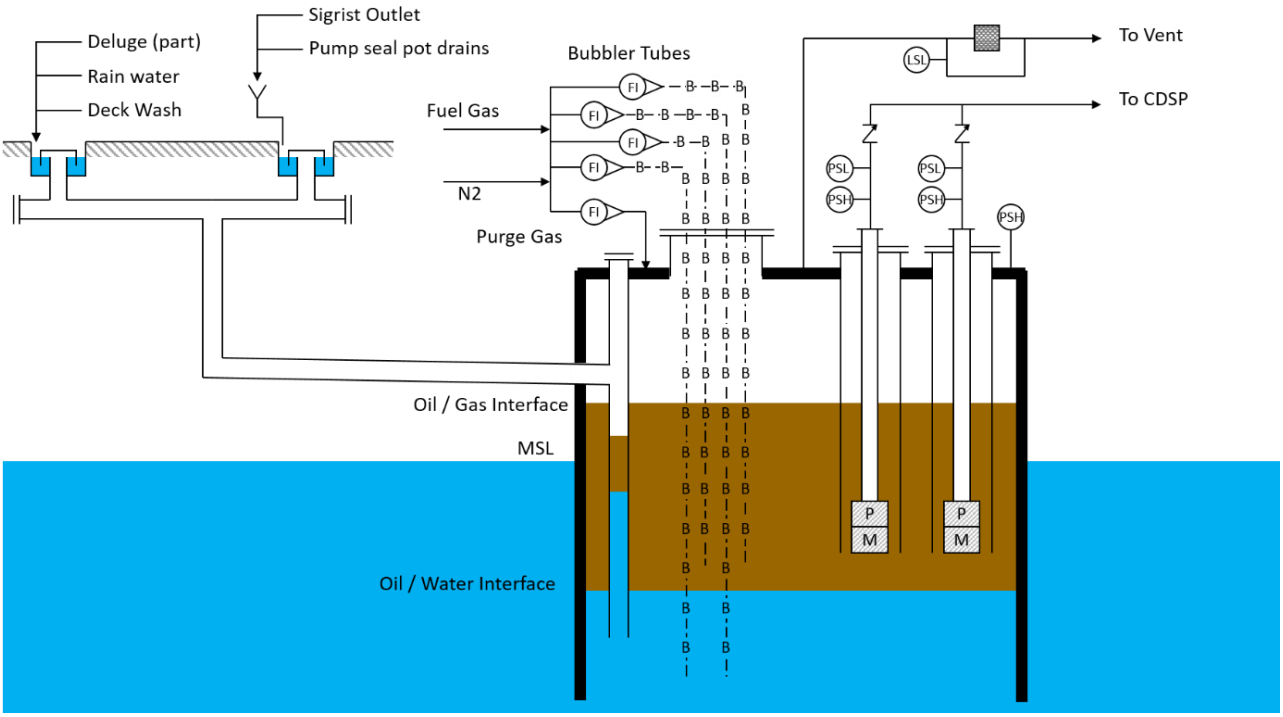



**Figure 2-3 Schematic of open drain system**

### 2.5.4.1 Open drain skimmer pile

The open drain skimmer pile (ODSP) is used to collect all liquids from the open (atmospheric) drains and to separate the hydrocarbons from the water by allowing water to flow out to sea via the subsea window, which is located more than 30m below mean sea level (MSL). Hydrocarbons are then pumped to the closed drain skimmer pile by the ODSP pump(s) and then to the skimmer vessel by the closed drain skimmer pile (CDSP) pump.

All open drains connected to the ODSP have an atmospheric break between the equipment and the open drain header to avoid the possibility of pressuring up the open drains or ODSP system. The only connection to the CDSP is via the open pile pump discharge line, which is protected against backflow by check valves and a shutdown valve.

### 2.5.4.2 Closed drain skimmer pile

The CDSP is used to collect all liquids from the closed drain (high pressure) system, and to separate the hydrocarbons from water by allowing the water to flow out to sea via the subsea window, located more than 30m below MSL. Hydrocarbons are then pumped to the skimmer vessel by the CDSP pumps.

Details of the open and CDSPs for each of the producing platforms are included in Table 2-18.

The volume of hydrocarbon in each skimmer pile is determined from the position of the hydrocarbon/water interface. This is detected by measuring the differential pressure across two bubbler tubes positioned at different depths in the pile. For example, the WTN CDSP has these at 4m below MSL and 35m below MSL. The position of this interface can be inferred from the differential pressure while the interface sits between these levels. Purge gas (fuel gas) is used to operate the bubbler tubes. Nitrogen gas may be used if purge gas is not available.

Signals from level interface transmitters are used to:

- provide information on pile levels and status of pile equipment through the platform distributed control system
- start and stop the submersible pile pump(s), where these are set to run automatically
- shutdown the pump(s) on low hydrocarbon volume level to protect the pump(s) from damage
- trigger low/high hydrocarbon volume alarm(s), and/or
- trigger a surface shutdown on high hydrocarbon volume (typically CDSP only).

Pile pumps may either be run in manual or automatic mode depending on specific platform requirements. Where run in manual mode, operators respond to distributed control system information to effectively manage hydrocarbon levels in the piles. Where pumps are run in automatic mode, the pumps will turn on (and off) automatically, within set pile level parameters.

**Table 2-18 ODSPs and CDSPs**

| Platform | | ODSP | CDSP |
|---|---|---|---|
| BTA | Pile caisson | BAV-780.<br>Pile volume: 12.5kL.<br>Subsea window depth: – 43m MSL. | BAV-790.<br>Pile volume: 12.5kL.<br>Subsea window depth: – 43m MSL. |
| | Pumps | Two pile pump slots with associated pile pumps. | One pile pump slot with associated pile pump. |
| | Level instrumentation | Two sets of bubbler tubes. | Two sets of bubbler tubes. |
| | Pile input | Liquid originates from open drain system. | Liquid originates from the ODSP, production system and flare scrubber via the relief header. |
| | Pile output | CDSP. | Directed to condensate drum BAV-680 and manually pumped to reinjection well as needed (typically once a fortnight). |
| MLA | Pile caisson | MAV-2015<br>Pile volume: 14.5kL.<br>Subsea window depth: – 47m MSL. | MAV-360<br>Pile volume: 14.5kL.<br>Subsea window depth: – 53m MSL. |
| | Pumps | Two pile pump slots with associated pile pumps. | One pile pump slot with associated pile pump. |
| | Level instrumentation | Two sets of bubbler tubes. | Two sets of bubbler tubes. |
| | Pile input | Liquid originates from open drain system. | Liquid originates from the ODSP, production system and flare scrubber via the relief header. |
| | Pile output | CDSP. | Directed to pipeline via condensate injection pumps MAP380/390. |

| Platform | | ODSP | CDSP |
|---|---|---|---|
| MLB | Pile caisson | MBT-1306.<br>Pile volume: 57.5kL.<br>Subsea window depth: – 16.9m MSL. | MBT-1304.<br>Pile volume: 57.5kL.<br>Subsea window depth: – 16.9m MSL. |
| | Pumps | Two pile pump slots with associated pile pumps. | Two pile pump slots with associated pile pumps. |
| | Level instrumentation | Two sets of bubbler tubes. | Two sets of bubbler tubes. |
| | Pile input | Liquid originates from open drain system. | Liquid originates from the ODSP, production system and flare scrubber via the relief header. |
| | Pile output | CDSP. | Directed to skimmer vessel MBV-0723. Water phase redirected to CDSP. Hydrocarbon phase pumped to reinjection well via MBP-0411/0412. |
| SNA | Pile caisson | SAT-6250.<br>Pile volume: 38kL.<br>Subsea window depth: – 35.8m MSL. | SAT-6240.<br>Pile volume: 240kL.<br>Subsea window depth: – 49m MSL. |
| | Pumps | Two pile pump slots with associated pile pumps. | One pile pump slot with associated pile pump. |
| | Level instrumentation | Two sets of bubbler tubes. | Two sets of bubbler tubes. |
| | Pile input | Liquid originates from open drain system, fuel gas system. | Liquid originates from the ODSP, production system and flare scrubber via the relief header. |
| | Pile output | CDSP. | Directed to skimmer vessel SAV-660, then to pipeline via SAP-470, MOV-8871 and SDV-8866. |

| Platform | | ODSP | CDSP |
|---|---|---|---|
| TNA | Pile caisson | TUT-6212.<br>Pile volume: 38kL (at 35 m MSL).<br>Subsea window: – 38.5m MSL. | TUT-6211.<br>Pile volume: 215kL (at 21.4 m MSL).<br>Subsea window depth: – 52.1m MSL. |
| | Pumps | Two pile pump slots with associated pile pumps. | One pile pump slot with associated pile pump |
| | Level instrumentation | Two sets of bubbler tubes. | One set of bubbler tubes. |
| | Pile input | Liquid originates from open drain system, fuel gas system. | Liquid originates from the ODSP, production system and flare scrubber via the relief header. |
| | Pile output | CDSP. | Directed to skimmer vessel TUV-660, then to pipeline via TUP-470 and SDV-71720. |
| WTN | Pile caisson | WTT-1400.<br>Pile volume: 130kL.<br>Subsea window: – 44m MSL. | WTT-1410.<br>Pile volume: 150kL.<br>Subsea window depth: – 44m MSL. |
| | Pumps | Two pile pump slots with associated pile pumps. | Two pile pump slots with associated pile pumps. |
| | Level instrumentation | Two sets of bubbler tubes. | Two sets of bubbler tubes. |
| | Pile input | Liquid originates from the open drain system. | Liquid originates from the ODSP, production system and flare scrubber via the relief header. |
| | Pile output | CDSP. | Directed to skimmer vessel WTV-700. Water phase redirected to CDSP. Hydrocarbon phase pumped to reinjection wells via WTP-348/350. |

#### 2.5.4.3 Pile feeds

Pile feeds could include continuous feeds from platform equipment, discharges due to equipment or platform trips, or pigging. Continuous feeds from process are generally directed to the closed pile system. Minimal residual production fluids may be directed to the open pile system however, the open pile system primarily processes water runoff from platform decks. A detailed list of pile feeds is provided in Table 2-19.

During planned and unplanned platform shutdowns, the production system is depressurised by flaring gas. This will generate a small amount of condensate which will end up in the pile. Any maintenance activity that requires inventory to be removed in order to break containment will also result in liquids being sent to the pile.

**Table 2-19 Pile feeds**

| Feed | Description | BTA | MLA | MLB | SNA | TNA | WTN |
|---|---|---|---|---|---|---|---|
| **Primary pile feeds** | | | | | | | |
| Platform deck drainage | Platform decks drain into open drains which are directed to the open pile system. These fluids may contain residual hydrocarbons and cleaning agents as collected in bunded areas directed to the drain system. | ODSP | ODSP | ODSP | ODSP | ODSP | ODSP |
| Draining of process fluids during equipment isolation/ depressuring or wellwork | Majority of drainage from pressured vessels or wellwork operations is directed to the closed pile. Residual process fluids are directed to open drains to confirm vessel or equipment is depressured and hydrocarbon free (draining to closed pile can only be completed until pressure in vessel equalises with closed drain system). Prior to vessel entry or inspection, any residual solids, sand or sludge is collected and transferred to shore for disposal.<br>Prior to wellwork activities, wells are depressured to the flare. | ODSP or CDSP | ODSP or CDSP | ODSP or CDSP | ODSP or CDSP | ODSP or CDSP | ODSP or CDSP |
| Waste oils from continuous operations (e.g. filter | On some platforms, equipment generates low volumes of waste oil from continuous operations. This is directed to the drain system | CDSP | CDSP | CDSP | CDSP | CDSP | CDSP |

| Feed | Description | BTA | MLA | MLB | SNA | TNA | WTN |
|---|---|---|---|---|---|---|---|
| coalescers, pump seals) | | | | | | | |
| Liquids from the fuel gas system | In order to supply ongoing power to staffed and unstaffed facilities, gas is used as fuel to power generators. Minor amounts of condensate may drop out from the gas lift system. This condensate is directed to the drain system. | Liquids typically sent directly to the CDSP or via the flare scrubber. | CDSP | Liquids sent to skimmer vessel, with smaller volumes sent to CDSP. | Liquids typically sent to the ODSP.<br>Liquids may also be diverted to CDSP. | CDSP | CDSP |
| **Low volume feeds** | | | | | | | |
| Waste oils (lube oil, hydraulic fluid) from machinery servicing | Bulk volumes of waste oils from scheduled machinery servicing are collected in stainless steel waste oil bulkies for transfer to shore and disposal.<br>Minor machinery servicing may generate small volumes of waste oils, which is directed to the closed pile system. | Bulk volumes: collected from scheduled machinery servicing is collected and sent onshore via waste oil intermediate bulk containers (IBCs). | Bulk volumes: collected from scheduled machinery servicing is collected and sent onshore via waste oil IBCs.<br>Minor volumes: ODSP | Bulk volumes: collected from scheduled machinery servicing is collected and sent onshore via waste oil IBCs.<br>Minor volumes: ODSP | Bulk volumes: collected from scheduled machinery servicing is collected and sent onshore via waste oil IBCs.<br>Minor volumes: ODSP | Bulk volumes: collected from scheduled machinery servicing is collected and sent onshore via waste oil IBCs.<br>Minor volumes: ODSP | Bulk volumes: collected from scheduled machinery servicing is collected and sent onshore via waste oil IBCs.<br>Minor volumes: CDSP |

| Feed | Description | BTA | MLA | MLB | SNA | TNA | WTN |
|---|---|---|---|---|---|---|---|
| | | Minor volumes: ODSP | | | | | |
| Water feeds with residual hydrocarbon | For example, water with condensate from flare loop seals, excess water from formation water sampling. | ODSP | ODSP | ODSP | ODSP | ODSP | ODSP |
| Diesel from pump seal draining | On some platforms, flushing of the main oil line pump seals is required to monitor the integrity of the pump seal system. | N/A | N/A | CDSP | N/A | N/A | CDSP |
| Biocide | Small volumes of biocide are injected to the closed pile to mitigate the growth of sulphate-reducing bacteria which can cause corrosion leading to loss of integrity. | Biocide is injected into CDSP pump discharge line. | Biocide is injected into CDSP pump discharge line. | Biocide is injected into CDSP pump discharge line. | Biocide is injected into CDSP pump discharge line. | Biocide is injected into CDSP pump discharge line. | Biocide is injected into CDSP pump discharge line. |
| Pigging returns associated with pig receivers. | On some platforms, pigs received are covered in residue. Residue may be collected for onshore disposal. Residual amounts of residue may be directed to the pile system to avoid personnel exposure to unprocessed hydrocarbons. | Not typically required on BTA however if pigging conducted.<br>CDSP until depressured, remaining residual fluids to ODSP. | CDSP until depressured, remaining residual fluids to ODSP. | CDSP until depressured, remaining residual fluids to ODSP. | CDSP until depressured, remaining residual fluids to ODSP. | CDSP until depressured, remaining residual fluids to ODSP. | CDSP until depressured, remaining residual fluids to ODSP. |

### *2.5.5 Utility systems*

#### 2.5.5.1 Platform lighting

All platforms are equipped with navigation lighting but also have a variety of other light sources including crane clearance lights, helipad lights and radio tower lights. There is also lighting for accommodation and related infrastructure.

#### 2.5.5.2 Heating, ventilation and air conditioning system

The heating, ventilation and air conditioning (HVAC) system on the platforms comprises HVAC equipment, ductwork and associated pipework. It provides independent and interdependent sub-systems with pressurised, conditioned, purge and exhaust air services to all living areas including accommodation and various modules, which can be operated on an as-required basis or continuous basis.

#### 2.5.5.3 Potable water

Platforms generate potable service water by RO desalination of sea water. Supply vessels supply additional potable water for drinking. RO water is sourced from the service water supply, processed by RO. RO reject water is discharged overboard.

#### 2.5.5.4 Cooling water

The HVAC cooling water is sourced directly from the unprocessed service (sea) water supply. It is used as cooling water and discharged to sea.

#### 2.5.5.5 Accommodation

The persons on board and staffing status at each platform is provided in Section 2.3.1.

#### 2.5.5.6 Domestic waste

Platforms that have overnight accommodation (all except MLB) discharge food scraps (putrescible waste) generated in the galleys, as well as sewage (from toilets) and greywater (from showers, laundries and galleys, comprising primarily potable water, soaps and detergents).

Waste is processed via a macerator prior to being discharged subsea.

#### 2.5.5.7 Industrial wastes

Platform operation generates both general wastes (solid inert materials including plastics, paper, glass and metal) and hazardous wastes (such as waste oil and chemicals, laboratory wastes, separator sludge and sand, oily filters, oily rags and empty drums containing oil or chemical residues). Solid and hazardous wastes are temporarily stored on the platform, then transported onshore via supply vessel and appropriately disposed.

### *2.5.6 Hydrocarbon and chemical inventories*

Hydrocarbon and chemicals are used as part of the daily operation of the platform (e.g. cleaning decks, fuelling crane, striping and painting handrails, etc.) and in the platform process (e.g. corrosion inhibitors, water handling chemicals, well workover fluid and chemical additives), and are stored in bulk on the platforms.

Use of chemicals is part of the platform operation and process equipment, and these chemicals may be discharged to the environment, provided they meet environmental discharge criteria. The *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) is discussed in Section 8.13.3.

Oils and chemicals are stored in drums, tanks or in 1250L IBCs and are transferred from supply vessels to the platforms via crane.

Diesel and glycol, which are used in greater volumes, are normally transferred to the platform via hose directly into holding tanks. Extra stocks in self-contained storage may be transferred to the platform via crane if needed.

#### 2.5.6.1 Hydrocarbons

Hydrocarbon inventories for platform topsides are associated with process and non-process equipment. Process equipment sources include those in closed systems (e.g. skimmer vessels and separators). Non-process equipment relates to storage of hydrocarbons. The main hydrocarbon inventories associated with major topside non-process equipment for each platform is summarised in Table 2-20.

Diesel comprises a key hydrocarbon stored and used on the platform topsides and is used to fuel machinery such as cranes and power generators that run the facility.

**Table 2-20 Hydrocarbon inventories of non-process equipment**

| Platform | Product | Means of storage | Storage volumes (L) |
|---|---|---|---|
| BTA | Diesel | Tanks | 18,762 |
| | Lubricating oils (engine, turbine, gearbox, compressor) | Tanks, drums | 1800 |
| | Hydraulic oil | Tank (for BTW), drums | 2330 |
| MLA | Diesel | Tank | 19,300 |
| | Lubricating oils (engine, turbine, gearbox, compressor) | Tanks, drums | 1020 |
| | Hydraulic oil | Drums | 80 |
| MLB | Diesel | Tank | 64,000 |
| | Lubricating oils (engine, turbine, gearbox, compressor) | Tanks, drums | 8800 |
| | Hydraulic oil | Tank, drum | 1000 |
| SNA | Diesel | Tank | 80,000 |
| | Lubricating oils (engine, turbine, gearbox, compressor) | Tanks, drums | 2160 |
| | Hydraulic oil | Tanks/drums | 600 |
| TNA | Diesel | Tank | 44,000 |
| | Lubricating oils (engine, turbine, gearbox, compressor) | Tanks, drums | 2750 |
| | Hydraulic oil | Tanks/drums | 500 |
| WTN | Diesel | Tanks (incl. crane tank) | 115,000 |
| | Lubricating oils (engine, turbine, gearbox, compressor) | Tanks, drums | 4320 |
| | Hydraulic oil | Tank (for KPA), drums | 1600 |

### 2.5.6.2 Chemicals

Chemicals are utilised for a variety of purposes and can be divided into two broad categories (operational and maintenance), as described in this section. In addition to the chemicals listed, the platforms may also maintain small volumes of various facility maintenance chemicals.

### *OPERATIONAL CHEMICALS*

Operational chemicals are used for both process and non-process equipment. Chemicals associated with process equipment may be present in routine or non-routine discharge streams, such as hydrate inhibitors and corrosion inhibitors, including biocides:

- Glycol – Monoethylene glycol (MEG) is injected from the platform to pipelines to inhibit the formation of hydrates
- Methanol – Used for hydrate removal
- Biocide – Used to control the growth of microorganisms in pipework, pumps and other equipment to maintain integrity by inhibiting corrosion and biofouling.

Chemicals associated with non-process equipment may be intermittently discharged (or have the potential to be discharged). Examples of these include tracer dyes or workover chemicals.

### *MAINTENANCE CHEMICALS*

Maintenance chemicals include chemicals that are required for general maintenance or 'housekeeping' activities and are required to maintain the condition of the platform and its equipment. These include paints, degreasers, and cleaning products. They may also include chemicals required for specialty tasks, such as laboratory testing and analysis. Maintenance chemicals generally present negligible risk to the environment, as they are not discharged as a result of their use (e.g. paint), or are used intermittently and discharged in low volumes.

An indicative list of bulk chemicals commonly used (or planned to be used) on the facilities and estimated storage quantities, is summarised in Table 2-16. Other chemicals may be used in the future if chemical requirements change. In addition to the chemicals listed, the platform may also maintain other small volumes of various operational chemicals and facility maintenance chemicals.

**Table 2-16 Indicative bulk inventories of chemicals**

| Platform | Product | Indicative storage means | Storage volumes (L) |
|---|---|---|---|
| BTA | Glycol | Tanks/drums | 194,300 |
| | Methanol | Tank/IBC | 1800 |
| | Corrosion Inhibitors (pipeline, fin-fan, gas-lift, well batch) | Tank/IBC | 6250 |
| | Biocide (piles) | Tank | 50 |
| | Cleaning chemical | Tank | 1250 |
| | Demulsifier | - | - |
| MLA | Glycol | Tanks | 200,000 |
| | Methanol | Tank | 300 |
| | Corrosion Inhibitors (pipeline, fin-fan, gas-lift, well batch) | Tanks | 2500 |
| | Biocide (Piles) | Tank | 50 |
| | Cleaning chemical | Tank | 1000 |
| | Demulsifier | - | - |

| Platform | Product | Indicative storage means | Storage volumes (L) |
|---|---|---|---|
| MLB | Glycol | Tank/drums | 105,200 |
| | Methanol | - | - |
| | Corrosion Inhibitors (pipeline, fin-fan, gas-lift, well batch) | Tanks/drums | 5000 |
| | Biocide (Piles) | Tank | 20 |
| | Cleaning chemical | Tank | 2600 |
| | Demulsifier | Tank | 2600 |
| SNA | Glycol | Leg tank/tanks/drums | 410,200 |
| | Methanol | Drums | 250 |
| | Corrosion Inhibitors (pipeline, fin-fan, gas-lift, well batch) | Tanks/drums | 25,000 |
| | Biocide (piles) | Drums/IBCs | 250 |
| | Cleaning chemical | Tank | 2000 |
| | Demulsifier | - | - |
| TNA | Glycol | Leg tank/tank | 278,500 |
| | Methanol | Leg tank/tank | 220,000 |
| | Corrosion Inhibitors (pipeline, fin-fan, gas-lift, well batch) | Tanks/drums/IBCs | 13,350 |
| | Biocide (piles) | Tank | 130 |
| | Cleaning chemical | Tank | 2300 |
| | Demulsifier | - | - |
| WTN | Glycol | Tanks | 750,000 |
| | Methanol | Tank/IBCs | 3000 |
| | Corrosion Inhibitors (pipeline, fin-fan, gas-lift, well batch) | Tanks | 26,000 |
| | Biocide (piles) | Tank | 2650 |
| | Cleaning chemical | Drums | 100 |
| | Demulsifier | - | - |

### 2.5.7 *Cranes and lifting*

Each platform is equipped with one or two cranes that undertake lifts for operation and maintenance activities. Routine lifting operations include transferring stores and equipment from a support vessel to the platform and to lift equipment from one part of the platform to another. Table 2-21 lists the cranes on each platform.

**Table 2-21 Crane specifications**

| Platform | Description |
|---|---|
| BTA | One crane on the east side of the platform. |
| MLA | One crane on the east side of the platform. |
| MLB | Two cranes; one on the east side and one on the west side of the platform. |
| SNA | One crane located on the east side of the platform. |
| TNA | One crane located on the east side of the platform. |
| WTN | Two cranes; one on the east side and one on the west side of the platform. |

### 2.5.8 *Safety systems*

All platforms are equipped with a firefighting system in case of an emergency. Firewater pumps supply seawater to deluge and sprinkler systems upon detection of a fire.

Fire-fighting foam can be applied via the deluge system or hose reels. It can also be used as a pile blanket when removing and replacing the skimmer pile pump(s).

All platforms have a foam deluge system that uses Solberg RF 3x6 ATC. Operation of the foam deluge system could occur either as part of testing the system or as demanded during an actual fire event. Foam is not used as part of this testing and there is no associated discharge.

There are no PFOS-containing foams on any of the platforms. A summary of maximum volumes of firefighting foam stored on each platform is provided in Table 2-22.

**Table 2-22 Fire-fighting foam summary**

| Platform | Maximum storage capacity (L) |
|---|---|
| BTA | 3700 |
| MLA | 3200 |
| MLB | 6150 |
| SNA | 2000 |
| TNA | 3200 |
| WTN | 6100 |

### 2.5.9 *Produced formation water*

All the remaining production platforms are focussed on gas production following the cessation of oil production. The produced formation water (PFW) on these platforms is a mix of condensed water and formation water.

All PFW produced on the platforms is either reinjected into the reservoir or transported to shore by pipeline for treatment and as such, any remaining water handling facilities offshore are currently not in service.

There is the potential for MLB to use the PFW treatment facilities for overboard discharge in the future. This would be driven by the unlikely event that reinjection of the PFW into the reservoir fails. PFW is currently re-injected into the MLA A5 and MLA A14 wells, at typical rates of approximately 100kL/day. Overboard discharge is considered as a contingency measure due the age of the re-injection wells. At present, the PFW from the Marlin platform wells is almost entirely condensed water. While it is expected that this will continue for the remainder of the production life of the facility it is possible that some material free water may occur for periods of time.

Limited PFW volumes can be transported to Longford via the MLA500-LFD gas pipeline; however, this may not be practical for consistent and future transport of PFW, due to the volume of glycol required to be added to the pipeline for hydrate prevention.

A summary of PFW discharge end points is provided in Table 2-23.

**Table 2-23 PFW discharge summary**

| Platform | Discharge point |
|---|---|
| BTA | Re-injected to the reservoir. Can be transported via the BTA450-LFD pipeline to Longford as a contingency. |
| MLA/MLB | Re-injected to the reservoir via the MLB low pressure separator.<br>Contingency remains in place to discharge PFW overboard in the event that re-injection becomes unavailable.<br>Contingency option to transport via the MLA500-LFD gas pipeline to Longford at significantly reduced rates due to high glycol-dosing requirements. |
| SNA | Re-injected to the reservoir. Can be transported via the SNA600-LFD pipeline to Longford as a contingency. |
| TNA | Transported via the TNA300 and MLA500-LFD pipelines to Longford. Re-injection facilities exist as an option. |
| WTN | Re-injected to the reservoir. |

#### 2.5.9.1 Marlin B contingency - Water handling system monitoring and control

The design of the MLB water handling system involves transferring the water removed by the low-pressure separator to the hydro-cyclones to remove residual oil from the water. The oil recovered from the hydro-cyclones is routed to the skimmer vessel. The clean water passes to a dissolved gas flotation vessel. The dissolved gas flotation vessel provides hold-up to allow dissolved gases to vent to the skimmer vessel prior to sending the water overboard. The maximum capacity of the system is 2450kL/day.

A water overboard oil In water (OIW) monitor ('Sigrist') is located upstream of the water overboard line shutdown valve and acts to continuously monitor the OIW using ultraviolet fluorescence to ensure that OIW (dispersed oil) does not exceed 30mg/L 24-hour average (or 50mg/L instantaneous). Alarm and shutdown functions are embedded within the monitor's functionality. The water handling system is bypassed when testing or calibrating the OIW monitor.

A 'clean-up' line allows any oily water in the water handling facilities to be flushed out into the CDSP. The clean-up line is utilised on platform start-up whilst processes are settling or during other process upsets. The line has a restriction orifice plate installed to limit the clean-up flow to the pile, to avert oil present in the water exiting via the closed pile window. The clean-up line is used until typical OIW quality is obtained at the sample point provided in the clean-up line. There are limitations to the use of the clean-up line however, because while the clean-up line is in use, the hydro cyclones cannot operate efficiently due to inadequate differential pressures. This means they must be started or restarted with the water overboard valve open to gain normal oil-water primary separation following the use of the clean-up line.

The OIW monitor needs to be bypassed while flow is diverted to the clean-up line to avoid system shutdown. Manual samples are taken to ensure the system is functioning as intended. Online monitoring is established once

the system stabilises and within maximum time limits allowed as stated in the *System Monitoring, Recording and Reporting* (GEN-100-102) work aid.

Dye may be injected into the PFW stream if the need arises to monitor the discharge plume in the environment.

#### 2.5.9.2 Depth of produced formation water discharge

Due to the difference in temperature and salinity of the PFW discharge with seawater, the PFW plume is strongly buoyant, and dilutes rapidly as it rises with the surrounding ambient water owing to the combined effects of the momentum and buoyancy-induced mixing of the fluid discharged from the orifice (Walker, Baumgartner, Gerba, & Fitzsimmons, 2019). The rate of dilution caused by these forces is quite rapid in the first few seconds to minutes after exiting the orifice and then decreases markedly after the momentum and buoyancy are dissipated. The PFW discharge pipe depth for MLB is 11m below MSL.

## 2.6 Subsea facility operation

Subsea facilities are designed to transfer hydrocarbons (gas and condensate) from subsea wells to a platform or pipeline. The KPA and BTW subsea facilities comprise a combination of the following infrastructure:

- subsea trees - used to control well conditions, temperature/pressure and supply chemicals if required
- subsea control modules - electrical and hydraulic systems that control the operations of the subsea facilities
- electric and hydraulic flying leads: connect the subsea infrastructure and distribute hydraulic oils, chemicals, power and communications
- flowlines/spools - transport hydrocarbons (gas and condensate) from wells to the pipelines or platform risers
- manifold/flowline end manifolds - gather production from individual wells
- subsea coolers (KPA only) - cool down process fluids
- umbilicals - transport electric and hydraulic signals between the platform and the subsea control modules/subsea trees. May also have chemical lines to supply chemicals to the wells and pipelines
- trawl protection frames – these are in place for protection of the subsea well heads
- risers (KPA only) - transport hydrocarbons (gas and condensate) from the seabed to the platform.

The subsea facilities are 'hosted' from a platform and controlled via hydraulic and electrical umbilicals. Hydraulically actuated subsea tree, wellhead and subsurface safety valves are remotely operated from the host platform. A small volume of production chemicals such as hydraulic fluid (approximately 5L), is released to the marine environment during each subsea tree valve operation.

Chemicals for corrosion inhibition and hydrate inhibition (e.g. MEG and methanol) are injected into the subsea wells via a chemical umbilical from the host platform.

The details of the facilities are outlined in Section 2.3.

## 2.7 Pipeline operations

Gas produced offshore is transported to the Longford Gas Plant through dedicated gas pipelines, as listed in Section 2.3.2. For pipelines extending to the shore, this EP covers the portion of these pipelines in Commonwealth waters (i.e. up to the 3nm Victorian waters boundary) only. A separate EP, prepared under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (Vic), is in place for the portion of the pipelines (seven primary and one secondary) that traverse Victorian State waters. A summary of the *Bass Strait State Waters Environment Plan* (AUGO-PO-EMP-061) is available here.

Historically, crude oil produced offshore was transported to the Longford Crude Stabilisation Plant for processing via a network of pipelines. Since crude oil is no longer in production, the oil pipeline network has been flushed of oil and is now being used to support decommissioning activities. These pipelines are covered further in the Non-Producing EP. The locations and details of pipelines are described in Section 2.3.2 and illustrated in Figure 1-1. Offshore pipelines were installed on the seabed between platforms, between platforms and subsea facilities and between platforms and shore. Some pipelines were subsea trenched and intentionally buried. In addition to having concrete weight coating, some pipelines are stabilised with concrete or grout mattresses to provide resistance to pipeline movement.

External pipeline surfaces are covered with corrosion protection coating to prevent corrosion. Corrosion protection is further augmented via cathodic protection (impressed current local to the host platform and sacrificial anodes along the pipe made of either zinc or aluminium). Pipelines are pigged to remove potential obstructions and pooled water and continuously injected with corrosion inhibitor at approximately 1000 - 2000ppm in the closed system (Table 2-25). MEG and/or methanol is injected into the gas streams at each platform to inhibit the formation of hydrates.

Flexible pipelines (BTW300) are fitted with end fittings with three vent ports with relief valves. They allow for the venting of gas that permeates into the annulus between the inner and outer sheathes. The release pressure of the relief valves has been selected to maintain annulus pressure within the design threshold of the flexible pipe. The design allows for gas venting to occur only when the annulus pressure exceeds the design threshold of the flexible pipe. This is expected to be ad hoc and not continuous with a gas permeation/venting rates in the range of 1170 - 1671cm$^3$/day/meter of pipe.

The only other routine planned discharge from pipelines is from valve actuation and involves small (<5L) intermittent discharges of hydraulic fluid.

## 2.8 Wellwork

### *2.8.1 General activities*

Wellwork activities include any work performed on a well or well-related equipment. This includes well integrity tests, wellhead valve maintenance and interventions to address integrity concerns, improve productivity, change service types, reconfigure tubing, enable production from new zones, repair equipment, or plug and abandon wells. These activities can be done without a drill rig ('rigless') and/or with various units, as detailed here, typically staged on a platform, or may in some circumstances be staged on a support vessel for open water/subsea intervention works.

#### 2.8.1.1 Pumping skid

A rigless pump skid is a compact mobile unit mounted on a skid for easy transport that contains high-pressure pumps and mixing systems (manifolds, tanks, hoses) that is used for operations such as cement pumping.

#### 2.8.1.2 Wireline

Wireline units, including slickline, braided line and E-line, typically perform through-tubing well intervention operations (such as cleaning and repairs). A slickline unit uses a solid, single strand, 'slick' type of wireline to execute through-tubing operations. Braided line uses a braided line for greater mechanical strength compared to slickline. E-line is capable of transmitting and receiving electrical signals.

Wireline operations are typically undertaken without the need to remove the Christmas tree, and the pressure control equipment is installed above the Christmas tree. Wireline can also be used to support rig operations with or without pressure control equipment, or in open water or subsea intervention.

#### 2.8.1.3 Well concentric workover

A concentric workover unit runs a small diameter work string through larger tubulars. Coiled tubing is a type of concentric workover unit.

#### 2.8.1.4 Hydraulic workover unit

A hydraulic workover unit, or workover rig is used for downhole operations requiring drill pipe. A hydraulic workover unit typically requires the removal of the Christmas tree and installation of blow out preventors on the wellhead.

### *2.8.2 Wellwork operations*

The WOMP details the procedures for maintaining well integrity. This section covers essential wellwork operations such as well integrity testing, wellhead valve maintenance, fluid disposal, milling, cementing, downhole sampling, tubing and casing removal, conductor cutting, and wellbore cleanout. These activities ensure safe, efficient well operations and address integrity concerns, productivity, and abandonment processes.

#### 2.8.2.1 Well integrity testing

Well integrity testing involves regular inflow tests for the Subsurface Safety Valves (SSSV), wellhead valve tests and pressure checks, fluid checks and top-ups for the well annuli.

#### 2.8.2.2 Wellhead valve maintenance

Wellhead valve maintenance includes greasing and functioning the valves to ensure integrity and functionality. The maintenance schedule is aligned with the approved Bass Strait WOMP and Well Integrity Management System (WIMS).

#### 2.8.2.3 Fluid disposal

During wellwork operations and well integrity tests, the well and the associated topsides may need to be depressured. Returns during depressurisation are directed to the platform's production system as much as possible until pressure equalises. Final depressurisation to atmospheric pressure involves venting residual gas and directing liquids to a disposal well, the drain system, or the pipeline. A fluid sample is taken directly from the well and left to settle for approximately half an hour. Once settled, the sample is visually checked for an obvious sheen and/or separation. An aromatic check is also done to detect hydrocarbon odour. The well supervisor makes the decision as to whether or not the fluid is hydrocarbon free and can be discharged. If hydrocarbons are suspected to be present, the fluids will continue to be circulated until they are suitable to be discharged.

Workover fluids required for well intervention include seawater, fresh water, brines, barite, and various additives such as baracarb, corrosion inhibitor, biocide, oxygen scavenger, friction reducers, viscosifying agents, solvents, surfactant spacers, gels, polymers, base oil, bismuth, and cement, all of which are Chemical Hazard and Risk Management (CHARM) rated (i.e. non-toxic to the environment).

During some wellwork activities, in particular P&A operations, gas, fluids and historic chemicals contained within the well such as residual packer fluid, completion brine and residual drilling mud will be circulated out of the well. Residual gas can be vented through the mud gas separator which is a tube with an internal baffle system commonly used in industry, designed to knock small, entrained gas bubbles out of fluid returns. Fluid returns are then processed through solids control equipment (e.g. tanks, shakers, ditch magnets) to settle solids and monitor for hydrocarbons. If hydrocarbon liquids are detected, returns are diverted to a disposal well, the drain system, the pile, or the pipeline. Only fluids that are free from hydrocarbon, are discharged overboard.

#### 2.8.2.4 Cementing

Cement provides downhole isolations. The type and volume of cement and additives used depends on factors such as the well completion type, well age, wellbore fluid, and workover/caprock depth. Additives modify cement characteristics to meet technical requirements, with key considerations being weight and setting time. After pumping cement slurry into a well, the system is flushed and cleaned, resulting in residual cement in the fluid system, which is discharged overboard. This only contains trace amount of cement and additives.

Certain cementing operations require a sacrificial cementing string/tubing to be left and cemented in the well. As an operational contingency, usually in response to unforeseen circumstances or an emergency, it may be necessary to dispose overboard freshly mixed and/or recently pumped cement slurry ('green cement'). Every well during P&A operations requires some form of cementing, however Esso has only needed to discharge green cement once (<10bbl) in the more than 200 wells abandoned in the last five years. If green cement needs to be discharged overboard, it would be in the order of 8 - 80bbls. Normally discharge of remaining cement is downhole and a potential small discharge from the washing of the equipment. Logistics and inventory are managed throughout campaigns to ensure dry cement stored on platform at end of operations is minimised and pods can be lifted without need for cement disposal offshore.

#### 2.8.2.5 Downhole sampling

Formation samples may be collected during wellwork operations to determine the presence of oil or gas. Reservoir properties (e.g. pressure and temperature) may be measured using a downhole pressure gauge to assess aquifer and hydrocarbon pressures.

#### 2.8.2.6 Tubing/casing removal

Wellwork may involve removing tubing and casing strings, which are tested for naturally occurring radioactive material (NORM) before transport to shore for disposal.

#### 2.8.2.7 Wellbore cleanout

Wellbore cleanout operations involve removing solids/sediments inside the cased hole to access deeper parts of the wellbore. A pump transports mobilised sand/solid particles and brine uphole to a hose that discharges into a drum. The drum collects the deposits and allows the fluid (typically in the order of 200bbl) to overflow and discharge overboard. Captured sand is transported to shore for disposal. A gel pill may be used to enhance mobilisation/flow.

#### 2.8.2.8 Sand washing

Sand washing is a special type of well bore cleaning that has not been undertaken for at least 10 years but may be required in certain circumstances in the future. It is expected that a discharge of approximately 100bbl of sand entrenched fluid (typically seawater) may be discharged. A gel pill may be used to enhance mobilisation/flow.

#### 2.8.2.9 Conductor cleanout

Conductor cleanout (internal cleaning) occurs after a new conductor is driven and before a new well is drilled. During conductor clean-outs, seawater and viscous sweeps will be used to clean the conductor of seabed sediment after driving has been completed. Mobilised seabed sediment entrained in fluid returns will be discharged at the top of the conductors at the platform level. It is estimated that approximately 150 bbls of seabed sediment will be circulated out of each conductor.

#### 2.8.2.10 Conductor cutting

Conductor cutting occurs after a well is P&A. Conductors may be cut by either mechanical means or with abrasive severance. In either case, the operation is done with seawater, and garnet if applicable (average of 0.24$m^3$ per well). The seawater contents are discharged to the marine environment through the cutting mechanism. Garnet is a naturally occurring mineral similar to sand, with a grain size between 60 mesh (250µm) and 200 mesh (74µm). For comparison, fine sand has a grain size of between 75 - 425µm. The abrasive crystals are typically rated as having a hardness of between 7.0 and 7.5Mohs. Garnet has no known ecotoxicity and any release will be localised.

#### 2.8.2.11 Conductor pull and removal

Conductor pull occurs after the conductor is cut as part of P&A of wells that are no longer producing. Marine growth (e.g. barnacles, molluscs and seaweed) attached to the exterior of the conductor is removed as conductor is pulled to surface using seawater and mechanical means and discharged overboard. The amount of marine growth removed from each conductor is typically 1 - 2$m^3$ and the amount of seawater used to clean the marine growth is approximately 30kL per conductor.

It is necessary to remove the marine growth offshore and not feasible to capture and transport the marine growth to shore for disposal due to safety and hygiene concerns with storing decomposing organic material, and because it allows the conductors to be safely and securely gripped by rig slips. Any attempt to grip the conductors without cleaning the marine growth is not an acceptable safety working practice. The conductor and surface casing are cut into segments on the platform before being transported to shore for disposal.

Given the cuts typically occur below the mudline, it is not possible to capture these subsea solids beyond what naturally falls into the wellbore.

#### 2.8.2.12 Milling

Milling is a downhole operation to cut and remove material in the wellbore. Circulated fluids bring up milled material (e.g. metal swarf, cement cuttings) from the wellbore, which is separated by the solids control equipment and taken to shore for disposal. Small amounts of fine solid particles that pass through the solids control equipment are discharged overboard. As an operational contingency, usually in response to unforeseen circumstances or an emergency, it may be necessary to bypass the solids control equipment and dispose overboard milling fluids, including metal swarf, milled cement, and milled formation rock.

Roughly one in 20 wells would require some form of milling, however to date Esso has not had to bypass the solids control equipment in more than 200 wells abandoned in the last five years. In the unlikely event of the need to bypass the solids control system, the amount of metal swarf and cement cuttings is estimated to be in the order of approximately 100L.

## 2.9 Inspection, maintenance and repair

In accordance with Section 572(2) of the OPGGS Act, a titleholder must maintain in good condition and repair all structures that are, and all equipment and other property that is: (a) in the title area; and (b) used in connection with the operations authorised by the permit, lease, licence or authority.

IMR is undertaken regularly on all platforms (Section 2.9.1) and on pipelines and subsea structures (Section 2.9.2). The term 'subsea' is used for all infrastructure found below the waterline (such as risers, platform legs, pipelines and flowlines).

### *2.9.1 Platform inspection, maintenance and repair*

Facility IMR activities are required to ensure platform wells and topside equipment are maintained in good repair to perform their intended function. An inspection regime as defined by the relevant OIMS System 6-2 Facility Integrity Management System (FIMS) (see Section 8.10) is in place to identify and address faults before they become environmental issues. The primary methods that have the potential for environmental impact during facility IMR, including their typical frequency and duration, are listed in Table 2-24.

**Table 2-24 Methods during facility IMR**

| Activity | Purpose | Frequency | Duration | Potential release to environment |
|---|---|---|---|---|
| Non-destructive testing (e.g. radiography/ ultrasonic/ magnetic particle/eddy current) | Non-destructive testing is a technique for evaluating the properties of a material. Various FIMS programs complete non-destructive testing across platforms to inform fitness for service. | Non-destructive testing completed continuously, crews rotate between platforms. | Varies from one day task to a campaign over several months | Coupling gel or grease<br>Rust flakes not captured within containment |
| Leak and pressure testing | Leak and pressure testing can be completed prior to or following maintenance work to test the verify integrity of equipment. | Majority of leak testing is completed following annual shutdown, however ad-hoc testing is completed to support maintenance jobs throughout the year as required. | Typically for one to four days following annual shutdown | Water, nitrogen or process fluids to drain system |
| Deluge testing | The deluge system is designed to disperse firewater to process areas for emergency response or periodic testing. | Deluge testing is conducted twice annually. | Testing of pumps typically lasts 30 mins. | Seawater to Open Drain system |
| Use of drones/Unmanned aerial vehicles UAVs | For visual inspections of facilities and equipment, navigational aids, flare booms and flare tip. | As needed. | four hours – two days | Dropped object |

| Activity | Purpose | Frequency | Duration | Potential release to environment |
|---|---|---|---|---|
| Air freeing | To purge equipment following maintenance with an inert medium such as nitrogen prior to introducing hydrocarbon | Majority of air freeing is completed following annual shutdown, however ad-hoc testing is completed to support maintenance jobs throughout the year as required. | Typically for one to four days following annual shutdown | Water, nitrogen or process fluids to drain system |
| Breaking containment | Disconnecting or removing equipment from the production process, for maintenance or modifications. | Majority of breaking containment is during annual shutdown, ad-hoc is completed to support maintenance jobs throughout the year as required. | Typically for one to four days during annual shutdown | Process fluids to drain system |
| Pigging | To clean debris and hydrocarbon from pipeline walls to for prevention of corrosion and maintaining flow path. | As needed or during campaigns. | Transit times typically several days, dependant on length and flow rate. | Hydrocarbon and debris to drain |
| Cleaning and flushing | Cleaning and flushing to maintain equipment function and prepare for inspection or repair, using detergents and cleaning agents. Removal of sand. | As needed, e.g. annual shutdown and campaigns. | Days | Hydrocarbons and cleaning products to drain systems |
| Abrasive blasting | Use of sand, grit or hydro gritting/ high-pressure water for surface preparation including rust and paint removal and can be undertaken on structures, pipework and production vessels (internal and external). | Completed continuously, crews rotate between platforms. | Varies from one day task to a campaign over several months. | Rust, paint and blasting media not captured within containment |

| Activity | Purpose | Frequency | Duration | Potential release to environment |
|---|---|---|---|---|
| Painting and sealing | Painting to restore protective coating, sealing of equipment provide a barrier. | Completed continuously, crews rotate between platforms. | Varies from one day task to a campaign over several months | Fumes for paint or sealant from drying or curing |
| Hot work | Including cutting, grinding and welding to repair or install equipment | As needed, e.g. annual shutdown and campaigns | Days | Metal shavings/swarf |
| Portable equipment | Use of portable equipment, e.g. for temporary power generation, air compression, heating, filtration. | As needed, e.g. annual shutdown and campaigns. | Varies from one day task to a campaign over several months. | Diesel combustion products |
| Refrigeration maintenance | Removal or replacement of refrigerant gas for repair or maintenance of cooling and heating equipment. | As needed. | Hours | Fugitive emissions of refrigerant |
| Fire systems maintenance | Testing or replacement of firefighting media, including foam and suppression gases. | As needed. | Hours | Release of gasses to atmosphere or liquids to drains |
| Lubrication | Testing, removal or replacement of greases and oils. | As needed. | Hours | Release of liquids to drains |
| Insulation maintenance | Installation or replacement of insulation. | As needed. | Days | Release of insulation dust to atmosphere |
| General maintenance | General maintenance including scaffolding, mechanical, machinery, structures, equipment, instrument and electrical works. | Completed continuously, crews rotate between platforms. | Varies from one day task to a campaign over several months | Dropped objects |
| Well work | valve maintenance - consists of greasing and functioning the valves to ensure integrity and working correctly. Failed valves are replaced with suitable downhole pressure isolations in place.<br>well interventions - are undertaken to improve well performance, reinstate well integrity or if a well is not functioning correctly and requires temporary or | As needed | Varies from one day task to a campaign over several months | Fluids displacement |

| Activity | Purpose | Frequency | Duration | Potential release to environment |
|---|---|---|---|---|
| | permanent isolation from the reservoir. This may include change out of valves, trees and chokes, chemical squeezes, as well as intervention. Intervention may be via surface pumping, slickline or electric line interventions, installation of valves, or well perforation or a rig unit running jointed pipe. Common well interventions are undertaken when a well barrier failure occurs, such that the intervention makes the well safe and reinstates two barriers wherever possible. Typical operations to reinstate a second barrier in a well in Bass Strait are:<br>• plugging and securing the well by installing a mechanical plug<br>• changing out of failed gas lift valve<br>• remediating wellhead leaks via chemical squeezes<br>• locking out failed TR-SSSVs and installing/replacing WR-SSSVs<br>• installing casing plugs to isolate casing or packer failures<br>• well clean-up and unloading may be required for either plug and secure/abandonment (displace from production/annulus fluids to inhibited seawater) or to clean the remaining fluid from a newly drilled or perforated well or bringing a well online for production (displace drilling/workover/suspension fluids). | | | |

#### 2.9.1.1 Platform shutdowns

Producing platforms shutdown to enable inspection and maintenance activities that cannot be performed if there is hydrocarbons and/or pressure in the production equipment. Major shutdowns are typically performed once a year. Minor shutdowns will be convened on an 'as needed' basis, either for a production opportunity or an emergent issue that needs to be resolved.

Activities covered during shutdowns include internal vessel inspections, valve and spool replacements, critical function tests (CFTs), well work and other tasks that are unable to be complete whilst the platform is in production.

In preparation for a platform shutdown, a platform will follow the total platform shutdown procedure. This includes isolation of topsides equipment from wells and pipelines, and depressuring and draining hydrocarbon liquids to the CDSP. There are no planned liquid discharges in association with platform shutdowns.

The production system is depressurised by flaring remnant gas. This will generate a small amount of condensate which will end up in the pile.

#### 2.9.1.2 Platform optimisations

As part of the normal operational life of a platform, a variety of changes may be made to equipment to maximise productivity, maintain or improve safety and/or environmental impacts, reduce unnecessary maintenance workload, and remove equipment no longer in service.

These activities include, but are not limited to:

- rerouting of process flows through the addition, removal or redesign of piping
- changes in set points and functionality of control and/or shutdown systems
- addition or reconfiguration of vessels or storage tanks,
- addition of rotating equipment, such as chemical pumps
- reconfiguration of compressors to manage inlet and outlet pressures
- isolation and/or removal of redundant or out-of-service equipment
- de-inventorying and cleaning of the bulk removal of substances within topsides pipework, equipment and systems.

There are no planned discharges from these activities. For activities involving de-inventorying, flushing and cleaning fluids will be directed to the open and closed drain system, and/or directed to a pipeline to be sent to Longford. Flushing and cleaning fluids may also be contained on the facility and directed to appropriate storage containers such as sludge bins, ISOtainers or IBCs and sent to shore for appropriate disposal.

All optimisation activities are managed in accordance with FIMS (Section 8.10).

### *2.9.2 Subsea inspection, maintenance and repair*

On subsea assets, IMR is completed on pipelines, steel piled jackets, CGSs, subsea facilities and wellheads. Subsea IMR activities require a support vessel, with the specifications for a typical vessel provided in Section 2.10.

#### 2.9.2.1 Inspection methods

Inspection is the process of physical verification to detect differences from previous or baseline inspections and is undertaken throughout the life of the facilities. Results of inspections are used to inform FIMS assessments and prioritise subsea maintenance and repair activities.

The primary inspection methods during subsea facility IMR are listed in Table 2-25. The table includes an estimate of the frequency and duration of activities for the next five years.

Subsea inspections generally do not cause seabed disturbance, with the exception of environmental surveys (e.g. seabed sampling, seabed surveys scopes). Environmental surveys may require sediment samples and extend further than the OAs in order to gather data for the reference or background case see Section 2.14.

**Table 2-25 Inspection methods during pipeline and subsea IMR**

| Activity | Purpose | Typical frequency | Typical duration |
|---|---|---|---|
| Visual Inspections | Inspect infrastructure for integrity and for corrosion. | Every three or six years. | Approximately one month for pipelines<br>Approximately one month for subsea |
| | | Riser inspections below water are undertaken every five years | Approximately one day |
| | | Unplanned inspection as required | As required |
| Side Scan Sonar (SSS)*/Multibeam Sonar (MBES) | Used to identify pipeline alignment and location (free spans, pipeline crossings, supports exposure/burial) and subsea features (debris etc.) | Every three or six years | As required |
| | | Unplanned as required | As required |
| Sub-bottom profiling (SBP) | Generates shallow depth profile of the seabed. | Included as part of visual inspections and MBES/SSS | Included as part of visual inspections and MBES/SSS |
| Magnetometer | Measures the magnetic field strength that can help to local metallic debris. | Included as part of visual inspections and MBES/SSS | Included as part of visual inspections and MBES/SSS |
| Non-destructive testing | Use of technologies (e.g. ultra-sonic, eddy current, time of flight detection, x-ray, radioactive) to evaluate material properties and test for defects. | As required | Up to five days |
| Flooded member detection | Used to inspect subsea platform structural members for through wall defects. | As required | Five days per platform |
| Environmental surveys | Sediment, water and environmental sampling and characterisation of the marine biota. | As required | Five days |
| | | Environmental baseline surveys | 14 days per campaign. |
| Pigging/intelligent pigging | Internal integrity inspection and/or cleaning of pipelines. | Intelligent pigging is based on a risk-based inspection frequency, but typically no more than every 10 years | Up to 10 days per intelligent pigging event |
| | | Unplanned as required | |

| Activity | Purpose | Typical frequency | Typical duration |
|---|---|---|---|
| Cathodic protection potentials measurement | Verification of cathodic protection effectiveness of structures and pipelines using a cathodic protection probe. | Every three or six years | Included as part of visual inspections |

* This survey technique is described in Section 2.3 of the *Bass Strait Geophysical and Geotechnical Environment Plan* (AUGO-EV-EMM-015).

#### 2.9.2.2 Maintenance activities

Maintenance activities described in Table 2-26 are undertaken at regular scheduled intervals to prevent deterioration and maintain performance of subsea equipment. Table 2-26 includes an estimate of the frequency and duration of maintenance activities for the next five years.

Subsea maintenance activities generally occur within close proximity to existing infrastructure. ROVs may require a tool basket to be positioned on the seabed, which typically have a footprint of 6 - 7m$^2$.

**Table 2-26 Typical subsea maintenance activities**

| Activity | Purpose | Methods | Typical frequency | Typical duration |
|---|---|---|---|---|
| Debris clearance | Access subsea infrastructure. | ROV/divers. | As required following visual inspection/MBES. | Two days |
| Marine growth removal | To remove excess marine growth to allow access to subsea infrastructure. | ROV water jetting, brush systems or acid to dissolve calcium deposits. | As required following visual inspection/MBES. | Two to five days depending on amount |
| Sediment relocation | Access subsea infrastructure. | Suction pump unit typically mounted on an ROV. | As required following visual inspection/MBES. | One to two days |
| Flushing | To remove internal obstructions/ hydrocarbons and minimise long term internal corrosion. | Internal pigging of pipelines or pumping of fluids.<br>Drive fluids down pipelines at pressure. | As required per platform/pipeline. | One to two days |
| Leak detection | To identify location of a leak. | Flush infrastructure with dye to detect leak. | As required following visual inspection/MBES or other identification of leaks (process monitoring/aerial surveillance). | One day |
| Installation of sleeves/clamps | Protect pipeline, prevent corrosion, prevent leaks. | ROVs. | As required following leak detection. | One to two days |

| Activity | Purpose | Methods | Typical frequency | Typical duration |
|---|---|---|---|---|
| Grinding | To remove rusted bolts/materials/ equipment. | Grinder tool typically mounted on ROV. | As required. | One to 10 days |
| Installation of grout bags | Pipelines span rectification, protection and stabilisation. | Bags are placed on the seabed and filled with grout or rocks installed on the seabed through a downline from a vessel. | As required following visual inspection/MBES. | One day per span |
| Installation of concrete mattresses | Scour control, span rectification, protection and stabilisation. | Installed on the seabed from a vessel. | As required following visual inspection/MBES. | One to two days per mattress |
| Rock placement | Span rectification, protection and stabilisation. | Placement of rock on the seabed from a vessel. | As required following visual inspection/MBES. | One to two days |
| Underwater cutting/drilling of equipment | To cut pipelines, spools, flexibles, umbilicals in preparation for platform decommissioning. Drill holes in risers to secure risers. | Cutting and drilling tools typically installed by and operated via ROV.<br>HP water blaster may be required for removing coatings.<br>Hydraulically operated shears may be used for underwater cuts (ROV assisted). | As required. | Can range between 1-10 days per activity. |
| Temporary storage (wet parking) | Store subsea infrastructure and/equipment on the seabed during maintenance activities. | Placement of equipment/infrastructure on the seabed using ROV, A-frame or vessel crane. | Campaign-based. | Various |
| Corrosion protection | Protect subsea infrastructure from corrosion. | Installation of anodes or corrosion resistant material.<br>Injection of corrosion inhibitor. | As required following visual inspection/cathodic protection stabs. | One day per anode |
| Installation of subsea rigging | Temporary dropped object mitigations. | Manipulation and installation of subsea rigging using ROV friendly slings/tools. | As required per platform. | One to three days. Undertaken as part of grinding activity or cutting activity |
| Deployment and recovery of | To support subsea operations. | Lifting of certified equipment to and from | Project based. | Various |

| Activity | Purpose | Methods | Typical frequency | Typical duration |
|---|---|---|---|---|
| subsea tooling and equipment | | seabed using ROV, A-frame or vessel crane. | | |
| Pipeline depressurisation | Suspend or preserve for safety reasons as part of maintenance. | Pipeline and wells may be depressured to the flare system. | As required per platform. | One to two days. dependent on length of pipeline |
| Subsea valve actuation | Platform function test valves to ensure correct operation.<br>ROV manipulation of valves subsea. | Valves that cannot be platform-operated are manipulated by an ROV. | As required by platform or project. | One hour |

#### 2.9.2.3 Pipeline and subsea repair/replacement activities

Repair or replacement activities are required when infrastructure is damaged or deteriorating to a level outside acceptance limits and poses an elevated risk to safety, health, production reliability or ability to remove. These activities require the use of specialist vessels, equipment (ROVs) and potentially divers. The following subsea infrastructure may require repairs and/or replacements:

- subsea valves
- spools
- subsea control modules
- caissons
- electric/chemical/hydraulic distribution
- umbilicals
- subsea trees
- choke Inserts on Christmas tree
- trawl-protection frames
- concrete mattresses and/or grout bags
- pipeline crossings
- pipelines
- risers and riser clamps.

The IMR activities required to replace subsea infrastructure typically follow the same general sequence:

- as-found inspection – using observation ROVs to take video footage of the infrastructure and surrounding area
- cleaning and removing marine growth - generally undertaken using a work class ROV with specialist equipment such as brushes or jetting equipment. Chemicals (e.g. acids) may be used to aid the cleaning process
- sediment relocation - generally undertaken with ROV with specialist equipment to allow access to subsea infrastructure (pipelines)
- flushing - typically flushing uses chemicals (such as corrosion inhibitors and oxygen scavengers) at high pressures to clear the lines of more toxic chemicals or hydrocarbons
- isolation - to ensure equipment is safely isolated from the remaining subsea infrastructure and can be done mechanically (ROV) or hydraulically
- repair or replacement/installation - using a specialist vessel with work class ROVs fitted with specialist tools, such as cutting tools, to either repair or perform lifts and installation
- leak/pressure tests - performed to ensure equipment is correctly installed and can hold pressure prior to commissioning. Dye may be used to visually observe for leaks.

A repair activity varies in duration and is dependent on the equipment to be repaired. Generally the preparation of a repair activity will consist of a number of activities detailed in Table 2-25 and Table 2-26, and the recovery and replacement of infrastructure will depend on the size of equipment. Subsea repair activities occur in close proximity to existing infrastructure. The use of ROVs may require a tool basket to be positioned on the seabed, which typically have a seabed footprint of 6 - 7m$^2$.

## 2.10 Support operations

### *2.10.1 Vessel operations*

Offshore Support Vessel (OSVs) are used to support offshore activities. The OSVs are used for loading and unloading of a variety of materials to and from the platforms. This includes bulk transfer of food, fluids, such as glycol, methanol, drilling fluids, brine, some solid powders (such as cement, barite), and waste using the platform crane. The OSVs may also support ROV operations (Section 2.10.3). The OSVs operate from the Barry Beach Marine Terminal in Corner Inlet or other ports in the region, supplied by various vessel contractors.

OSVs may also be used for underwater inspections, drilling support campaigns, specialised services and emergency response. These vessels operate on an as-needs basis. Vessels typically use dynamic positioning (DP) to manoeuvre and remain on station when alongside platforms and when undertaking works over or in close proximity to subsea infrastructure. The specifications for the *Skandi Feistein* are listed in Table 2-27, which is considered a typical OSV.

**Table 2-27 Indicative vessel specifications (*Skandi Feistein*)**

| Specification | Details |
|---|---|
| Length overall | 87.9m |
| Breadth | 419m |
| Draft | 6.6m |
| Deadweight tonnage | 4700t |
| DP system | DP-2 |
| Fuel capacity | 1070m$^3$ |

All vessels supporting the offshore activities are specified and operated in accordance with International and Australian regulatory requirements and are subject to Marine Quality Assurance Best Practice (8.13.10.2). Vessels are certified to comply with international maritime legislative requirements by a Classification Society registered with International Association of Classification Societies or by AMSA.

### *2.10.2 Helicopter operations*

Helicopter support is provided by Esso's fleet of helicopters operated from the Longford Heliport (located 45km from BTA as the nearest platform). They support production in the following manners:

- personnel transfers between shore, support vessels and the platform (crew changes)
- urgent freight and critical spares
- optional freight helicopter support (when required in preference to vessel transfers)
- emergency response, including medivac, evacuation, aerial observation and search and rescue.

Non-emergency helicopter operations are limited to daylight hours only. Flights are conducted seven days a week with the number of flights per day based on a variable operational demand. Typically, the helicopters fly to the platforms between 1 - 4 times per day or as needed. There are no helicopter refuelling facilities on the platforms.

Helicopter operations are conducted in accordance with CASA regulations. Helicopter type, suitability, and performance criteria are aligned with the Aviation Operations Guide minimum requirements, as are minimum pilot and engineering crew qualifications and experience levels.

### *2.10.3 Remotely operated vehicle operations*

Subsea IMR, environmental surveys, and campaign activities may be undertaken using a range of deployment methods, including traditional ROV systems (platform or vessel based), as well as emerging technologies such as autonomous underwater vehicles and other remote or uncrewed survey equipment and vehicles. ROVs remain a primary tool, typically deployed via umbilical and a tether management system, and equipped with standard video and lighting systems. Optional tooling may include sonars, magnetometers, still-image cameras, manipulators, cutting tools, water sampling equipment, and instruments for measuring water clarity, temperature, density, sound velocity and light penetration.

Where appropriate, autonomous underwater vehicles and newer survey technologies may be utilised to remove or reduce the need for traditional survey spreads, enabling more efficient data acquisition, improved coverage, reduced vessel time and increased operational flexibility.

## 2.11 Major projects

Major Projects involve refurbishment, modification or major maintenance on the facilities with a budget requirement of >$500 million USD (gross).

Major Projects typically have standalone EPs, such as decommissioning execution EPs. Major Projects are not within the scope of this EP.

## 2.12 Overview of compliance with Section 572

Section 572(2) of the OPGGS Act requires a titleholder to maintain property in the title area in good condition and repair. NOPSEMAs Section 572 Maintenance and Removal of Property Policy (NOPSEMA, 2025d) states that property etc. must be maintained in good condition and repair at all times. This includes, but is not limited to, ensuring that all elements of the property etc. continue to be regularly inspected, monitored, maintained and repaired where necessary so that it can be removed in a safe and environmentally responsible manner unless other satisfactory arrangements have been accepted by NOPSEMA under 572(7).

Table 2-28 provides an overview of the requirements of Section 572 and NOPSEMA's expectations in this regard as outlined in the *Section 572* Maintenance and removal of property policy (NOPSEMA, 2025d) and how Esso complies with these.

**Table 2-28 Overview of compliance with Section 572 of the OPGGS Act**

| Requirement | Compliance |
|---|---|
| **Maintenance of property - Section 572(2) of the OPGGS Act** | |
| Property must be maintained in good condition and repair to ensure it is fit for its current and any future purpose and is able to be removed when neither used, nor to be used, in connection with the operations. | Facility IMR of operating property is undertaken as described in Section 2.9 and Section 8.10 of this EP. |

| Requirement | Compliance |
|---|---|
| To address Section 572 (2) requirements, NOPSEMA expects an EP to contain:<br>• an inventory of all property etc. in the title area, including a description, status and anticipated operational life of the property etc.<br>• a demonstration of how the titleholder will keep the inventory up to date and use it to monitor and manage property etc. that will no longer be used and/or property etc. that requires repair<br>• a description of the maintenance systems and programs that ensures property etc. is maintained in good condition and repair so that it can be removed. | • An inventory of property in the title areas is provided in Section 2.3 of this EP.<br>• Inventories of all property on title areas are maintained and updated, in accordance with the processes outlined in Section 2.3.4.<br>• Section 2.3 will be kept up to date and updated annually via MOC for any changes.<br>• A description of the maintenance systems and programs for operating property is provided in Section 2.9 of this EP. |
| **Removal of Property - Section 572(3) of the OPGGS Act** | |
| To address Section 572(3) requirements, NOPSEMA expects an EP to contain:<br>• a description of plans (including timeline) for the removal of all property etc. when it is neither used, nor to be used<br>• an inventory of all property etc. in the title area, including a description, status and anticipated operational life of the property etc<br>• an evaluation of any direct or indirect impacts and risks of property etc. removal, including the management of waste<br>• an appropriate level of detail for property etc. removal throughout the operations and proposed end-state planning toward meeting removal requirements. | • A description of plans (including timeline) for the removal of property is provided in Section 2.15.2 of this EP.<br>• An inventory of property in the title areas is provided in Section 2.3 of this EP.<br>• Direct and indirect impacts and risks relating to the ongoing removal of smaller items of property, which are activities within the scope of this EP, are assessed in Sections 6 and 7 of this EP. Impacts and risks relating to the removal of property that require specialist equipment such as a heavy lift vessel (HLV) are addressed in the separate EPs that cover decommissioning activities.<br>• Detail on ongoing property removal throughout operations is provided in Section 2.12.1 of this EP. |
| Where titleholders propose alternative arrangements in relation to property etc. those arrangements must be accepted by NOPSEMA. | Where Esso proposes alternative arrangements to the full removal of property, these will be included in an end state EP. Indicative timings for the submission of end state EPs are provided in the Non-Producing EP. |

### *2.12.1 Ongoing property removal*

In accordance with Section 572(3) of the OPGGS Act, a titleholder must remove from the title area all structures that are, and all equipment and other property that is neither used nor to be used in connection with the operations, unless a satisfactory arrangement can be made in relation to that property in situ in accordance with s.270(3)(c)(ii) of the Act (such arrangements are outside the scope of this EP).

#### 2.12.1.1 Subsea Materials Register

Esso has consolidated relevant details about subsea property including known debris into a Subsea Materials Register (SMR). The SMR is utilised as the basis for planning debris removal operations that does not require the use of a HLV or specialist removal equipment.

The *Subsea Materials Register Management Process* (Section 8.13.5) details the requirements for how property is added to the SMR and is updated as items are recovered or are newly identified as part of execution activities.

#### 2.12.1.2 Temporary storage of property (wet parking)

Equipment may need to be temporarily stored on the seabed in association with operations. This could be as a result of campaign activities, or a dropped object that is not feasible to immediately recover to surface. The EPMOC process (described in Section 8.13.9) is the mechanism used to manage permanent or temporary changes during operations and ensure that additional environmental impacts and risks are not introduced by these. For example, consideration of potential presence of contaminants such as NORM or Hg.

Equipment that requires temporary storage is added to the SMR (Section 8.13.5).

## 2.13 Overview of compliance with Section 270

There will be no titles surrendered from the operational assets during the lifespan of this EP. For details on Section 270 compliance, see Section 2.1 of the Non-Producing EP.

## 2.14 Environmental surveys and monitoring

Environmental surveys and monitoring may be undertaken on an as needed basis within the lifespan of this EP at any facility and reference locations within the region based on assessment needs, and to provide information to support longer term Section 270 (title surrender) compliance planning.

Environmental monitoring activities may include (but not be limited to):

- visual surveys of locations where property has been removed (or where property remains after a removal execution campaign covered under a separate permissioning document), their immediate surrounds and reference locations (away from the property locations). Methods employed to capture visual data may include ROV surveys, baited remote underwater video stations, MBES, SSS and/or other technologies (e.g. autonomous underwater vehicles) that are practical and may be applicable at the time of monitoring
- sediment sampling, with locations informed on a risk basis, to confirm levels of contamination
- collection of samples using a variety of techniques and equipment including but not limited to grab samplers and sediment coring equipment
- continued Australian fur seal counts and habitat use assessments

Any environmental monitoring will be carried out in accordance with the relevant monitoring plans that will be developed and executed based on the following principles:

- the program will be adaptive and the scope, frequency and methodology of monitoring will be informed by the results of previous surveys
- monitoring will be designed in accordance with good scientific practice to provide data that enables robust scientific inference and analysis while being practicable
- design and execution will involve the use of suitably qualified scientists
- the program will use recognised and practicable monitoring techniques and methods, including consideration of new technologies as these become available
- the program will be designed to monitor at representative locations, including reference locations to ensure monitoring is statistically robust and allows analysis of variability across the spatial scale of the area, while remaining practicable
- incorporate appropriate replication of samples and quality control measures (i.e. duplicate, triplicate, blank samples for sediment samples) and the use of NATA-accredited laboratories.

Environmental monitoring may include the following techniques:

- ROV (sampling) – use of tools and equipment from the ROV to take seabed samples
- baited remote underwater video and stereo-baited remote underwater video (stereo) – temporary placement on the seabed to record surroundings
- drifter deployment – temporary deployment of a drifter buoy/equipment to record data
- larvae light trapping- temporary use of artificial light to attract larvae to assess abundance in the area
- fish trapping – may involve temporary placement on seabed
- drone surveys – aerial use only

- acoustic receivers – these are used for real time tracking of animals from a vessel. They can detect both continuous and coded transmissions
- echosounder (pelagic shark abundance/fish abundance) – a transducer emits a sound pulse typically in the form of a high frequency sound wave downwards towards the seabed and the separate hydrophone receives the returning echo
- benthic settlement methods such as Autonomous Reef Monitoring Structures and Standard Monitoring Units for the Recruitment of Fishes – temporary deployment on the seabed to monitor marine biodiversity
- sediment grabs/sediment core – minor seabed disturbance from sample areas
- seawater sampling (Niskin sampler)- samples taken and stored in bottles for testing.

## 2.15 Bass Strait decommissioning program

Planning is underway for the eventual decommissioning of all producing facilities in Bass Strait. The extent of detailed planning and technical, execution and environmental studies required to safely execute decommissioning of this nature and scale is significant and there have been no comparable decommissioning programs undertaken in Australia to date.

Esso is committed to responsibly decommissioning the Bass Strait assets in a safe manner that reduces environmental impacts and risks while addressing stakeholder, regulatory, and broader community requirements.

Consistent with environmental obligations for decommissioning activities and in line with *Planning for proactive decommissioning* (NOPSEMA, 2025e), Esso's strategy for decommissioning prioritises property with higher potential environmental impacts and risks. This approach focuses on risk reduction through first undertaking well P&A to remove hydrocarbon production sources, followed by topsides and pipelines flushing and cleaning to remove residual production hydrocarbons.

While decommissioning planning continues and the progressive removal of property is undertaken, Esso continues to ensure that:

- property is maintained so as not to preclude its future removal (see Section 2.9)
- property that does not require the use of a HLV or specialist equipment to be removed continues to be assessed for removal on an ongoing basis (see Section 2.12.1)
- ensure planning reflects that, until any alternative to the complete removal of property is accepted by NOPSEMA in a future EP, complete removal of all property that is neither used, nor to be used in connection with the operations is the expectation.

### 2.15.1.1 Well plug and abandonment

Non-producing wells on the producing platforms are the first priority for decommissioning. These activities are conducted under an approved WOMP and associated EPs.

Since 2018, Esso has P&A more than 200 wells (out of a total of 425 in Bass Strait) using multiple mobile offshore assets including the *Skandi Darwin* multi-purpose vessel, the *Ocean Monarch* and *Helix Q7000* semi-submersible rigs, the *VALARIS 107* and *Tom Prosser* jack-up rigs and platform-based rigs Rig 22, Rig 48, Rig 47 and HWT600. P&A campaigns using platform-based rigs will continue to take place, as described in Section 2.8.2. P&A campaigns using MODUs are covered by campaign-specific EPs.

The Bass Strait P&A program will be an ongoing activity through to approximately the mid-2030s and lessons learned from current P&A activities are being incorporated into planning for these future campaigns.

While awaiting abandonment, well monitoring and barrier verification will continue to be conducted as per Esso's Well Integrity Management System (WIMS) and any changes in well status will be addressed under existing processes as outlined in the relevant WOMPs.

Once P&A and decommissioning preparation activities are completed, the strategy for removal of the Bass Strait facilities is via decommissioning campaigns. The decommissioning plans for the facilities described in this EP are outlined in this section.

### 2.15.1.2 West Tuna

Production of gas from the WTN production wells is expected to cease in the early 2030s, however the WTN facility will continue to be staffed and operated through the CoP of the KPA subsea wells as WTN is the host

platform (providing control, processing and gas compression services) for the KPA subsea facility. The removal of the WTN topsides, utilising a HLV, is within the proposed scope of decommissioning Campaign #2, planned for approximately 2035.

The execution of the end state for the BMB and WTN substructures will take place following Campaign #2, with the scope of the campaign dependant on the agreed end state/s for these structures.

#### 2.15.1.3 Marlin A, Marlin B, Snapper, Tuna and Barracouta

The removal of the topsides, utilising an HLV, is within the proposed scope of decommissioning Campaign #2, planned for approximately 2035.

#### 2.15.1.4 Subsea production facilities

The BTW facility is expected to reach CoP in 2029, and the KPA facility is expected to reach CoP in the mid-2030s. Following this, wells will be plugged and abandoned, the subsea trees removed and pipelines, umbilicals and ancillary subsea equipment decommissioned.

#### 2.15.1.5 Pipelines, umbilicals and flexible flowlines

There are currently two pipeline, umbilicals and flowline removal campaigns associated with facilities, Campaign #2a and #2b both scheduled to occur from 2035 onwards post CoP.

### *2.15.2 Indicative decommissioning timeline*

Table 2-29 provides an overview of the timeline for the Bass Strait decommissioning program. The timeline provided is indicative and subject to change as planning for decommissioning progresses.

The following EPs are planned to be submitted to cover the decommissioning activities listed in Table 2-18:

- Pipeline removals Campaign #2A (remaining shallow buried umbilicals/flexibles)
- Pipeline removals Campaign #2B (remaining offshore pipelines for which the determined end state is partial or full removal)
- CGS end state EP
- CGS decommissioning campaign (WTN and BMB bases) – scope based on agreed end state.

**Table 2-29 Indicative Bass Strait decommissioning timeline**

| Timeframe | Tasks and milestones | Infrastructure decommissioned/End State agreed |
|---|---|---|
| 2025-2035 | Execution: Well P&A | Non-producing wells at BTA, MLA, SNA, TNA and WTN. |
| 2035 – 2040+ | Execution: Well P&A and subsea infrastructure removal | Non-producing wells at MLA, MLB, WTN.<br>Subsea facilities: BTW, KPA |
| | Execution: Platform Removals Campaign #2 | Topsides: MLA, MLB, SNA, TNA, BTA, WTN.<br>Steel pile jackets: MLA, MLB, SNA, TNA, BTA, WTN |
| | Execution: Pipeline Removals Campaign #2A | Shallow buried umbilicals and flexibles associated with Campaign #2 facilities |
| | Execution: Pipeline Removals Campaign #2B | Remaining offshore pipelines (for which the determined end state is partial or full removal) |
| | Execution: CGS Decommissioning Campaign (scope based on agreed End State) | CGS: WTN and BMB |

| Timeframe | Tasks and milestones | Infrastructure decommissioned/End State agreed |
|---|---|---|
| | Title Surrender | Following the completion of decommissioning and the undertaking of post decommissioning monitoring as appropriate and agreed with NOPSEMA, Esso will apply to NOPTA to surrender the relevant petroleum titles |

For full decommissioning planning, please see Section 2.15 of the Non-Producing EP.

# 3 Description of the environment

To set the context required to assess the environmental impacts and risks associated with the petroleum activities described in this EP, the following areas are defined to describe the existing environment:

- **Operational Area (OA)** – the area where petroleum activities will take place. The OA for this EP is defined as the 500m radius around the facilities, and a 200m radius around the petroleum pipelines in Commonwealth waters and around the secondary pipelines connecting the facilities.
- **Area of Described Environment (ADE)** – The area that encompasses all the OAs, including the area connecting them, so as to provide for a single description of the existing environment given the close proximity of the OAs to each other (Figure 3-1) **Environment that May Be Affected (EMBA)** – Determined by hydrocarbon spill modelling and is the total area that could be exposed to hydrocarbons in the event of a worst-case loss of well control (LOWC) or pipeline rupture. The description of the EMBA is provided in Appendix A.

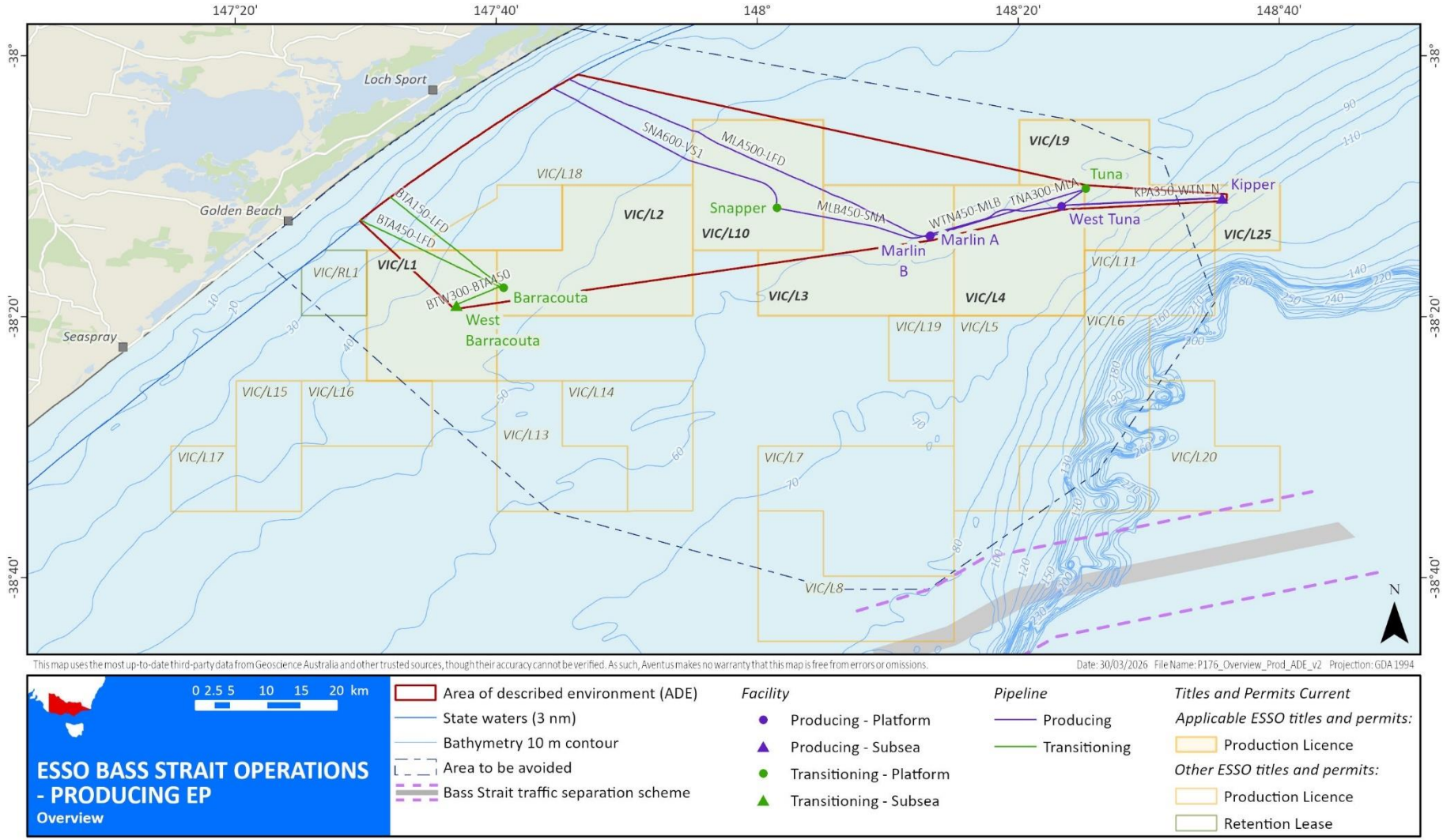



**Figure 3-1 Esso producing assets and ADE**

## 3.1 Environment that May Be Affected

Hydrocarbon spill modelling is used to determine the total area that could be exposed to hydrocarbons, including trace concentrations of oil in the water column, as a result of any spill. This is known as the EMBA and is used for planning purposes to ensure that all social and environmental sensitivities are acknowledged, described, and considered in the development of the EP.

Using the results of the hydrocarbon spill modelling report (RPS, 2025), the boundary of the EMBA is defined as:

> *The combined extent of hydrocarbon exposure to the sea surface (≥1g/m$^2$), accumulated on shorelines (≥10g/m$^2$), entrained in the water column (≥10ppb) and dissolved in the water column (≥10ppb), as a result of the combined modelling results from the following hydrocarbon release scenarios: a loss of well control at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) the Marlin-B platform (two scenarios) and a subsea rupture of the Marlin-A to shore (MLA500) pipeline.*

The EMBA is illustrated in Appendix A. Further information on the hydrocarbon thresholds, or exposure levels used to define the EMBA are outlined in Table 3-1.

**Table 3-1 Thresholds used to define the EMBA (NOPSEMA, 2019)**

| Exposure level | Threshold | Description |
|---|---|---|
| Surface – Low exposure | 1g/m$^2$ | Approximates the range of socio-economic effects and establishes the planning area for scientific monitoring. |
| Shoreline – Low exposure | 10g/m$^2$ | Predicts the potential for some socioeconomic impact. |
| In-water (dissolved) – Low exposure | 10ppb (instantaneous) | Establishes the planning area that may be considered for scientific monitoring based on the potential for exceedance of water quality triggers. |
| In-water (entrained) – Low exposure | 10ppb (instantaneous) | Establishes the planning area that may be considered for scientific monitoring based on the potential for exceedance of water quality triggers. |

## 3.2 Values and sensitivities in the Area of Described Environment

The values, sensitivities and receptors found within the ADE are described in Table 3-2. The values, sensitivities and receptors found within the EMBA are described in Appendix A.

EPBC Act Listed Species identified for the ADE and EMBA are provided in Appendix C. EPBC Act Protected Matters Search Tool Reports for the ADE and EMBA are presented in Appendix D and Appendix E, respectively.

**Table 3-2 Values and sensitivities within the ADE**

| Value/sensitivity | Receptor | Description |
|---|---|---|
| **MNES under the EPBC Act** | | |
| World Heritage Properties | - | World Heritage listed properties are sites that represent the best examples of the world's cultural and heritage values, of which Australia has 20 properties (DCCEEW, 2024). These properties are protected under Chapter 5, Part 15 of the EPBC Act.<br>There are no World Heritage Properties within or adjacent to the ADE. The closest World Heritage Property is the Royal Exhibition Building and Carlton Gardens (onshore), which is located 224km northwest of the ADE.<br>World Heritage-listed Properties intersected by the EMBA are described in Section 1.1.1 of Appendix A. |
| National Heritage Places | - | The National Heritage List is Australia's list of natural, historic, and Indigenous places of outstanding significance to the nation (DCCEEW, 2025). These places are protected under Chapter 5, Part 15 of the EPBC Act.<br>There are no National Heritage-listed Places within or adjacent to the ADE. The closest National Heritage Place is the Australian Alps National Parks and Reserves (onshore), which is located 70km northwest of the ADE.<br>National Heritage-listed Places intersected by the EMBA are described in Section 1.1.2 of Appendix A. |
| Wetlands of International Importance (Ramsar wetlands) | - | Australia has 67 Ramsar wetlands that cover more than 8.3 million hectares (DCCEEW, 2022). Ramsar wetlands are those that are representative, rare, or unique wetlands, or are important for conserving biological diversity, and are included on the List of Wetlands of International Importance under the Ramsar Convention. These wetlands are protected under Chapter 5, Part 15 of the EPBC Act.<br>There are no Ramsar wetlands within or adjacent to the ADE. The closest Ramsar wetland is the 'Gippsland Lakes', which is located 6.4km north of the ADE and separated from the ADE by the coastline.<br>Ramsar wetlands intersected by the EMBA are described in Section 1.1.4 of Appendix A. |
| Nationally Important Wetlands (NIWs) | - | NIWs are considered significant for a variety of reasons, including their importance for maintaining ecological and hydrological roles in wetland systems, providing important habitat for animals at a vulnerable or particular stage in their life cycle, supporting 1% or more of the national population of any native plant or animal taxa or for its outstanding historical or cultural significance (DCCEEW, 2021). |

| Value/sensitivity | Receptor | Description | | |
|---|---|---|---|---|
| | | There are no NIWs within the ADE. The closest NIW is the Lake Victoria wetlands, which is located 8.3km north of the ADE.<br>NIWs intersected by the EMBA are described in Section 1.1.5 of Appendix A. | | |
| Listed Threatened Species and Listed Migratory Species (listed in Appendix C, described in Appendix A) | Fauna | **Total number** | **Threatened species (Appendix C)** | |
| | | 96 | Total threatened species | |
| | | 9 | Critically endangered | |
| | | 28 | Endangered | |
| | | 52 | Vulnerable | |
| | | 7 | Conservation dependent | |
| | | **Listed migratory species** | | |
| | | 53 | Fish – Bony (Appendix C, Table C-1) | |
| | | 14 | Fish – Cartilaginous (Appendix C, Table C-2) | |
| | | **Birds (Appendix C, Table C-3)** | | |
| | | 40 | Mammals – Cetaceans (Appendix C, Table C-4) | |
| | | 2 | Mammals – Pinnipeds (Appendix C, Table C-5) | |
| | | 1 | Mammals – Sirenia (Appendix C, Table C-6) | |
| | | 7 | Mammals – Reptiles (turtles) (Appendix C, Table C-7) | |
| Biologically Important Areas (BIAs) | Marine fauna | BIAs are designated for marine species protected under the EPBC Act. BIAs are defined as areas used by marine species for carrying out critical life functions including reproduction, feeding, migration and resting (DCCEEW, 2025).<br>The following 11 BIAs are within the ADE. The BIAs within the EMBA are outlined in Appendix A. | | |
| | | **Species** | BIA type | % overlap |

| Value/sensitivity | Receptor | Description | | |
|---|---|---|---|---|
| | | **Birds (Appendix C, Table C-3)** | | |
| | | Black-browed albatross (Figure 3-2) | Foraging | 0.09% |
| | | Buller's albatross (Figure 3-2) | Foraging | 0.22% |
| | | Campbell albatross (Figure 3-3) | Foraging | 0.09% |
| | | Indian yellow-nosed albatross (Figure 3-3) | Foraging | 0.14% |
| | | Shy albatross (Figure 3-4) | Foraging | 0.12% |
| | | Wandering albatross (Figure 3-4) | Foraging | 0.13% |
| | | Common diving-petrel (Figure 3-5) | Foraging | 0.34% |
| | | Short-tailed shearwater (Figure 3-5) | Foraging | 0.002%, noting that BTW and a very small portion of the BTW300-BTA450 pipeline overlaps this BIA. |
| | | **Whales (Appendix C, Table C-4)** | | |
| | | Pygmy blue whale (PBW) (Figure 3-6) | Foraging | 0.83% |
| | | Southern right whale (SRW) (Figure 3-7) | Migration | 0.06% |
| | | **Sharks (Appendix C, Table C-2)** | | |
| | | White shark (Figure 3-8) | Reproduction | 12.1%, noting that BTW, BTA and the BTW300-BTA450, BTA450-LFD and BTA50-LFD pipelines overlap this BIA. A portion of |

| Value/sensitivity | Receptor | Description | | |
|---|---|---|---|---|
| | | | | the SNA600-VS1 and MLA500-LFD also overlap this BIA. |
| Listed Threatened Ecological Communities (TECs) | - | An ecological community is a naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat. TECs provide wildlife corridors and/or habitat refuges for many plant and animal species, and listing a TEC provides a form of landscape or systems-level conservation (including threatened species) (DCCEEW, 2022).<br>There are no TECs within of adjacent to the ADE. The closest TEC is the 'Natural Damp Grassland of the Victorian Coastal Plains', which is distributed along the coastline adjacent to the ADE.<br>TECs intersected by the EMBA are described in Section 1.1.6 of Appendix A. | | |
| Australian Marine Parks (AMPs) | - | Australia has 60 AMPs that cover 43% of Australian waters and conserve marine habitats and the marine species that live within and rely on these habitats. AMPs also provide places for people to watch wildlife, dive, and go boating, snorkelling and fishing and they create jobs in industries like fishing and tourism (Australian Marine Parks, 2025).<br>There are no AMPs within or adjacent to the ADE. The closest AMP is Beagle AMP which is located 84km southwest of the ADE.<br>AMPs intersected by the EMBA are described in Section 1.1.7 of Appendix A. | | |
| **Other areas of national importance** | | | | |
| Social/cultural/ conservation | National Parks and Reserves | There are no national parks or reserves within the ADE. The closest protected area is the Ninety Mile Beach Marine National Park which is located 30km east of the ADE.<br>National parks and reserves intersected by the EMBA are listed in Section 1.1.9 of Appendix A. | | |
| Commonwealth Heritage Listed places | - | Commonwealth Heritage Listed places are Indigenous, historic, and natural heritage places owned or controlled by the Australian Government. These include places connected to defence, maritime safety, communications, customs, and other government activities that also reflect Australia's development as a nation (DCCEEW, 2021).<br>There are no Commonwealth Heritage Listed places within or adjacent to the ADE.<br>Commonwealth Heritage Listed places intersected by the EMBA are described in Section 1.1.3 of Appendix A. | | |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| Key Ecological Features (KEFs) | The Upwelling East of Eden (Figure 3-9) | KEFs are elements of the Commonwealth marine environment that are considered to be of regional importance for either a region's biodiversity or its ecosystem function and integrity (DCCEEW, 2025).<br><br>The Upwelling East of Eden is present along the eastern Victorian and southern NSW coasts. Dynamic swirls of the East Australian Current cause episodic productivity events when they interact with the continental shelf and headlands. The episodic mixing and nutrient enrichment events drive phytoplankton blooms that are the basis of productive food chains including zooplankton, copepods, krill, and small pelagic fish. Therefore, the key value of the KEF is its high productivity and aggregations of marine life (Commonwealth of Australia, 2015).<br><br>The upwelling contributes to regionally high primary productivity which supports fisheries and biodiversity, including top order predators, marine mammals, and seabirds. This region is one of two feeding areas for blue whales and humpback whales, that arrive when significant krill aggregations form. The area is also important for seals, other cetaceans, sharks, and seabirds (Commonwealth of Australia, 2015).<br><br>KEFs intersected by the EMBA are described in Section 1.1.8 of Appendix A. |
| | Shelf rocky reefs and hard substrate | Rocky reefs and hard grounds are located in all areas of the south-east marine region continental shelf including Bass Strait. Rocky reefs and hard grounds provide attachment sites for macroalgae and sessile invertebrates, increasing the structural diversity of shelf ecosystems. The reefs provide habitat and shelter for fish and are important for aggregations of biodiversity and enhanced productivity (DCCEEW, 2025). This KEF has not yet been spatially defined.<br><br>Information available on the location of this KEF in the south-east marine region indicates that it may be present between 50m and 220m depth, from the subtidal zone to the continental shelf break. However, there is no mapping or graphic representation on the exact location where this KEF has been confirmed to be present in this area based on information available from the South-east marine regional profile and the South-east Marine Parks Network Management ( (Director of National Parks, 2025).<br><br>Historical ROV surveys of platforms (from Esso ROV inspection data from 2010, 2013 and 2014) have not detected variances in abundance of biota on the seabed surrounding the platforms that are within the scope of this EP, which may be indicative of hard substrates occurring. In addition, the south-east reef is mapped to exist in the VIC/L5 area and thought to possess some low-relief limestone reef features (Bax & Williams, 2001). Figure 3-7 shows the location of this KEF based on information available from government agencies, literature, and ROV data from Esso operations in the Bass Strait. None of the OAs or the ADE overlap this KEF. |
| NIWs | | Nationally Important Wetlands are considered significant for a variety of reasons, including their importance for maintaining ecological roles in wetland systems, providing important habitat for animals at a vulnerable or particular stage |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | | in their life cycle, supporting 1% of more of the national population of any native plant or animal taxa or for its outstanding historical or cultural significance ( (DCCEEW, 2021).<br><br>There are no NIWs within or adjacent to the ADE. The closest NIW is the Lake Victoria wetlands which is located 8.3km north of the ADE.<br><br>The NIWs are intersected by the EMBA are described in Section 1.1.5 of Appendix A. |
| **Environmental values – Other** | | |
| Physical environment | Climate and meteorology | Climate statistics from 1991-2020 at East Sale (Victoria) (the closest weather station to the ADE) has average monthly minimum temperatures ranging from 3.6°C – 13.6°C and average monthly maximum temperatures ranging from 14.2°C - 26.1°C with January hosting the hottest temperatures and July the coolest. Rainfall ranges from 33.4mm in May (lowest) to 62.2mm in November (highest) (BOM, 2025).<br><br>Wind speeds for East Sale between 1991-2020 range from 11.1 to 16.3km/hour in the morning and 17.1 to 24.2km/hour in the afternoon, with maximum gusts reaching 152km/hour.<br><br>Bass Strait is located on the northern edge of the westerly wind belt known as the Roaring Forties. Occasionally, intense meso-scale low-pressure systems occur in the region, bringing very strong winds, heavy rain and high seas. These events are unpredictable in occurrence, intensity and behaviour, but are most common between September and February (McInnes & Hubbert, 2003). |
| | Oceanography | Wind driven currents in Gippsland Basin can be caused by the direct influence of weather systems passing over Bass Strait (wind and pressure driven currents) and the indirect effects of weather systems passing over the Great Australian Bight (GEMS, 2005).<br><br>The eastern parts of the Gippsland region where the ADE lies are strongly influenced by the East Australian Current that flows southward adjacent to the east coast of NSW, Victoria and Tasmania, carrying warm equatorial waters and forming eddies which in turn cause upwellings.<br><br>At the shelf break east of Bass Strait, nutrient-rich waters rise to the surface in winter as part of the processes of the Bass Strait Water Cascade creating an area of high productivity (see also the 'Upwelling of Eden' KEF).<br><br>Further offshore currents are driven by the Sub-Antarctic Water movement, coming from the south, and the Bass Strait Water movement from the west (Tomczak, 1985) Rochford, 1975; in (Gibbs, Arnott, Longmore, & Marchant, 1991). |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | Bathymetry<br>(Figure 3-11) | The ADE is located in water depths ranging from 30 to 100m, with KPA being in the deepest waters. The regional bathymetry contours generally run parallel to the coast, though this pattern is less pronounced in waters deeper than 50m. |
| Local environment | Benthic habitat and species | The Gippsland Basin comprises a series of massive sediment flats, interspersed with small patches of reef, bedrock, and consolidated sediment. The sandy plains are only occasionally broken by low ribbons of reef; however, these reefs do not support the large brown seaweeds characteristic of many Victorian reefs but instead are inhabited by resilient red seaweeds and encrusting animals that can survive the sandy environment (Esso, 2009).<br><br>Benthic fauna found on the soft sediment can be broadly divided into two groupings (Parry, Campbell, & Hobday, 1990):<br><br>• Epibenthos - Includes sessile species such as sponges and bryozoans, hydroids, ascidians, poriferans and mobile fauna including hermit crabs, sea stars and octopus.<br>• Infauna - Includes a diverse range of species such as amphipods, shrimps, bivalves, tubeworms, small crustaceans, nematodes, nemerteans, seapens, polychaetes and molluscs.<br><br>In 2023, the Australian Institute of Marine Science (AIMS) (McLean, et al., 2025) surveyed benthic and fish communities along 13 of Esso's subsea pipelines, on and around the WTN platform (one of the OAs for this activity) and the Flounder platform (located 14km south of the WTN platform) and surrounds. The benthic surrounds surveyed are within or in proximity to Esso's title area and are considered to be representative of the regional environment.<br><br>The benthic habitat and substrate types (based on average percentage cover) were as follows (McLean, et al., 2025):<br><br>• Pipelines – Consisted of primarily of sponges (~70%), followed by sand/mud (~24%), and the remaining ~6% was representative of pebble/gravel/biogenic materials, ascidians and coral.<br>• WTN – Consisted primarily of sponges (~51%) and anemones (~40%), macroalgae accounted for ~7%, and pebble/gravel/biogenic material accounted for the remaining 2%.<br>• Surrounds seabed – Consisted primarily of pebble/gravel/biogenic material (~52%) and sand/mud (~45%), with sponges accounting for ~3%.<br>• Benthic species included crabs (carrier, hermit, red rock), sea cucumbers, cuttlefish, squid, octopus, seastars (firebrick and eleven-armed), urchins, scallops and gastropods (e.g. snails) (McLean, et al., 2025).<br><br>Furthermore, an environmental survey undertaken in 2021 at the seabed around HLA, CBA, KFA, FLA, WTA, BMB, BTA and DPA found that although infauna assemblages differed between sites, these differences were not pronounced. Similarly, the analysis of reference sites (away from the facilities) showed that infaunal assemblages did not differ markedly to those at facility sites. The results indicated that species of small crustaceans *(Corophiidae, Tanaidacea spp, Ostrocoda spp*) and Polychaete worm species were common across all platforms and reference sites. Although, FLA, the site most |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | | dissimilar to all the other sites, was still dominated by amphipod crustaceans (*Phoxocephalidae, Platyischnopidae, Lysianassidae, Corophiidae, Oedicerotidae*) (AECOM, 2024). Despite all of the sites surveyed being outside of the ADE (aside from BTA), the results are considered to be representative of the seabed within the region.<br><br>The benthic habitats and species detected by (McLean, et al., 2025) and (AECOM, 2024) are likely to be representative of those present within the OAs. |
| | Fish species | The Victorian Fisheries Association (VFA) (2023) describes eastern Bass Strait as a haven for ocean fishers due to the presence heavy reef and gravel particularly closer to the shore and up to 40m water depth. Common fish species include snapper, flathead, gurnard, gummy, school shark, morwong, whiting, salmon, bluefin tuna, yellowtail kingfish, squid, and even giant broadbill swordfish.<br><br>The most abundant fish species observed by McLean , et, al., (2025) were butterfly perch (*Caesioperca lepidoptera*), common bellowsfish (*Macroramphosus scolopax*), scorpion fish (*Scopaena* spp.) and Australian anchovy (*Engraulis australis*).<br><br>Other fish species observed during the survey include gummy shark (*Mustelus antarcticus*), bluefin leatherjackets (*Thamnaconus degeni*), jackass morwong (*Nemadactylus macropterus*) and the broadnose seven gill shark (*Notorynchus cepedianus*).<br><br>The fish species detected by McLean, et al., (2025) are likely to be representative of those present in the OAs and more broadly within the ADE. |
| | IMS | Marine pests are highly invasive, non-native animals and plants that can cause significant harm to the marine environment (Agriculture Victoria, 2025). Australia has over 400 introduced and unknown origin marine species.<br><br>Marine pests can arrive into waters from other parts of the world or even other Australian waters. Marine pests can be accidentally introduced through aquarium trade, can be attached to the hulls of ships or released as larvae in ballast water.<br><br>Marine pests are problematic for the following reasons (Agriculture Victoria, 2025):<br><br>• once introduced, marine pests reproduce quickly, often producing large numbers of offspring that can rapidly spread to new areas<br>• they compete with native species by preying upon them, and outcompeting them for space, light, food, or overgrowing them<br>• they can also introduce diseases and parasites to our native species |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | | • marine pests pose a significant threat to marine biodiversity and the economy, as once they become established; it is nearly impossible to eradicate them (Agriculture Victoria, 2025).<br><br>In 2023, Esso reported a suspected sighting of an IMS, the Northern Pacific seastar (*Asteria amurensis*) to NOPSEMA. Following the reporting, the McLean, et al., (2025) examined 199 maintenance and inspection ROV recordings that captured underwater structures as well as high-resolution still images of fenders removed from FTA (a non-producing facility). During the analysis of imagery, McLean, et al., (2025) observed the Northern Pacific seastar and the long-spined sea urchin (*Centrostephanus rodgersii*).<br><br>Furthermore, the Northern Pacific seastar was a suspected sighting in several locations along the BKA200 pipeline and once along the TNA200 pipeline (both of which are non-producing pipelines) during the McLean, et al., (2025) survey, however, the sightings could not be confirmed as further analysis was recommended. The invasive long-spined sea urchin (*Centrostephanus rodgersii*) was also observed in several locations, in low abundance at most locations (McLean, et al., 2025).<br><br>Based on the observations undertaken by AIMS (2025) the Northern Pacific seastar and long-spined sea urchin may be present within the ADE given that the TNA200 pipeline is within the ADE and the BKA200 pipeline is located 28km south of the ADE.<br><br>The New Zealand screw shell is known to have become established in Bass Strait and off the coasts of eastern and northern Tasmania, Victoria and NSW (MESA, 2025) and may also be present within the ADE. |
| Economic environment | Commercial fishing<br><br>(see Appendix A Section 1.6 for description of fisheries) | Commonwealth fisheries overlapped by the ADE, and pooled fishing intensity over varied years within the OAs (where GIS data is available):<br><br>• Bass Strait Central Scallop Zone Fishery - 0.16% ADE overlap, with none of the OAs overlapping any areas of fishing intensity from 2020-2024 (see Figure 3-12)<br>• Eastern Tuna and Billfish Fishery – 0.04% ADE overlap, with none of the OAs overlapping any areas of fishing intensity from 2020-2024 (see Figure 3-13)<br>• Small Pelagic Fishery – 0.05% ADE overlap, with all OAs overlapping the maximum area fished during the 2023 season aside from BTA and west BTA (see Figure 3-14)<br>• Southern and Eastern Scalefish and Shark Fishery (SESSF)<br>• SESSF – Commonwealth Trawl Sector (CTS) – Danish seine sector – 0.13% ADE overlap, with a range of low to high fishing intensity across all OAs from 2019-2023 (see Figure 3-15)<br>• SESSF – CTS – Otter board sector – 0.13% ADE overlap, with only KPA overlapping with maximum fishing intensity whilst MLA, MLB, WTN and TNA are within the minimum area fished from 2019-2023 (see Figure 3-16) |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | | • SESSF – shark hook sector – 0.11% ADE overlap, with no areas of fishing intensity with the OAs from 2019-2023(see Figure 3-17)<br>• SESSF – shark gillnet sector – 0.11% ADE overlap, with majority of the OAs overlapping with maximum fishing from 2019- 2023 (see Figure 3-18)<br>• SESSF – scalefish hook sector – 0.06% ADE overlap, with none of the OAs overlapping any areas of fishing intensity from 2019-2021. (see Figure 3-19)<br>• Southern Bluefin Tuna Fishery – 0.02% ADE overlap, with none of the OAs overlapping any areas of fishing intensity from 2020-2024 (see Figure 3-20)<br>• Southern Squid Jig Fishery - 0.06% ADE overlap with none of the OAs overlapping any areas of fishing intensity from 2020-2024 (see Figure 3-21).<br><br>State fisheries – Victoria overlapped by the ADE, and pooled fishing intensity (2021-2025) within the OAs (where GIS data is available):<br><br>• Abalone Fishery – 1.5% overlap, fishing data unavailable (see Figure 3-22)<br>• Giant Crab Fishery – 1.4% overlap, with zero days fish in the OAs from 2021 - 2025 (see Figure 3-23)<br>• Rock Lobster Fishery – 1.4% overlap, with 1 - 54 days fished in BTW from 2021 - 2025 (see Figure 3-24)<br>• Pipi Fishery – 1.9% overlap, with zero days fished within the OAs from 2020 - 2025 (see Figure 3-25)<br>• Wrasse Fishery – 3.4.% overlap, with zero days fished within the OAs from 2021-2025 (see Figure 3-26)<br>• Sea Urchin Fishery – 1.8% overlap, fishing data unavailable (see Figure 3-27)<br>• Scallop Fishery – 3.4% overlap, with two to six days fished at BTW from 2021-2025 (see Figure 3-28)<br>• Octopus Fishery – 1.4% overlap, with 6 - 13 days fished in BTW and SNA, and 33 - 51 days fished in BTA between 2021 - 2025 (see Figure 3-29)<br>• Inshore trawl fishery – 0.99% overlap, with less than five days fished within SNA, TNA and WTN and 28 - 88 days fished in BTA from 2021 (see Figure 3-30)<br>• Ocean trawl fishery – 0.99% overlap, with less than nine days fished within BTW and KPA from 2021 - 2025 (see Figure 3-31). |
| | Other permits, titles, retention leases and GHG assessment permit.<br><br>(Figure 3-33) | Other petroleum exploration permits, licences and retention leases in proximity to the ADE held by other operators include:<br><br>• Cooper Energy (VIC/P80, VIC/RL16, VIC/P72)<br>• Carnarvon Hibiscus (VIC/RL17)<br>• Emperor Energy (VIC/P47)<br>• Amplitude Energy (VIC/RL13, VIC/RL14, VIC/RL15)<br>• Liberty Petroleum (VIC/P77, VIC/P78). |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | | GHG assessment permits in proximity to the ADE held by other operators include:<br>• The Crown in right of Victoria (CarbonNet) (GX-6-AP)<br>• The Crown in right of Victoria (CarbonNet) (G-5-AP)<br>• Woodside Energy (Bass Strait) (G-19-AP). |
| | Renewable energy<br>(Figure 3-32) | The ADE overlaps Australia's first offshore area declared available for renewable energy projects (OEI-01-2022 Part 1), with the MLB450-SNA pipeline overlapping a small portion of the Navigator North Project Pty Ltd (FL-011) offshore wind feasibility licence area. |
| | Shipping<br>(Figure 3-34) | The waters off the southeast coast of Australia have high shipping activity. This traffic includes international and coastal cargo trade, and passenger and ferry services. The ADE overlaps areas of medium to high shipping traffic as shown in Figure 3-34. Most of this traffic is associated with Esso operations.<br>Section 1.6.7 of Appendix A outlines the shipping exclusion zone (ATBA) around the platforms in the Gippsland Basin and the implemented TSS for safe navigation around the ATBA. |
| | Defence | The Australian Defence Force conducts a range of training, research activities, and preparatory operations in Australian waters. These activities may include transit of naval vessels, training exercises, shipbuilding and repairs, hydrographic survey, surveillance and enforcement, demolition, use of explosives, use of radar, sonar, sonobuoys, flares, sensors and other equipment, and search and rescue. There are no known defence activities within the ADE. |
| | Unexploded Ordnance (UXO)<br>(Figure 3-35) | The Department of Defence 'Where Is UXO' database indicates the ADE overlaps area '392 Bass Strait'. This site was used as an Air Weapons Range during WWII and falls under the 'other' category, meaning defence records confirm that the area was used for military training but do not confirm that the sites were used for live firing. |
| | Tourism | In East Gippsland, the primary tourist locations are the Gippsland Lakes (the largest inland waterway in Australia), and the towns of Lakes Entrance, Marlo, Cape Conran, and Mallacoota. The area is renowned for its nature-based tourism (e.g. Croajingolong National Park), recreational fishing and water sports (lake and beaches). |
| Cultural | Native Title determinations and claims | A "*determination of native title*" is a decision on whether native title exists in relation to a particular area of land or waters. An "*approved determination of native title*" is a determination of native title made by the FCA, the HCA, or a recognised State/Territory body within its jurisdictional limits (Australian Government, 2025). Native Title claims are claimants whose applications (for a determination) have been accepted for registration. A claim application is made by a native title claim |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | | group that claims they hold native title rights and interests in an area of land and/or water, according to their traditional laws and customs (National Native Title Tribunal, 2025).<br><br>There are no Native Title determinations or claims that overlap ADE. Native Title determinations or claims overlapped by the EMBA are described in Section 1.5 of Appendix A. |
| | Sea Country | 'Gunai/Kurnai' is the name of the indigenous group who have inhabited the Gippsland region for at least 18,000 years (Bataluk Cultural Trail, 2025). GLaWAC (GLAWAC, 2025) describe their Country as:<br><br>*"The land, the rivers and the ocean, the people, and the stories, the past and the future. All of it is connected. All of it is important to us. Country heals us and connects us to our ancestors, our culture and our history".*<br><br>Country can be broadly categorised (although interconnected) into Land and Sea Country. Sea Country, also known as Saltwater Country, is of particular importance for this activity, as the ADE may exist within known areas of Sea Country. Smyth and Isherwood (2016) describe Sea Country as all estuaries, beaches, bays, and marine areas collectively, within a traditional estate. Sea Country contains evidence of the ancient mystical events by which all geographic features, animals, plants, and people were created. The sea, like the land, is integral to the identity of indigenous groups. Connection to Sea Country is accompanied by a complexity of cultural rights and responsibilities. Formal recognition of Sea Country rights lags considerably compared to land rights; this could be for a range of reasons including conflicting perspectives and opinions on traditional custodianship of land and how far it extends (Smyth & Isherwood, 2016).<br><br>There has been recent momentum regarding Sea Country in Australia, which can be seen in the Australian Government's $11.6 million commitment to the Sea Country IPA Program. The program seeks to increase the area of sea in IPAs to strengthen the conservation and protection of Australia's marine and coastal environments, while creating employment and economic opportunities for Indigenous Australians (DCCEEW, 2023). As part of the program, GLaWAC signed an agreement with the Federal Government to start the process of establishing a Sea Country IPA from Nanjit, east of Wilsons Promontory, to Mallacoota, on the Victorian/NSW border. The proposed area is located within the coastal waters of the Gippsland region, comprising of numerous marine and coastal parks and includes the Ramsar listed Gippsland Lakes and Raymond Island, a highly significant cultural site (both sites are outside the ADE). |
| UCH | Historic shipwrecks, sunken aircraft and First Nations UCH | Historic shipwrecks and sunken aircraft, including associated artefacts that have been in Australian waters more than 75 years, are subject to automatic protection under the UCH Act (DCCEEW, Biologically Important Areas for protected marine species (BIAs), 2025). In addition, some protected UCH may have a declared protection zone that limits access and is regulated via a permitting regime (DCCEEW, Biologically Important Areas for protected marine species (BIAs), 2025). |

| Value/sensitivity | Receptor | Description |
|---|---|---|
| | (Figure 3-10) | Historic shipwrecks are located all along the Australian coastline, with numerous shipwrecks located in the Gippsland region. The only shipwreck within the ADE is the *Favourite* (1852) located 6.9km west of the SNA OA in water depths between 50 - 60m. The favourite was an 85 foot, 96t wood schooner.<br>There are no protection zones or declared protected maritime, aircraft or other UCH sites within the ADE. The closest protection zone is the *SS Federal* (1901), which is located 12km east of the ADE. |
| Social environment | Recreational fishing, boating and leisure | Recreational fishing along the Gippsland coast typically targets snapper, King George whiting, flathead, bream, sharks, tuna, calamari, and Australian salmon. Recreational fishing and boating are largely confined to the Gippsland Lakes (20km north of the ADE) and nearshore coastal waters. The Gippsland Lakes Fishing Club is a well-known active recreational fishing club within the region.<br>There are no anecdotal records from Esso crew of recreational fishing occurring around the platforms as they are generally too far from the coast. |

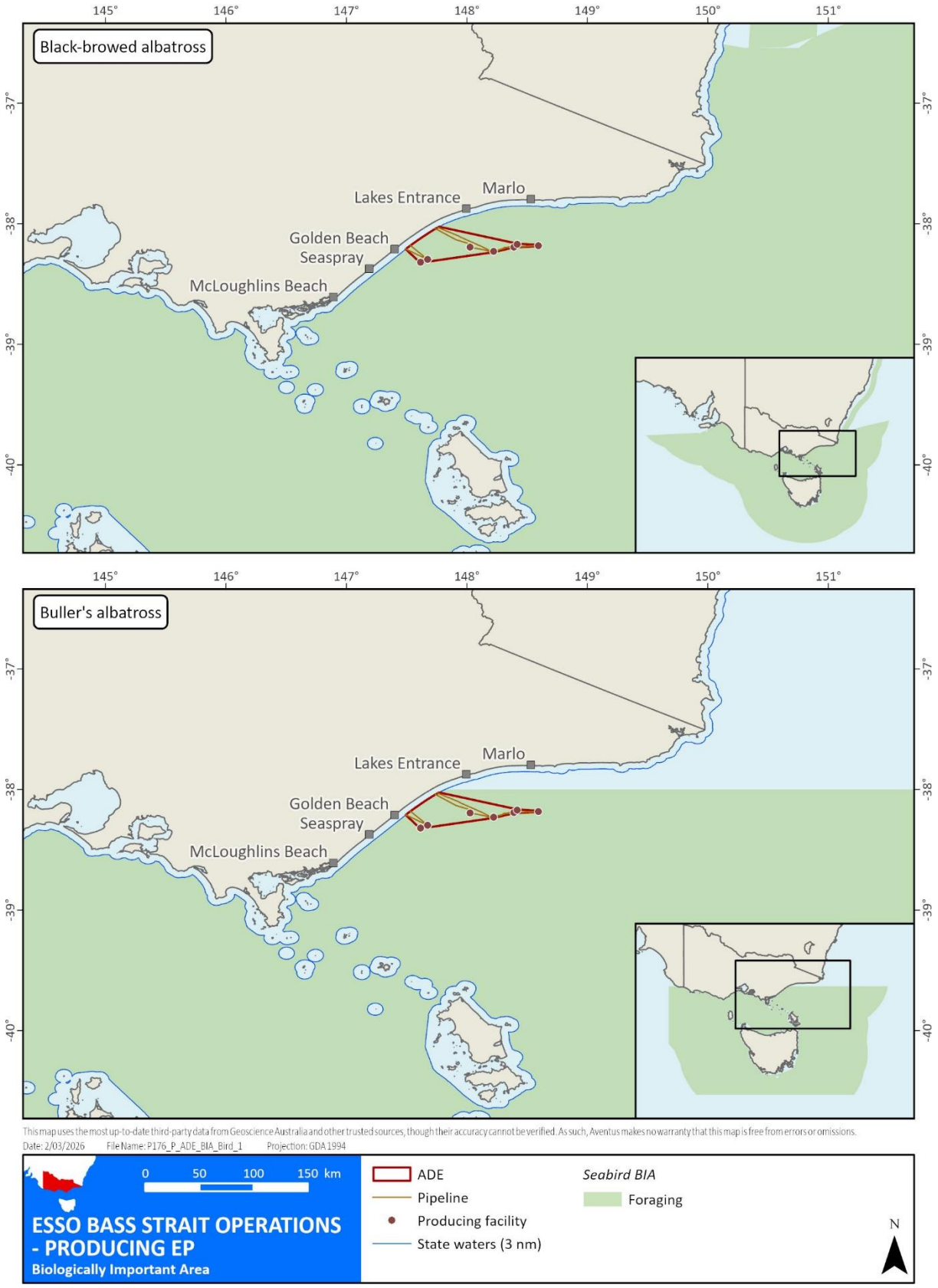



**Figure 3-2 Foraging BIAs for the black-browed albatross and the Buller's albatross overlapped by the ADE**

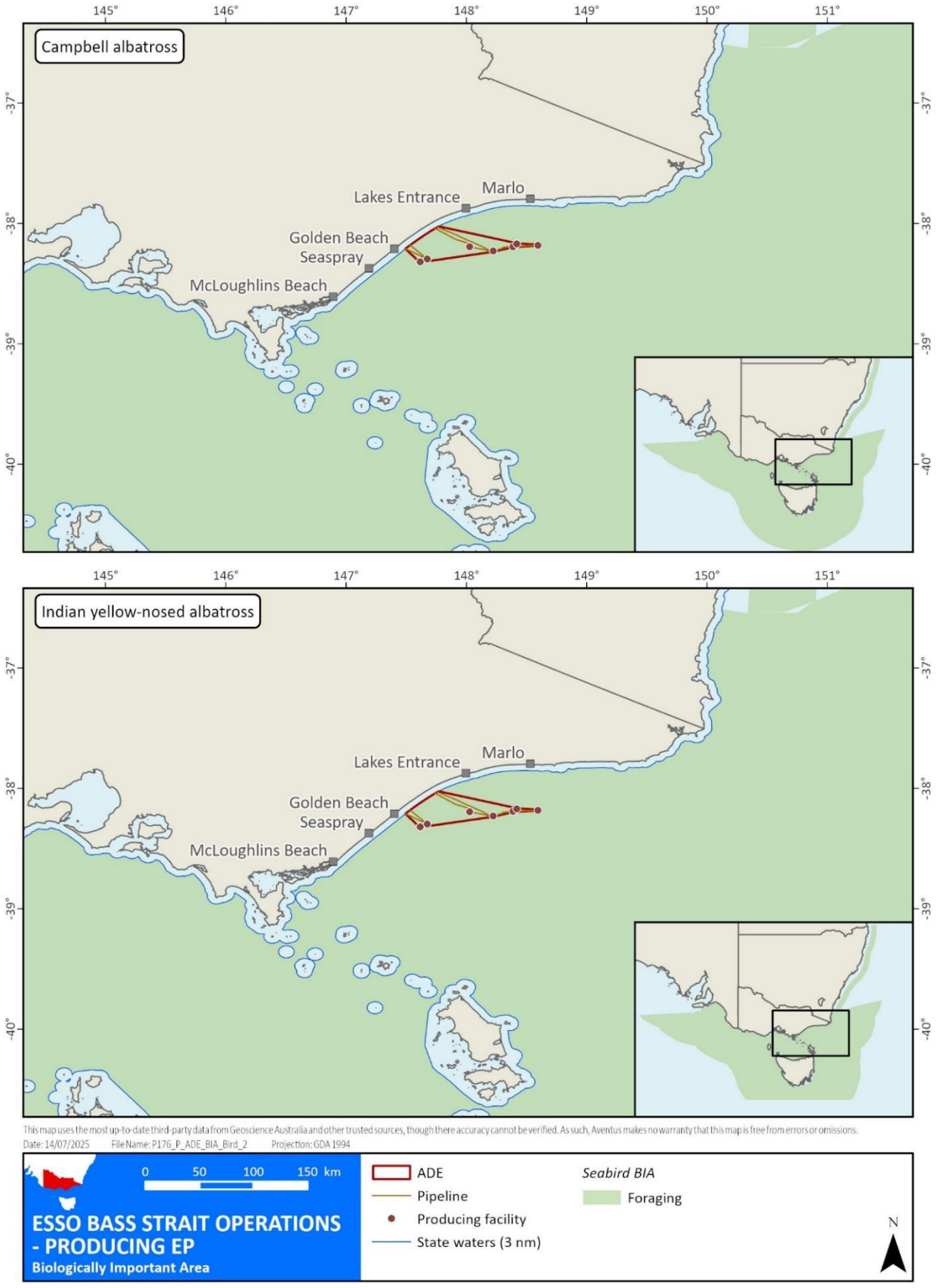



**Figure 3-3 Foraging BIAs for the Campbell albatross and the Indian yellow-nosed albatross overlapped by the ADE**

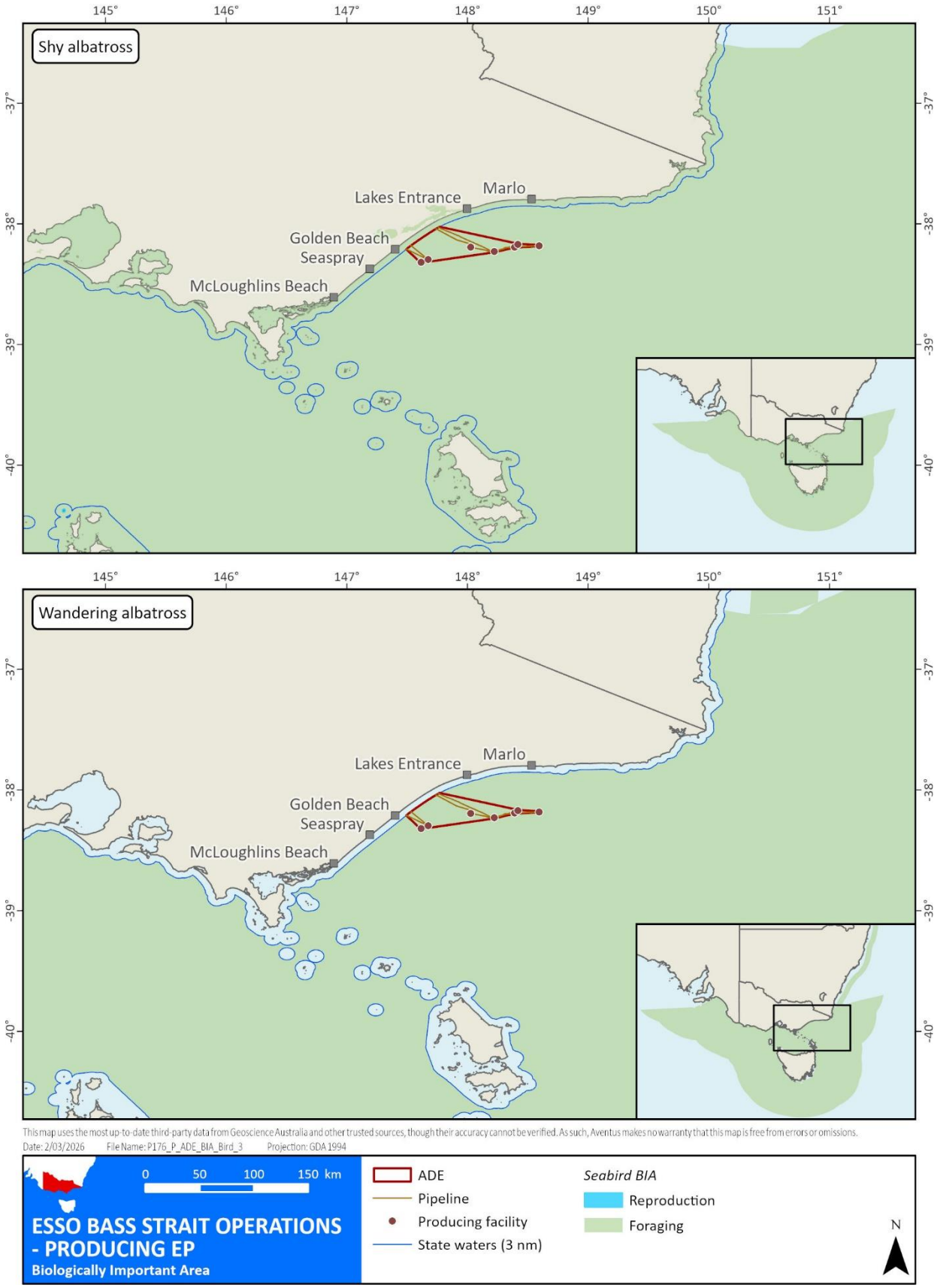



**Figure 3-4 Foraging BIAs for the shy albatross and the wandering albatross overlapped by the ADE**

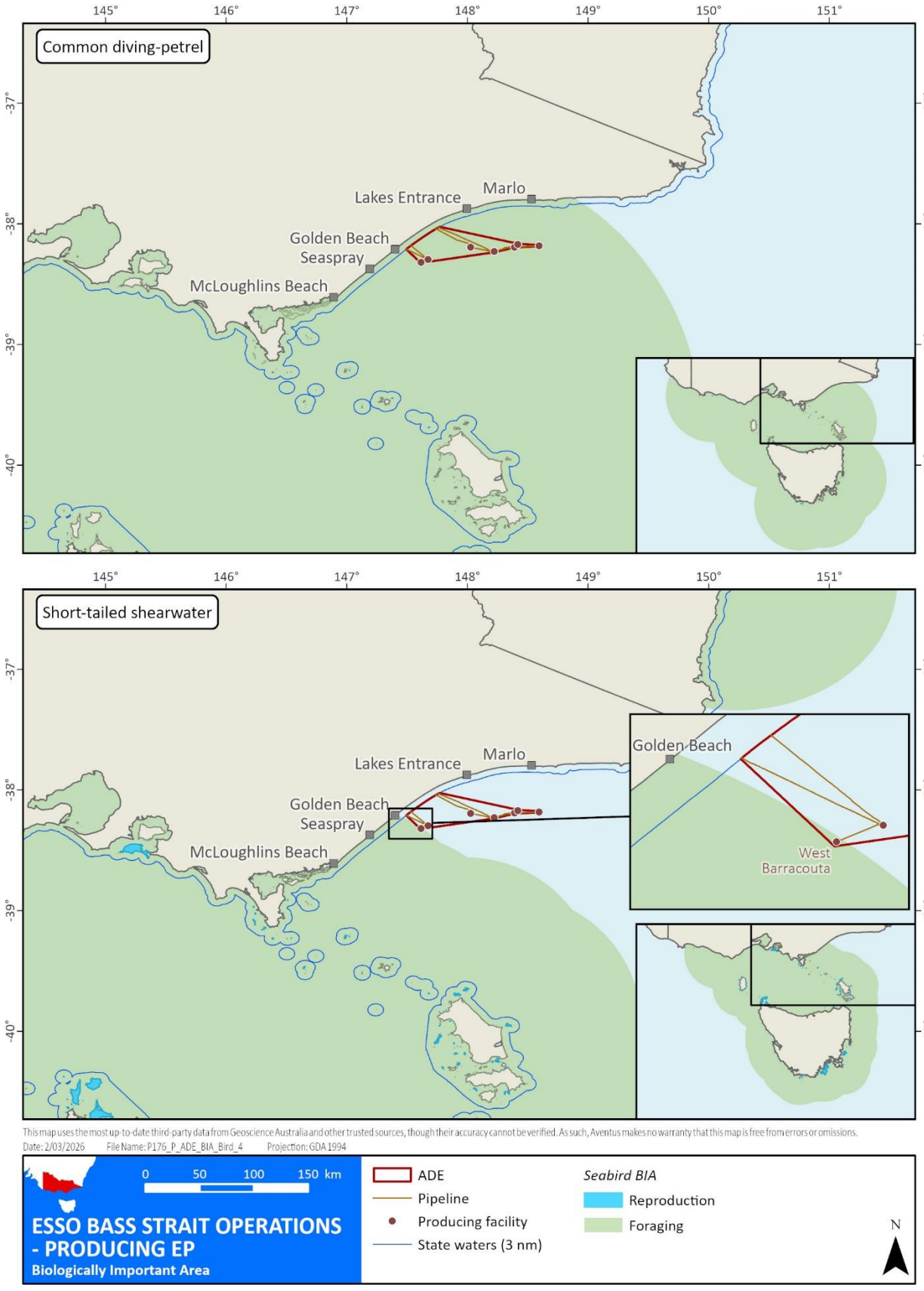



**Figure 3-5 Foraging BIAs for the common diving-petrel and the short-tailed shearwater overlapped by the ADE**

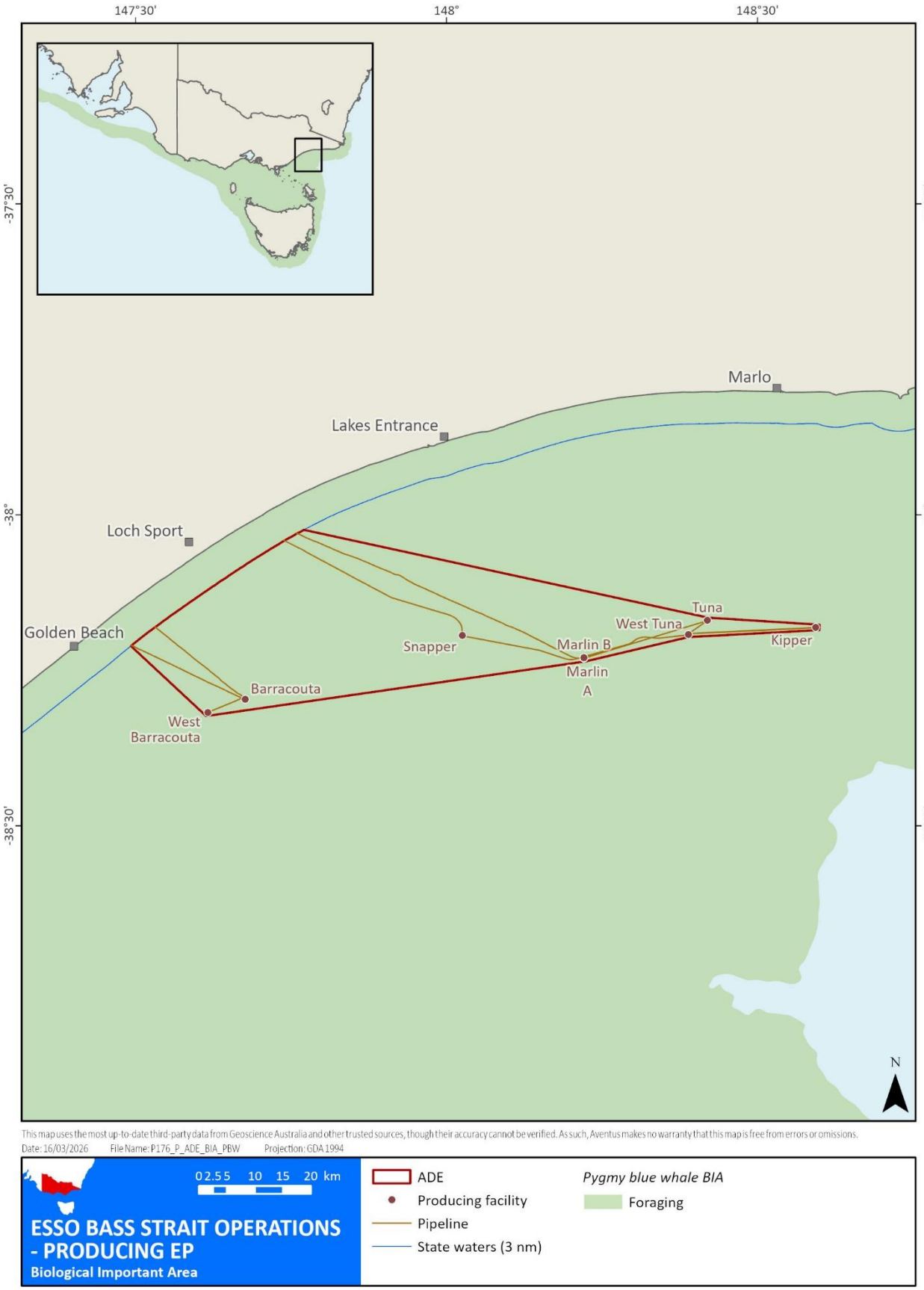



**Figure 3-6 Foraging BIA for the PBW overlapped by the ADE**

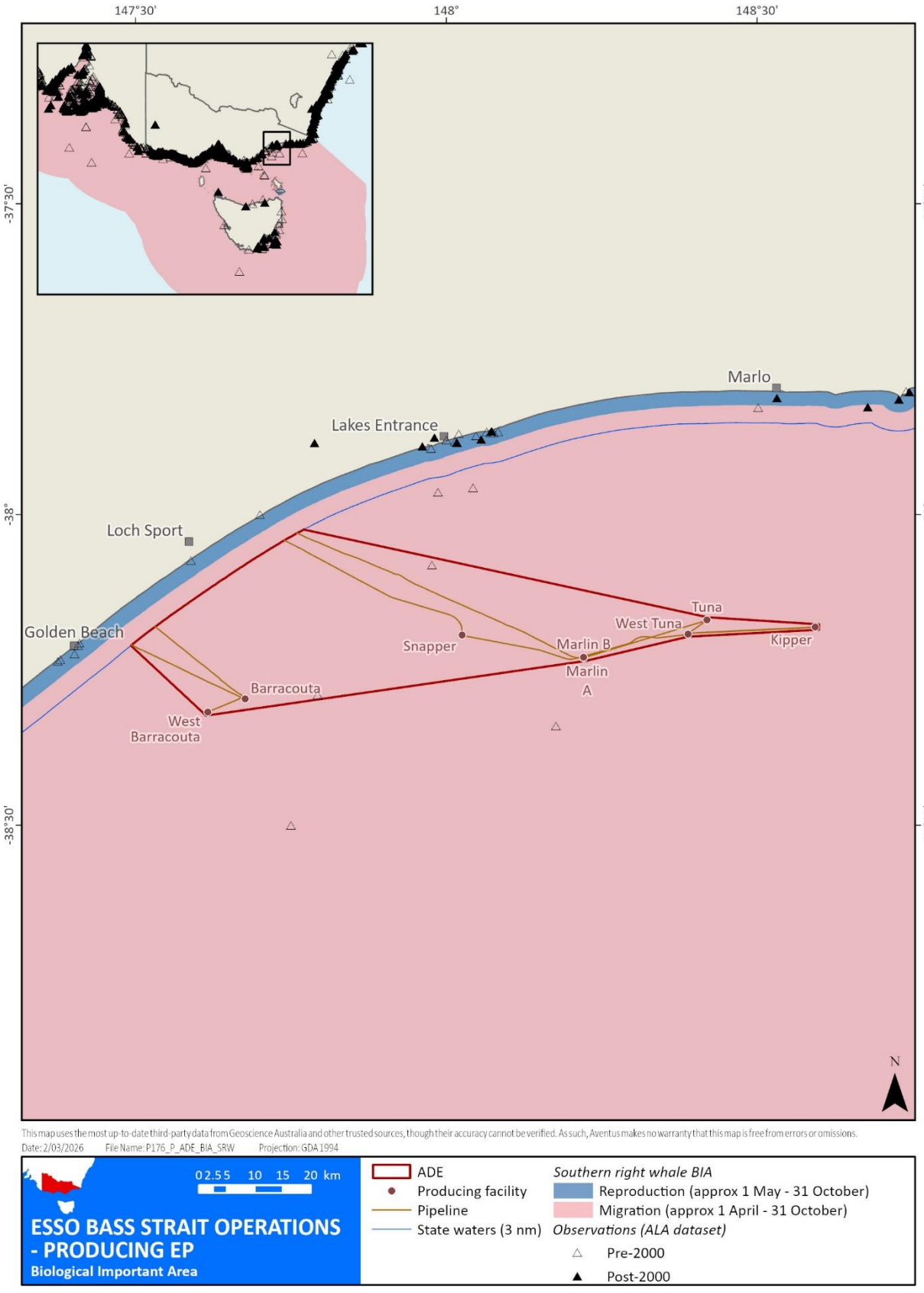



**Figure 3-7 Migration BIA for the SRW overlapped by the ADE with Atlas of living Australia sighting data**

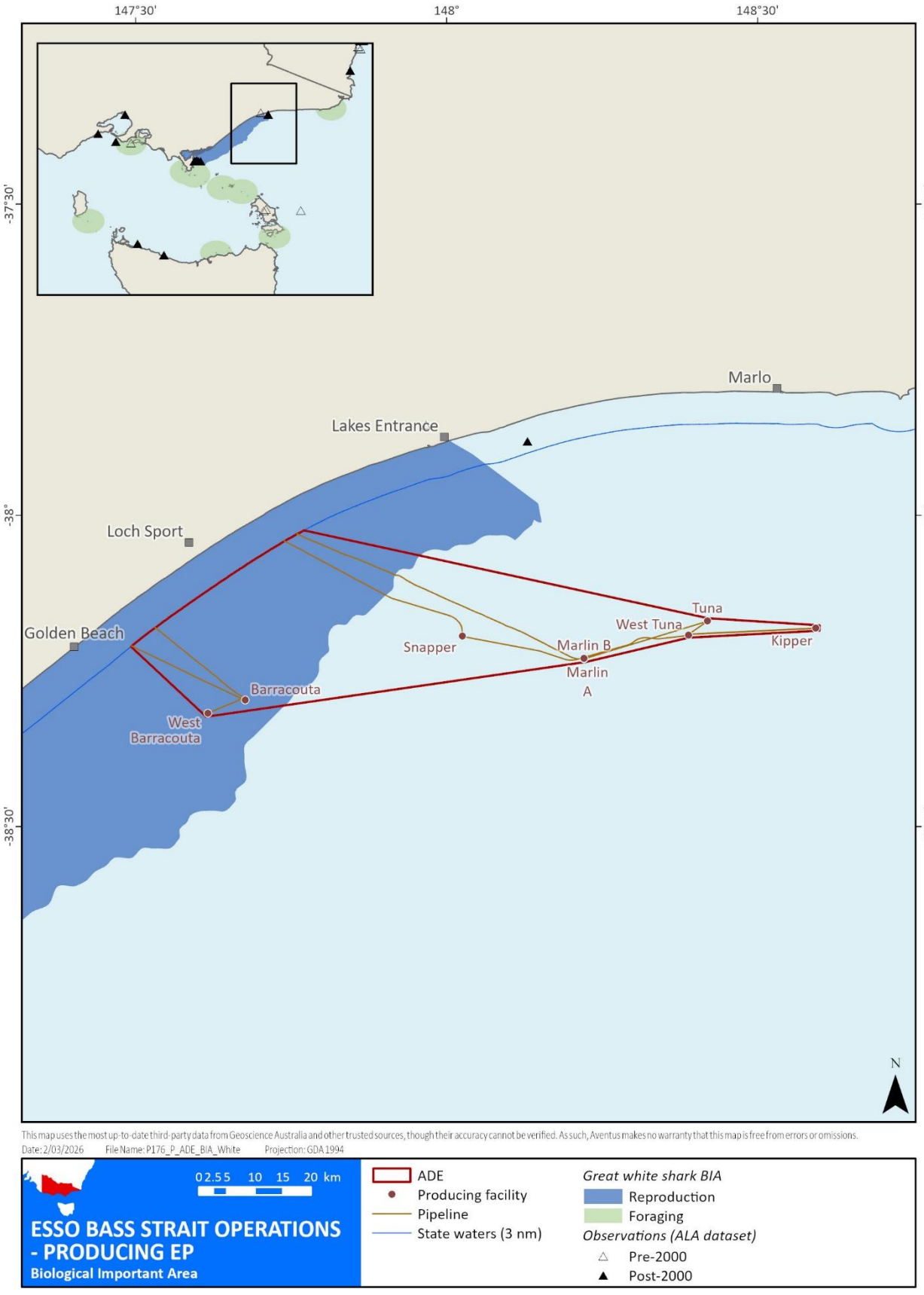



**Figure 3-8 Reproduction BIA for the white shark overlapped by the ADE with Atlas of living Australia sighting data**

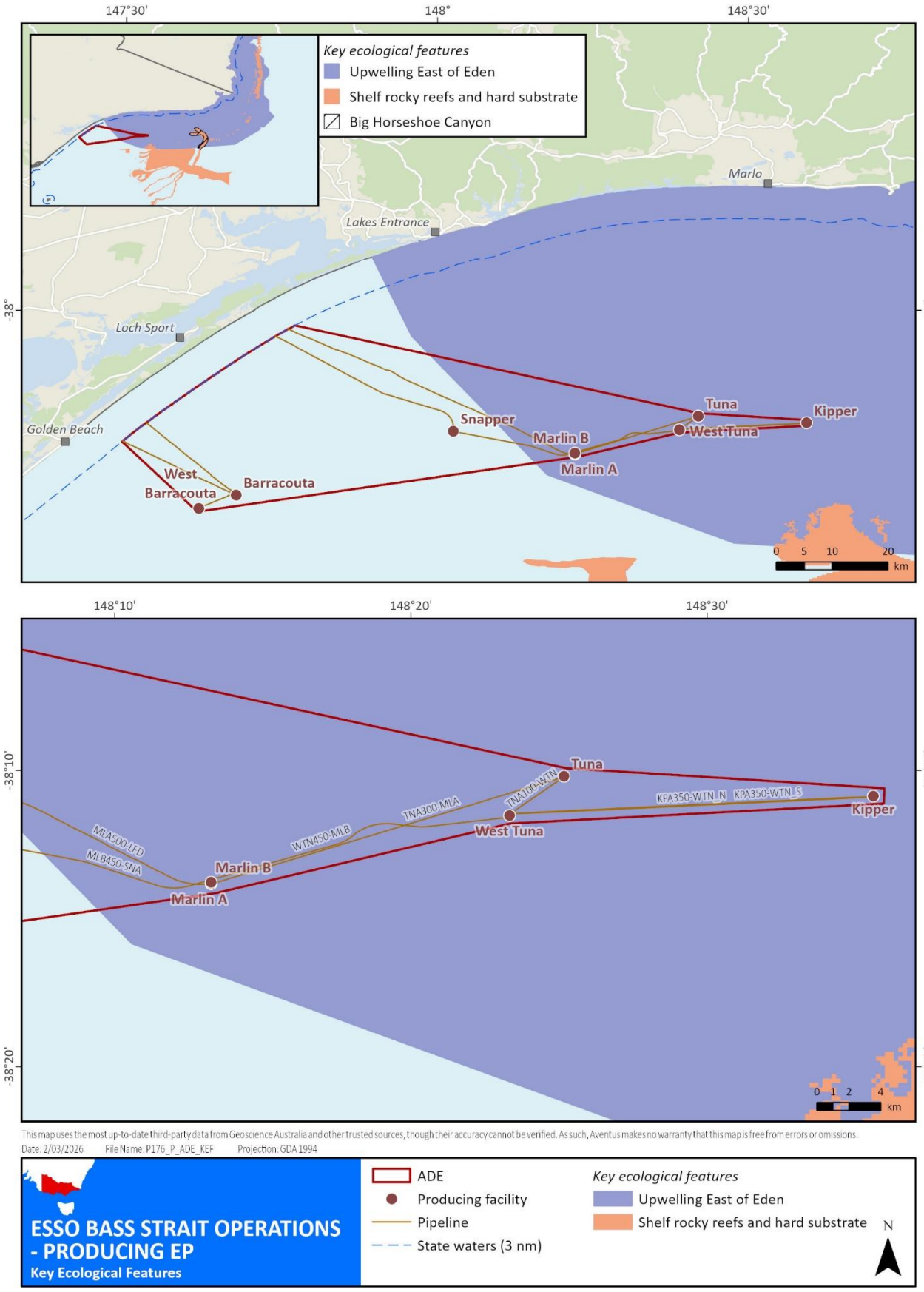



**Figure 3-9 KEFs overlapped by and in proximity to the ADE**

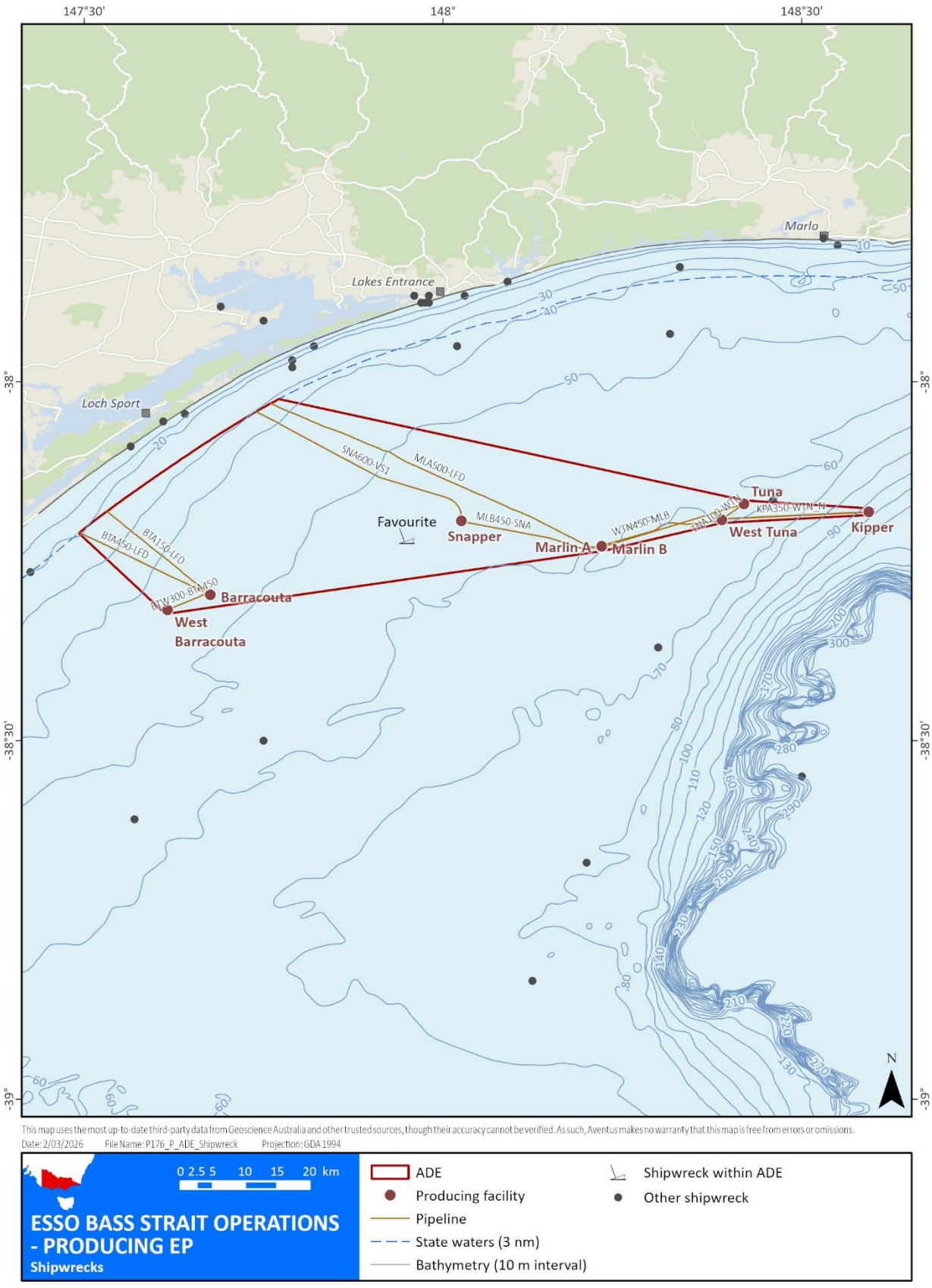



**Figure 3-10 Shipwrecks within and in proximity to the ADE**

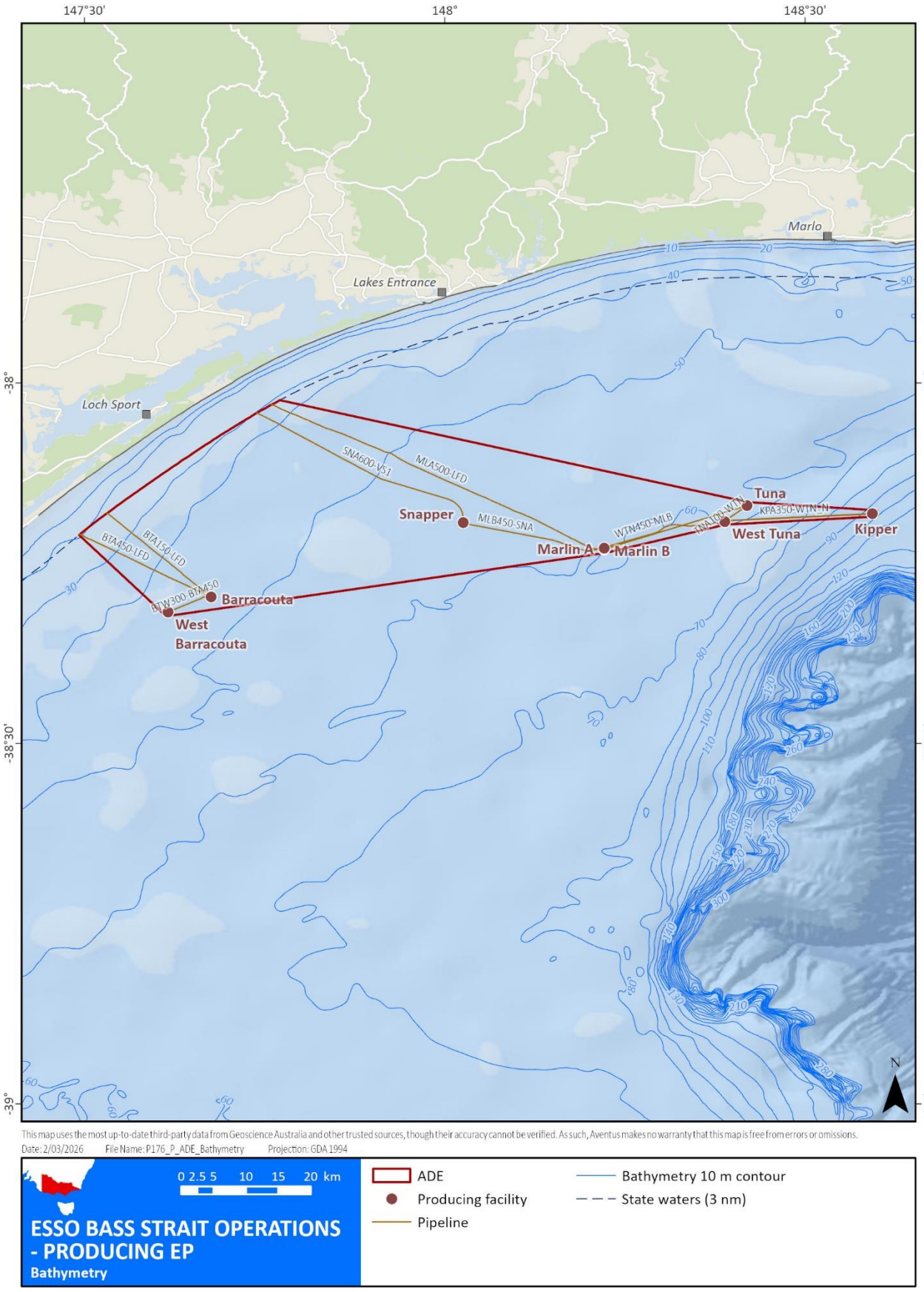



**Figure 3-11 Bathymetry in the ADE**

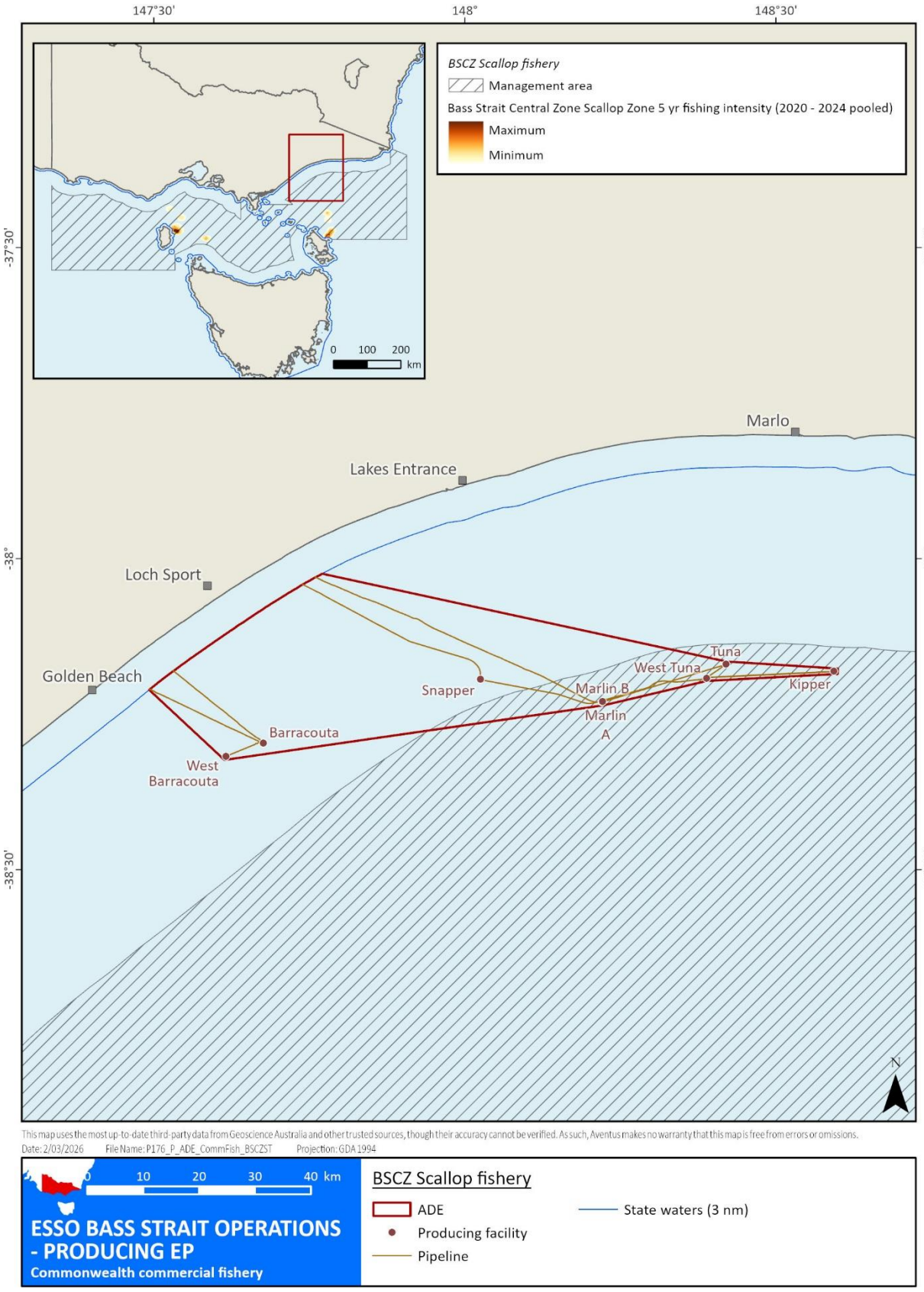



**Figure 3-12 Bass Strait Central Scallop Zone Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE**

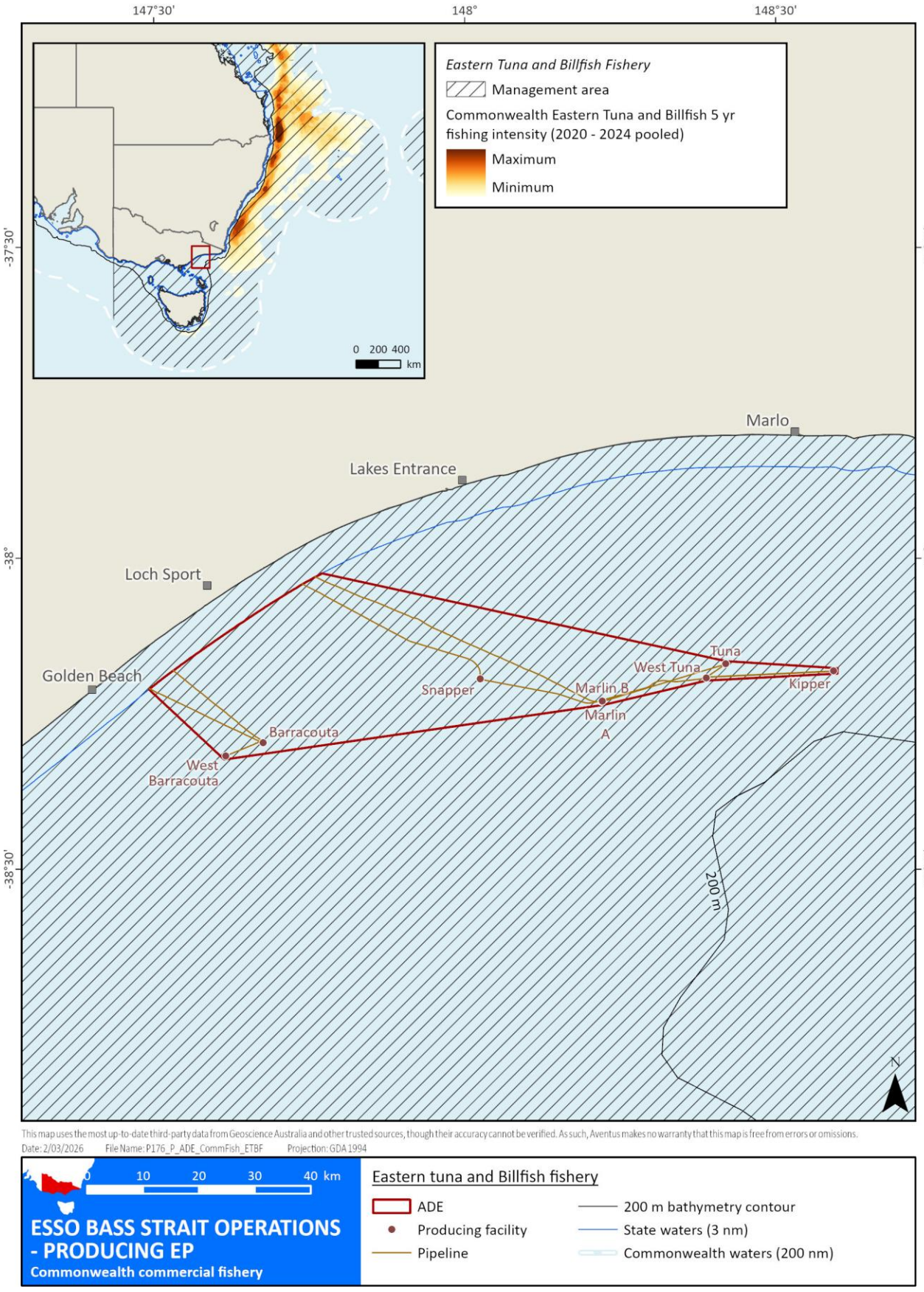



**Figure 3-13 Eastern Tuna and Billfish Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE**

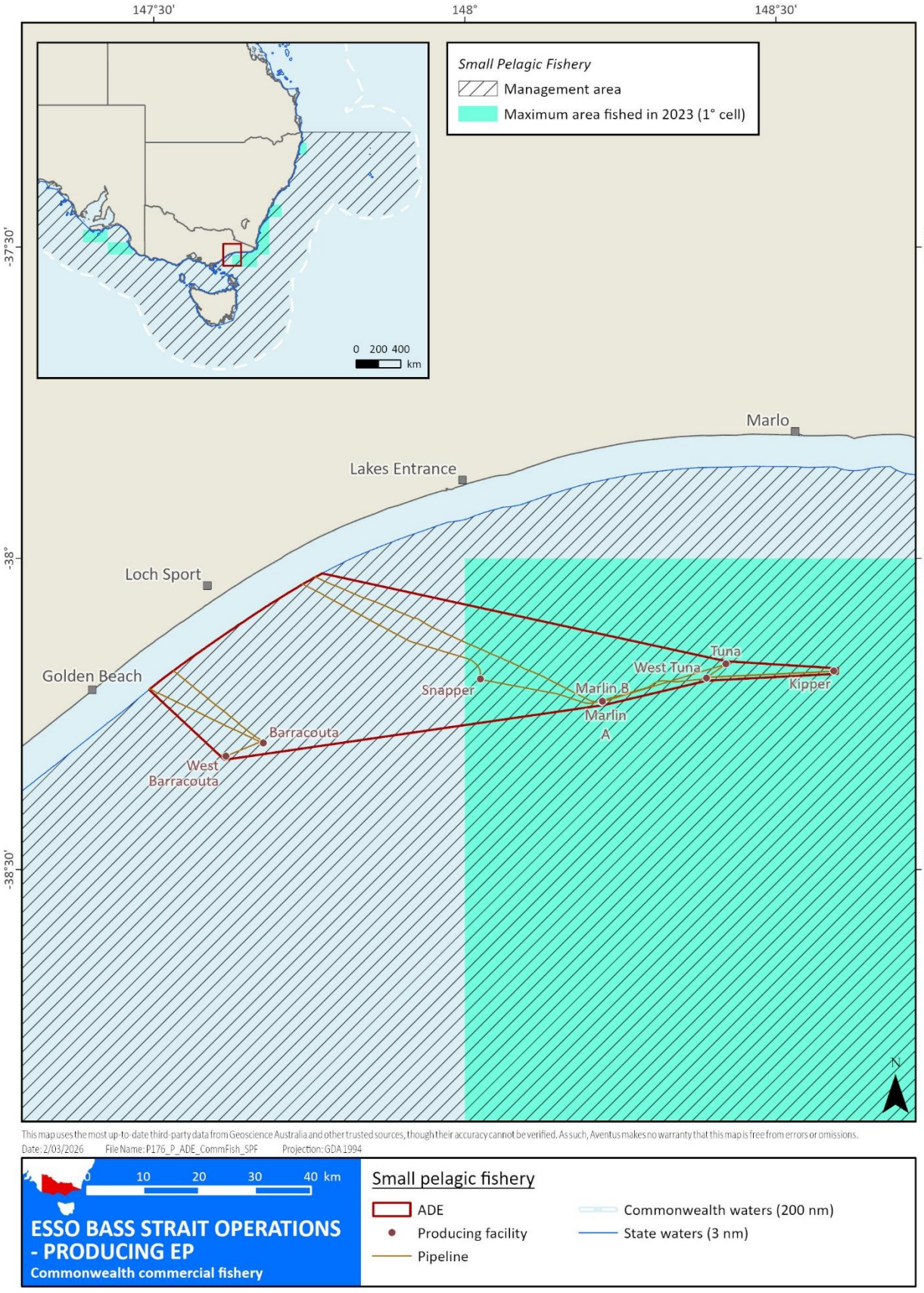



**Figure 3-14 Small Pelagic Fishery zone and maximum area fished in 2023 overlapped by the ADE**

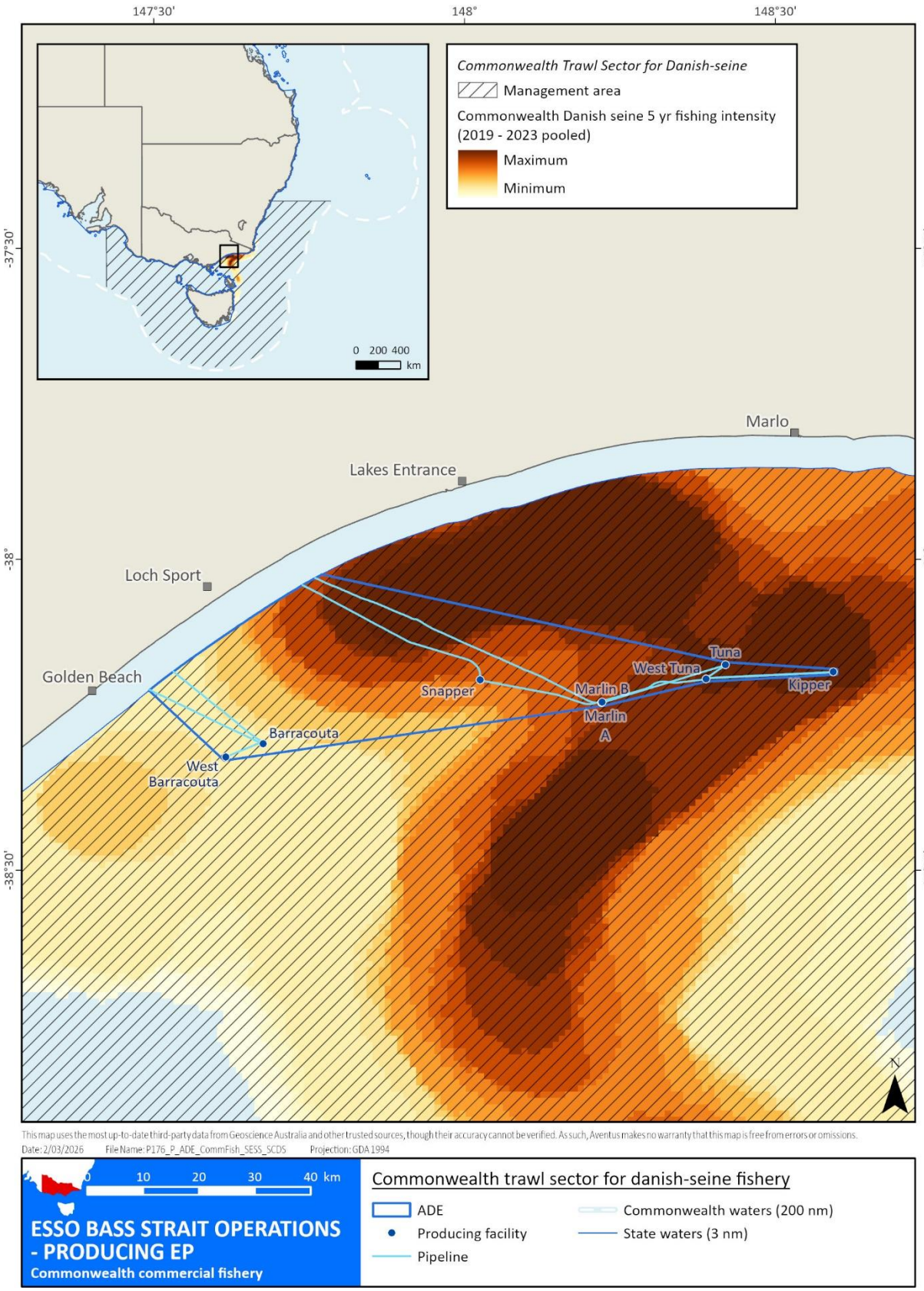



**Figure 3-15 SESSF – CTS – Danish seine sector zone and 2019 - 2023 fishing intensity overlapped by the ADE**

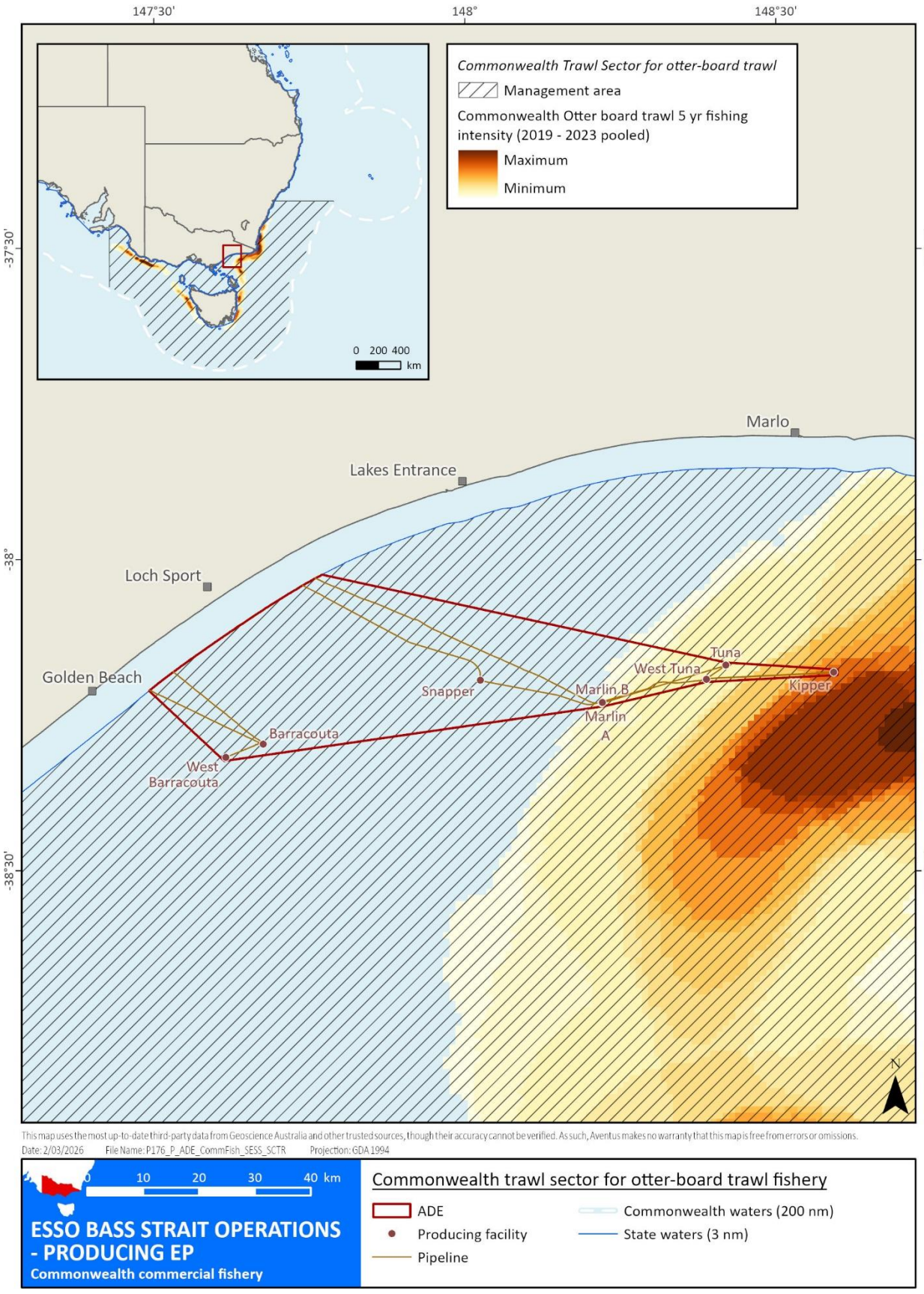



**Figure 3-16 SESSF – CTS – Otter board sector zone and 2019 - 2023 fishing intensity overlapped by the ADE**

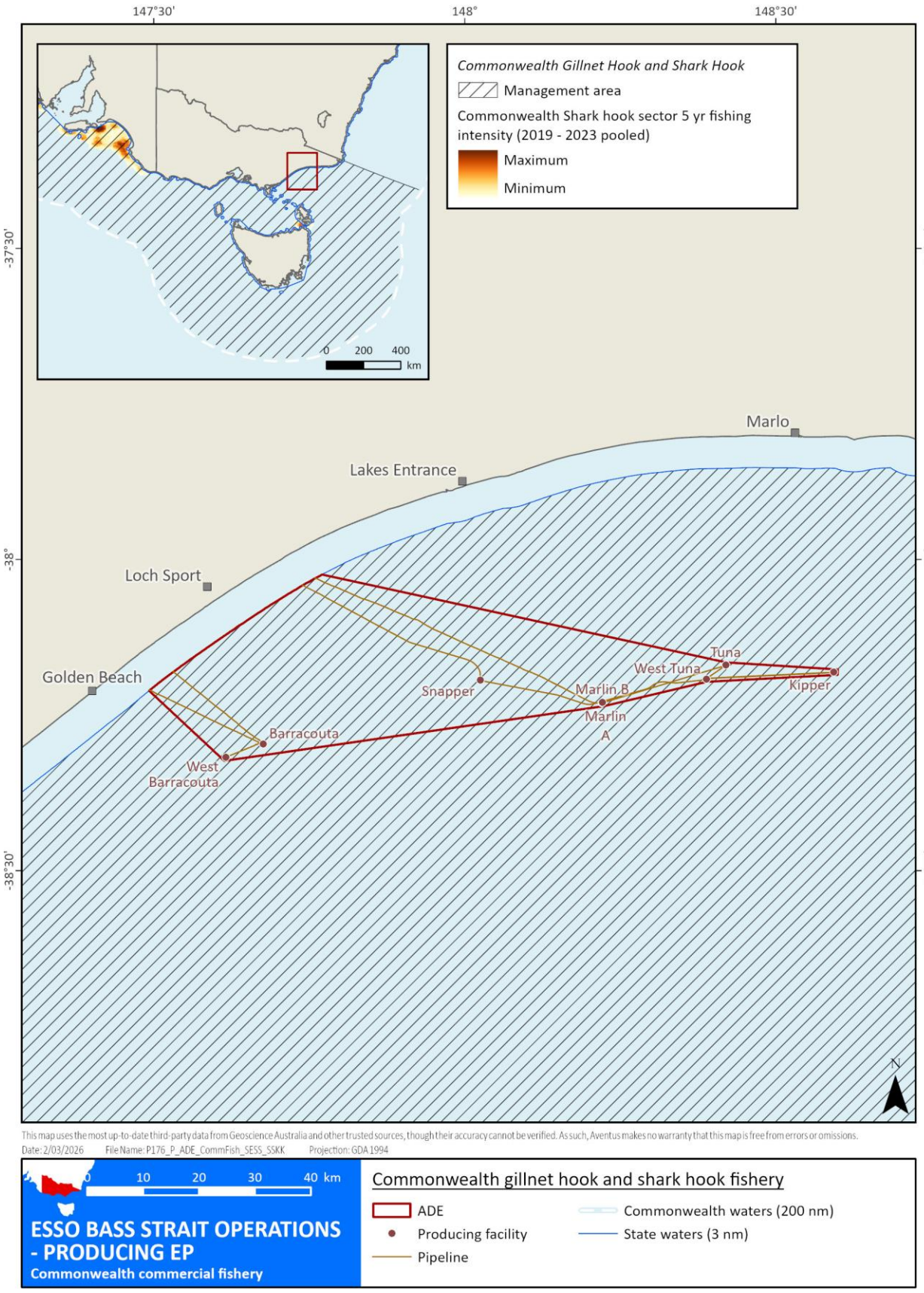



**Figure 3-17 SESSF – Shark hook sector zone and 2019 - 2023 fishing intensity in proximity to the ADE**

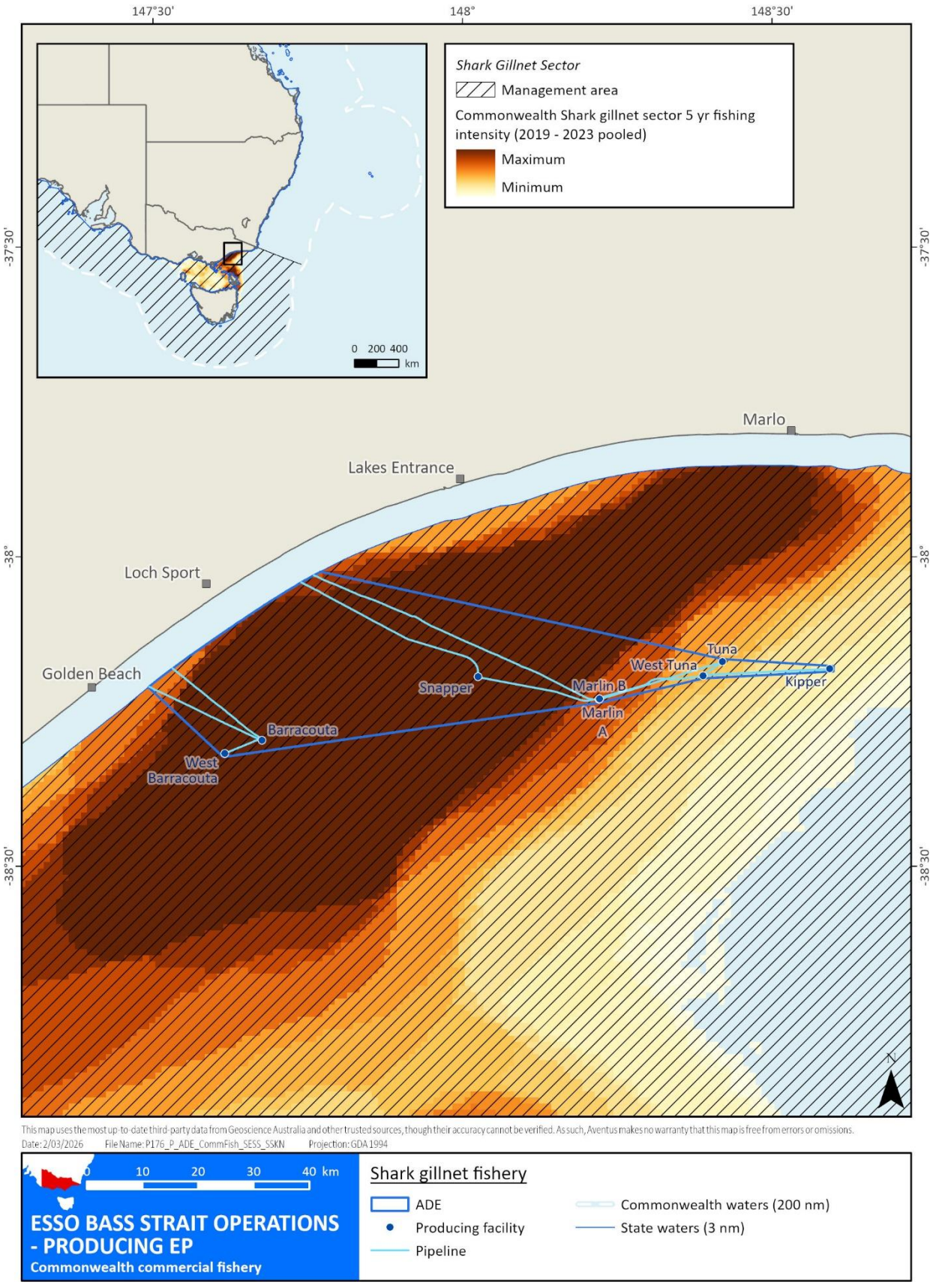



**Figure 3-18 SESSF – Shark gillnet sector zone and 2019 - 2023 fishing intensity overlapped by the ADE**

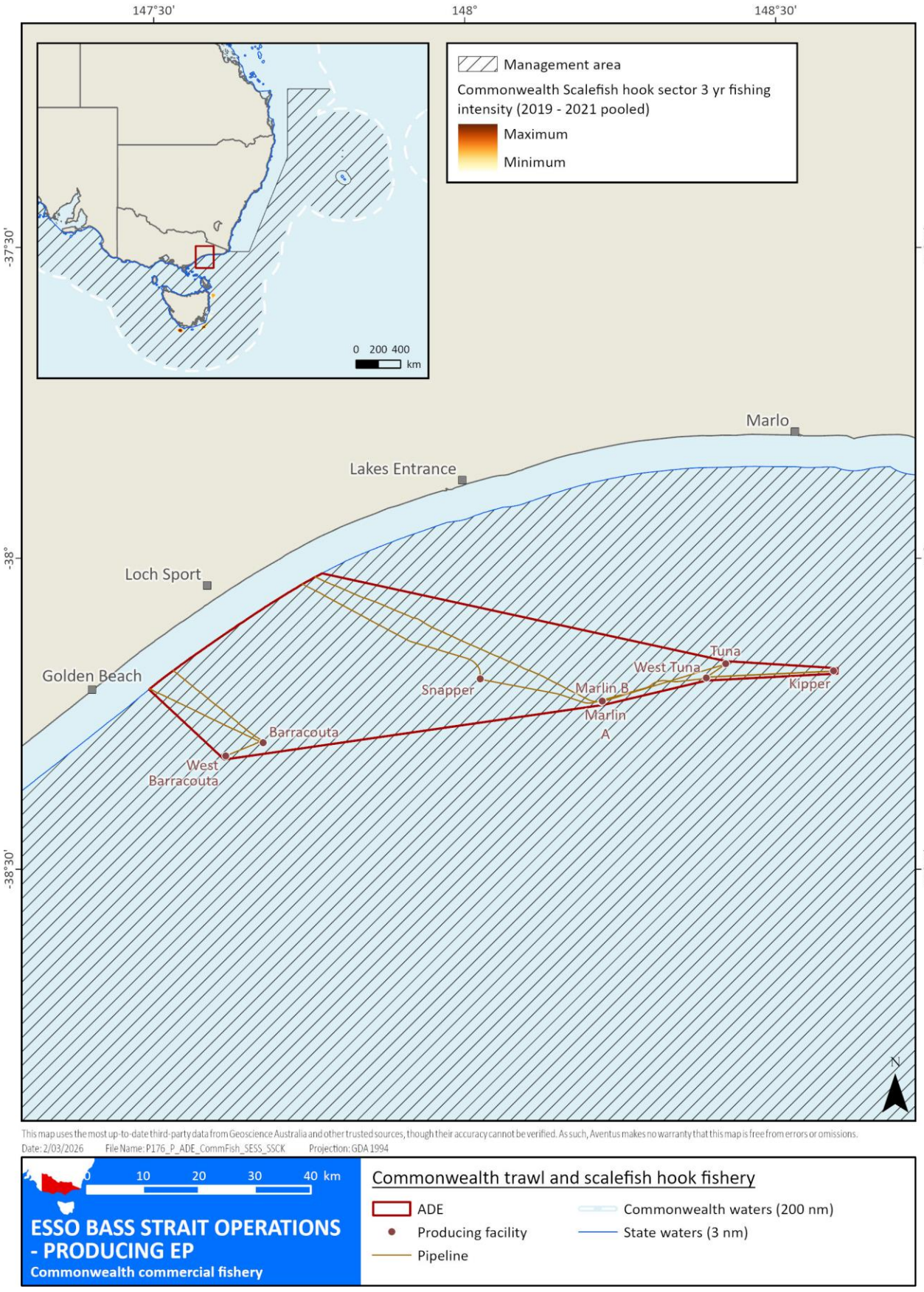



**Figure 3-19 SESSF – Scalefish hook sector zone and maximum area fished in 2023 overlapped by the ADE**

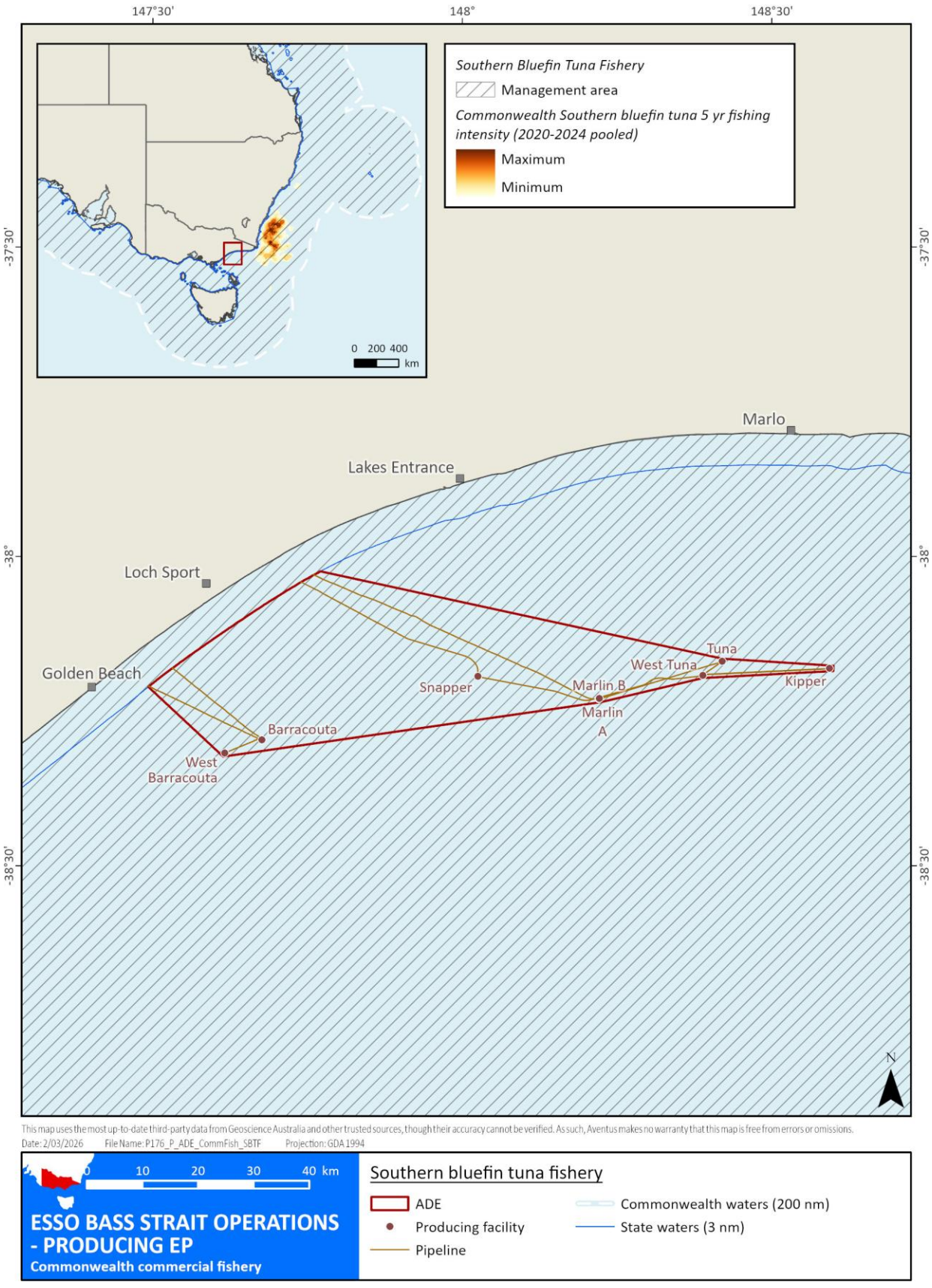



**Figure 3-20 Southern Bluefin Tuna Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE**

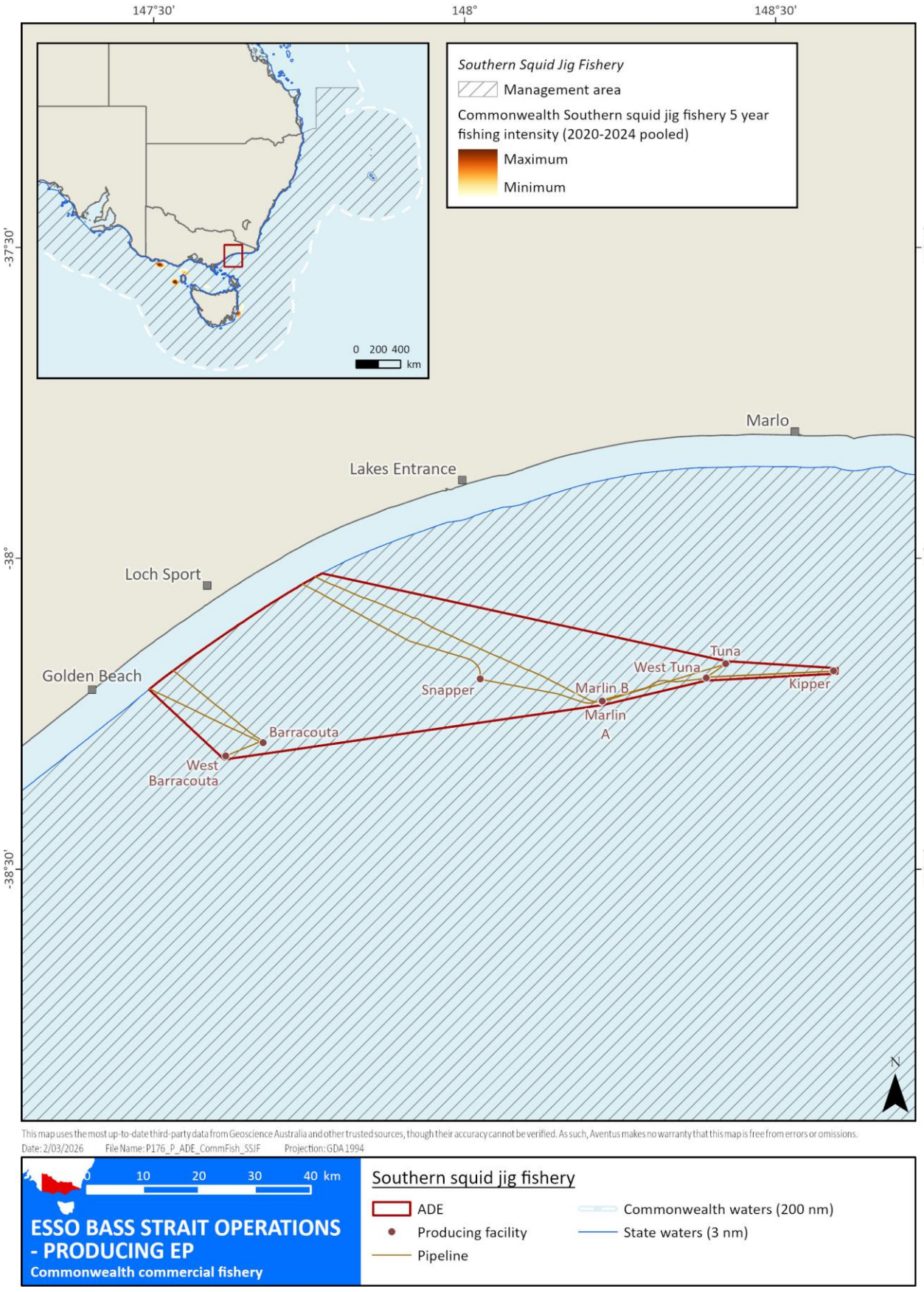



**Figure 3-21 Southern Squid Jig Fishery zone and 2020 - 2024 fishing intensity in proximity to the ADE**

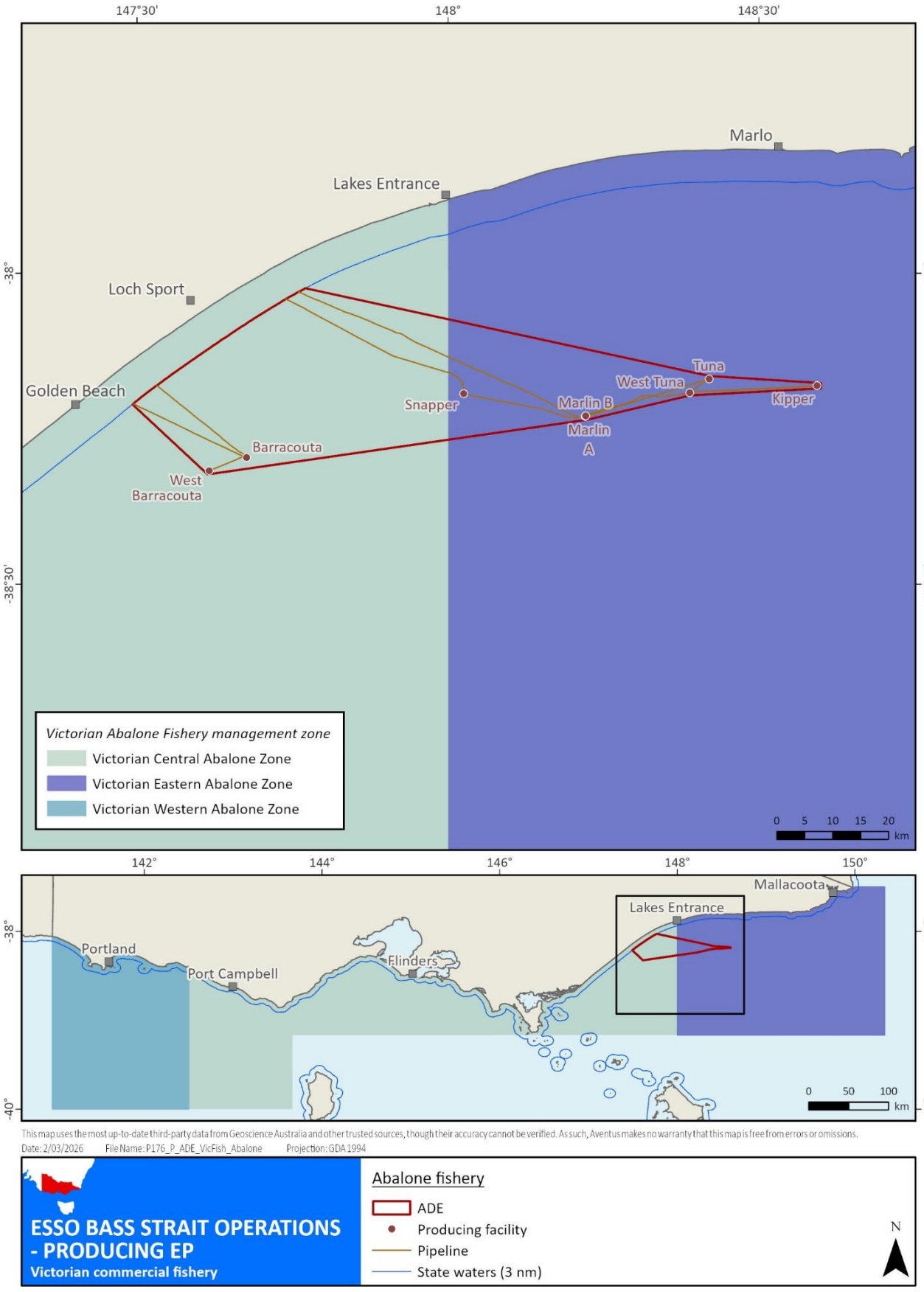



**Figure 3-22 Victorian Abalone Fishery zones overlapped by the ADE**

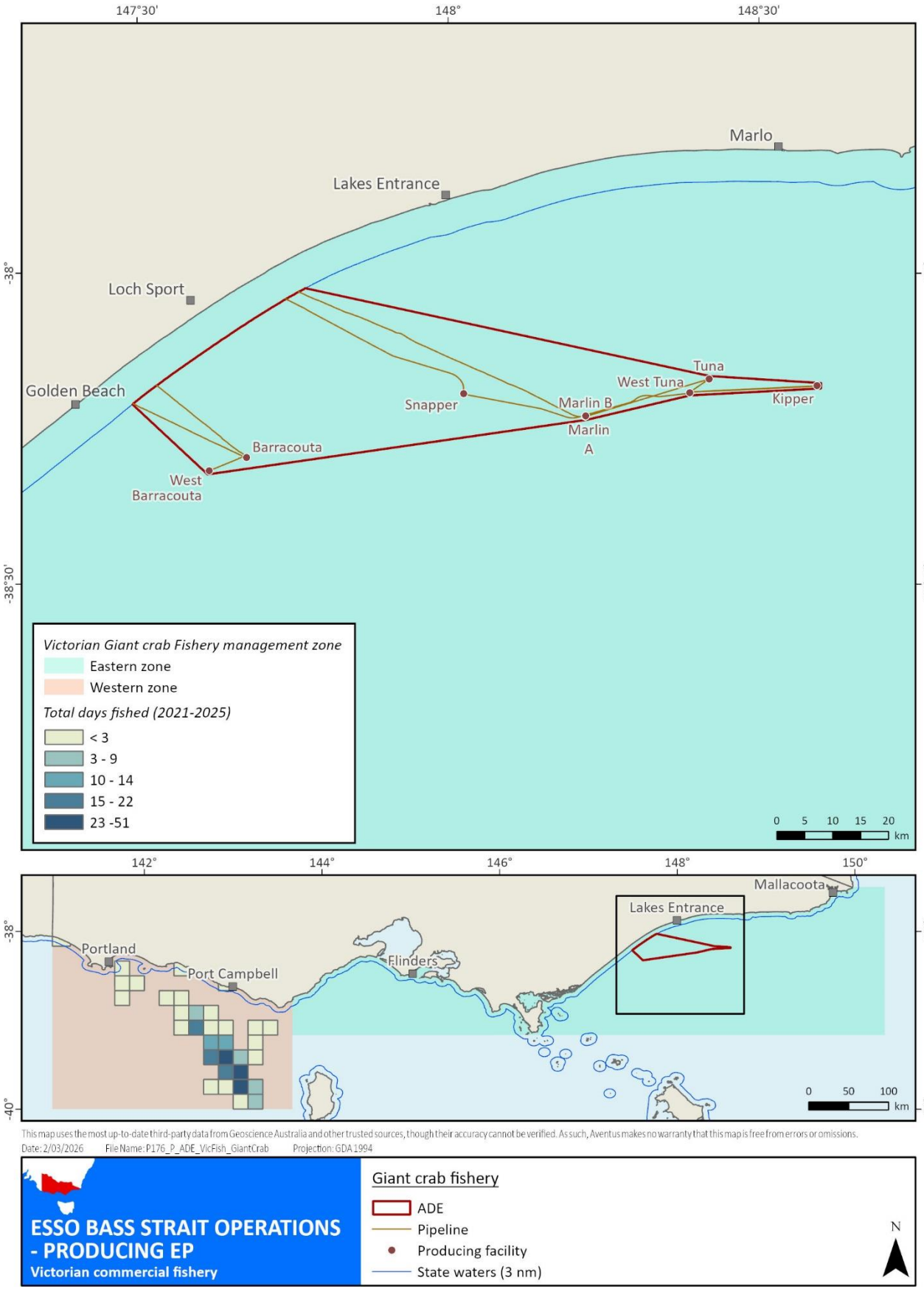



**Figure 3-23 Victorian Giant Crab Fishery zones and 2021 - 2025 fishing data overlapped by the ADE**

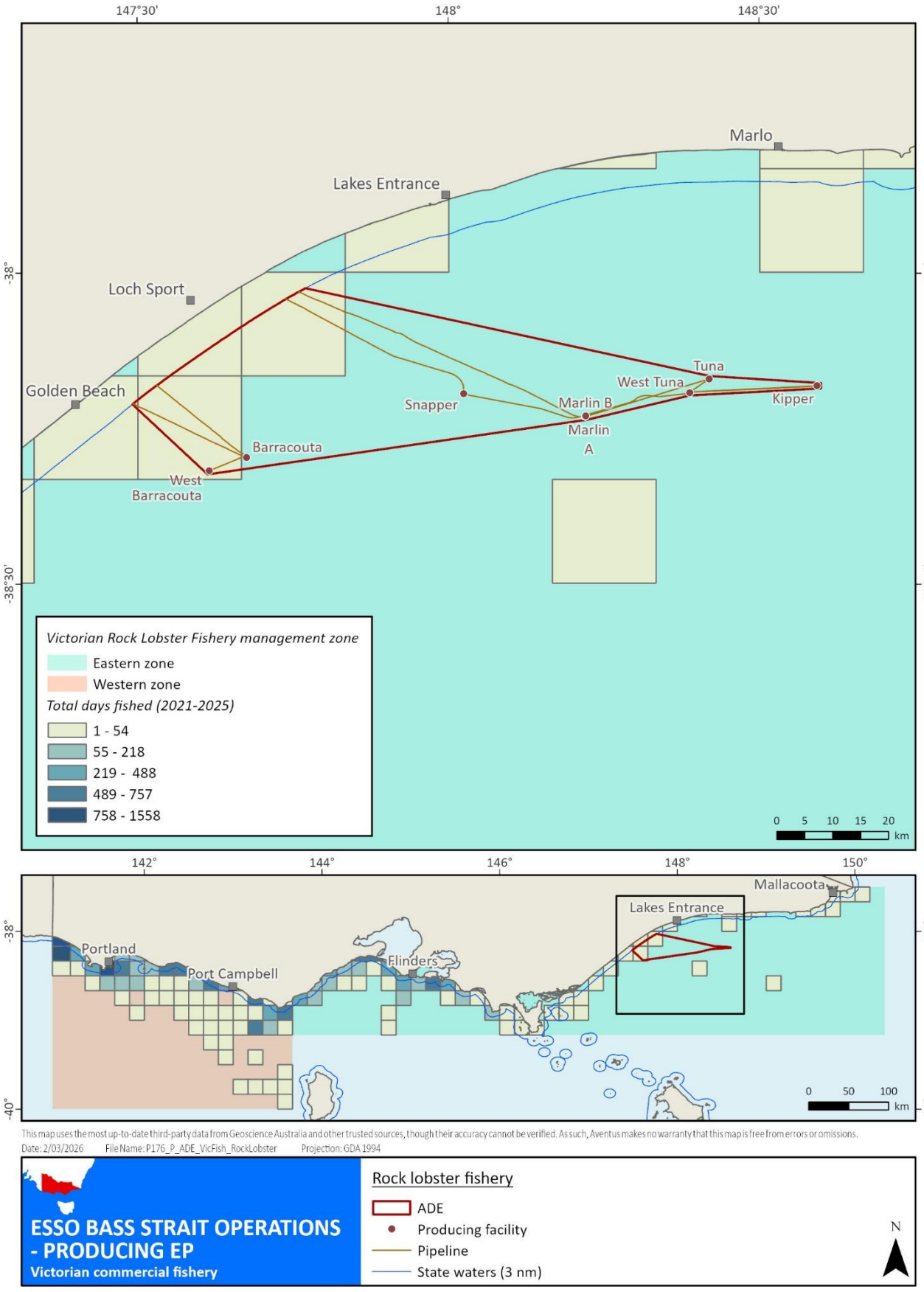



**Figure 3-24 Victorian Rock Lobster Fishery zones and 2021 - 2025 fishing data overlapped by the ADE**

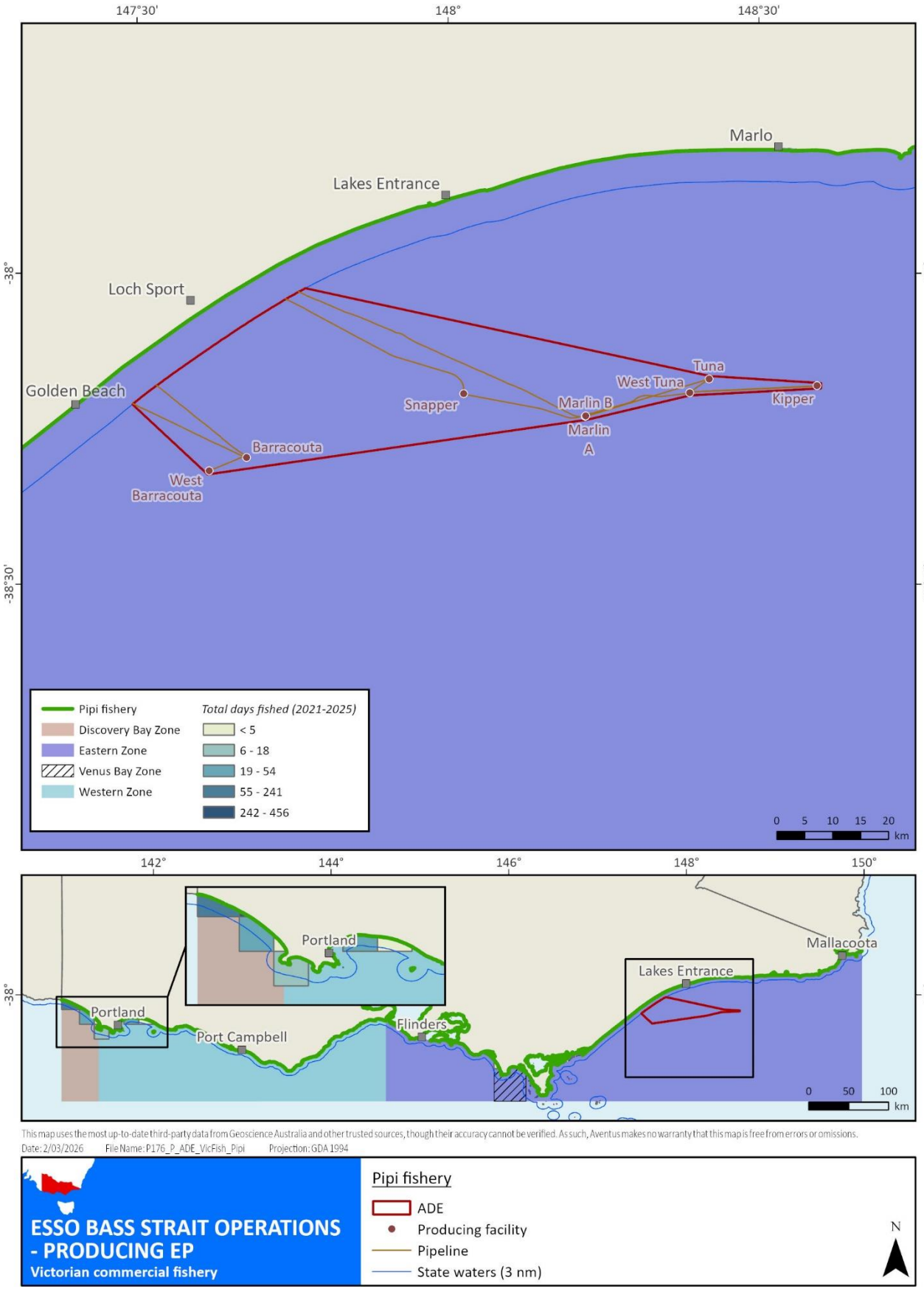



**Figure 3-25 Victorian Pipi Fishery zones and 2021 - 2025 fishing data overlapped by the ADE**

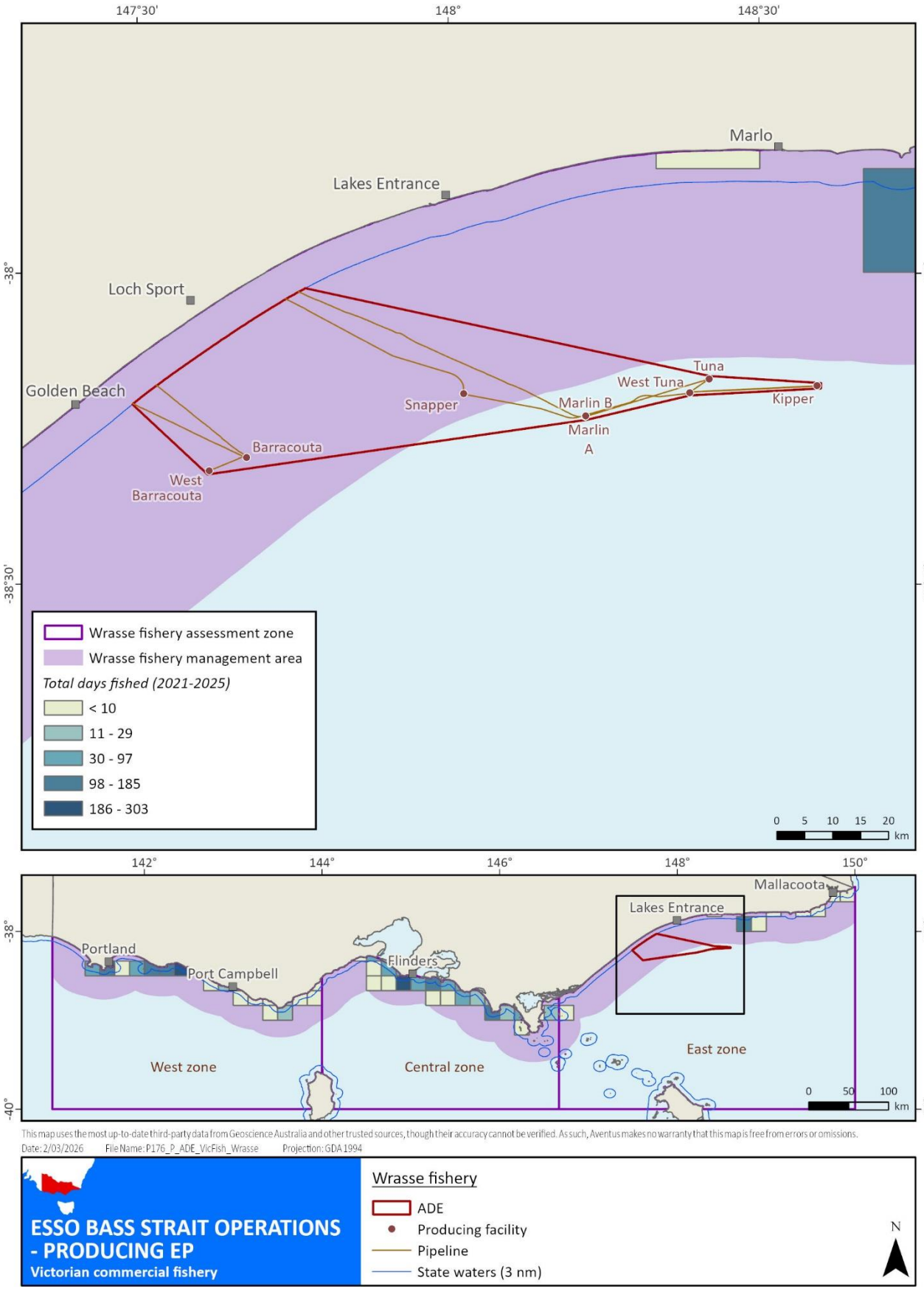



**Figure 3-26 Victorian Wrasse Fishery zone and 2021 - 2025 fishing data overlapped by the ADE**

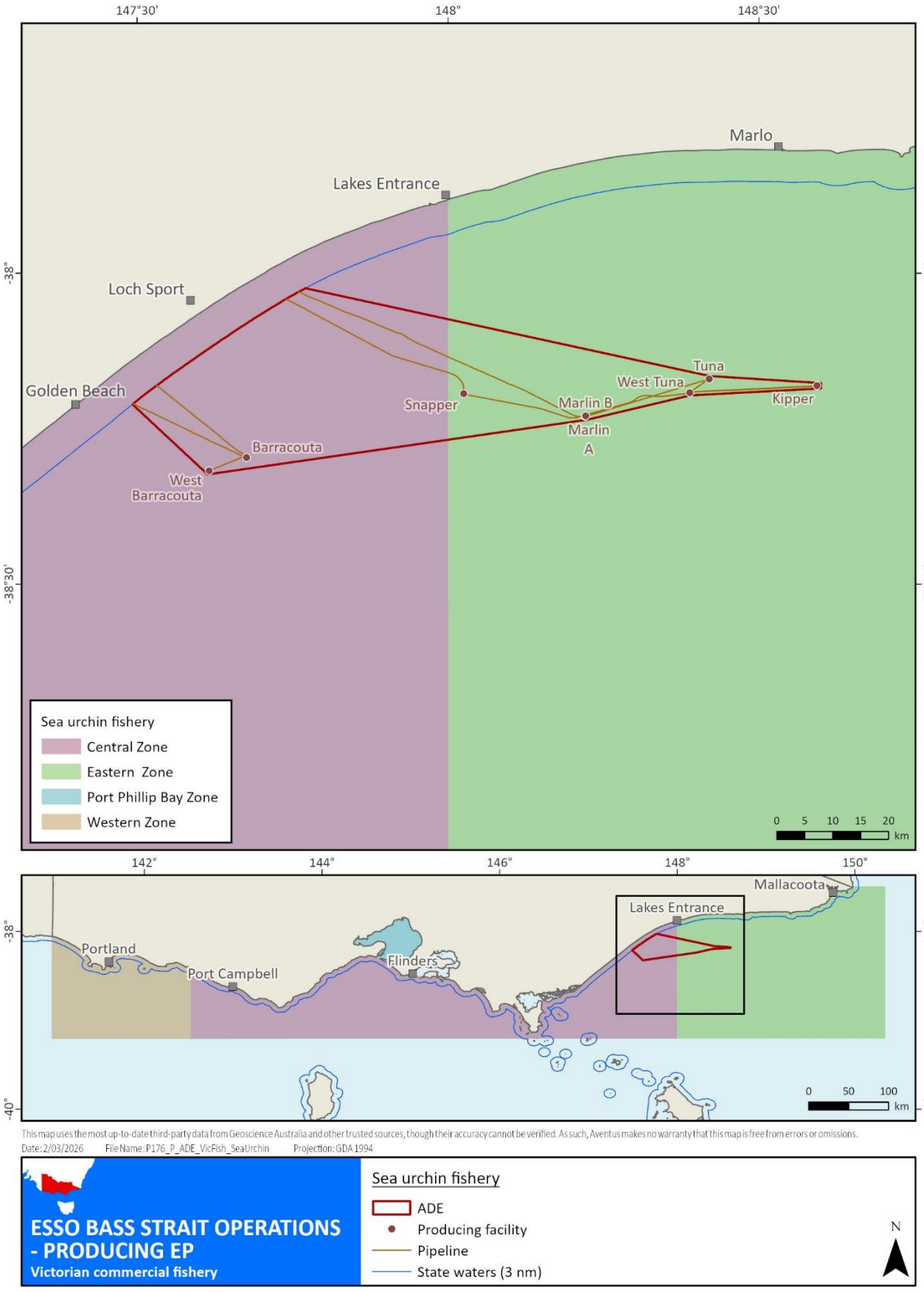



**Figure 3-27 Victorian Sea Urchin Fishery zones overlapped by the ADE**

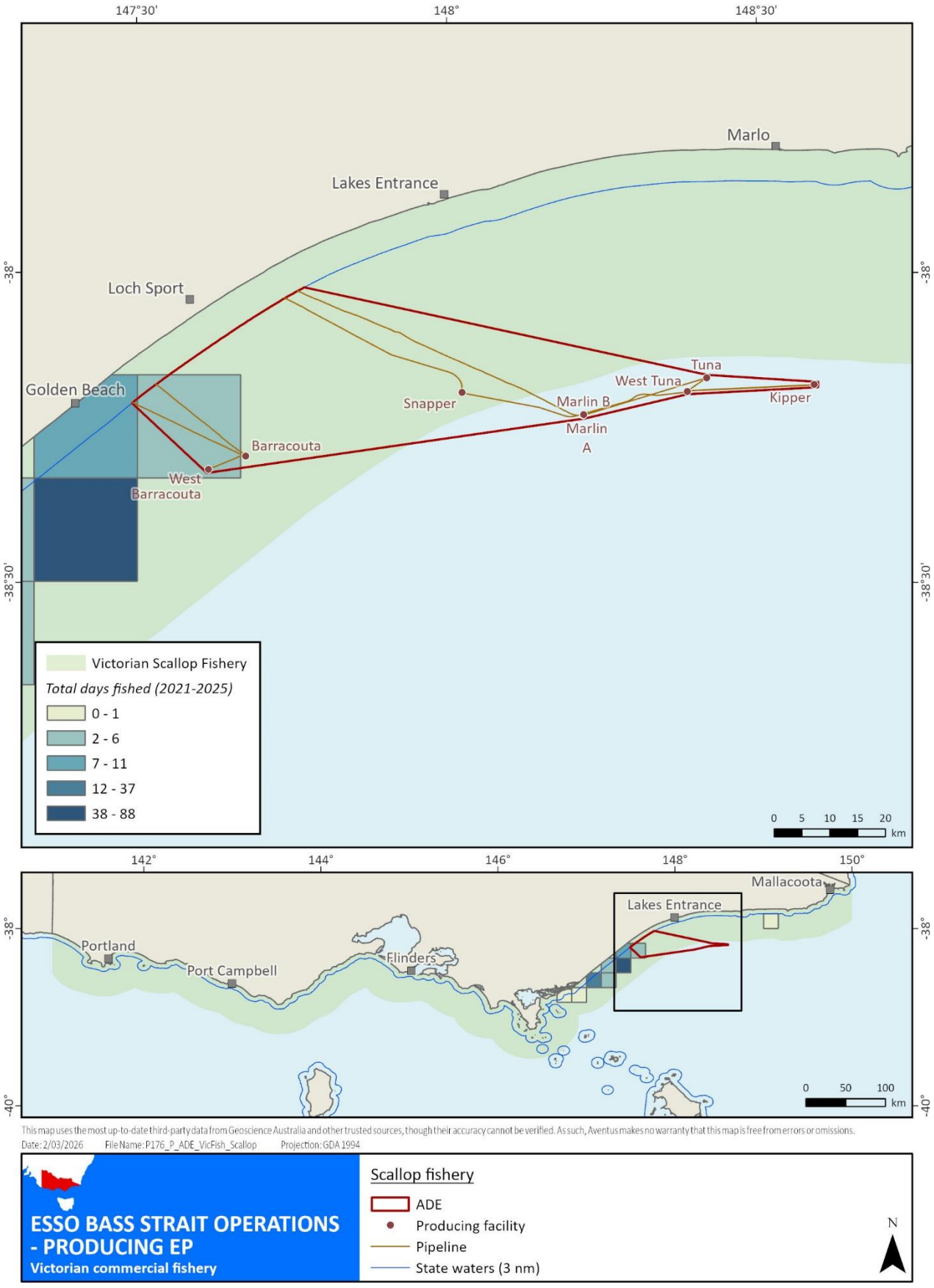



**Figure 3-28 Victorian Scallop Fishery zone and 2021 - 2025 fishing data overlapped by the ADE**

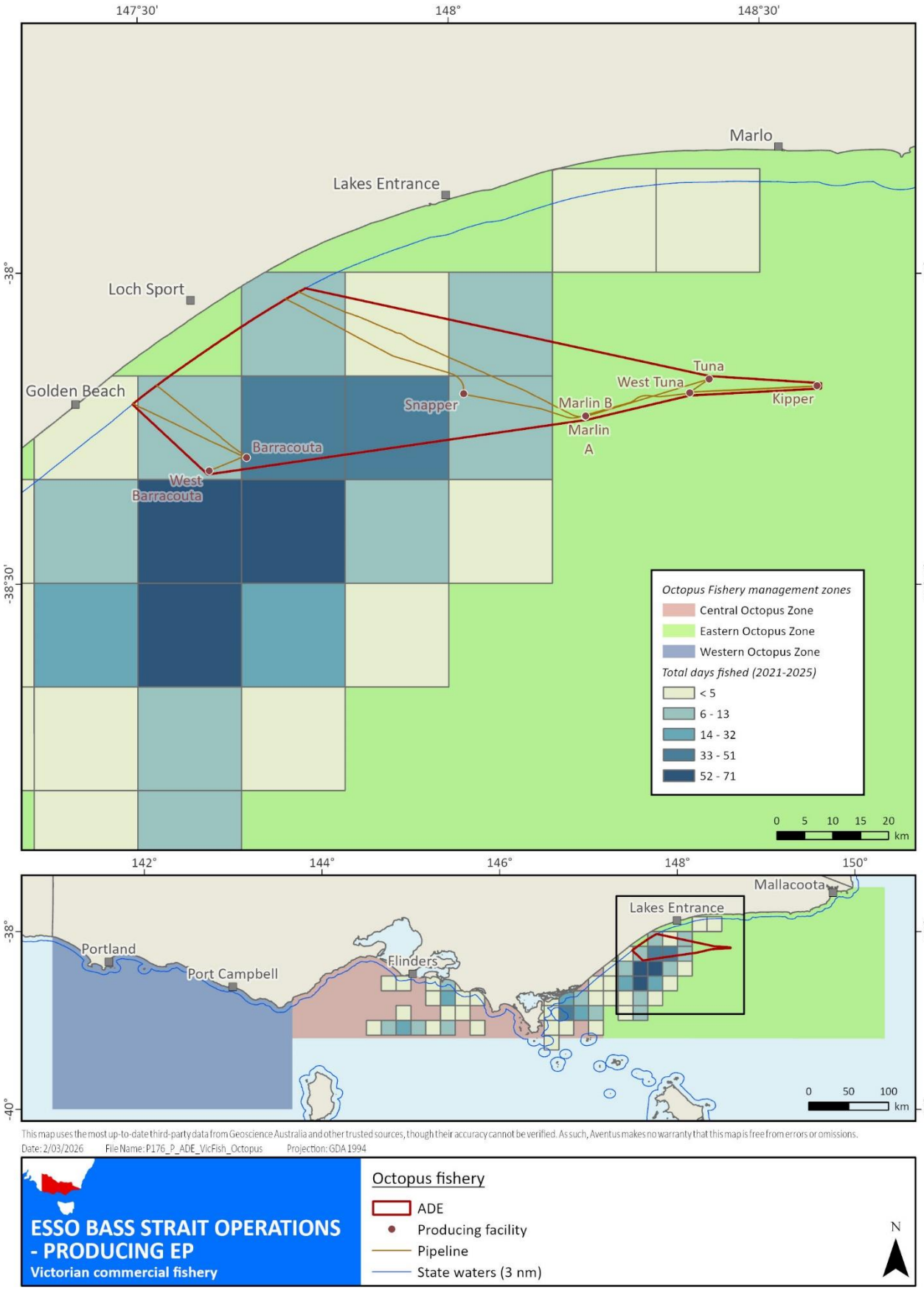



**Figure 3-29 Victorian Octopus Fishery zones and 2021 - 2025 fishing data overlapped by the ADE**

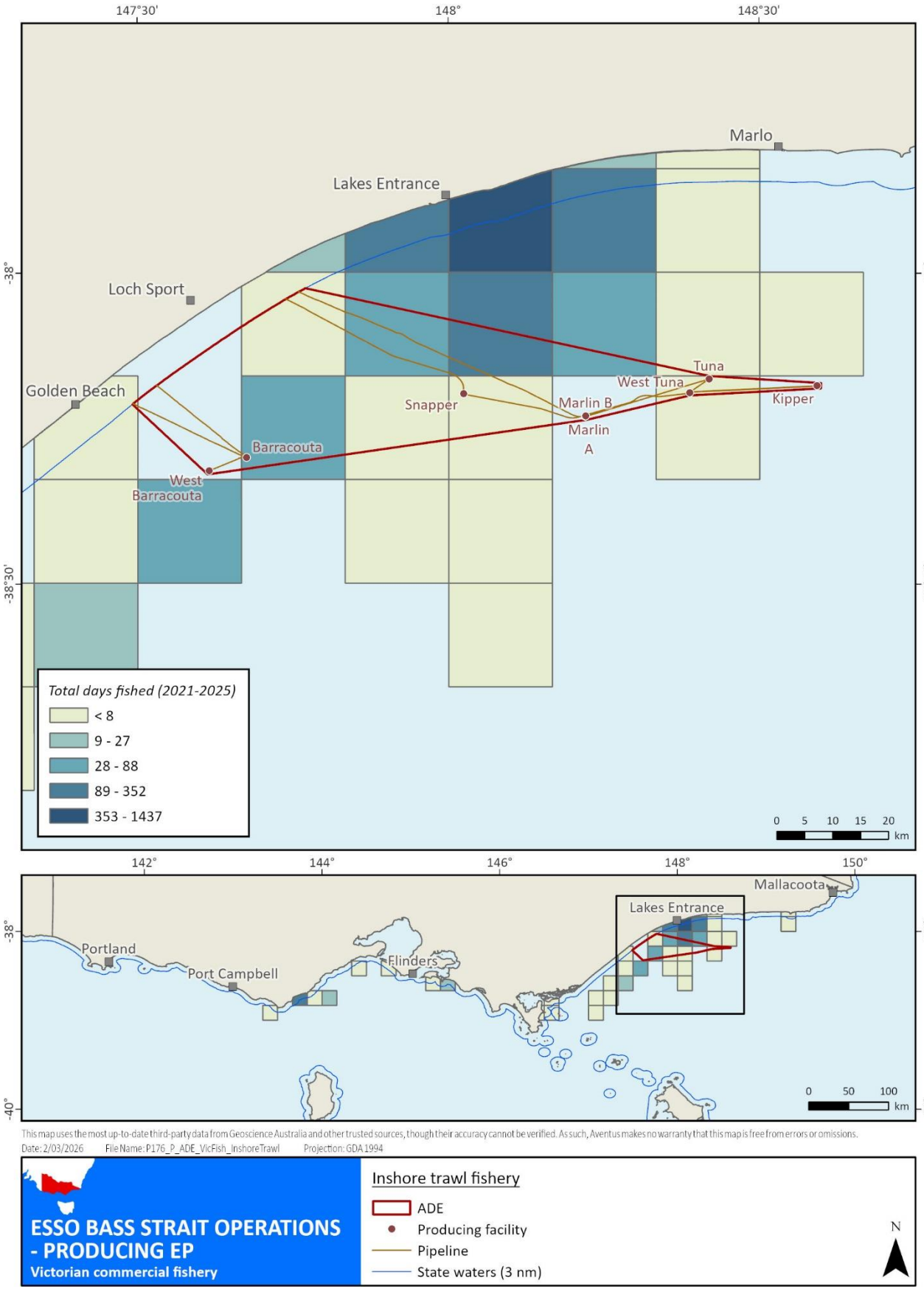



**Figure 3-30 Victorian inshore trawl fishery zone and 2021 - 2025 fishing data overlapped by the ADE**

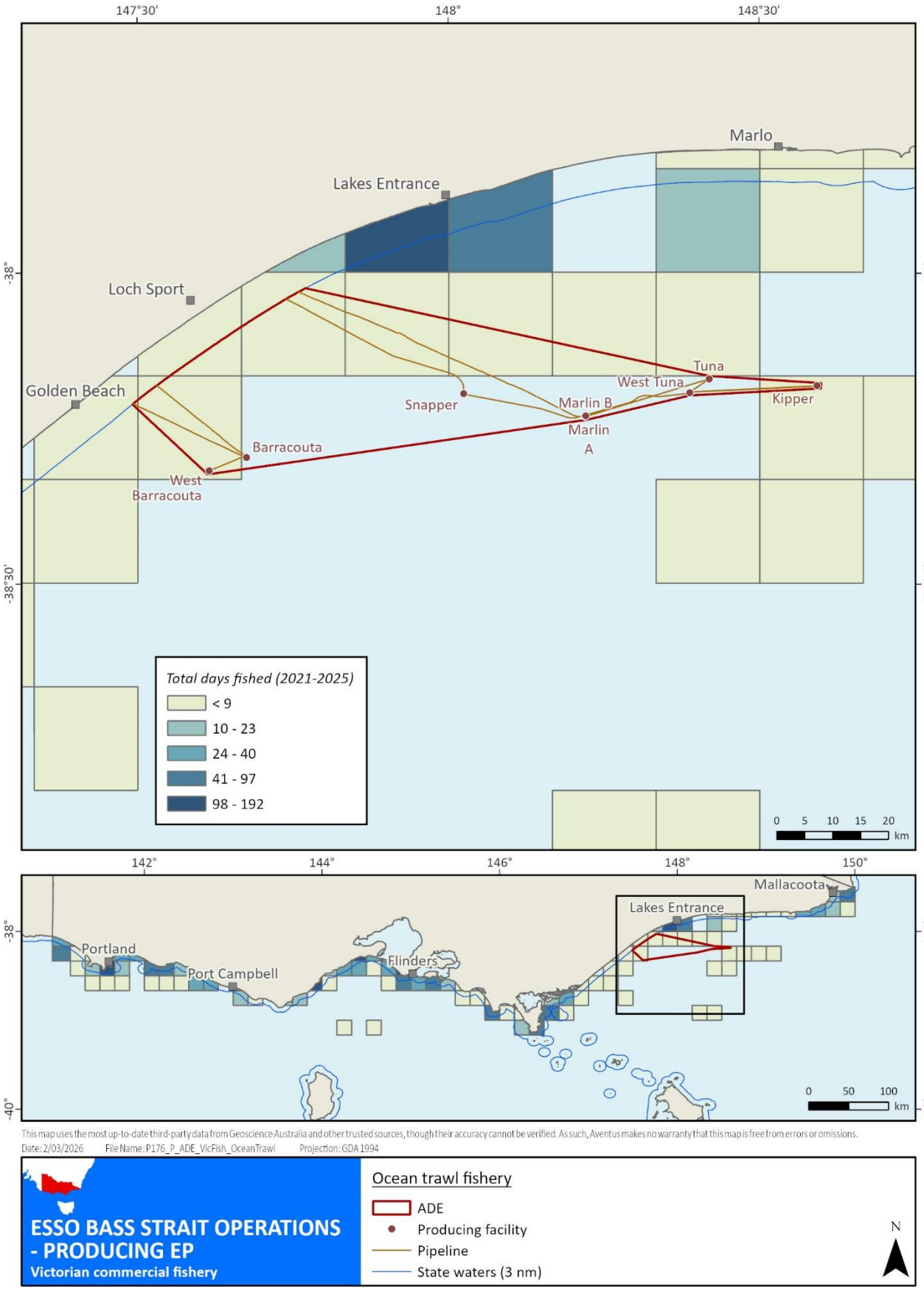



**Figure 3-31 Victorian Ocean Trawl Fishery zone and 2021 - 2025 fishing data overlapped by the ADE**

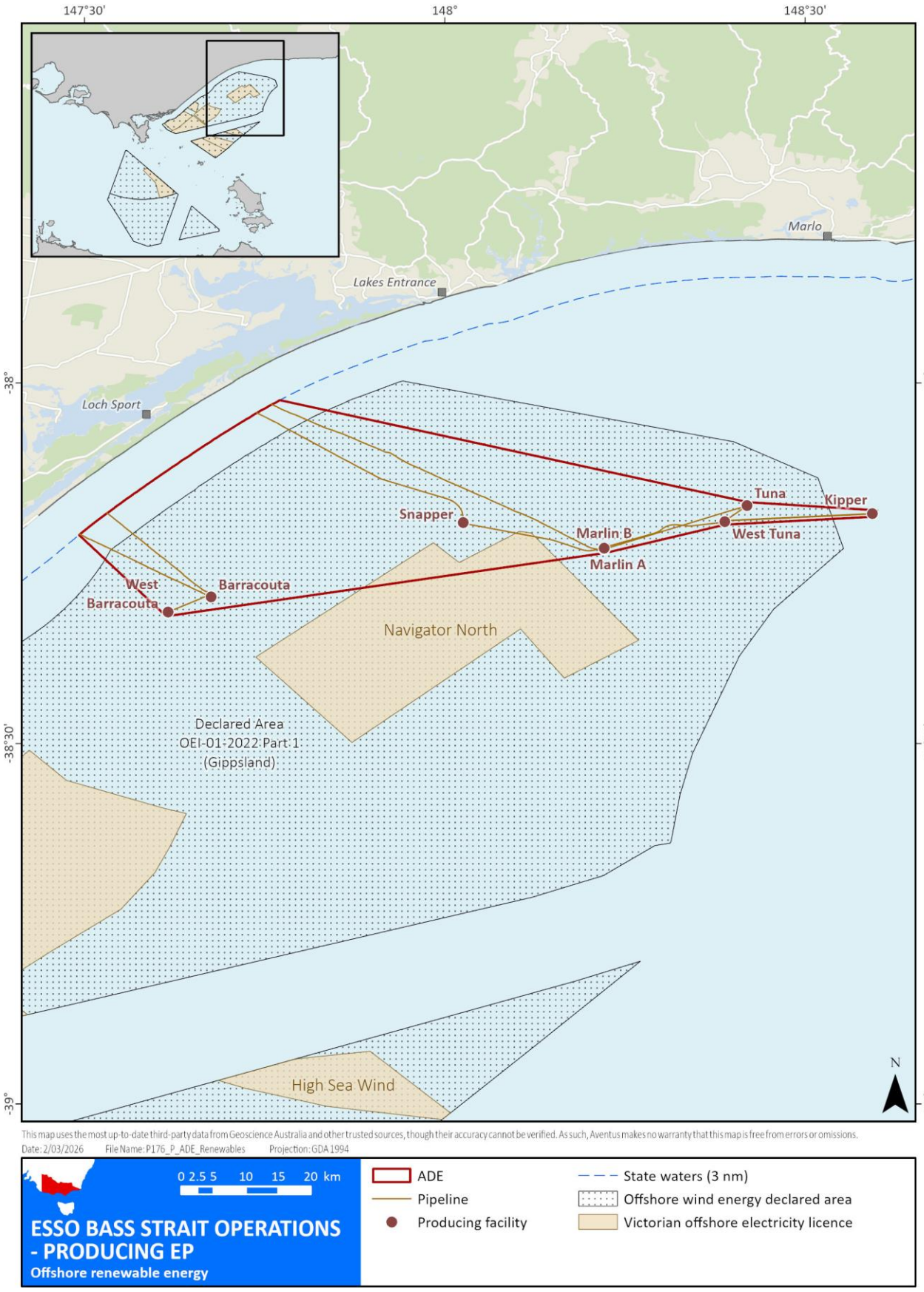



**Figure 3-32 Renewable energy zone and licences overlapped by the ADE**

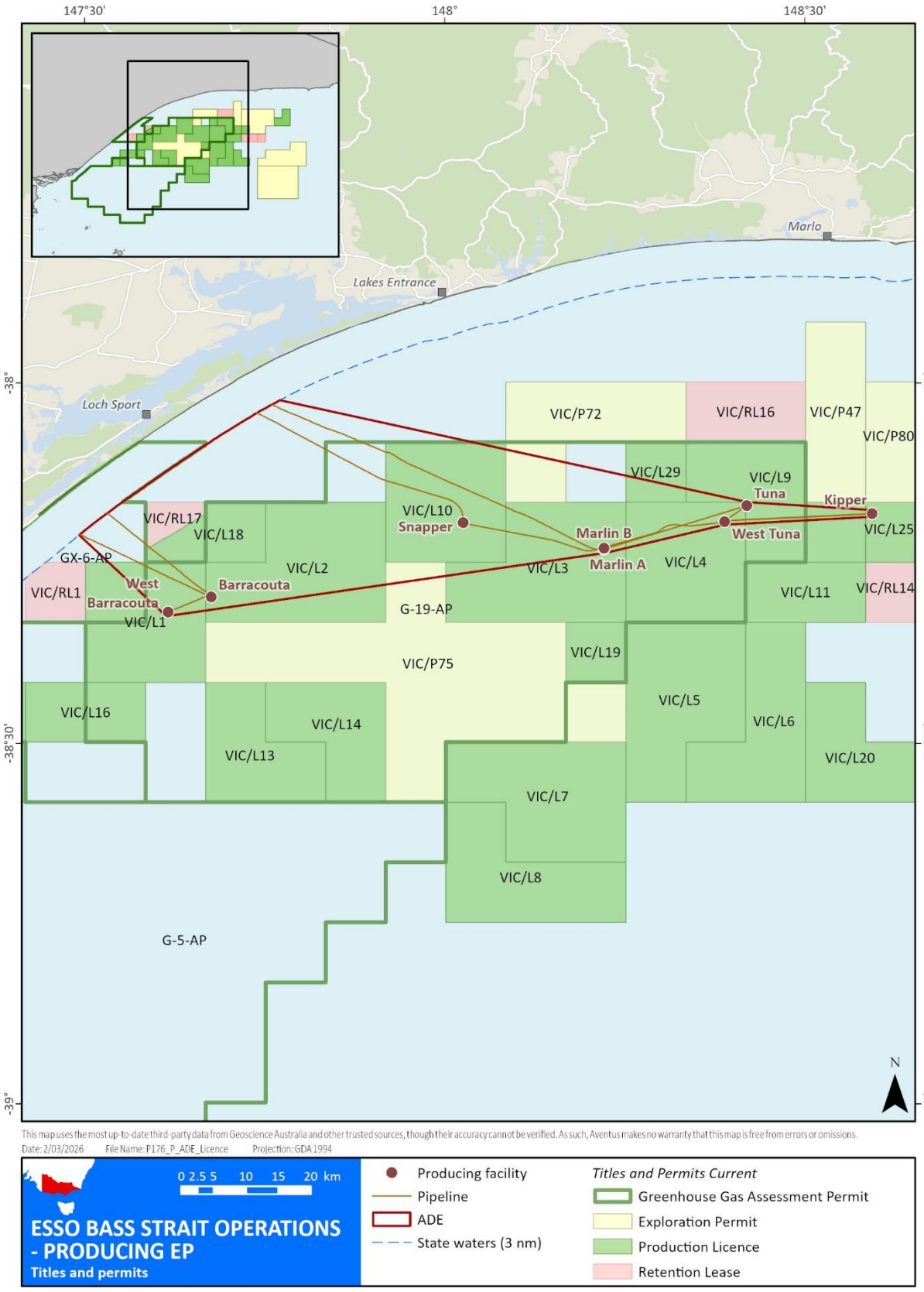



**Figure 3-33 Titles and permits within and around the ADE**

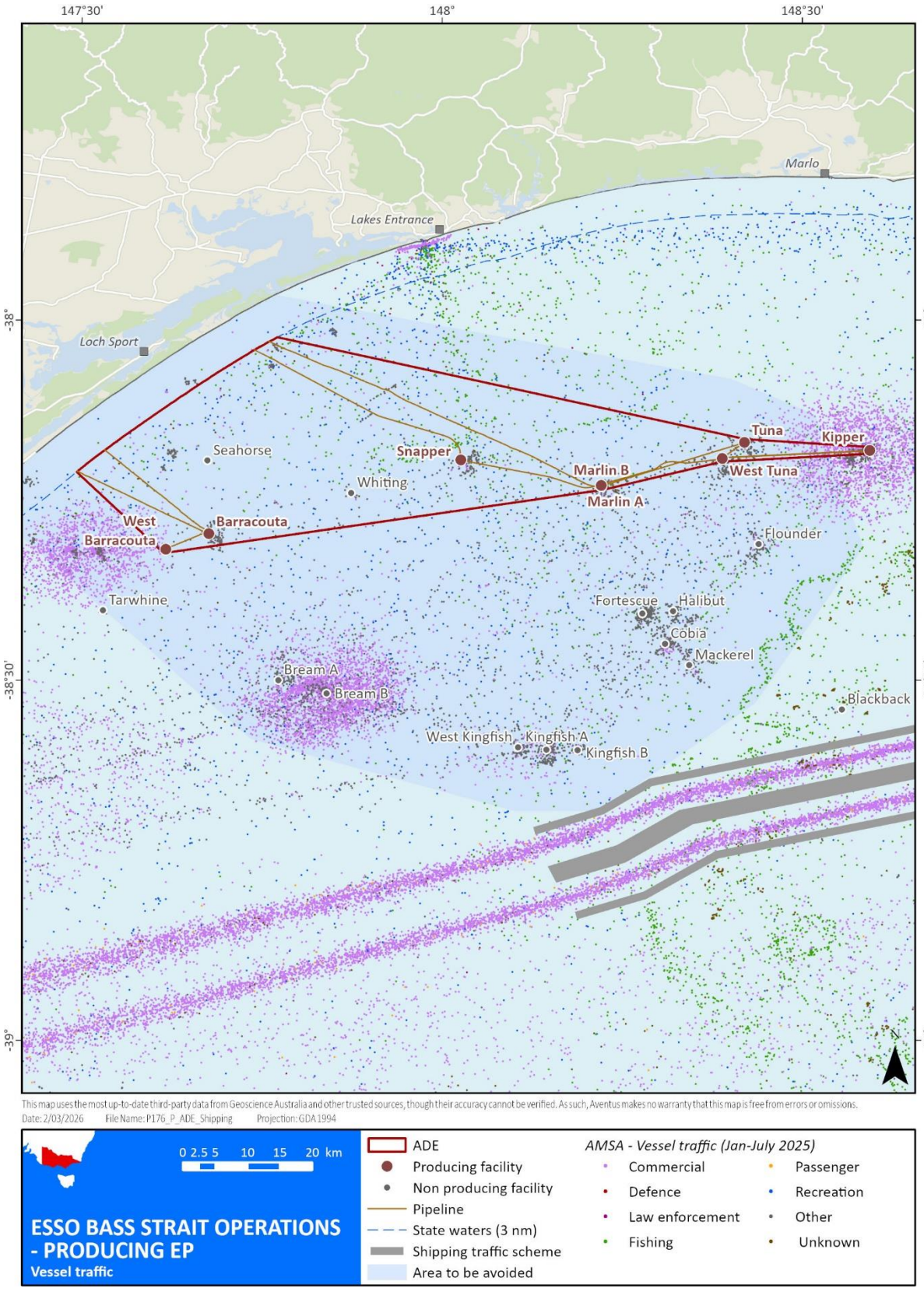



**Figure 3-34 Shipping traffic within and around the ADE**

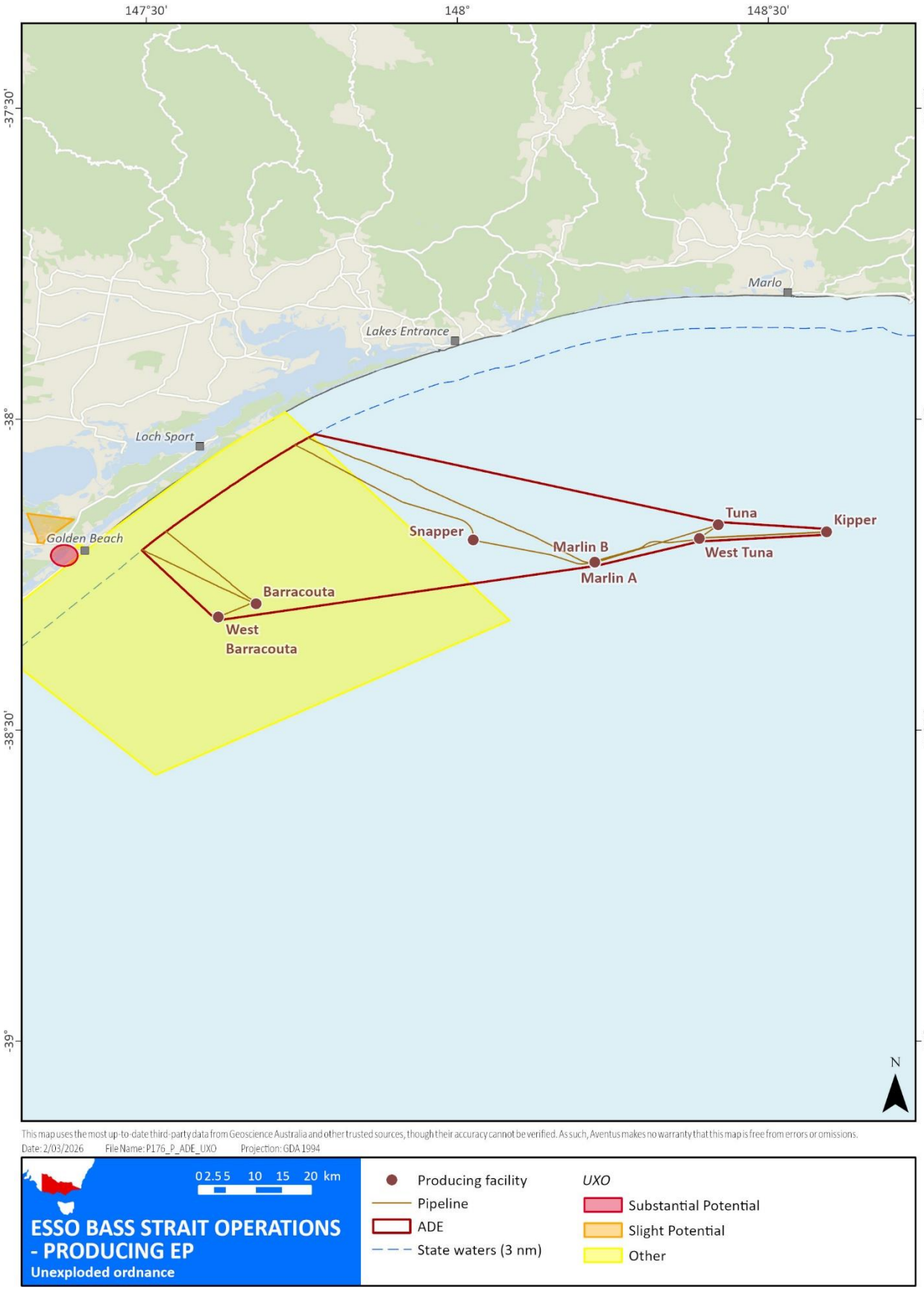



**Figure 3-35 UXO zone overlapped by the ADE**

# 4 Relevant persons consultation

Esso has undertaken consultation in the course of preparing this EP in accordance with Regulation 25 of the Environment Regulations.

The judgements of the FCA Decision (Tipakalippa v National Offshore Petroleum Safety and Environmental Management Authority (No 2), 2022) and Appeal (Santos NA Barossa Pty Ltd v Tipakalippa, 2022) represents the law regarding requirements for consultation in accordance with the Environment Regulations.

Following the Appeal and the FCA decision on 28 September 2023 (Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2), 2023), Esso revised its methodology (refer to Section 4.2) to better reflect the intent of the judgements.

This Section provides the outcomes of consultation conducted for the Producing EP, from the commencement of consultation on 30 July 2025 until mid-February 2026. Information provided, as well as feedback and requests for further information received during the consultation process, have been summarised in Appendix F-2and incorporated throughout this EP, where relevant.

During the consultation process, no claims or objections were received.

Over the past 50 years of operations in Bass Strait, Esso has established relationships with relevant persons identified in the *Bass Strait Environment Plan* (AUGO-EV-EMM-012) and activity-specific EP submissions, as well as the broader public and other interested parties.

Esso recognises and respects the important contribution of relevant persons, including First Nations people, throughout offshore petroleum activities. Esso is committed to ensuring that relevant persons are identified and given sufficient information and reasonable time for consultation to allow them to make an informed assessment of the possible consequences of a proposed petroleum or GHG activity on them.

The consultation process outlined in this EP allows Esso to ascertain, understand and address all the environmental impacts and risks that might arise from its proposed activity. The consultation process also allows Esso to receive information that the Company might not otherwise receive, and to use this information to enhance understanding of the environment, people, communities, heritage values, and social and cultural features that may be affected by the proposed activities and to inform decision-making.

For the purpose of this EP, Esso defines 'consultation' as a process of communication that leads to a decision where the views of relevant persons have been taken into account. Whereas 'engagement' aims to build long term relationships by exchanging information. While Esso is required by legislation to consult with relevant persons, Esso is also committed to engaging with relevant persons and continuing to further develop relationships already established.

Esso will consider and adopt appropriate measures, in response to the matters raised by relevant persons, in the management of environmental impacts and risks as part of the EP development process.

This Section describes Esso's approach to consultation and engagement, and the steps taken to develop and maintain consistent, constructive and effective relationships with relevant persons associated with this EP.

More specifically, this Section outlines in detail:

- Section 4.1 Consultation requirements – Outlines the applicable consultation and engagement standards and legislative requirements, including Esso's definition of relevant persons
- Section 4.2 Esso's consultation methodology – Describes Esso's methodology used to identify and consult with relevant persons for any EP
- Section 4.3 Methodology as applied to the scope of this EP – Details how Esso has applied the methodology (as described in Section 4.2) for this specific EP and the activities it proposes. This includes:
    - the relevant persons identified under the scope of this EP and the verification process applied

- communication and consultation methods used to ensure sufficient information is provided in relation to the scope of this EP
- how the consultation process is planned and tailored as appropriate to the nature and scope of this EP
- a description of consultations undertaken to-date
- a summary of how feedback received to-date has been considered, addressed and communicated.

## 4.1 Consultation requirements

Esso is committed to undertaking all consultation and engagement activities in accordance with applicable Australian legislation and OIMS standards.

### *4.1.1 Legislative requirements*

For each EP, Esso undertakes consultation in accordance with legislative requirements, including case law. As such, Esso's consultation processes are designed to meet obligations specified in Section 280 and Section 460 of the OPGGS Act and in the context of the objects of Regulation 4 of the Environment Regulations.

Consultation-specific requirements are covered in several of the Environment Regulations, as discussed in the following sections.

#### 4.1.1.1 Regulation 25

Esso categorises relevant persons into five categories aligned to Regulation 25(1)(a)-(e), as shown in

Figure 4-1.

For the purpose of consultation, the titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person.

Per Regulation 25 (2), Esso defines 'sufficient information' to include:

- sharing information that is tailored to a relevant persons' needs
- detailing the proposed activity and any impacts and risks that may be relevant to them
- describing the control measures proposed to manage the potential impacts to them.

Esso considers the functions, interests or activities of relevant persons and the impacts and risks that affect them when determining information requirements and acknowledges that information may need to be provided in an iterative manner.

Following guidance provided in Consultation in the course of preparing an environment plan (NOPSEMA, 2024b), Esso acknowledges that:

> *"The phrase 'functions, interests or activities' in Regulation 25(1)(d) should be broadly construed as this approach best promotes the objects of the Regulations, including that offshore petroleum and greenhouse gas activities are carried out in a manner consistent with the principles of ESD14.*
>
> *Functions: Refers to 'a power or duty to do something'.*
>
> *Activities: To be read broadly and is broader than the definition of 'activity' in Regulation 5 of the Environment Regulations and is likely directed to what the relevant person is already doing.*
>
> *Interests: To be construed as conforming with the accepted concept of 'interest' in other areas of public administrative law. Includes 'any interest possessed by an individual whether or not the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation'."*

In accordance with Regulation 25(3), Esso determines a reasonable period for consultation in relation to this EP, as discussed in Table 4-1.

In accordance with Regulation 25(4), Esso will inform each relevant person that they may request that particular information they provide in the consultation not be published. Esso is committed to honouring this request and will not publish information subject to such a request.

#### 4.1.1.2 Regulation 26

In accordance with Regulation 26(8), sensitive information relating to relevant persons and the full text of any response by a relevant person to consultation under Regulation 25 in the course of preparation of the EP, will only be included in the 'sensitive information part' and not anywhere else in the EP. The 'sensitive information part' is removed prior to publication in accordance with Regulation 28(1).

#### 4.1.1.3 Regulation 34

In accordance with Regulation 34(g), this Section is intended to demonstrate how Esso has carried out the consultations required by Division 3. In developing this EP, Esso has also considered the guidance provided in *Environment Plan Assessment* (NOPSEMA, 2024d), *Environment Plan decision making* (NOPSEMA, 2024e) and *Environment plan content requirement* (NOPSEMA, 2024c).

#### 4.1.1.4 Regulation 22

In accordance with Regulation 22(15), Esso ensures appropriate consultation is conducted with relevant departments, authorities and ministers through their identification as relevant persons under Regulation 25(1)(a), (b) and (c). Refer to Section 4.2.4.1.

Other persons or organisations with functions, interests or activities are identified as relevant persons under Regulation 25(1)(d). Refer to Section 4.2.4.2.

In addition, Esso may categorise any other person or organisation as a relevant person under Regulation 25(1)(e). Refer to Section 4.2.4.3.

Esso also conducts broad-based information sharing engagements as outlined in Section 4.2.4.2.

#### 4.1.1.5 Regulation 24

In accordance with Regulation 24(b), Esso provides a report on all consultations undertaken with any relevant person in accordance with Regulation 25 (see Appendix F-2). The report contains:

- a summary of each response made by a relevant person
- an assessment of the merits of any objection or claim about the adverse impact of each activity to which the EP relates
- a statement of the titleholder's response, or proposed response, if any, to each objection or claim; and
- a copy of the full text of any response by a relevant person.

#### 4.1.1.6 Case law

The judgements from the Decision (Tipakalippa v National Offshore Petroleum Safety and Environmental Management Authority (No 2), 2022) and Appeal (Santos NA Barossa Pty Ltd v Tipakalippa, 2022) are considered law and constitute the legal requirements of consulting with relevant persons.

This Section is intended to demonstrate how Esso has consulted, in a way that complies with the judgements made in the Decision and the Appeal.

In the Appeal (Paragraphs 96 and 104), FCA has noted that there is no shortage of guidance in decisions on consultation processes under *the Native Title Act 1993* (Cth), which is illustrative of how a seemingly rigid statutory obligation to consult persons holding a communal interest may operate in a workable manner. The *Native Title Act 1993* (Cth) authorities require reasonable notice to group members, but not exhaustive communications with each and every person.

Esso also implements the guidance outlined in *Consultation in the course of preparing an environment plan* (NOPSEMA, 2024b), which was revised to incorporate the judgements.

### *4.1.2 OIMS standards*

In accordance with Operations Integrity Management System (OIMS) System 10: Managing Community Risk, Esso has developed a consultation and engagement methodology that enables Esso to:

- ensure every effort is made to identify relevant persons
- undertake a verification process to ensure all representatives of relevant persons are a true representation/advocate of the views of their constituents and can be relied upon to faithfully communicate the results of engagements back to their constituents
- ensure relevant persons, especially those who are directly impacted, are consulted on matters that may affect them
- ensure that consultation is genuine and provides a meaningful two-way dialogue to develop and maintain consistent and constructive relationships with relevant persons to further understand potential environmental, social and economic impacts
- pursue engagement with relevant persons using a level of effort commensurate with the nature and scale of the activity
- keep relevant persons informed with respect to their specific interests, functions or activities
- encourage relevant persons to assess the information provided to them and respond to Esso with any feedback including questions, issues, concerns, suggestions, objections and/or claims
- maintain confidence of relevant persons in Esso and its activities through ongoing open, informative, inclusive and timely communications, wherever possible.

Implementation of the consultation methodology provides a mechanism by which Esso can:

- meet regulatory obligations and align with industry best practice consultation and engagement methods
- review and update the consultation methodology to reflect any changes to applicable laws, best practices or standards
- provide meaningful information in a format and language that is readily understood and tailored to the needs of relevant persons and groups
- provide information within an adequate timeframe to inform decision-making
- ensure consultations are based on open communication that is transparent, collaborative, inclusive and are conducted with integrity to foster respect and trust
- disseminate information in formats, methods and locations that make it easy for relevant persons to access
- respect local traditions and the relevant person's preferred ways of doing things
- establish two-way dialogue that gives all relevant persons the opportunity to exchange views and information, to listen, and to have their feedback heard and addressed
- seek inclusiveness in representation of views, including minority and special interest groups
- develop clear mechanisms for receiving, documenting, and responding to feedback
- incorporate feedback from relevant persons into the program design and provide clear and transparent reporting back to relevant persons in a reasonable timeframe.

Esso acknowledges the Traditional Custodians of Country, and the land and sea upon which our operations are located. We recognise the Traditional Custodians continuing connection to land, sea, culture and community, and pay our respects to Elders past and present. Esso understands that First Nations people see no distinction between the land and the sea, considering it all as a part of their Country. This understanding aligns with the regulatory guidance (NOPSEMA, 2024b), which states:

> *"...a connection of traditional owners with sea country may constitute an interest for the purposes of regulation 25(1)(d)".*

Esso continues to identify and attempt consultation with environmental non-government organisations (eNGOs) and other environmental protection and advocacy groups.

## 4.2 Esso's consultation methodology

This Section provides a detailed methodology for identifying and consulting with relevant persons, which has been followed in preparing this EP.

It covers the process for identifying relevant persons applicable to an offshore activity that requires a new EP or a revision to an EP under the Environment Regulations, including:

- the process for classification of relevant persons based on their functions, interests or activities
- preparation of appropriate consultation materials and forms of consultation for each relevant person identified
- the process of consultation including assessment of information and responses received.

For specific information on how this process was undertaken in relation to this EP, refer to Section 4.3.

### *4.2.1 Definition*

To ensure a consistent approach to identifying and consulting with relevant persons in relation to offshore EPs, the definitions included in Table 4-1 have been used as the basis for this methodology.

**Table 4-1 Definitions**

| Term | Definition |
|---|---|
| Activities | In relation to Regulation 25(1)(d), activities are considered to be what other persons or organisations are already doing. |
| Area To Be Avoided (ATBA) | The boundary which commences at the most easterly intersection of the coastline of the State of Victoria at mean low water by the parallel of latitude 38°14′54.50″ S and then runs southeasterly along the geodesic to the point of latitude 38°34′54.49″ S, longitude 147°44′04.61″ E and then along the coastline of the State of Victoria at mean low water to the point of commencement. |
| Claims | Evidence provided that suggests there are potential adverse impacts from the petroleum or GHG activities to which the EP relates. |
| Consultation | Targeted and tailored information provided to enable effective consultation on a specific planned activity within a defined timeframe. |
| Consultation period | Esso defines the consultation period during the development of an EP as being 30 days, subject to the nature and scale of the proposed activity. |
| EMBA | Oil spill modelling is used to determine the total area that could be exposed to hydrocarbon, including trace concentrations of oil in the water column, as a result of any spill and is used for planning purposes to ensure that all social and environmental sensitivities are acknowledged, described and considered in the development of the EP. |
| Engagement | Ongoing relationship building or general engagement not related to a specific activity or defined timeframe. |
| Environment | The Environment Regulations defines this as:<br>(a) ecosystems and their constituent parts, including people and communities; and<br>(b) natural and physical resources; and<br>(c) the qualities and characteristics of locations, places and areas; and |

| Term | Definition |
|---|---|
| | (d) the heritage value of places; and includes<br>(e) the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d). |
| Functions | In relation to Regulation 25(1)(d), functions refer to a power or duty to do something. |
| Geographical consultation boundary | The geographical areas (OA, ATBA and EMBA) used as the basis for identifying relevant persons. |
| Interests | In relation to Regulation 25(1)(d), interests represent a connection to the values described in the EP. Any interest possessed by an individual, whether or not the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation.<br>An interest does not extend to general public interest in an activity. |
| Objection | A reason or argument that asserts that there are potential adverse impacts arising from the petroleum or GHG activities to which the EP relates. |
| OA | The area within which all activities described within this EP will occur. The OA encompasses Commonwealth waters both on title and off title. |
| Petroleum/GHG activity | A planned offshore petroleum or GHG activity for which an EP is required. This also includes activities undertaken in the event of an emergency condition such as oil spill response. |
| Reasonable period | A reasonable time for relevant persons to identify the effect of a proposed activity on their functions, interests or activities and make a response detailing their objections or claims.<br>Esso defines a reasonable period for a relevant person to review and provide an initial response (i.e. the consultation period) as being 30 days, subject to the nature and scale of the proposed activity.<br>Where engagement with relevant persons is ongoing after this period, Esso will continue to engage with these persons until Esso believes that it has provided sufficient evidence/justification to close the consultation (i.e. they have been provided sufficient information and reasonable time). |
| Relevant person | Can be a person, organisation, department or agency that falls within one of the classifications defined by Regulation 25(1) of the Environment Regulations. |
| Stakeholder | Stakeholder is a general use term and includes any person, group or organisation with an interest or concern in something. It includes those that may be affected in an immaterial or negligible way. Esso uses this terminology in general terms when describing those persons/organisations not deemed to be relevant persons, for example a stakeholder database containing a broad and diverse range of relevant and non-relevant persons for multiple activities. |
| Unplanned activity/event | Accidental release for example loss of containment (LOC) of refined oils (collision) or LOC of reservoir hydrocarbons<br>Covered by the OPEP. |

#### 4.2.1.1 Petroleum activity (planned activity)

The Environment Regulations require that consultation be undertaken to ensure that persons who may be affected by a petroleum activity are given the opportunity to inform the titleholder how they may be affected and to allow the titleholder to assess and address any objections or claims about that activity in the preparation of environment submissions.

Regulation 5 of the Environment Regulations defines a petroleum activity as

> *"any operations or works in an offshore area carried out for the purpose of:*
>
> *(a) exercising a right conferred on a petroleum titleholder under the Act by a petroleum title, or*
>
> *(b) discharging an obligation imposed on a petroleum titleholder by the Act or a legislative instrument under the Act."*

When identifying relevant persons, Esso considers which stakeholders perform a function in relation to – or have a function, interest or activity that may be affected by – the planned activity.

Therefore, in determining who is a relevant person for consultation, Esso sought to identify and consult with persons whose functions, interests or activities could be affected by the activities described in detail in Section 2 of this EP.

#### 4.2.1.2 Unplanned event/activity (emergency conditions)

Relevant persons who may perform a function in Esso's planning for, or management of an unplanned activity, and whose information is integral to the development of emergency management plans, are engaged during the development of this EP and the OPEP.

Persons whose functions, interests or activities are within the EMBA for the unplanned activity are provided with broad, high-level information such as activity information bulletins and information regarding EMBA and oil spill modelling.

If requested, consultation may include face-to-face engagements, phone calls, community meetings, specialist group meetings, and community information sessions. If no response is received, no further consultation is required.

#### 4.2.1.3 Geographical boundaries

Esso uses the following geographical boundaries to define EP consultation:

- OA: As described in Section 3
- Bass Strait ATBA: As described in Schedule 2 of the OPGGS Act
- EMBA: As described in Section 3.1.

### *4.2.2 Esso's approach to consultation*

Esso's approach to consultation with relevant persons involves steps undertaken across four consultation Levels, as shown in Figure 4-1.

If Esso identifies a group of relevant persons that may be potentially affected, but is unable to confirm individual contact details as these are not ascertainable through normal mechanisms (e.g. website, associated government agencies, organisations or groups who hold these details or who can advise who these individuals are), the opportunity exists for such persons to contact Esso via the publicly accessible Esso Consultation Hub, consultation email or phone. Newspaper advertisements are also used to highlight activities so that individuals or groups can self-identify to Esso.

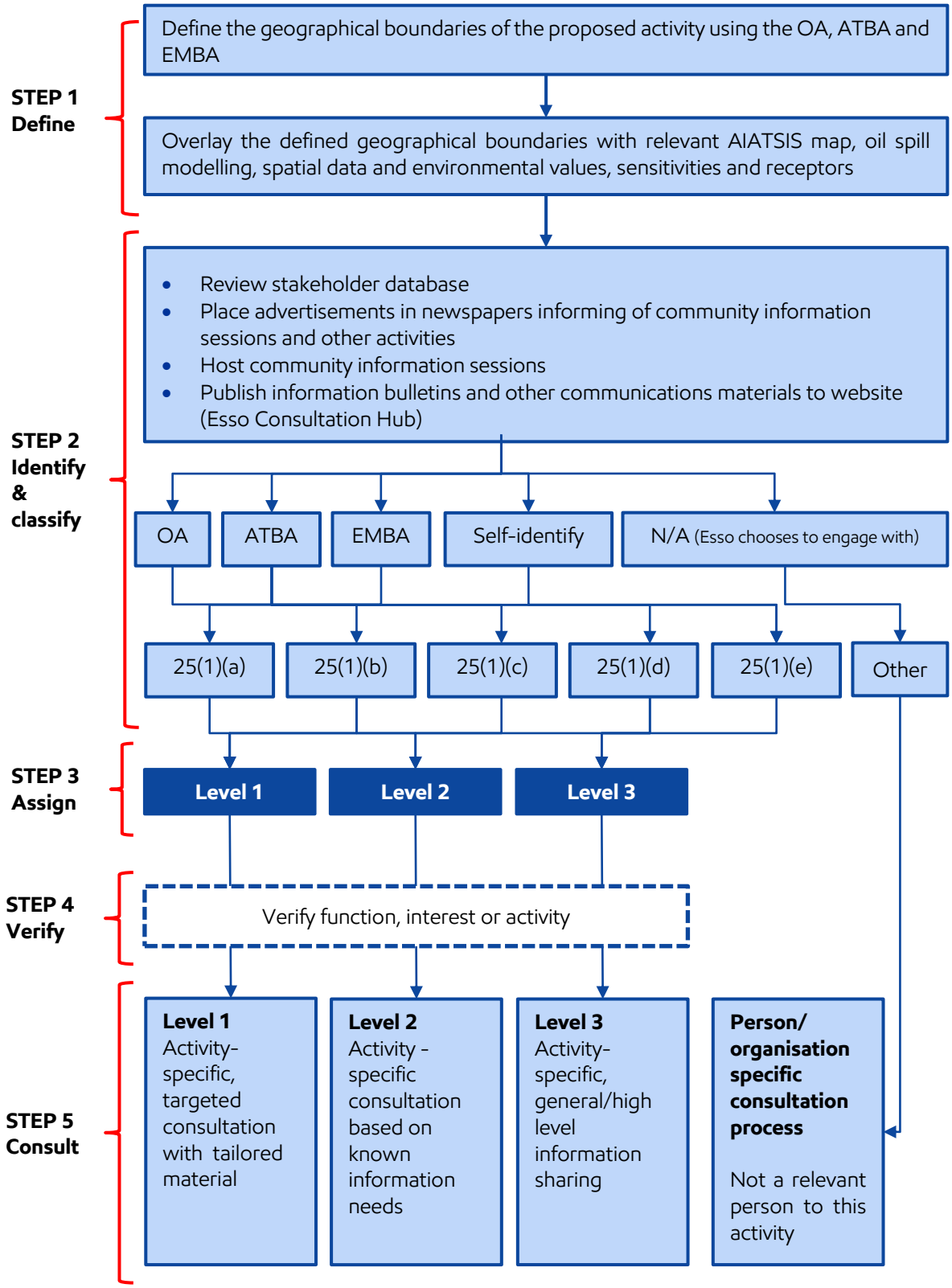



**Figure 4-1 Esso's approach to consultation**

### *4.2.3 Step 1 – Define*

When preparing for consultation for each new petroleum activity, Esso first identifies the geographic boundaries of the EP. These geographic boundaries are the:

- OA
- ATBA
- EMBA.

Each of the defined geographical boundaries are then overlayed with relevant Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) map, oil spill modelling, spatial data and environmental values, sensitivities and receptors.

Esso must also outline the EP specifications for:

- activity description, which is compared to previous consultations undertaken for other Esso activities and/or facilities
- scope of the EP, taking into consideration factors such as planned and unplanned impacts to environmental factors including air and water emissions, culturally sensitive areas, Sea Country and marine environments; and potential socioeconomic impacts including job creation throughout the supply chain
- environmental values and sensitivities of the proposed activity, including cultural heritage (world, national and local), Sea Country, wetlands of international significance (Ramsar), listed threatened species and listed migratory species, listed TECs and Commonwealth marine areas
- timing of the proposed activity, including any seasonal changes.

After considering these specifications, Esso then identifies the anticipated key functions, interests and activities of relevant persons.

### *4.2.4 Step 2 – Identify and classify*

Esso acknowledges that factors such as the nature of the activity, the environment in which the activity is being undertaken and the possible impacts and risks of the activity should be taken into account when determining whether the activity may be relevant to authorities, or determining who has functions, interests or activities that may be affected (NOPSEMA, 2024b).

The approach to consultation involves using the defined OA, ATBA and EMBA to identify relevant persons by geographical boundary. They are then classified in accordance with the regulatory definitions in Regulation 25(1)(a)-(e) which includes five relevant persons classifications as follows:

- Regulation 25(1)(a) – Each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP may be relevant. For Esso's operations in Bass Strait, this includes any Commonwealth department or agency that has responsibility for managing or protecting the marine environment from pollution. It may also include those with responsibilities for environmental and fisheries management, defence and communications, maritime/navigational safety, marine parks, and native title
- Regulation 25(1)(b) – The Department or the responsible State Minister, if the plan relates to activities in the offshore area or a State
- Regulation 25(1)(c) – The Department of the responsible Northern Territory Minister – if the plan relates to activities in the Principal Northern Territory offshore area. This is not applicable for Esso Bass Strait activities
- Regulation 25(1)(d) – A person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP. A connection of traditional owners with sea country may constitute an interest for the purposes of Regulation 25(1)(d) classification. For Esso's operations in Bass Strait this includes First Nations groups, non-government organisations, worker unions and fishing groups. It may also include community groups and individuals
- Regulation 25(1)(e) – Any other person or organisation that Esso considers relevant.
- Specific processes for the identification of relevant persons are outlined in the following Sections.

#### 4.2.4.1 Methodology for identification of Regulation 25 (1) (a)-(c) relevant persons

Regulation 25(1)(a)-(b) requires the identification of relevant persons in Commonwealth or state government departments or agencies who may have responsibilities either related to or impacted by the activities to be carried out under the EP.

Regulation 25(1)(c) requires Esso to identify the department of the responsible State Minister.

Esso has a history of extensive and ongoing consultation for offshore activities in the Bass Strait spanning more than 50 years, meaning that most, if not all, Regulation 25(1)(a)-(c) relevant persons are known to Esso.

The first step in identification is to review Esso's existing stakeholder database. This review involves comparing the 'activity description' to previous Esso activities and/or facilities to identify past consultations of a similar nature. This is then used to filter Esso's stakeholder database, providing a list of relevant persons for all past activities of a similar nature.

If Commonwealth or State departments, agencies or ministers change, Esso leverages existing relationships to ensure consistency of consultation.

#### 4.2.4.2 Methodology for identification of Regulation 25 (1)(d) relevant persons

Identification of relevant persons consistent with Regulation 25(1)(d) requires their functions, interests or activities to be understood and applied broadly taking into account how potential risks and impacts of the EP activity may affect them. This is achieved via several methods as outlined in the following sections.

*REVIEW OF RELEVANT PERSONS PREVIOUSLY IDENTIFIED FOR OTHER ACTIVITIES*

Given Esso's extensive history of consultation in the area, identification of relevant persons starts with a review of Esso's existing relevant persons database to generate a list of any persons, groups, and organisations with functions, interests or activities matching those defined for the EP.

*ACTIVELY SEEK OUT NEW RELEVANT PERSONS*

To ensure the broad capture of ascertainable persons and organisations who may have their functions, interests or activities affected by the activity (Santos NA Barossa Pty Ltd v Tipakalippa, 2022), Esso seeks to identify any new relevant persons through:

- using local knowledge of existing relationships to identify marine users and interest groups active in the area (e.g. Indigenous groups, commercial fisheries, recreational fishers, other energy producers, local business, etc.)
- providing a link to the Esso Consultation Hub and Esso Consultation Questionnaire with existing relevant persons and asking them to share it with anyone who may be interested in Esso's activities
- seeking the advice of First Nations groups such as land councils and prescribed body corporates in relation to who and how other First Nations groups or individuals should be consulted as relevant persons whose interests may be affected by the activities
- searches of internet sources, including search engines, websites, social media platforms etc.
- members of the Company's local workforce providing suggestions of other potentially impacted relevant persons
- identified relevant persons providing recommendations of other potentially impacted relevant persons, through direct engagement and/or the Esso Consultation Questionnaire
- guidance from the Regulator, other government agency/department, industry associations or bodies about other potentially relevant persons
- advertisements in newspapers and other relevant news sources (e.g. Koori Mail, local papers)
- hosting community information sessions where members of the public can attend and review materials relevant to Esso's activities and ask questions of staff
- a review of legislation applicable to petroleum and marine activities
- active participation in industry bodies and collaborations, for example AEP (formerly APPEA), Centre for Decommissioning Australia, National Energy Resources Australia, and the National Decommissioning Research Initiative

- leveraging existing relationships with relevant Commonwealth and State departments and agencies to identify other relevant stakeholders
- reviewing the relevant persons identified for other oil and gas EPs in the area
- conducting a search of the National Electronic Approvals Tracking System to access publicly available information concerning offshore electricity infrastructure licences under the *Offshore Electricity Infrastructure Act 2021* (Cth).

Relevant persons identified through these means are added to the list generated by the review of the relevant persons database (per Section 4.2.4.1).

#### *SELF-IDENTIFICATION THROUGH BROAD-BASED INFORMATION SHARING*

As part of the Company's own commitments to consultation and engagement, Esso regularly conducts broad-based information sharing designed to reach both relevant persons identified for any EP and a broad range of other interested parties. This broad-based information sharing allows Esso to create awareness of its activities and encourages potentially relevant persons to make themselves known to the Company (NOPSEMA, 2024b). Any persons or organisations who self-identify are added to the list generated by the ongoing review of the relevant persons database (per Section 4.2.4.1).

#### *SPECIFIC IDENTIFICATION PROCESSES FOR CERTAIN GROUPS*

##### ***COMMONWEALTH AGENCIES WITH RESPONSIBILITIES IN THE MARINE AREA***

When developing or revising an EP in accordance with the Environment Regulations, Esso must consult with relevant Australian Government agencies with responsibilities in the Commonwealth marine area. Esso has reviewed NOPSEMA's guidelines on *Consultation with Commonwealth agencies with responsibilities in the marine area* (NOPSEMA, 2024f) and applied the guidance to the identification process for relevant persons within Australian Government agencies.

In accordance with the guidance, Esso recognises that while agencies may provide comments or advice on control measures that should be considered by titleholders to manage the potential impacts and risks of a petroleum activity, it is NOPSEMA's role to determine whether proposed control measures are appropriate to the nature and scale of the proposed petroleum activity.

##### ***FIRST NATIONS PEOPLES***

Esso's consultation approach is consistent with Regulation 25, incorporating guidance provided by the Appeal ruling (Santos NA Barossa Pty Ltd v Tipakalippa, 2022). The consultation methodology includes sufficient time for each stage of the consultation process, including identification of First Nations groups as well as individuals within the community, information sharing, receipt of feedback and assessment of merit.

Identification commences with a review of the relevant person database (as described in Section 4.2.4.1). Additional potentially relevant First Nations peoples are identified using the AIATSIS map of Indigenous Australia and the Victorian Registered Aboriginal Parties map, overlaid with the geographical information of the OA, ATBA and EMBA, followed by an assessment of whether there will be any impacts from Esso's planned activities affecting the functions, interests or activities. Government resources such as state government spatial data sets are also utilised to identify potentially relevant Aboriginal Land Councils, Registered Aboriginal Parties and Registered Aboriginal Community Organisations.

The Commonwealth Heritage List (DCCEEW, 2021c) is a list of Indigenous, historic and natural heritage places owned or controlled by the Australian Government which have a significant heritage value to the nation and have been reviewed as described in Appendix A.

The Nanjet to Mallacoota Sea Country IPA consultation project, which extends from Corner Inlet to the Victoria/New South Wales border has also been reviewed as described in Appendix A.

Esso reviewed the *Gunaikurnai Whole-of-Country Plan* (GLaWAC, 2015) and the *Position Statement: Offshore Renewable Energy Infrastructure Area* (GLaWAC, 2022) with particular regard to Sea Country mapping.

Currently, there is no Sea Country mapping in Esso's ATBA available. Esso will continue to consult with GLaWAC as a Level 1 relevant person to allow the opportunity to discuss Sea Country in the development of future EPs.

***LOCAL COUNCILS***

Identification commences with a review of the stakeholder database (as described in Section 4.2.4.1). Additional potentially relevant local government/councils are identified using government resources such as state government spatial data overlaid with the geographical information of the OA, ATBA and EMBA.

***COMMERCIAL FISHING***

Esso has a long-standing relationship with Bass Strait commercial fishing operators' representative bodies and their members. Esso meets with South East Trawl Fishing Industry Association (SETFIA), Lakes Entrance Fishermen Limited (LEFL) and Seafood Industry Victoria (SIV) approximately on a quarterly basis to discuss all upcoming and current offshore activities including any potential risks and how/if an activity may impact their members.

Where it is identified that an activity may affect their members, various strategies can be implemented including:

- distribution of SMS text message updates to the eastern fishing fleet advising of vessel movements, activities being performed outside the Petroleum Safety Zone (PSZ), coordinates of survey work, etc. Messages may be sent as often as daily during an activity, if appropriate
- updating Esso chartered vessel plotters to show where commercial fishing equipment is to avoid that area
- commercial fishers may choose to relocate their equipment for the duration of the activity.

Esso also attends representative board meetings and any member's meetings to consult directly with members on any proposed activities, as requested.

While fishing is prohibited in any PSZ, reminders about PSZs are provided to all local fishing groups every six months.

***OFFSHORE WIND INDUSTRY***

In December 2022, the Minister for Climate Change and Energy declared the offshore Gippsland area in Victoria (Commonwealth area only) as suitable for offshore electricity infrastructure. This declaration does not grant exclusive rights to use the area. In July 2024, the Australian Government granted 12 feasibility licences for offshore wind projects off Gippsland's coast in Victoria (DCCEEW, 2024d). As of December 2025, Gippsland Dawn Project (Bluefloat), Kent Offshore Wind project (RWE) and Gippsland Skies (AGL) feasibility licenses have been withdrawn, resulting in nine feasibility licences remaining for offshore wind in Gippsland (refer to Figure 3-32).

Esso began consultation in July 2024 to establish if these offshore wind licence holders' feasibility stage functions, interests or activities have the potential to be affected by Esso's operations in the Bass Strait and may be relevant persons.

#### 4.2.4.3 Methodology for identification of Regulation 25(1)(e) relevant persons

Where Esso chooses to consult with persons that would not be considered a relevant person in accordance with Regulation 25(1)(a)-(d), the provisions of Regulation 25(1)(e) allow for Esso to nominate these persons/organisations, at their discretion.

#### 4.2.4.4 Persons or organisations who self-identify

As part of the Company's own commitments to consultation and engagement, Esso regularly conducts broad-based information sharing designed to reach both relevant persons identified for any EP and a broad range of other interested parties. This broad-based information sharing allows Esso to create awareness of its activities and encourages potentially relevant persons to make themselves known to the Company (NOPSEMA, 2024b). Any persons or organisations who self-identify are added to the list generated by the ongoing review of the stakeholder database (as described in Section 4.2.4.1).

Esso will undertake advertising and publish information on a proposed activity to help identify any other relevant persons that may not have been identified by the process.

Esso will place advertisements in newspapers informing people of community information sessions and directing them to the Esso Consultation Hub to seek out anyone else who may be relevant based on the defined geographical area of the activity.

Where a person, organisation, department or agency identifies themselves to Esso via these campaigns, Esso will apply the methodology as defined in Figure 4-1 to assess if the person, organisation, department or agency is a relevant person, for the purposes of the EP and assign the relevant consultation Level.

The advertisements will also act as a means for sharing information to identified relevant persons and providing an ongoing mechanism for feedback.

#### 4.2.4.5 Persons or organisations Esso chooses to contact

Over the past 50 years of operations in Bass Strait, Esso has established relationships with relevant persons identified in the *Bass Strait Environment Plan*_ and activity-specific EP submissions, as well as the broader public and other interested parties.

Esso recognises and respects the important contribution of stakeholders and is committed to maintaining and further developing these important relationships.

In addition to consulting with relevant persons under Regulation 25(1), there may be persons or organisations that Esso chooses to contact in relation to a proposed activity. For example, these are persons or organisations:

- that are 'not relevant' pursuant to Regulation 25(1), but that Esso has chosen to contact potentially for additional guidance, for example to update contact information or obtain the correct contacts
- that are 'not relevant' pursuant to Regulation 25(1), but that Esso has contacted as a result of consultation requirements changing or updated guidance from the Regulator
- where it is unclear what their functions, interests and activities are, or whether they may be affected. In this circumstance, engagement is required to inform relevance under Esso's consultation methodology
- Esso wishes to maintain and continue to develop a relationship with.

### *4.2.5 Step 3 – Assign*

Once each relevant person has been identified and classified as per Regulation 25(1)(a)-(e), the consultation Level is assigned during workshop(s) held with Esso consultation advisors and relevant subject matter experts. The more complex the activity, the more discussions are needed to ensure all matters are considered appropriately.

In assigning a consultation Level, the following considerations are taken into account:

- the location of the activity (OA, ATBA or EMBA) and whether or not their functions, interests and activities are impacted by the planned or unplanned activity
- if any impact, the degree of that impact, for example – level of EMBA overlap with a known fishery
- the functions, interests and activities of the person(s) or organisation
- persons or organisations known to Esso and previously recorded in the stakeholder database
- relevant persons/organisation's known preferred methods of communication and any specific information needs
- Esso's relationship with the relevant person/organisation, for example when did Esso last engage with them? On what topic? What is their level of interest? Is Esso currently consulting with them on other activities?
- the environmental values and sensitivities and whether or not the persons functions, interests and activities are impacted by the activity; if any impact, the degree of that impact
- if the relevant person/organisation can provide any information that will assist the design or management of the planned activities
- the duration of the activity.

The output of the workshop is recorded in a register of all relevant persons related to the activity including the justifications and reasons for the assigned consultation Level, this information is then provided in the relevant EP (refer to Appendix F-1 ).

Esso notes that throughout the consultation process the assigned Level of consultation may be adjusted based on feedback received from the relevant persons, for example a relevant person may request more or less information and may therefore move to a higher or lower Level of consultation.

### *4.2.6 Step 4 – Verify*

For Regulation 25(1)(a)-(c) relevant persons, the verification process confirms the details of the department/agency are correct. This involves checking for departmental restructures, name changes, staff/contact person changes, contact information changes etc.

For Regulation 25(1)(d)-(e) relevant persons, verification aims to ensure that:

- the functions, interests and activities used to evaluate and categorise the person or organisation as a relevant person are confirmed
- identified representatives are a true representation/advocate of the views of their constituents and can be relied upon to faithfully communicate the results of engagements back to their constituents
- relevant persons have been provided with the Esso Consultation Questionnaire to confirm they are willing to participate in the consultation process.

Verification processes for Regulation 25(1)(d)-(e) relevant persons are further detailed in the following Sections.

#### 4.2.6.1 Verifying functions, interests and activities

In order to verify functions, interests and activities, Regulation 25(1)(d)-(e) relevant persons (or their verified representative) will be provided with:

- an information bulletin (or similar) providing sufficient information on the activity proposed in the EP
- Esso Consultation Questionnaire to verify functions, interests and activities.

The information bulletin aims to ensure all relevant persons are provided with sufficient information at the outset of the consultation process so they can make informed decisions about their participation or otherwise. This information bulletin will be in the form of a brochure or link to a specific webpage.

One aim of the Esso Consultation Questionnaire is to verify the functions, interests and activities of each relevant person. This is achieved by providing a tailored list of functions, interests and activities (relevant to the EP) so that the relevant person can select one or more items. Esso updates the relevant persons database and may re-evaluate the person's/group's status as a relevant person.

In some cases, relevant persons have developed guidance detailing their own functions, interests or activities and how and when they wish to be consulted on activities (NOPSEMA, 2024b), which will be considered throughout the process. This includes, for example:

- *Consultation with Commonwealth agencies with responsibilities in the marine area* (NOPSEMA, 2024f)
- *Interim Engaging with First Nations People and Communities on Assessments and Approvals Under the Environment Protection and Biodiversity Conservation Act 1999* (DCCEEW, 2023)
- *Petroleum activities and Australian Marine Parks* (NOPSEMA, 2025b).

If the functions, interests or activities of a person(s) have not been advised directly to Esso via the above methods, an assessment is made based on available information relating to the person(s) or organisation(s), as per NOPSEMA function, interests and activities definitions.

#### 4.2.6.2 Verifying true representation

The Esso Consultation Questionnaire is also used to determine the group participation of individual relevant persons. This information is used to develop a list of group members that Esso can engage with directly to

seek verification that the right group representatives have been identified. This ground-truthing of views of the designated representatives is essential to confirm they will provide a comprehensive and accurate representation. The Questionnaire also allows for individual relevant persons to choose whether they want to be consulted with directly or if their preference is for Esso to consult with the group representative on their behalf.

#### 4.2.6.3 Confirming participation

Provision is made in the Questionnaire to allow for a relevant person to 'opt out' of the consultation process. Esso will respect the wishes of the relevant person should they choose to 'opt out'.

Where the Esso Consultation Questionnaire has not been completed and returned, this will not be considered 'opting out' and Esso representatives will seek to make further contact with the relevant person to obtain a response, as appropriate.

Relevant persons can also notify Esso via the Consultation email to opt in or out of communications on specific activities.

It is recognised that in any community consultation there will inevitably be persons who cannot participate for various reasons, however the absence of their participation would not invalidate the process, provided reasonable efforts are made to identify the relevant persons and to consult with them (NOPSEMA, 2024b).

### *4.2.7 Step 5 – Consult*

Esso seeks to consult with relevant persons so that each relevant person has sufficient information to understand the activity and to help them make an informed assessment of possible consequences associated with the EP activities pursuant to their own functions, interests or activities. Esso acknowledges that what constitutes sufficient information as part of a consultation process may differ depending on the relevant person(s) (NOPSEMA, 2024b). As such, Esso seeks to consult in a way that is appropriate for each relevant person and adapted to the nature of the relevant persons to be consulted.

To achieve this, Esso consults with relevant persons in accordance with their assigned consultation Level. The consultation methods for each Level are outlined in Sections 4.2.7.1 to 4.2.7.3.

Each consultation has the overarching goals of:

- further strengthening foundation relationships with existing relevant persons
- developing relationships with new relevant persons
- facilitating genuine two-way dialogue between Esso and relevant persons
- building upon preceding consultations (where applicable) to further a relevant person's understanding of the activity.

Throughout the consultation process, relevant persons are invited to correspond with Esso if they have concerns or require clarifications. Follow-up verbal discussions occur where required or if requested.

Esso also provides avenues for relevant persons to contact Esso outside of formal engagement activities if they have any questions or concerns. If needed, Esso will provide support or assistance to relevant persons in relation to understanding the technical data.

All relevant persons are given the opportunity to nominate how they would like to be consulted. As appropriate, direct engagement with relevant persons, for example First Nations groups, will include co-design of their consultation methodology. This may require consultation over an extended period of time.

Relevant persons are not obligated to respond to a titleholder's requests to participate in the consultation process. In cases where no response has been received from a relevant person, and where sufficient information and a reasonable period has been afforded to the relevant person, Esso will consider consultation closed for the purposes of preparing the EP.

The assigned consultation Levels and associated rationale for each relevant person are included in the relevant EP.

#### 4.2.7.1 Consultation Level 1

Relevant persons assigned with consultation Level 1 will be provided with targeted and tailored activity-specific information to enable an effective consultation process. This can include meetings, presentations, workshops, forums, phone calls and specific information such as mapping. Consultation Level 1 is the highest level of engagement with relevant persons and may require consultation over an extended period of time.

Consultation Level 1 is applied to relevant persons whose functions, interests or activities are located in the OA of the planned activity. Esso may also determine this level of consultation appropriate if it is demonstrated that a stakeholder's functions, interests or activities are impacted by the proposed activity and are not within a geographical boundary.

Relevant persons will be provided with sufficient information (in a variety of formats, i.e. written, face-to-face, telephone etc.) and a reasonable period (30 days, but can be more according to the activity complexity) to respond. If no response is received, Esso will make a second attempt to contact the relevant person.

#### 4.2.7.2 Consultation Level 2

Relevant persons assigned with consultation Level 2 will be provided with specific information based on known information needs (e.g. published industry guidance notes or proformas outlining what information a relevant person wishes to receive).

This may include meetings, presentations, workshops, forums, phone calls and specific information such as mapping. This may require consultation over an extended period of time.

Consultation Level 2 is applied to relevant persons whose functions, interests or activities are located in the ATBA of the planned activity. Esso may also determine this level of consultation appropriate if it is demonstrated that a stakeholder's functions, interests or activities are impacted by the proposed activity and are not within a geographical boundary.

Relevant persons will be provided with sufficient information (in a variety of formats, i.e. written, face-to-face, telephone etc.) and a reasonable period (30 days, but can be more according to the activity complexity) to respond.

#### 4.2.7.3 Consultation Level 3

Relevant persons assigned with consultation Level 3 will be provided with activity-specific information but at a broader level. This can include: activity-specific information bulletins including the impacts, risks and the mitigative controls in place, information regarding EMBA and oil spill modelling, and/or links to the Esso Consultation Hub and Esso Consultation Questionnaire.

If requested, consultation can include face-to-face engagements, phone calls, community meetings, specialist group meetings or community information sessions.

Consultation Level 3 is applied to relevant persons whose functions, interests or activities are located in the EMBA and may be affected by unplanned activities associated with the planned activity or if the relevant person has indicated that this is the level of consultation they prefer.

Relevant persons will be provided with sufficient information (in a variety of formats, i.e. written, face-to-face, telephone etc.) and a reasonable period to respond (30 days, but can be more according to the activity complexity). If no response is received, no further consultation will be undertaken but Esso will continue to provide broader, high-level information.

### *4.2.8 Relevant persons responses*

Esso makes ongoing efforts to obtain responses through consultation. Esso is committed to considering all input and/or responses received from relevant persons in the development of EPs. Relevant person responses may be received in various ways.

Esso accepts responses and engages in consultation in order to understand the responses. Esso clearly identifies and addresses each matter raised by relevant persons, and if applicable to the activity to which the EP relates:

- demonstrates that the risk or impact in question has been reduced to ALARP and will be of an acceptable level
- provides a statement that addresses each element of the objection or claim made by a relevant person and where control measures are implemented to resolve objections and claims, will clearly communicate this to the relevant person
- provides copies of all written responses provided by a relevant person to NOPSEMA.

Responses received from relevant persons, throughout the development of an EP and its subsequent revisions, is considered and addressed as appropriate. A summary of responses, objection and/or claim, as well as Esso's assessment of the merits of feedback, objections and/or claim, and Esso's response, are provided in the EP.

#### *4.2.9 Ongoing engagement*

Esso recognises the importance of ongoing engagement with stakeholders as it is an opportunity to review and update Esso's current relevant persons functions, interests and activities, and as a forum for enquiry, objections or claims to be raised during an EP's activity.

In the case that a response is received following the end of consultation in mid-February 2026, the response will be considered for any implications to the proposed activity and clearly communicated to the relevant person.

#### *4.2.10 Consultation reporting*

Esso maintains a Gippsland-wide relevant persons database. Communications, including meetings, calls, distribution of communications materials, emails etc. with relevant persons are logged in the database, detailing any feedback received, including questions, issues, concerns, suggestions, objections and/or claims, and any actions/responses. Actions are tracked and responses are provided to relevant persons as required.

During all communications, Esso encourages relevant persons to provide feedback by:

- emailing the consultation@exxonmobil.com email address
- accessing the Esso Consultation Hub
- calling +61 3 9261 0000
- writing to GPO Box 400 Melbourne VIC 3001.

A report on all consultations between the Company and any relevant person is included in the relevant EP.

## 4.3 Methodology as applied to the scope of this Environment Plan

This Section demonstrates how Esso applies its consultation methodology specifically to this EP and how the Company ensured the consultations were appropriate and adapted to the nature of the interests of the relevant persons.

During the consultation for this EP, which commenced on 30 July 2025 and continued until mid-February 2026, no claims or objections were received.

#### *4.3.1 Step 1 - Define*

For Producing EP activities, Esso has outlined the following specifications, which were the basis for determining the anticipated key functions, interests and activities of each relevant person's category and defining criteria to determine categorisation as a relevant person within the scope of this EP:

- Activity description: Refer to Section 2
- Scope: Refer to Section 1.1
- Timing: Refer to Section 2.2
- Values and sensitivities: Refer to Section 3.2
- Geographic location: For the purposes of consultation, the facility location used to determine relevant persons includes the OA, ATBA and EMBA as shown in Figure 3-1 and Appendix A.

In determining who is a relevant person for consultation, Esso sought to identify and consult with persons whose functions, interests or activities could be affected by the activities described in Section 2 of this EP.

### *4.3.2 Step 2 - Identify and classify*

A complete list of all relevant persons that may be affected from either the planned activities or the unplanned activities, including the assessment of their relevance, their assigned relevant person category, their functions, interests and activities and subsequent consultation Level is provided in Appendix F-1 .

#### 4.3.2.1 Regulation 25(1)(a)-(c) relevant persons

To identify relevant persons in accordance with Regulation 25(1)(a)-(c), Esso used the methods outlined in Table 4-2. The full list of Regulation 25(1)(a)-(c) relevant persons is shown in Appendix F-1 .

**Table 4-2 Relevant persons identification methods**

| Method | Description |
|---|---|
| **Relevant persons previously identified for other activities** | |
| Review of Esso's existing relevant person database | Identify existing relevant persons based on Regulation 25(1)(a-c) and the:<br>• activity description<br>• scope<br>• geographic location. |
| **Actively seek out new relevant persons** | |
| Regulation 25(1)(a)-(c) | Search for any Commonwealth or State departments, agencies or ministers related to any of the values and sensitivities listed in Section 3.2 and located in either the OA, ATBA or EMBA. |

#### 4.3.2.2 Identification of Regulation 25(1)(d) relevant persons

To identify relevant persons in accordance with Regulation 25(1)(d), Esso used the methods as outlined in Table 4-3. The full list of Regulation 25(1)(d) relevant persons is shown in Appendix F-1 .

**Table 4-3 Regulation 25(1)(d) Relevant persons identification methods**

| Method | Description |
|---|---|
| **Relevant persons previously identified for other activities** | |
| Review of Esso's existing relevant person database | Identified existing relevant persons based on Regulation 25(1)(d) and:<br>• area of planned activities and geographic location of potentially affected areas from unplanned activities<br>• reasonably ascertainable functions, interests or activities<br>• provide information bulletins, Consultation Hub and Esso Consultation Questionnaire. |
| **Actively seek out new relevant persons** | |
| Local knowledge | Used local knowledge of existing relationships to identify marine users and interest groups active in the area. |
| Existing relevant persons | Asked existing relevant persons to share information bulletins, Esso Consultation Hub and Esso Consultation Questionnaire with anyone they consider may be interested. |

| Method | Description |
|---|---|
| Seek advice of First Nations groups | Advertised community information sessions in Indigenous media (e.g. Koori Mail).<br>Maintained Esso Consultation Hub including information bulletin and Esso Consultation Questionnaire provided to all First Nations identified in the EMBA.<br>Identified potentially relevant First Nations peoples are identified using the Australian Institute of Aboriginal and Torres Strait Islander Studies map of Indigenous Australia, overlaid with the geographical information of the OA (and EMBA if applicable).<br>Utilised government resources such as state government spatial data sets to identify potentially relevant Aboriginal Land Councils, Registered Aboriginal Parties and Registered Aboriginal Community Organisations.<br>Continued engagement with GLaWAC as the Registered Aboriginal Party, and other self-identified Indigenous relevant persons. |
| Community information sessions | Considered the attendees of community information sessions. |
| Recommendations | Considered recommendations received from relevant persons via responses provided in the Esso Consultation Questionnaire or through consultation with them. |
| Searches of internet sources | Searched Google, social media platforms using the geographical boundaries of the EMBA.<br>Searched for any potentially relevant persons related to any of the values and sensitivities listed in Section 3.2.<br>Searched using methodology in Section 4.2.4.1. |
| Advertisements in newspapers and other relevant news sources | Advertised in national, State, regional and local papers using the geographical boundaries of the EMBA including *Koori Mail*. |
| Review of legislation applicable to petroleum and marine activities | Following on from (Santos NA Barossa Pty Ltd v Tipakalippa, 2022) Esso conducted a further review of worker unions, eNGOs, First Nations groups and communities within the geographic boundary of the EMBA. |
| Offshore Wind Industry | Searched the National Electronic Approvals Tracking System to access publicly available information concerning offshore electricity infrastructure licences under the *Offshore Electricity Infrastructure Act 2021* (Cth). |
| Professional conferences | Attended/staffed booths at relevant industry conferences. |
| **Self-identification** | |

| Method | Description |
|---|---|
| Broad-based information sharing | Relevant persons self-identify in response to Esso's broad-based information sharing mechanisms, such as the Esso website, Connection magazine, advertisements etc. |
| Other means | Relevant persons self-identify. |

#### 4.3.2.3 Identification of Regulation 25(1)(e) relevant persons

To identify relevant persons in accordance with Regulation 25(1)(e), Esso has reviewed the existing stakeholder database to identify other persons or organisations that Esso considers to be relevant. These persons were added to the list of relevant persons and assigned an appropriate consultation Level. The full list of Regulation 25(1)(e) relevant persons is shown in Appendix F-1 .

Esso has considered community members as relevant persons where the individual has:

- registered and attended a community information session on this activity, or
- completed Esso Consultation Questionnaire and selected to be consulted on this activity, or
- contacted Esso independently (email/phone) and nominated as relevant to this activity.

#### 4.3.2.4 Persons or organisations Esso chooses to contact

As part of Esso's ongoing stakeholder relationship management activities, Esso may choose to contact other persons and organisations that did not meet the Regulation 25(1) categories. For the purposes of consultation, they may not be relevant persons.

The persons and organisations in this category may include those who:

- do not have a function, interest or activity that overlaps with either the OA, ATBA or the EMBA and were not going to be impacted by the activities outlined in this EP
- have an interest in Esso's other activities (e.g. onshore facilities in Longford or Hastings) and were notified as part of our ongoing communications with them
- have a broader industry interest and are included in our broader communications
- Esso approached to clarify what their functions, interests and activities are, or whether they may be affected.

### *4.3.3 Step 3 - Assign*

In order to confirm the appropriate Regulation 25(1) category and assign the appropriate consultation Level to each identified relevant person, a number of consultation workshops were held with Esso consultation advisors and relevant subject matter experts.

Factors considered in the workshops, specific to Producing EP activities, include:

- the location of the OA
- the OA is within the 500m PSZ
- the well sites are located within existing Commonwealth fisheries that may be used by commercial fishers
- the 500m PSZ will be communicated to the commercial fishing organisations
- there may be recreational fishing in the area but unlikely to be significant given the closeness of the Traffic Separation Scheme
- the duration of the work
- there is no known Sea Country mapping currently available
- relevant government departments are known
- the functions, interests and activities of the relevant person(s) or organisations identified and their known preferred methods of communication
- Esso's relationship with the relevant person or organisation, for example when did Esso last engage with them? On what topic? What are their levels of interest? Is Esso currently consulting with them on other activities?

- the environmental values and sensitivities have been assessed in the impact and risk assessment as risk category 3 or risk category 4 per Section 6 and 7 of this EP
- if the relevant person/organisation who can provide input into the design of the or management of the planned activities has been identified.

A complete list of all identified relevant persons, their assigned consultation Level and the justification for the consultation Level, as per the process outlined in Section 4.2.5, is provided in Appendix F-1 .

### *4.3.4 Step 4 - Verify*

A link to the Esso Consultation Questionnaire was emailed to every person in the stakeholder database to verify:

- which Esso activities they wish to be consulted on
- how they would prefer Esso to communicate with them
- which functions, interests or activities that may apply to them
- any group(s) they are represented by a member of, or participate in
- if they wish to be consulted through their representative.

Esso confirmed representation for the groups outlined in Table 4-4.

**Table 4-4 Relevant person representatives**

| Relevant person | Representative for |
|---|---|
| SETFIA | Incorporated association representing commercial fishers in Commonwealth South East Trawl Sector; SHS; SGSHS; small pelagic fishery. |
| SIV | Representative peak body for the Victorian seafood industry, from professional fishers, through to wholesalers, processors, and retailers, predominately in State waters. |
| LEFL | Represents Lakes Entrance commercial fishing by providing a full-service unloading facility to the local fishing fleet. From here, fresh seafood is distributed to local shops. |
| GLaWAC | Registered Aboriginal Party that represents the Gunaikurnai people, the Traditional Owners of our Country, as determined by the Victorian Aboriginal Heritage Council under the *Aboriginal Heritage Act 2006* (Vic). |
| Game Fishing Association of Victoria | Governing body for Game Fishing in Victoria affiliated with the Game Fishing Association of Australia and the International Game Fishing Association. |

### *4.3.5 Step 5 - Consult*

Esso initially engaged stakeholders on the revision of the currently accepted *Bass Strait Environment Plan* (AUGO-EV-EMM-012) between May and July 2025. In July 2025, NOPSEMA directed Esso to supersede the Plan with this EP and the Non-Producing EP.

For the activities specific to this EP, consultation began on 30 July 2025, using various methods, and continued until mid-February 2026.

#### 4.3.5.1 Consultation timing

For the nature and scale of the activity described in this EP, Esso determined that a minimum of 180 days would provide a reasonable period for relevant persons to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of relevant persons.

All relevant persons were consulted for a minimum of 180 days. Therefore, Esso has met the requirement to provide a reasonable period for consultation.

#### 4.3.5.2 Provision of sufficient materials

Esso developed one information bulletin specific on the producing activities outlined in this EP. This information bulletin, as detailed in Table 4-5, was developed to provide each relevant person with sufficient information, in accordance with Regulation 25(2), by providing an overview of the proposed activity including information on the activity description, scope, timing, location, risks, impacts, control measures and EMBA information. The information bulletin was shared with stakeholders via email, face-to-face meetings, community information sessions and on the Esso Consultation Hub, where it remains accessible.

**Table 4-5 Information bulletin issue dates**

| Information bulletin | | Date | Details |
|---|---|---|---|
| Information Bulletin #1 (Appendix G-1) | Bass Strait Producing Environment Plan | July 2025 | Producing EP activities, timing, location as well as potential impacts, risks and control measures. |

In addition to the provision of Information Bulletin #1, Esso undertook specific consultations on the producing activities outlined in this EP, as shown in Table 4-6, with all relevant persons.

**Table 4-6 Consultations undertaken with all relevant persons**

| Date | Summary of consultation |
|---|---|
| 30 July 2025 | Email to more than 750 stakeholders, including relevant persons, advising of Producing EP activities proposed by Esso, including a link to Information Bulletin #1, available on the Esso Consultation Hub. |
| 30 July 2025 | Email to more than 70 EMBA stakeholders advising of Producing EP activities proposed by Esso, including a link to Information Bulletin #1, available on the Esso Consultation Hub. |
| 17 October 2025 | Email to more than 70 relevant persons, reminding them of the Producing EP activities proposed by Esso, including a link to Information Bulletin #1, available on the Esso Consultation Hub. |

Esso acknowledges that what is considered 'sufficient information' may vary between different relevant persons. As such, Information Bulletin #1 was accompanied with the Esso Consultation Questionnaire, which provides relevant persons with a mechanism to communicate what they consider 'sufficient information'.

#### 4.3.5.3 Community information sessions

Esso has been undertaking community information sessions in Sale and Lakes Entrance since 2017 and expanded these sessions across South Gippsland and East Gippsland in 2024. Esso continues to hold these community information sessions on a quarterly basis providing the community with updates on all Esso activities.

Over the course of the consultation period for this EP, Esso hosted a total of 10 community information sessions in the local area in August and November 2025.

*INFORMING RELEVANT PERSONS*

To inform relevant persons of the community information sessions, Esso emailed over 750 stakeholders listed in the stakeholder database via email on 28 July and 27 October 2025 for the August and November 2025 sessions, respectively. The emails included details of the upcoming sessions and an outline of Esso activities to be presented, including Producing EP activities.

The email on 28 July 2025 was sent prior to the start of consultation for this EP, and therefore the email consultation details have not been included in Appendix F-2 or Attachment 1. However, a copy of the email is provided in Appendix G-2.

Flyers for the community information sessions were also displayed at more than 30 venues in local towns, as outlined in Table 4-7, and letterbox dropped to approximately 2000 premises in the local area.

**Table 4-7 Community information session flyer locations**

| Venue | Location | |
|---|---|---|
| | **August 2025 community information sessions** | **November 2025 community information sessions** |
| Fish Creek | • Pharmacy Plus (and General Store)<br>• Evans Petroleum | • Community notice board<br>• Prom Coast H Hardware<br>• Pharmacy Plus (and General Store)<br>• Alison Lester |
| Foster | • Andos Bakery<br>• Community notice board<br>• Visitor Information Centre<br>• Foster Laundromat<br>• Manna Gum Community House<br>• IGA<br>• Foster Hot Bread Shop | • Andos Bakery<br>• Community notice board<br>• Foodworks<br>• Visitor Information Centre<br>• Foster Laundromat<br>• Manna Gum Community House<br>• IGA<br>• Foster Hot Bread Shop |
| Lakes Entrance | • Amcal Pharmacy<br>• Discount Variety Store<br>• Foodworks<br>• Footbridge Fish & Chips<br>• Kalimna Hotel<br>• Lakes Entrance Bakery<br>• Footbridge Mini Golf, Lolly<br>• Shop & IceCream Shack<br>• The Bellevue Hotel<br>• Visitor Information Centre | • Amcal Pharmacy<br>• Discount Variety Store<br>• Foodworks<br>• Footbridge Fish & Chips<br>• Kalimna Hotel<br>• Lakes Entrance Bakery<br>• Footbridge Mini Golf, Lolly<br>• Shop & IceCream Shack<br>• The Bellevue Hotel<br>• Visitor Information Centre |
| Leongatha | • Gippsland Coffee Emporium<br>• Leongatha Community House<br>• Discount King<br>• Michaels IGA & Liquor<br>• Information Centre<br>• Ezyas Car Wash & Laundrette<br>• Leongatha Library<br>• McCartins Hotel<br>• Mitchell Arcade Notice Board<br>• Mitre 10<br>• Nutrien Ag Solutions<br>• Sports Power<br>• Thorntons Bakery | • Discount King<br>• Michaels IGA & Liquor<br>• Leongatha Library<br>• McCartins Hotel<br>• Mitchell Arcade Notice Board<br>• Mitre 10<br>• Nutrien Ag Solutions<br>• Sports Power |

| Venue | Location | |
|---|---|---|
| | **August 2025 community information sessions** | **November 2025 community information sessions** |
| Meeniyan | • Brown & Wigg Hardware<br>• Post Office<br>• Meeniyan Service Station<br>• Meeniyan Store and Café<br>• Catherine's Hair Techniques | • Brown & Wigg Hardware<br>• Post Office<br>• Meeniyan Service Station<br>• Meeniyan Store and Café<br>• Catherine's Hair Techniques |
| Port Franklin | • Post office box shed | • Post office box shed |
| Port Welshpool | • Port Welshpool General Store | • Port Welshpool General Store |
| Sale | • Jacks Country Bakehouse<br>• Café<br>• BP Service Station<br>• Raymond Café<br>• Community notice board in<br>• Gippsland Centre (plaza)<br>• Guthridge Parade Fish & Chips<br>• Foodworks<br>• The Genny on Guthridge<br>• The Criterion Hotel<br>• James Yeates Printing<br>• Notice Board | • Jacks Country Bakehouse<br>• Café<br>• BP Service Station<br>• Community notice board in<br>• Gippsland Centre (plaza)<br>• Guthridge Parade Fish & Chips<br>• Foodworks<br>• The Genny on Guthridge |
| Toora | • Community notice board<br>• Foodworks<br>• Toora Pharmacy | • Foodworks<br>• Toora Pharmacy |
| Welshpool | • Community notice board | • Welshpool Memorial Hall<br>• Community notice board |
| Woodside | • Shell Service Station | • Shell Service Station |
| Yanakie | • Foodworks | • Foodworks |
| Yarram | • Ag Warehouse<br>• Bargain Centre<br>• Betta Electrical<br>• BP Service Station<br>• Foodworks<br>• Coopers Mitre 10 Hardware<br>• Yarram Kebabs Plus<br>• Davis Manner Department Store<br>• Yarram District Hub<br>• Yarram Drapery | • Ag Warehouse<br>• Bargain Centre<br>• Betta Electrical<br>• BP Service Station<br>• Coopers Mitre 10 Hardware<br>• Davis Manner Department Store<br>• Yarram Drapery |

| Venue | Location | |
|---|---|---|
| | **August 2025 community information sessions** | **November 2025 community information sessions** |
| | • The Bottle-O at Yarram | |

A copy of the August and November 2025 flyers are provided in Appendix G-3andAppendix G-4, respectively.

*ADVERTISEMENTS*

To ensure every effort was made to reach relevant persons, the community information sessions were also advertised in 14 news outlets, including local and national, between 16 July and 13 August for the August 2025 community information sessions and 15 October and 7 November for the November 2025 community information sessions, as shown in Table 4-8.

**Table 4-8 Community information session advertisement news outlets**

| News outlet | | August 2025 community information sessions | November 2025 community information sessions |
|---|---|---|---|
| East Gippsland | *Bairnsdale Advertiser* | ✓ | ✓ |
| | *Lakes Post* | ✓ | ✓ |
| | *Snowy River Mail* | ✓ | ✓ |
| Central Gippsland | *Latrobe Valley Express* | ✓ | ✓ |
| | *Gippsland Times and Maffra Spectator* | ✓ | ✓ |
| | *Gippslandia* (online) | ✓ | ✓ |
| South Gippsland | *South Gippsland Sentinel Times* | ✓ | ✓ |
| | *South Gippsland Voices* | ✓ | ✓ |
| | *Prom Coast News* | ✓ | ✓ |
| | *Foster Community Online* | ✓ | ✓ |
| | *The Bridge, Yarram* | ✓ | ✓ |
| State - Victoria | *Herald Sun* | ✓ | ✓ |
| National | *Koori Mail* | ✓ | ✓ |
| | *The Australian* | ✓ | ✓ |

Copies of the news outlet advertisements for the August and November 2025 community information sessions are provided in Appendix H-1 and Appendix H-2, respectively.

Esso also advertised details of the community information sessions via Esso's website and *Connection* magazine.

*ATTENDANCE*

A total of 78 people attended the community information sessions in August and November 2025, as summarised in Table 4-9.

**Table 4-9 Consultation period community information sessions and attendance**

| Session | Date | Location | No. of attendees |
|---|---|---|---|
| **August 2025** | | | |
| 1 | 11 August | Lakes Entrance | 8 |
| 2 | 12 August | Yarram | 2 |
| 3 | 13 August | Sale | 10 |
| 4 | 18 August | Yanakie | 8 |
| 5 | 19 August | Foster | 9 |
| 6 | 20 August | Leongatha | 14 |
| **November 2025** | | | |
| 7 | 10 November | Lakes Entrance | 7 |
| 8 | 11 November | Sale | 5 |
| 9 | 11 November | Foster | 12 |
| 10 | 12 November | Leongatha | 3 |

Details of the community information sessions are recorded in the relevant persons database and presented in the Consultation report (Summary) (refer Appendix F-2).

*COMMUNITY INFORMATION SESSION CONTENT*

A presentation was provided at the community information sessions with content covering all current Esso activities, including producing activities, and an opportunity to ask questions specific to this EP.

In July 2025, Esso announced its transfer of operatorship of the Gippsland Basin Joint Venture to Woodside Energy (Bass Strait) Pty Ltd, subject to regulatory approvals. To inform stakeholders of this, Esso included information and updates on the transfer of operatorship in the August and November 2025 presentations.

Based on attendees' questions and feedback at the Lakes Entrance and Sale sessions in August 2025, additional slides on 'What is an EP?' and 'Activity overview' were added to the August presentation for the remaining sessions at Sale, Yanakie, Foster and Leongatha.

A copy of the August and November 2025 community information session presentations is provided in Appendix G-5 and, respectively.

#### 4.3.5.4 Consultation with representative groups

Esso conducts regular meetings with organisations and/or agency representatives of Regulation 25(1)(a)-(c) relevant persons and with groups and/or group representatives identified under Regulation 25(1)(d). Details of these meetings are recorded in the relevant persons database and presented in the Consultation report (Summary) (refer to Appendix F-2).

*CONSULTATION WITH COMMONWEALTH AGENCIES WITH RESPONSIBILITIES IN THE MARINE AREA*

Esso engages with Commonwealth government departments and agencies as required, for activities involving Esso's Bass Strait assets. Table 4-10 outlines the Commonwealth agencies with responsibilities in the marine area (NOPSEMA, 2024f) relevant to this EP's activities.

For the consultation of Producing EP activities, Commonwealth government departments and agencies were sent information, including Information Bulletin #1, via email on 30 July 2025. A subsequent reminder email was sent on 17 October 2025 as per Esso's methodology for Level 1 consultation.

Commonwealth government departments and agencies were also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively.

**Table 4-10 Relevant Commonwealth agencies**

| Commonwealth agency | | Relevant to this EP |
|---|---|---|
| DCCEEW | EPBC Act administration and the Australian Antarctic Division | Not relevant to these activities. |
| | Underwater cultural heritage | Relevant to these activities. |
| | Sea dumping | Not relevant to these activities. |
| Director of National Parks | | Relevant to these activities. |
| Department of Agriculture, Fisheries and Forestry | Fisheries | Relevant to these activities. |
| | Biosecurity (vessels, aircraft and personnel) | Relevant to these activities. |
| | Biosecurity (marine pests) | Relevant to these activities. |
| AFMA | | Relevant to these activities. |
| AMSA | | Relevant to these activities. |
| Department of Defence (including the Australian Hydrographic Office) | | Relevant to these activities. |
| Department of Industry, Science, Energy and Resources | | Relevant to these activities. |
| National Offshore Petroleum Titles Administrator | | Relevant to these activities. |
| Department of Foreign Affairs and Trade | | Not relevant to these activities. |

Consultation undertaken with each agency relevant to this EP, including questions and comments received, is included in Appendix F-2.

No claims or objections were received from Commonwealth government departments and agencies. Esso will continue to consult with relevant Commonwealth government departments and agencies in an ongoing manner, as required.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

### *CONSULTATION WITH FIRST NATIONS PEOPLE*

Esso engages with First Nations people and representative organisations respectfully and effectively in meeting statutory obligations. Esso considers guidance developed by Australian Government agencies, including but not limited to the guidance provided in *Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999* (DCCEEW, 2023).

Under the *Native Title Act 1993* (Cth), the FCA determined the Gunai/Kurnai groups to be Native Title holders over much of Gippsland. GLaWAC (on behalf of the Gunai group) signed an agreement with the State of Victoria in 2010 under the *Traditional Owner Settlement Act 2010* (Vic) to extinguish Native Title rights for land management including a number of State parks. GLaWAC is the Prescribed Body Corporate (under the federal Native Title (Prescribed Body Corporate) Regulations 1999 (Cth)) and the Registered Aboriginal Party (under the *Aboriginal Heritage Act 2006* (Vic)) that holds rights and interests which sometimes compromise the Native Title of the common law holders, making GLaWac the primary guardians, keepers and knowledge holders of country, including sea country, throughout much of Gippsland.

The Kurnai group declined to sign the agreement to instead maintain their rights as the Native Title holders. Esso recognises the Kurnai Aboriginal Corporations' status as Native Title Holders and First Nations people and will continue to meet with the Corporation at their request to consult on Esso's activities. The Kurnai Aboriginal Corporation actively promotes respect for Kurnai history, lore, laws and culture. The Kurnai Aboriginal Corporation do not/are not represented by GLaWAC.

#### ***GUNAIKURNAI LAND AND WATERS ABORIGINAL CORPORATION***

For the consultation of Producing EP activities, GLaWAC was sent information, including Information Bulletin #1, via email on 30 July 2025 and a reminder email on 17 October 2025, as per Esso's methodology for Level 1 consultation. GLaWAC was also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively.

Details of the Producing EP activities were shared with GLaWAC during the August and December 2025 monthly meetings. No questions or requests for information are outstanding in relation to this EP's activities.

Engagement with GLaWAC is ongoing via monthly consultation meetings, emails and phone calls, and includes discussions on Esso's offshore and onshore proposed activities. The content of monthly meetings is agreed between Esso and GLaWAC attendees, and includes sharing of information related to:

- production activities (including gas production, P&A of wells, and wastewater treatment)
- decommissioning – offshore and onshore activities.

These monthly meetings, as well as emails and site visits, provide continuous and targeted opportunities for GLaWAC to be consulted on Esso's activities.

In relation to Traditional Custodian relevant persons, Esso has discharged its duty under Regulation 25 and considers that consultation under Regulation 25 is complete. Discharge and completion is on the basis that during the ongoing provision of detailed information, GLaWAC has not raised objection to proposed Producing EP activities.

General engagements (beyond Producing EP activities) with GLaWAC are ongoing.

A meeting was conducted between Esso and GLaWAC (at GLaWAC's Kalimna office) in December 2023 to further discuss GLaWAC's IPA application and to identify potential opportunities for Esso to share information that might support this application.

Information sharing workshops were held in April 2024 (at Esso's Sale office) and August 2024 (at GLaWAC's Morwell office) to share Esso's environmental and GIS information with GLaWAC to support the GLaWAC IPA application.

Esso considers these activities as valuable to relationship building and facilitate information sharing.

During ongoing consultation, Esso continues to request information on Gunaikurnai Sea Country to further understand how offshore activities might impact cultural heritage.

#### *KURNAI ABORIGINAL CORPORATION*

Representatives from the Kurnai Aboriginal Corporation self-identified as relevant persons when attending a community information session at Leongatha in October 2024. During a meeting with Kurnai Aboriginal Corporation in December 2024 in Morwell, Kurnai Aboriginal Corporation representatives provided Esso an overview of the corporation including members, goals and expectations for stakeholder consultation. Kurnai Aboriginal Corporation advised they were Native Title holders in Gippsland; however, Kurnai Aboriginal Corporation do not represent/are not represented by GLaWAC and requested to be consulted separately. Esso and Kurnai Aboriginal Corporation agreed to meeting again in 2025 on an ad-hoc basis.

For the consultation of Producing EP activities, the Kurnai Aboriginal Corporation was sent information, including Information Bulletin #1, via email on 30 July 2025. Kurnai Aboriginal Corporation was also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively.

On 13 August 2025, the Kurnai Aboriginal Corporation provided a letter to Esso in which the Kurnai Aboriginal Corporation made various claims and requests of Esso. A response was provided to the Kurnai Aboriginal Corporation on 5 December 2025 addressing their various claims and requests.

Further correspondence was received from the Kurnai Aboriginal Corporation between December 2025 and January 2026 relating to consultation for decommissioning activities; Esso responded in January 2026. Kurnai Aboriginal Corporation and Esso agreed to establish quarterly consultation meetings commencing in early 2026.

Kurnai Aboriginal Corporation has not raised claims or objection on this EP's activities.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

### *CONSULTATION WITH LOCAL COUNCILS*

Esso maintains a strong relationship and frequent engagements with local councils in the Gippsland area, including Wellington Shire and South Gippsland Shire councils. For the consultation of Producing EP activities, councils were sent information, including Information Bulletin #1, via email on 30 July 2025. Councils were also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively. The community information sessions were attended by South Gippsland Shire Council staff in Leongatha; and Wellington Shire Council staff in Sale, in August and November 2025.

Questions and comments received at the community information sessions, including from Councils, are summarised in Appendix.

No claims or objections were received from Councils.

Esso considers it has discharged its obligations for consultation under Regulation 25, having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

### *CONSULTATION WITH COMMERCIAL FISHING*

Esso has an ongoing relationship with commercial fishing stakeholders and continues to meet with SETFIA, LEFL and SIV via face-to-face and online meetings, generally on a quarterly basis to discuss Esso's activities.

There are 23 fisheries permitted to work around Esso Australia's field; 14 are State managed, and nine are Commonwealth managed. Of those 23 fisheries, only 15 have recorded recent (10 year) fishing efforts around the ATBA.

SETFIA represents more than 80% of the SESSF CTS, a Commonwealth managed fishery activity in the vicinity of the ATBA. SIV represents Victorian State fisheries, with Inshore Trawl Fishery and Eastern Zone Octopus Fishery active in the vicinity of the ATBA. LEFL (also a member of SETFIA) represents approximately eight boat owners that may fish in the vicinity of the ATBA. Southern Shark Industry Alliance supports the Southern Shark Fishery, Southern Shark Industry Alliance shares the same key contact as the SETFIA Executive Officer.

Esso attempted to consult directly with individual commercial fishermen but was unable to obtain contact information due to confidentiality. Therefore, all consultation is conducted through the representative bodies, SETFIA, SIV and LEFL, unless Esso is contacted by commercial fishermen independently.

For the consultation of Producing EP activities, fishing stakeholders were sent information, including Information Bulletin #1, via email on 30 July 2025. Fishing stakeholders were also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively. The community information sessions were attended by LEFL in Lakes Entrance in August and November 2025.

Esso met with SETFIA in August and November 2025, and SIV in December 2025, and provided an update on all current and proposed activities, including Producing EP activities.

Questions and comments received at all meetings and the community information sessions, including from LEFL, are summarised in Appendix. No concerns or objections were raised by fishing stakeholders.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

*CONSULTATION WITH RECREATIONAL FISHERS*

For the consultation of Producing EP activities, recreational fishers were sent information, including Information Bulletin #1, via email on 30 July 2025. Recreational fishers were also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively.

Esso has attended Game Fishing Association of Victoria meetings, as requested, to present to club members and continues to send Game Fishing Association of Victoria updates on all activities, including Producing EP activities.

Victorian Recreational Fishing Peak Body has been invited to meetings and Esso continues to send Victorian Recreational Fishing Peak Body updates on all activities.

Esso has also attended Gippsland Lakes Fishing Club meetings, as requested, to present to club members and continues to send Gippsland Lakes Fishing Club updates on all activities.

No claims or objections were received from recreational fishers.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

*CONSULTATION WITH UNIONS*

For the consultation of Producing EP activities, unions were sent information, including Information Bulletin #1, via email on 30 July 2025. Unions were also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively. The community information session in Lakes Entrance was attended by the Australian Manufacturing Workers Union in August 2025.

Esso also met with unions in August and September 2025 to provide updates on all current activities, including Producing EP activities. Esso currently meets with unions to consult on activities on an approximately six-month basis.

Questions and comments received at the meetings and at the community information session, including from unions, are presented in Appendix. No claims or objections were received from unions.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

### *CONSULTATION WITH ENVIRONMENTALLY FOCUSED NON-GOVERNMENT ORGANISATIONS*

In the course of consultation, Esso has identified multiple eNGOs, including Friends of the Earth, The Wilderness Society and Birdlife Australia, who self-identified as relevant persons for Esso's activities.

For the consultation of Producing EP activities, eNGOs were sent information, including Information Bulletin #1, via email on 30 July 2025. eNGOs were also invited to the August and November 2025 community information sessions via email, on 28 July and 27 October 2025, respectively. The community information sessions in Foster were attended by Friends of the Earth members in August and November 2025.

Questions and comments received at the community information sessions, including from eNGO's, are summarised in Appendix. No claims or objections were received from eNGOs. Updates on Esso's activities will continue to be shared with eNGOs.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

### *CONSULTATION WITH STATE GOVERNMENT DEPARTMENTS/AGENCIES*

Esso engages with state government departments and agencies as required. For the consultation of Producing EP activities, state government departments and agencies were sent information, including Information Bulletin #1, via email on 30 July 2025. State government departments and agencies were also invited to the August and November 2025 community information sessions via email on 28 July and 27 October 2025, respectively. The community information sessions in Sale and Leongatha were attended by the Environment Protection Authority Victoria and WorkSafe Victoria, respectively, in August 2025.

Questions and comments received at the community information session, including from the Environment Protection Authority Victoria and WorkSafe, are summarised in Appendix. No claims or objections were received from state government departments and agencies.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

### *CONSULTATION WITH STATE EMERGENCY RESPONSE AGENCIES*

Esso also engages with State agencies relevant to emergency response (OPEP and Quick Reference Guide), including the Victorian Department of Transport and Planning (DTP), the NSW Transport for NSW (TfNSW) and the Tasmanian Environmental Protection Agency Tasmania (EPA Tas).

In September and October 2025, Esso held meetings with DTP, EPA Tas and TfNSW regarding this EP's OPEP and Quick Reference Guides timelines and other Esso activities. Further consultation was undertaken via phone calls and emails in October and November 2025 regarding the OPEP and Quick Reference Guides. Esso sent the OPEP and Quick Reference Guides to DTP, TfNSW and EPA Tas for consultation in December 2025.

Questions and comments received from DTP, TfNSW and EPA Tas regarding the OPEP and Quick Reference Guides for this EP, are included in Appendix. No claims or objections were received from DTP, TfNSW and EPA Tas.

Esso will continue to engage with relevant state agencies relevant to emergency response, as required.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

*CONSULTATION WITH THE OFFSHORE WIND INDUSTRY*

Feasibility licences for the offshore wind industry in Bass Strait were granted in the second and third quarters of 2024. Esso began consultation with the new licence holders during the second quarter of 2024 to establish if the functions, interests or activities of these offshore wind developers have the potential to be affected by Esso's activities and may be relevant persons. Esso continues to undertake meetings with offshore wind developers as required.

For the consultation of Producing EP activities, offshore wind developers were sent information, including Information Bulletin #1, via email on 30 July 2025. Offshore wind developers were also invited to the August and November 2025 community information sessions via email on 28 July and 27 October 2025, respectively. A community information session in Yarram was attended by Southerly Ten in August 2025.

Questions and comments received at the community information session, including from Southerly Ten, are summarised in Appendix. No claims or objections were received from offshore wind developers.

Esso will continue to share details of offshore activities including timing and locations with wind industry proponents.

Esso considers it has discharged its obligations for consultation under Regulation 25 having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

#### 4.3.5.5 Consultation outcomes

No objections or claims were received from relevant persons, either through face-to-face, email or phone requests, or through responses provided in the Esso Consultation Questionnaire for this EP. All communications are recorded in the relevant persons database and presented in the Consultation report (Summary) provided in Appendix.

### *4.3.6 Broad-based information sharing*

As part of Esso's commitment to engaging with relevant persons to build lasting long-term relationships, a range of broad-based information sharing mechanisms are used. Identified relevant persons can also choose to 'opt in' to distribution lists through the Esso Consultation Questionnaire.

Esso's broad-based information sharing mechanisms are outlined in Table 4-11.

**Table 4-11 Broad-based information sharing mechanisms**

| Mechanism | Description |
|---|---|
| Periodic updates | Esso uses email distribution to provide updates about Esso's offshore operations and activities, reports or information bulletins to relevant persons as appropriate. |
| Esso Consultation Hub | A Consultation Hub has been developed and shared with all relevant persons to provide access to information on all offshore activities and the opportunity to request further information and consultation preferences. |
| Esso Consultation Questionnaire | A Consultation Questionnaire has been developed and shared with all relevant persons to allow Esso to consult with relevant persons based on their preferences:<br>• Which of the following Esso activities would you like to be consulted on?<br>• How would you prefer Esso communicates with you?<br>• Please select any functions, interests or activities that may apply to you<br>• Please select any group(s) you are represented by a member of, or participate in<br>• Do you wish to be consulted through your representative?<br>• How did you hear about our activities? |

| Mechanism | Description |
|---|---|
| Connection magazine | Esso's monthly newsletter, which is distributed via email and accessible on the Company website. The magazine provides relevant persons with regular updates on Esso's activities. |
| Esso website | Esso's website is an online portal that gives broader groups of relevant persons up-to-date information on various facets of our business and provides an opportunity for relevant persons to make enquiries about our offshore activities and projects.<br>The website is updated periodically to reflect new information and activity progress. |
| Annual Decommissioning Report | Accessible from Esso's website, this Report provides technical, yet accessible, insight into Esso's decommissioning plans and yearly progress. The Report is emailed directly to all Relevant Persons and shared more broadly with other interested relevant persons. |

## 4.4 Relevant persons feedback

Throughout the consultation process, all relevant persons had the opportunity to contact Esso's consultation team by emailing consultation@exxonmobil.com, completing the Esso Consultation Questionnaire, calling Esso's Head Office on +61 3 9261 0000 or writing to GPO Box 400 Melbourne VIC 3001.

Esso provides a summary of all responses, objections and/or claims, as well as Esso's assessment of the merits of these and Esso's response in Appendix.

Feedback received from relevant persons, either through face-to-face, email or phone requests, or through responses provided in the Esso Consultation Questionnaire for the scope of this EP are summarised in Appendix F-2 and incorporated throughout this EP, where relevant.

Esso considers it has discharged its obligations for consultation under Regulation 25, having provided a reasonable period, sufficient information and opportunity for relevant persons to provide feedback, objections and/or claims.

## 4.5 Ongoing consultation

Following the submission of this EP, Esso will continue communicating with relevant persons to provide activity updates. Updates will include activities within the scope of this EP as well as broader Esso operations. Table 4-12 outlines the ongoing consultation plans for this EP.

Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Esso will apply its OIMS System 7-1: Managing Changes (see Section 8.14).

**Table 4-12 Ongoing consultation plan**

| Relevant person(s) | Planned ongoing consultation mechanism | Timing |
|---|---|---|
| All | Information-sharing materials regarding the outcome of this submission.<br>Continuing to respond to specific feedback received via email, phone or meetings.<br>Ensuring the Esso website is maintained and kept up to date. | As required |

| Relevant person(s) | Planned ongoing consultation mechanism | Timing |
|---|---|---|
| | Continuing to develop and distribute regular newsletters and issues of Connection magazine. | |
| Regulation 25(1)(a)-(b) | Conducting regularly scheduled meetings with Commonwealth and state government departments and agencies. | As scheduled |
| Commercial fishing representatives | Meetings to provide updates on all activities. | Quarterly |
| Recreational fishing representatives | Emails and/or meetings to provide updates on all activities. | As scheduled |
| Offshore wind industry | Meetings to provide updates on all activities and discuss planning. | Quarterly/as required |
| Unions | Meetings to provide updates on all activities. | Six monthly |
| Relevant persons identified as marine users and relevant government departments and agencies | Notifications of commencement of activities as appropriate. | Two weeks prior to activity commencing |
| | Notifications of vessel activities via text message or email where appropriate. | During activity |
| NOPSEMA | Regulatory notification of start of activity. | 10 days prior to activity commencing |
| | Regulatory notification of cessation of activity. | Within 10 days of activity completion |
| Newly identified relevant persons | Periodic review of relevant persons to ensure new relevant persons are identified and consulted.<br>If a new relevant person is identified, consultation will commence by providing an information bulletin containing details of the activity, including information on the potential environmental impacts and risks associated with the activities. | Six monthly |

## 4.6 Reporting

In accordance with Regulation 24, Esso has included within this EP, reports on all consultations under Regulation 25 undertaken with any relevant person identified in this EP.

A summary report on all activity-specific consultations undertaken up to mid-February 2026 is included as Appendix. The summary report is intended to be made public with this EP and does not contain any sensitive information.

Sensitive information relating to relevant persons and the full text of any response by a relevant person to consultation under Regulation 25 in the course of preparing this EP, also referred to as the 'sensitive information part', is also provided to NOPSEMA as Attachment 1. However, in accordance with Regulation 28(1), the 'sensitive information part' is removed prior to publication.

# 5 Environmental impact and risk assessment methodology

## 5.1 Overview

Environmental impact assessment is concerned with activities that are reasonably certain to occur (such as planned discharges to the air or water), while environmental risk assessment is concerned with unplanned events that may possibly occur (such as hydrocarbon spills, introductions of marine pests, loss of waste overboard).

Environmental impacts result from the proposed activity and will result in a change to the environment or a component of the environment, whether adverse or beneficial.

Environmental risks resulting from unplanned activities are those where a change to the environment or component of the environment may occur (i.e. there may be impacts if the event actually occurs). Risk is a combination of the impact or consequence of an event and the associated likelihood (probability) of the event occurring. For example, a hydrocarbon spill may occur if a support vessel's fuel tank is punctured by a collision during the activity. The risk of this event is determined by assessing the consequence or environmental impact (using factors such as the type and volume of fuel and the nature of the receiving environment) and the likelihood of this event happening (which may be determined qualitatively or quantitatively).

Impacts and risks associated with the proposed activity were identified in an environmental impacts and risk assessment workshop(s) held in Melbourne Docklands office in March and April 2025 and a series of ALARP workshops held throughout 2025 with the required subject matter experts and in accordance with the: *Environmental Aspects Guide* (ExxonMobil, 2024). This Guide is consistent with the approach outlined in *ISO 14001 Environmental Management Systems*, *ISO 31000:2018 Risk Management* and *HB203:2024 Environmental Risk Management – Principles and Process*.

From the environmental impact and risk assessment workshop(s), a risk register is produced which details the outcomes from the risk assessments against each of the aspects against the environmental and socioeconomic dimensions outlined in Section 5.4.

## 5.2 Definitions

Table 5-1 describes terms relevant to the impacts and risk assessments completed.

**Table 5-1 Definitions**

| Term | Definition |
|---|---|
| Activity | An activity refers to a component or task within a project which results in one or more environmental aspects. |
| Aspect | An environmental aspect is an element or characteristic of an activity, product, or service that interacts or can interact with the environment. Environmental aspects can cause environmental impacts. |
| Impact (HB203:2024) | Any change to the environment or a component of the environment, whether adverse or beneficial, wholly, or partly resulting from an organisation's environmental aspects. |
| Risk (HB203:2024) | The effect of uncertainty on objectives.<br>The level of risk can be expressed in terms of a combination of the consequences and the likelihoods of those consequences occurring. |

| Term | Definition |
|---|---|
| Receptor | The term receptor refers to a feature of the natural and human surroundings that can potentially be impacted. This includes air, water, land, flora, and fauna including people. |
| Consequence | The consequence of an impact is the outcome of the event on affected receptors. Consequence can be positive or negative. |
| Likelihood | The likelihood of an impact is the chance (probability) of the impact occurring. |

## 5.3 Identification and characterisation of environmental aspects

In order to undertake meaningful impact and risk assessment, a clear understanding of the context of the assessment is required, by defining the activity and the receiving environment, and understanding any requirements (legislative or other) which are relevant to either the activity or the environment.

All components of the activity have been identified and described in Section 2. After describing the activity, an assessment was carried out during the environmental impact and risk assessment workshop(s) to identify environmental receptors and potential interactions between the activity and the receiving environment. The existing environment in the region is described in Section 2.11. The interactions, or environmental aspects associated with this activity have been identified as shown in Table 6-1.

Based upon an understanding of the environmental aspects, impacts and risks were defined and ecological and social receptors identified enabling a systematic evaluation to be undertaken. Feedback received during relevant person consultation (as detailed in Section 4) has been incorporated into the aspects, receptors, impacts and risks identification and evaluation.

## 5.4 Environmental impact assessment

Environmental impacts, or consequences, are evaluated in terms of the degree of the effects and the sensitivity of the environment and the community. Esso evaluates three effects dimensions (scale, duration, and intensity) (Table 5-2 and Table 5-4) and three environmental sensitivity dimensions (irreplaceability, vulnerability, and influence) (Table 5-3 and Table 5-5).

The determination of impact severity involves evaluating each dimension as lower, moderate, or higher based on qualitative descriptions. Once each dimension is evaluated, results for effect and sensitivity are compared against interpretive criteria to define the overall environmental and public impact consequence level (Table 5-6). These determinations are made during the environmental impact and risk assessment workshop(s).

**Table 5-2 Evaluation of environmental effect dimensions**

| Effect dimension | Value | Description |
|---|---|---|
| Duration | Short-term (lower) | Hours to days; effects highly transitory. |
| | Medium-term (moderate) | Weeks to months. Trigger/cause is temporary; effects decline over time. For chemicals, consider persistence, breakdown product, and bioaccumulation potential in determining effects duration. |
| | Long-term (higher) | Years; effects are ongoing. For chemicals, consider persistence or bioaccumulation potential in determining effects duration. |

| Effect dimension | Value | Description |
|---|---|---|
| Size/scale | Localised (lower) | Within or near an operational site, facility, etc.; affecting an area similar to or smaller than a typical operational site (for small and/or mobile sources); effects are physically contained/controlled; not a significant portion of any sensitive area. |
| | Moderate | Affecting an area significantly larger than a typical operational site, facility, etc.; a significant portion of a habitat, watershed or single ecological area; a significant portion of the range or occurrence of a population of a species. |
| | Widespread (higher) | Encompassing entire ecosystems, watersheds, or bioregions (landscape-scale); affecting most of the global range or occurrence of a species; having a noticeable impact on corporate-level environmental performance reporting. |
| Intensity | Minor (lower) | Minor changes to wildlife, habitat, water occurrence/drainage, or vegetation; low density. For chemical effects: low concentration or hazard* potential. |
| | Moderate | Moderate or partial changes to habitat, water occurrence/flow, ground cover, ground stability, vegetation or wildlife. For chemicals, moderate concentrations, bioaccumulation or hazard* potential; sub-lethal, non-reproductive direct or indirect effects on organisms. |
| | Significant (higher) | Notable changes to, fragmentation of, or elimination of habitat, water drainage/features, ground cover, ground stability, vegetation, and/or wildlife; for chemicals, high concentrations, bioaccumulation, or hazard* potential. Significant direct or indirect survival and/or reproductive effects on organisms. |

* Chemical hazard generically includes radioactivity, reactivity, toxicity, carcinogenicity, mutagenicity, pathogenicity, reproductive effects potential, etc.

**Table 5-3 Evaluation of sensitivity dimensions**

| Sensitivity dimension | Value | Description (applies to species, ecosystem, and/or ecosystem features/functions/services, all at same scale as consequence) |
|---|---|---|
| Irreplaceability | Lower | Common, plentiful. |
| | Moderate | Less common or plentiful, but not rare or unique. |
| | Higher | Unique or rare. |
| Vulnerability | Lower | Healthy, resilient, unthreatened, undamaged, or no remaining natural elements (such as some industrial settings). |
| | Moderate | Moderately resilient, existing stress or damage not significantly impairing function. Sustainable demand on resources/services. |

| Sensitivity dimension | Value | Description (applies to species, ecosystem, and/or ecosystem features/functions/services, all at same scale as consequence) |
|---|---|---|
| | Higher | Not resilient or capable of recovery, highly stressed, threatened and/or endangered, functions/services failing (such as collapsing fishery). |
| Influence | Lower | Providing few or no services (supporting, regulating, provisioning, cultural). |
| | Moderate | Considered moderately important, providing a range of ecological, cultural, social, or commercial services for humans and biodiversity. |
| | Higher | Highly productive and/or biodiverse, critical for human well-being (such as subsistence), functions/services provide critical support for key human/biological communities (such as clean water), considered highly important by public. |

In addition to the environmental impact evaluation, Esso also evaluates the severity of impacts on socioeconomic receptors such as fisheries and cultural heritage, using the community impact severity interpretation outlines in Table 5-4 and Table 5-5.

The determination of community impact severity involves evaluating each dimension as lower, moderate, or higher based on qualitative descriptions. Once each dimension is evaluated, results for effect and sensitivity are compared against interpretive criteria to define the overall environmental and public impact consequence level (Table 5-6).

This Environmental Impact Identification process is undertaken as part of the environmental impacts and risk assessment workshops.

**Table 5-4 Evaluation of community effect dimensions**

| Effect dimension | Value | Description |
|---|---|---|
| Duration | Short term (lower) | Hours to days; effects highly transitory |
| | Medium term (moderate) | Weeks to months. Trigger/cause is temporary; effects decline over time. |
| | Long term (higher) | Years; effects are ongoing, persistent. |
| Size/scale | Localised (lower) | Limited to the close surroundings of an operating site, facility, etc.; affecting an area similar to or smaller than a typical operational site (for small and/or mobile sources); effects are physically contained/controlled; affecting less than 100 people. |
| | Moderate | Affecting an area significantly larger than a typical operating site, facility; affecting between 100 - 1000 people. |
| | Widespread (higher) | Affecting a large portion of the community of several communities; affecting more than 1000 people. |

| Effect dimension | Value | Description |
|---|---|---|
| Intensity | Minor (lower) | Minor changes to local demographics; low level of immigration; no or small number of resettlements (less than approximately 10 households/businesses); no or minor changes to social status, education, livelihood/income and/or community safety and security; minor effects on availability/accessibility of local goods and services; minor changes to natural and/or cultural resources (water supply, fisheries, foraging/hunting grounds, erosion protection, recreational, spiritual or cultural heritage sites, etc.) no or minor changes to local customs, traditions and lifestyles. |
| | Moderate | Moderate changes to local demographics; moderate level of immigration; moderate number of resettlements (less than approximately 10 - 100 households/businesses); moderate changes to social status, education, livelihood/income and/or community safety and security not significantly affecting lifestyle; moderate effects on availability/accessibility of local goods and services; moderate changes to natural and/or cultural resources not significantly affecting functionality (water supply, fisheries, foraging/hunting grounds, erosion protection, recreational, spiritual or cultural heritage sites, etc.); moderate changes to local customs, traditions and lifestyles not significantly affecting cultural identity. |
| | Significant (higher) | Notable changes to local demographics; high level of immigration; high number of resettlements (greater than 100 households/businesses); significant changes to social status, education, livelihood/income and/or community safety and security notably affecting lifestyle; notable effects on availability/accessibility of local goods and services; notable changes to natural and/or cultural resources significantly affecting functionality (water supply, fisheries, foraging/hunting grounds, erosion protection, recreational, spiritual or cultural heritage sites, etc.); notable changes to local customs, traditions and lifestyles significantly affecting cultural identity. |

**Table 5-5 Evaluation of community sensitivity dimensions**

| Sensitivity dimension | Value | Interpretation (applies to communities or members of the community at the same scale as effect) |
|---|---|---|
| Irreplaceability | Lower | Average livelihood or income exceeds basic needs; diverse sources of livelihood/income (diverse commercial enterprises/jobs and/or diverse effective forms of agriculture/subsistence); essential goods and services readily available. |
| | Moderate | Average livelihood or income meet but do not significantly exceed basic needs; moderately diverse sources of livelihood/income (moderate diversity of commercial enterprises/jobs and/or of effective forms of agriculture/subsistence); essential goods and services moderately available (quantity/accessibility moderately limited). |
| | Higher | Average livelihood or income barely meet or do not meet basic needs; Few or limited sources of livelihood/income (e.g. few if any |

| Sensitivity dimension | Value | Interpretation (applies to communities or members of the community at the same scale as effect) |
|---|---|---|
| | | commercial enterprises/jobs and/or few effective forms of agriculture/subsistence). Essential goods and services not or rarely available. |
| Vulnerability | Lower | No presence of marginalized or disadvantaged people, groups, or sub-groups (e.g. local indigenous peoples); natural and/or cultural resources (water supply, fisheries, traditional hunting/foraging grounds, erosion barriers, cultural heritage/recreational areas, spiritual sites, etc.) are healthy, resilient and undamaged; local culture and heritage (cultural identity) well integrated into present lifestyle. |
| | Moderate | Presence of moderately marginalized or disadvantaged people, groups, or sub-groups (e.g. local indigenous peoples); natural and/or cultural resources (water supply, fisheries, traditional hunting/foraging grounds, erosion barriers, cultural heritage/recreational areas, spiritual sites, etc.) show existing stressor damage not significantly impairing function; present lifestyle in moderate conflict with local culture and heritage (cultural identity). |
| | Higher | Presence of highly marginalized or disadvantaged or disadvantaged people, groups, or sub-groups (e.g. local indigenous peoples); natural and/or cultural resources (water supply, fisheries, traditional agriculture/hunting/foraging grounds, erosion barriers, cultural heritage/recreational areas, spiritual sites, etc.) show existing stress or damage significantly impairing function (e.g. collapse of fisheries, eroded stormwater protection, etc.); present lifestyle in notable conflict with local culture and heritage (cultural identity at threat of dispersal). |
| Social structure | Lower | Homogeneous cultural identity; no pronounced social group structure or social groups are non-adverse/share common cultural identity; local hierarchy well established and stable; low crime rate; internal community conflicts addressed in a measured manner; social support and benefits (security, education, medical care, etc.) available and accessible via local offices/institutions or designated representatives, etc. |
| | Moderate | Moderately homogeneous cultural identity; various cultural identities (e.g. tribes/clans) are well integrated and mostly non-adverse; moderate crime rate; internal community unrests/conflicts result in isolated confrontations without significant impairment to community safety; social support and benefits (security, education, medical care, etc.) moderately available and accessible via local offices/institutions or designated representatives, etc. and/or moderately effective (limited staffing, several hours travel time, moderate reliability, etc.). |
| | Higher | Highly inhomogeneous cultural identity; dominant cultural identities (e.g. tribes/clans) display significant confrontational tendencies; high crime rate; internal community unrests/conflicts significantly impair |

| Sensitivity dimension | Value | Interpretation (applies to communities or members of the community at the same scale as effect) |
|---|---|---|
| | | community safety; basic human rights for others not regarded; social support and benefits (security, education, medical care, etc.) mostly unavailable or inaccessible and/or mostly ineffective (multiple days travel time, low reliability, etc.). |

During the Environmental Impact Identification, the environmental and community effects are considered together and assessed to give the worst-case inherent consequence rating (impact or risk without controls in place). Controls are then established and recorded for each of the identified impacts and risks in Section 6 and Section 6.3 and the overall residual determination of the environmental and public impact consequence is recorded. The outcome of the assessment for each aspect is provided in the residual consequence assessment sub-section in Section 6 and Section 6.3 and summarised in Table 6-1 and Table 7-2. An impact or risk may have either an environmental consequence or a community (public impact) consequence, or both. If an impact or risk has both consequences, the higher of the two consequence levels is applied.

The controls adopted to reduce and manage the inherent consequence levels are listed for each impact and risk in Section 6 and Section 7 and then detailed with environmental performance objectives, standards and measurement criteria in each Section.

Socioeconomic (public impact) consequence (e.g. impact on commercial fisheries) is defined in four Consequence Levels, I-IV by the scope of the disruption and the size of the population affected as shown in Table 5-6.

**Table 5-6 Determination of environmental and public impact consequence**

| Consequence Level | Environmental impact | Public impact | Interpretative examples of environmental consequence dimension considerations |
|---|---|---|---|
| I | Widespread, long term, significant adverse effects; Major emergency response, months to years to clean-up. | • Extended (> three months) national or international media coverage.<br>• Large community disruption or evacuation (>1,000 people).<br>• Closure of major transportation route >24 hours. | Sensitivity of receptors are higher. Effects are longer term and widespread and/or of a higher intensity. |
| II | Localised, medium term, significant adverse effects; Intermediate Emergency response, weeks to months to clean-up | • National media coverage.<br>• Medium community disruption or evacuation (100–1,000 people).<br>• Closure of major transportation <24 hours. | Sensitivity of receptors are moderate or higher. Effects are medium to long term and/or have a moderate to higher intensity. |
| III | Short term, minor adverse effects, Local emergency response, days | • Public complaints; small community impact (<100 people). | • Sensitivity of receptors are lower to moderate. Effects are medium term and/or moderate intensity, or |

| Consequence Level | Environmental impact | Public impact | Interpretative examples of environmental consequence dimension considerations |
|---|---|---|---|
| | to weeks clean-up | • Closure of secondary transportation route <24 hours.<br>• Tier 1 Process Safety Event. | • Sensitivity of receptors is lower, but effects are longer term/higher intensity, or<br>• Effects are localised, short term and/or low intensity, regardless of receptor sensitivity. |
| IV | Inconsequential or no adverse effects; Confined to site or close proximity | • Public complaint.<br>• Temporary closure of minor transportation route.<br>• Minor inconvenience. | Sensitivity of receptors are lower. Effects are generally short term, localised and of low to moderate intensity. |

## 5.5 Environmental risk assessment

### *5.5.1 Determination of consequence*

When assessing the consequence of an unplanned event, the same methodology is used as for determining the consequence of a planned event (as described in Section 5.4).

### *5.5.2 Determination of likelihood*

Once the most severe environmental consequence of an unplanned event is assessed, the probability of the unplanned event occurring is assessed. This is done by assessing the probability for each failure, event, or condition necessary to produce the impact.

In order to ensure that the highest possible risk is identified, scenarios with a lower severity consequence but higher probability and potentially a higher overall risk are also considered. The five categories of likelihood are as shown in Table 5-7.

**Table 5-7 Likelihood Categories**

| Likelihood Category | Qualitative interpretation guidance | Quantitative interpretation guidance (probability of occurring per year of exposure) |
|---|---|---|
| A | Very likely<br>Similar event has occurred once or more at site in the last 10 years. Has happened several times at site or many times in Company. | 0.1 to 1 |
| B | Somewhat likely<br>Has happened once before at site or several times in Company. | 0.01 to 0.1 |
| C | Unlikely<br>Has not happened before at site or has happened a few times in Company. | 0.001 to 0.01 |

| Likelihood Category | Qualitative interpretation guidance | Quantitative interpretation guidance (probability of occurring per year of exposure) |
|---|---|---|
| D | Very unlikely<br>Have been isolated occurrences in Company or has happened several times in industry. | 0.0001 to 0.001 |
| E | Very highly unlikely<br>Has happened once or not at all in Company. Has happened a few times or not at all in industry. | <0.0001 |

### *5.5.3 Determining significance of risk*

The combination of consequence severity and likelihood of occurrence determines the level of risk. The risk framework considers existing controls when determining risk. The overall risk category is given on the basis of the likelihood of the consequence occurring after application of the control measures. The effectiveness of control measures is considered when determining the likelihood of events with control measures in place, i.e. factors such as functionality, availability, reliability, survivability, independence and compatibility of control measures, are considered.

Risk is classified into four Risk Categories (refer to Figure 5-1). The significance of each Risk Category is as follows:

- **Category 1 Risk:** A higher risk that should have specific controls established in the short term and be reduced as soon as possible.
- **Category 2 Risk:** A medium risk that should be reduced unless it is not 'reasonably practicable' to do so. Reasonably practicable is:
    - the level of resource expenditure is not significantly disproportionate in relation to the resulting decrease of risk.
- **Category 3 Risk:** A medium risk that should be reduced if 'lower cost' options exist to do so. Lower cost denotes follow-up work that can be completed without:
    - allocating extensive engineering, technical, and operations resources, or
    - the need for unit shutdowns or activities which may introduce other risks or use resources that may be more appropriately used to address higher risk category items.
- **Category 4 Risk:** A lower risk that is expected to be effectively managed in base Operations Integrity Management System (OIMS) practices:
    - typically requires 'No Further Action'
    - risk control measures that are in place to manage the risk should be continued.

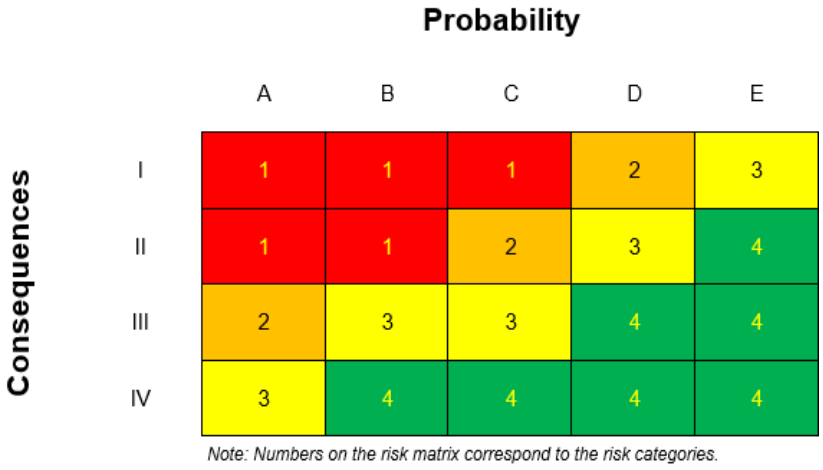



**Figure 5-1 Risk matrix**

## 5.6 Demonstration of As Low As Reasonably Practicable

Control measures are selected to reduce either the consequence of an impact or risk, or the likelihood of an unplanned event occurring. Control measures that are required by legislation are adopted regardless of the evaluated impact or risk level. In some cases, the risk or impact level will be so low that no control measures can be identified which reduce the consequence or probability further.

Regulation 21(5)(c) of the Environment Regulations requires that the EP detail how the control measures will be used to reduce the impacts and risks of the activity to ALARP and to an acceptable level.

ALARP means that the cost involved in reducing the risk further would be grossly disproportionate to the benefit gained. The ALARP principle arises from the fact that infinite time, effort and money could be spent attempting to reduce a risk or impact to zero. Where good practice controls measures do not sufficiently reduce the risk or impact level, consideration of additional control measures may be required, including undertaking an assessment of impacts or risks, costs and environmental benefits for identified control measures.

NOPSEMA's guideline *Environment Plan decision making* (NOPSEMA, 2024e) states that in order to demonstrate ALARP, a titleholder must:

> *"adopt additional control measures or increase effectiveness of existing control measures if the cost of doing so is not grossly disproportionate to the environmental benefit gained".*

There is no universally accepted guidance to applying the ALARP principle to environmental assessments. In alignment with NOPSEMA's guidance note *ALARP* (NOPSEMA, 2022), Esso has adapted the approach developed by Oil and Gas UK (OGUK) (OGUK, 2014) for use in an environmental context to determine the assessment technique required to demonstrate that potential impacts and risks are ALARP (Figure 5-2).

Specifically, the framework considers impact severity and several guiding factors:

- activity type
- risk and uncertainty
- relevant person influence.

Good practice controls, (as discussed in Section 5.6.1) are considered sufficient demonstration of ALARP in cases where the risk is relatively well understood, the potential impacts are low, activities are well practised, and there are no conflicts with company values nor significant media interest. This is referred to as Decision Context A.

An engineering risk assessment is required to demonstrate ALARP in cases where there is greater uncertainty or complexity around the activity and/or risk, the potential impact is moderate, it may attract local media attention and some persons may object. This is referred to as a Decision Context B.

A Decision Context C typically involves sufficient complexity, high potential impact, uncertainty, or relevant person influence to require a precautionary approach. In this case, relevant good practice still must be met, engineering risk assessment is required, and the precautionary approach applied for those controls that only have a marginal cost benefit.

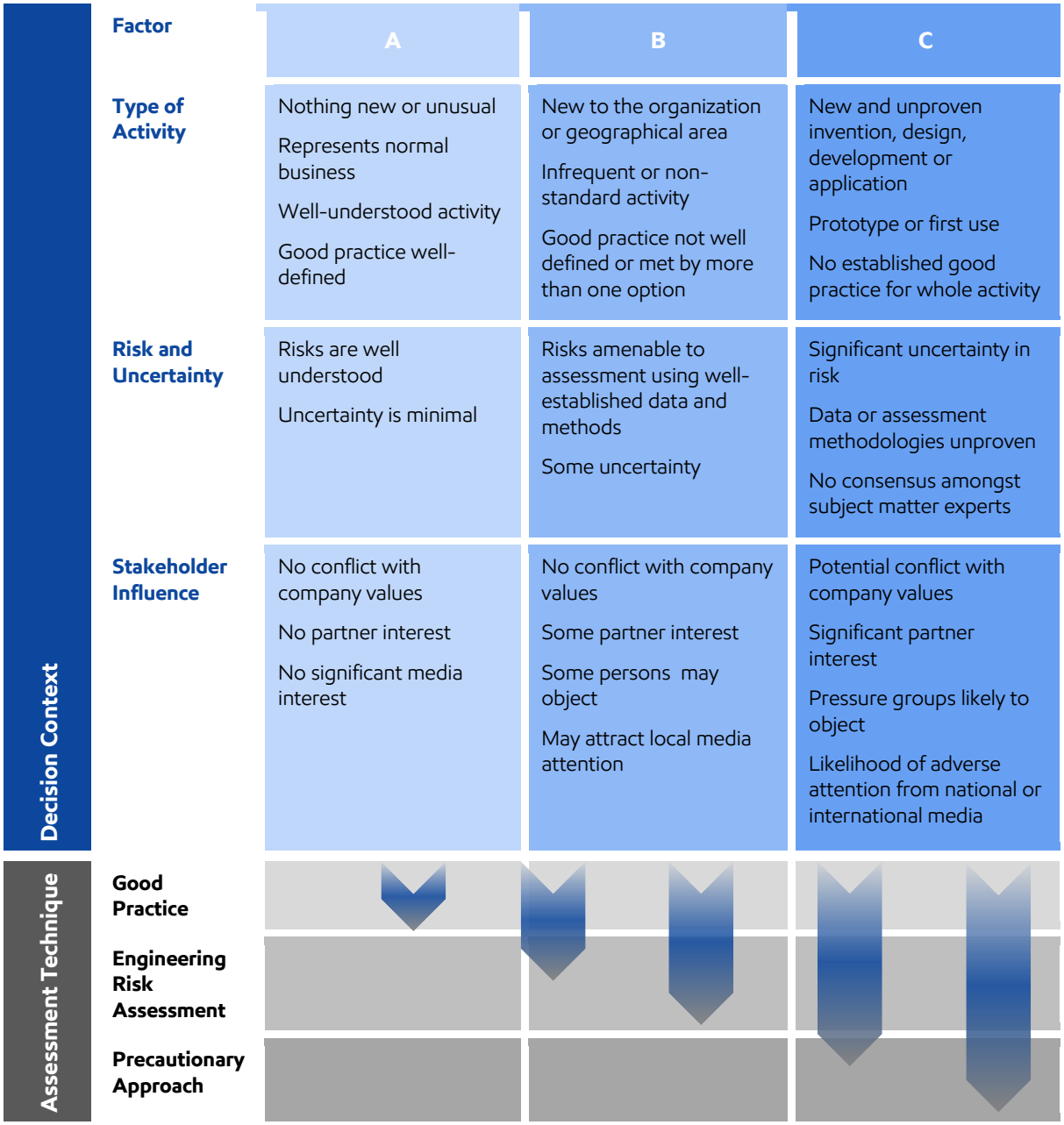



**Figure 5-2 ALARP decision support framework, based on OGUK (OGUK, 2014)**

The ALARP Decision Context has been identified for each aspect in Sections 6 and 6.3.

### *5.6.1 Good practice*

OGUK (OGUK, 2014) defines good practice as: "The recognised risk management practices and measures that are used by competent organisations to manage well-understood hazards arising from their activities".

Good practice can also be used as the generic term for those measures that are recognised as satisfying the law. For this EP, sources of good practice include:

- requirements from Australian legislation and regulations
- relevant Australian policies

- relevant Australian Government guidance
- relevant industry standards and/or guidance
- relevant international conventions.

If the ALARP technique is determined to be good practice (Decision Context A), further assessment (engineering risk assessment) is not required to identify additional controls. However, additional controls that provide a suitable environmental benefit for an insignificant cost are also identified at this point.

### *5.6.2 Engineering risk assessment*

All impacts and risks that require further assessment are subject to an engineering risk assessment (OGUK, 2014) in which a comparative assessment of risks, costs, environmental and socioeconomic benefit is conducted. A cost-benefit analysis should show the balance between the environmental benefit and the cost of implementing the identified measure.

### *5.6.3 Precautionary approach*

If the assessment, considering all available engineering and scientific evidence, is insufficient, inconclusive, or uncertain, then a precautionary approach to hazard management is needed (OGUK, 2014).

A precautionary approach will mean that environmental considerations are expected to take precedence over economic considerations, and a control measure that may reduce environmental impact is more likely to be implemented.

## 5.7 Demonstration of acceptable level

One of the objects of the Environment Regulations is to ensure that any petroleum activity carried out in an offshore area is carried out in a manner such that environmental impacts and risks will be of an acceptable level. This is also one of the key criteria for acceptance of an EP.

The acceptable level of environmental impact and risk for each receptor needs to be defined before the Environmental Performance Outcomes (EPOs) can be decided and the evaluation of those impacts and risks can take place.

An 'acceptable level' is the specified amount of environmental impact and risk that the activity may have which would not be inconsistent with relevant principles, not compromise management/conservation/protection objectives. The process involves the attainment of relevant person/wider-community views in defining acceptable levels.

Esso considers a range of factors when evaluating the acceptability of environmental impacts or risks associated with its activities. This evaluation works at several levels, as outlined in Table 5-8 and is based on NOPSEMA's guidance note on *Environment Plan content requirement* (NOPSEMA, 2025a).

These factors are used to demonstrate acceptability in Sections 6 and 6.3.

**Table 5-8 Demonstration of acceptability test**

| Factor | Demonstration of acceptability | |
|---|---|---|
| Risk assessment process for unplanned event | The level of environmental risk is either Category 2, 3 or 4. | |
| Consequence assessment for planned event | The level of environmental consequence is 3 or below. | |
| Principles of ESD | Principles of ESD as per EPBC Act Section 3A. | Applicability to this EP. |

| Factor | Demonstration of acceptability | |
|---|---|---|
| | Decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations. | This principle is inherently met through the EP assessment process. This principle is not considered separately for each acceptability evaluation. |
| | If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. | An evaluation is completed to determine if the activity will result in serious or irreversible environmental damage. Where the activity has the potential to result in serious or irreversible environmental damage, further assessment is undertaken to determine if there is significant uncertainty in the evaluation. |
| | The principle of inter-generational equity - that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. | Where the potential impacts and risk are determined to be serious or irreversible the precautionary principle is implemented to ensure the environment is maintained for the benefit of future generations. |
| | The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making. | Impact assessment is used to assess whether there are significant impacts to relevant receptors to ensure that biological diversity and ecological integrity is conserved. |
| | Improved valuation, pricing and incentive mechanisms should be promoted. | Not relevant to this EP. |
| Legislative and other requirements | All good practice control measures have been identified for the aspect.<br>Acceptable levels identified in relevant EPBC Act listed species recovery plans or approved conservation advices have been considered. Impacts and risks (where applicable) considered to be consistent with the requirements, expectations and principles of the relevant plans.<br>Impact and risk assessment considers if there are any MNES in the area of the activity and if so, undertakes the activity in a manner that will not have a significant impact on MNES as described by the significant impact criteria in *EPBC Act Policy Statement: Matters of National Environmental Significance - Significant impact guidelines 1.1* (DoE, 2013). This includes consideration of the activity in its broadest scope and where possible, adopts control measures to avoid or reduce impacts to MNES.<br>Undertake the activity in a manner that will not interfere with other marine users to a greater extent than is necessary for the reasonable exercise of right conferred by the titles granted, per OPGGS Act, Section 280. | |

| Factor | Demonstration of acceptability |
|---|---|
| Internal context | All Esso management system standards and impact or risk control processes have been identified for the aspect. |
| External context | Relevant person feedback has been considered during preparation of the EP. |

# 6 Environmental impact assessment

A discussion of the environmental impacts associated with the activity to be carried out under this EP, the assessed consequences and the control measures that will be implemented to reduce impacts to ALARP and acceptable levels, are presented in this section. Alternative controls identified and considered to ensure impacts are ALARP and comply with the acceptability criteria are also covered. EPOs, controls, Environmental Performance Standards (EPSs), and measurement criteria are provided for each aspect of the planned activities in each section.

The following definitions are used in this EP, as defined in Regulation 5 of the Environment Regulations:

- EPO – a measurable level of performance required for the management of environmental aspects of an activity to ensure that environmental impacts and risks will be of an acceptable level (i.e. a statement of the environmental objective)
- EPS – a statement of the performance required of a control measure
- Measurement criteria (not defined in the regulations) – defines the measure by which environmental performance used to determine whether the EPSs and EPOs have been met.

The interactions, or environmental aspects associated with this activity have been identified as shown in Table 6-1.

A summary of the Impacts and risk assessment is provided in Table 6-2 and shown in Figure 6-1.

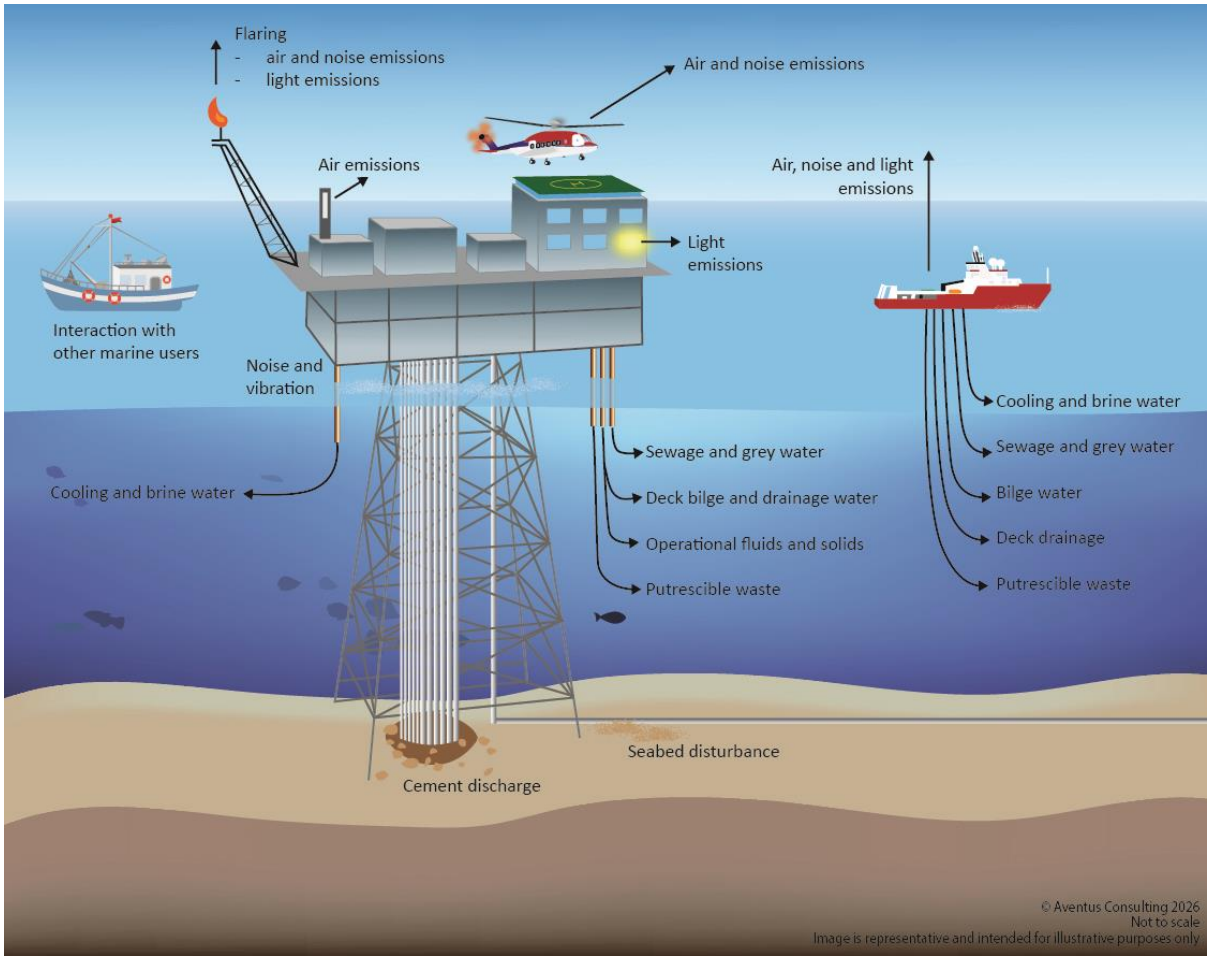



**Figure 6-1 Summary of impacts**

**Table 6-1 Summary of activity and aspect interactions**

| Activity | Physical presence – Seabed disturbance | Physical presence - Interaction with other marine users | Sound emissions | Light emissions | Air emissions | Planned discharge – Domestic wastes, equipment cooling and deck drainage | Planned Discharge – Operational fluids and solids | Planned discharge – Wellwork fluids and solids | Planned discharge (contingency) – PFW at MLB |
|---|---|---|---|---|---|---|---|---|---|
| Platform operations | - | Y | Y | Y | Y | Y | Y | - | C |
| Subsea facility operations | - | Y | - | - | - | - | - | - | - |
| Pipeline operations | - | Y | - | - | - | - | - | - | - |
| Wellwork | Y | Y | Y | - | Y | - | Y | Y | - |
| Facility IMR | Y | Y | Y | Y | Y | - | Y | - | - |
| Pipeline and subsea IMR | Y | Y | Y | Y | Y | - | Y | - | - |
| Support operations | Y | Y | Y | Y | Y | Y | Y | - | - |

Y = yes C = contingency dash = no

**Table 6-2 Summary impact assessment**

| Identifier | Hazard | Inherent Consequence Level | Residual Consequence Level |
|---|---|---|---|
| 1 | Physical presence - Seabed disturbance | IV | IV |
| 2 | Physical presence – Interaction with other marine users | IV | IV |
| 3 | Routine emissions - Sound | IV | IV |
| 4 | Routine emissions - Light | IV | IV |
| 5 | Routine emissions - Air | IV | IV |
| 6 | Routine discharge – Platform and vessel waste, drainage, Brine and domestic wastes, equipment cooling and deck drainage | IV | IV |
| 7 | Routine discharge – Operational solids and fluids | IV | IV |
| 8 | Routine discharge – Wellwork solids and fluids and solids | IV | IV |
| 9 | Routine discharge (contingency) – PFW at MLB | IV | IV |

## 6.1 Seabed disturbance

### *6.1.1 Source of Impact*

Seabed disturbance refers to physical changes or disruptions to the seabed caused by operational activities. The sources of seabed disturbance are listed in Table 6-3.

**Table 6-3 Sources of seabed disturbance**

| Activity | Applicable? | Source of seabed disturbance |
|---|---|---|
| Platform operations | **No** | N/A |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **Yes** | • Conductor cutting and pulling in the vicinity of a well.<br>• Use and parking of ROV on the seabed including temporary storage of tools and equipment. |
| IMR | **Yes** | • Excavation, pipeline repair, replacement of subsea infrastructure (includes sediment disturbance).<br>• Use and parking of ROV on the seabed including temporary storage of tools and equipment. |

| Activity | Applicable? | Source of seabed disturbance |
|---|---|---|
| | | • Marine growth removal. |
| Support activities | **Yes** | • Use and parking of ROV on the seabed including temporary storage of tools and equipment. |

### *6.1.2 Known and potential impacts*

The known and potential impacts associated with seabed disturbance are:

- changes in water quality
- changes to benthic habitats and communities
- change to tangible UCH values.

Receptors that may occur within this EMBA, either as residents or migrants, are:

- plankton
- benthic fauna
- benthic habitat
- demersal and pelagic fish.

### *6.1.3 Environment That May Be Affected*

The EMBA for seabed disturbance is restricted to facility OAs. However, potential effects are limited to the immediate vicinity (conservatively tens of metres) of the activity.

### *6.1.4 Evaluation of environmental impacts*

#### 6.1.4.1 Changes in water quality

Water quality changes occur when unconsolidated sediment becomes entrained in the water column following direct disturbance of the seabed, which may in turn indirectly affect benthic communities, mobile fauna and sessile flora/algae through an increase in turbidity and subsequent reduced light penetration near the seabed. The extent of impacts depends upon the duration, scale and intensity of the event, and resilience of the flora/fauna within the zone of effect.

McLean, et al. (2025) presents an assessment of information available from environmental surveys completed in the Gippsland Basin in 2021, 2022 and 2023, which included monitoring of locations adjacent to selected Esso offshore platforms and near-field and far-field reference locations. Their results indicate that the seabed sediments adjacent to these facilities comprise gravelly sands or gravelly muddy sands.

The environmental receptors with the potential for exposure and considered to be most sensitive to an increase in turbidity include demersal fish species, plankton and sessile filter feeders found around platform jackets, subsea facilities and on or alongside exposed pipelines. Fish are mobile and can avoid plumes, while plankton tend to be found near the surface and are unlikely to be affected by near-bed increases in turbidity. Filter-feeders attached to infrastructure (anemones and sponges) are acclimated to the variable turbidity regime associated with strong currents and are therefore unlikely to be affected by localised and short-term fluctuations in water quality.

When evaluating changes to water quality it is important to consider that the size of any plume generated is a function of the seabed composition and the scale and frequency of seabed disturbance. The largest footprints generally associated with subsea IMR and wellwork activities are setting down the ROV and conductor cutting. Setting down the ROV causes a temporary (minutes) disturbance resulting in a transient plume of suspended sediment and impacts a footprint of approximately 6 - 7m$^2$ for a work class ROV. This plume is subsequently deposited down current as particles resettle. Given the relative coarse grain size of seabed sediments and the short-term nature of disturbance events, only localised and temporary decreases to the seabed (and water quality) are expected. Therefore, impacts to the seabed from these activities are considered to have a Consequence Level IV rating.

Conductor cutting creates conical erosion over an area of approximately 5m$^2$ and a volume of 4.5m$^3$ around the conductor during cutting, for a duration of approximately 2 hours. This results in a localised plume of suspended sediment. Based on anecdotal information from an Esso Bass Strait post-conductor cutting ROV seabed survey, the area of disturbed seabed had returned to a pre-disturbance state within seven days. As such, impacts to the seabed from conductor cutting are considered to have a Consequence Level IV rating.

#### 6.1.4.2 Changes in benthic habitat and communities

Subsea IMR activities such as rectification, movement and preparation of seabed directly beneath pipelines and umbilicals may disturb the seabed. ROVs and other subsea equipment may also be temporarily landed on the seabed. The area of disturbance created by these activities has been estimated at 15m$^2$.

ROV visual surveys completed by AIMS recorded very little biota cover (0.5-1%) inhabiting natural seabed sediments (sand/mud/shells) within the WTN OA (McLean, et al., 2025). These surveys did however find biota density, complexity and diversity markedly higher on the platform itself (94% cover) and along the 13 subsea pipelines (15% to 95% benthic cover), depending on the extent of burial (average cover equals 71%), where data was captured. Like all other platforms surveyed in previous studies in this region, West Tuna possessed a high cover of *Cnidaria australis* (jewel anemone; 40% cover), and sponge biota in a variety of morphologies (52%), with sponges particularly prevalent at the base of the platform (71%). These results are similar to other Esso platforms in the region (McLean, et al., 2025).

Fish diversity and abundance was also significantly higher at the platform and along pipelines when compared to natural seabed sediments. These results are consistent with all previous research conducted by AIMS on infrastructure and in natural habitats of this region.

As stated above, the benthic habitat within the OAs and adjacent to pipelines is largely characterised by unconsolidated sediment and shelly seabed with infauna communities and sparse epibiota. These communities show natural small-scale variation (Cardno, 2022), are mostly homogenous with no areas of high value or sensitivity. Hard substrates are limited to subsea components of platforms and pipelines that support reef-like communities (McLean, et al., 2025).

The area of disturbance created by subsea IMR is limited to the immediate vicinity of the planned activities, which may result in a slight alteration of the local habitat (unconsolidated sediment) and mortality of flora, sessile fauna and benthic infauna within the activity footprint. Given the low cover and naturally homogenous nature of the habitats and communities in the OAs, recovery and recolonisation following direct physical disturbance is likely to be relatively fast (e.g. in a matter of weeks or months). Moreover, seabed sediments and infauna are widespread throughout the Gippsland Basin, and there will be no anticipated impacts to sensitive seabed habitats. Therefore, impacts to benthic habitats and communities from subsea IMR activities are considered to have a Consequence Level IV rating.

#### 6.1.4.3 Change to tangible underwater cultural heritage values

According to section 15 of the UCH Act, UCH is defined as:

> *(a) Any trace of human existence that:*
>
> *a. has a cultural, historical, or archaeological character; and*
>
> *b. is located underwater.*

Under the UCH Act specific UCH are automatically protected, including the remains and associated articles of vessels and aircraft that have been in Commonwealth waters for at least 75 years. First Nations UCH in Commonwealth waters, associated with dry land habitation on the submerged landscapes of the Australian continental shelf, can be declared by the Minister as protected upon discovery and significance assessment (DCCEEW, 2024f).

No protected UCH zones or articles have been identified within the ADE (see Section 3.2). Therefore, no impacts to protected UCH (e.g. maritime, aviation or archaeological sites, including First Nations) are expected.

Given the locations of the sediment disturbance are in close proximity to selected facility locations and pipelines, where the sediment has been previously disturbed upon installation, it is not considered likely

that unidentified archaeological artefacts may be discovered as a result of this activity. However parts of the OA are located within the boundary of land that may have been emergent during First Nations occupation (Extent Heritage and Wessex Archaeology, October 2024) and feedback during stakeholder consultation with First Nations groups indicated that '*offshore infrastructure removal risks damage to underwater heritage*'. As a result, to ensure this feedback is addressed, and the requirements of the UCH Act to notify the discovery of all suspected UCH and ensure actions do not result in an adverse impact to UCH, an Unexpected Finds Protocol will be in place.

Given the small sediment disturbance footprint associated with the activity, sediment disturbance only being located within previously disturbed areas and the absence of protected UCH zones or articles, a change to UCH values as a result of planned seabed disturbance is not predicted to occur. Therefore, impacts to UCH values resulting from seabed disturbance are considered to have a Consequence Level IV rating.

### *6.1.5 Impact assessment*

Table 6-4 presents the impact assessment for seabed disturbance.

**Table 6-4 Impact assessment for seabed disturbance**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Impact Consequence (inherent)** | | | |
| Consequence Level IV | | | |
| **Assessment of proposed Control Measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| Post-subsea IMR campaign ROV inspections are undertaken to confirm the location of equipment. | Confirms whether disturbance is confined to the OA. Reduces risk of disturbance to benthic habitats and communities | A post-campaign ROV inspection is a standard component of field work. | Adopted **(IMP01-CM01)** |
| Property that is left on the seabed is tracked and maintained so that it can be readily located for future removal. | Temporarily stored equipment is maintained so it can be removed in the future. Ensures that equipment does not deteriorate, meaning that it can be safely retrieved. Doing so ensures equipment can be removed so the seabed can be returned to its pre-disturbance state. | Equipment is maintained as part of routine operations. | Adopted **(IMP01-CM02)** |

| | | | |
|---|---|---|---|
| No equipment is left on the seabed post-subsea IMR campaigns. | The duration of seabed disturbance is minimised. | It is not always safe or technically feasible to retrieve equipment on the seabed, considerations include:<br>• risk to personnel<br>• whether the location of the equipment is in recoverable water depths<br>• equipment's proximity to subsea infrastructure<br>• ability to recover the equipment (e.g. nature of equipment, lifting equipment, suitable weather, etc.). | Partially adopted<br>**(IMP01-CM01)** |
| **Environmental controls and performance measurement** | | | |
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **IMP01-EPO01:**<br>Seabed disturbance is kept within the facility OAs (500m radius around platforms and subsea wells and 200m radius around pipelines). | **IMP01-CM01:**<br>An ROV will be used to inspect the seabed post-IMR campaign to identify any equipment that has been left on the seabed, which will be either removed (where technically feasible) or added to the SMR. | **IMPO1-EPS01:**<br>The location of equipment remaining on the seabed is confirmed. | ROV campaign reports verify location of equipment remaining on the seabed. |
| | **IMP01-CM02:**<br>The SMR is updated as per the *SMR Management Process* (AUGO-SS-PCE-001) to ensure it is accurate and maintained consistently. This includes:<br>• roles and responsibilities<br>• data sources<br>• minimum data requirements<br>• storage locations. | **IMP01-EPS02:**<br>Property that is left on the seabed can be readily located for future removal. | The SMR is maintained and up-to-date per the *SMR Management Process* ( (AUGO-SS-PCE-001) and verifies equipment, or infrastructure is stored within the OAs. |
| **Impact Consequence (residual)** | | | |
| Consequence Level IV | | | |

| Demonstration of ALARP | | |
|---|---|---|
| With the controls outlined in this table in place, the consequence has been assessed as Consequence Level IV (lower consequence) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual consequence further or would be grossly disproportionate to the residual consequence. Therefore, a Consequence Level IV residual impact consequence is considered to be ALARP. | | |
| **Demonstration of Acceptability** | | |
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | |
| **Legislative and other requirements** | There is no legislation associated with seabed disturbance.<br>UCH is protected from disturbance or adverse impacts by the Underwater Cultural Heritage Act 2018 (Cth).. | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls developed for this hazard are in line with the management measures listed for offshore marine use (physical disturbance) in Section 4.3.2 of the guidelines.<br>In addition, this EP addresses the point of undertaking an environmental assessment to identify protected areas and local sensitivities. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | Not applicable. There is no guidance in these guidelines regarding seabed disturbance. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Not applicable. There is no guidance regarding seabed disturbance. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls developed for this activity meet the code's following objectives for offshore drilling operations:<br>• to reduce the impacts to benthic communities to acceptable levels and to ALARP. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and* |

| | | |
|---|---|---|
| | | *apply responsible standards where laws and regulations do not exist*". |
| | Meets OIMS objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to qualify, evaluate and select contractors based on their ability to perform work in a safe, secure and environmentally sound manner. Contractors will be selected in accordance with Esso's OIMS procurement processes. |
| **External context** | No concerns have been raised by relevant persons regarding seabed disturbance. | |

## 6.2 Physical presence – Interference with other marine users

### *6.2.1 Source of Impact*

The pathways for interference with other marine users are summarised in Table 6-5.

This section deals with interactions in the socio-economic sense (e.g. displacement, change in function of other users). Interactions that may result in the risk of collision (and the potential release of diesel) is addressed in Section 7.6.

**Table 6-5 Pathways for interference with other marine users**

| Activity | Applicable? | Pathway of interaction with other marine users |
|---|---|---|
| Platform operations | **Yes** | Exclusion from fishing |
| Subsea facility operations | **Yes** | Exclusion from fishing |
| Pipeline operations | **Yes** | Exclusion from fishing |
| Wellwork | **Yes** | Movement of support vessels |
| IMR | **Yes** | Movement of support vessels |
| Support activities | **Yes** | Movement of support vessels |

The physical presence of the platforms and subsea infrastructure, together with the movement of vessels within the OAs, interact with other marine users such as commercial and recreational fishing vessels and merchant shipping vessels. However, because all the platforms and subsea infrastructure (with the exception of KPA and part of its pipeline) are within the ATBA, these interactions are very limited. The production facilities described in this EP have been in place for many decades (the oldest were installed in the late 1960s), so marine users frequently operating in eastern Bass Strait are familiar with the nature and locations of this infrastructure and aware of the navigation exclusions enforced by the ATBA.

Note that this section deals with interactions (e.g. displacement) in an environmental and socio-economic sense; collision risk (and potential diesel spill impacts) is addressed in Section7.6.

### *6.2.2 Known and potential impacts*

The known and potential impacts of interactions with other marine users are:

- changes to the function, interests or activities of other marine users by disruption to or exclusion of commercial activities (primarily fishing).

Disruption to commercial activities includes:

- diversion from navigation path (displacement of third-party vessels)
- exclusion of fishing access to OAs (500m around platforms and subsea wells and 200m around pipelines)
- obstacle to trawling (presence of wells, pipelines and other infrastructure).

Marine user receptors are:

- commercial fishing vessels
- merchant shipping vessels.

### *6.2.3 Environment That May Be Affected*

The EMBA for other marine user interactions is the 500m radius PSZs around each of the platforms and subsea wells (equivalent to 78.5ha, or 0.785km$^2$ or 0.303sq mi) and 200m radius OA around pipelines). For the production facilities, this equates to a total of 9978ha (99.8km$^2$ and 38.5sq mi), broken down as follows:

- platforms (x6) – 471ha (4.7km$^2$ or 1.8sq mi)
- subsea wells (x5, but clustered in two locations) – 157ha (1.57km$^2$ or 0.6sq mi)
- pipelines – 9350ha (93.5km$^2$ or 36.1sq mi)

### *6.2.4 Evaluation of impacts*

#### 6.2.4.1 Change to the function, interests or activities of other users – Shipping

Displacement of third-party vessels by the operations is unlikely to occur because the platforms are located within the ATBA. Vessels in excess of 200 gross tonnage are prohibited from unauthorised entry into the ATBA. The gazettal of the ATBA by government (access to the ATBA is currently managed by NOPSEMA) means that commercial shipping in Bass Strait is diverted away from Esso facilities to the shipping separation scheme to the immediate south of Esso's licence areas, which inherently reduces interactions (as seen in Appendix A, Figure A-82).

The ATBA is a well-recognised navigational feature of eastern Bass Strait. The shipping traffic illustrated in Figure 3-34 shows that non-Esso shipping traffic adheres to the ATBA and nearby traffic separation scheme. As such, the presence of infrastructure within the established PSZs will not result in further impacts to shipping.

#### 6.2.4.2 Change to the function, interests or activities of other users-other license/titleholders

As described in Section 3.2, there are other petroleum and GHG licence/titleholders in proximity to the ADE, and the MLB450-SNA pipeline overlaps a small portion of the offshore wind feasibility licence area FL-011 held by Navigator North Project Pty Ltd. This licence was granted in mid-2024.

Given Esso's Bass Strait facilities have been in place for many decades, the ongoing operation of these facilities does not change the functions, interests or activities of these other users. The FL-011 was granted in the knowledge of the locations of Esso's facilities, which is why FL-011 does not overlap with any platforms. The license holder of FL-011 will need to take into account the physical presence of the MLB450-SNA pipeline and other Esso infrastructure and vessel activity associated with it when they commence any on-water activities.

#### 6.2.4.3 Change to the function, interests or activities of other users – Fisheries

Production activity occurs year-round, however the overlap of the OAs with commercial fisheries is small (0.19% to 0.43% for Commonwealth fisheries and 2.1-4.1% for State fisheries, as per Table 3-2).

The PSZs are not preventing commercial fishing from taking place, with the following fisheries all active within the ADE (see Section 3.2):

- Commonwealth – CTS Danish seine, CTS otter board trawl, shark gillnet
- Victorian – Scallop, octopus, inshore trawl and ocean trawl.

Based on annual fishing records and the size of the fishing grounds, the PSZs do not result in a significant impact to fishing operations (via loss of catches, loss of fishing grounds or damage to fishing equipment).

As vessels face restrictions on access within the PSZs (see Section 2.1), the presence of the physical infrastructure has minor impacts to commercial fishing effort or catch.

### *6.2.5 Impact assessment*

Table 6-6 presents the impact assessment for the interaction with other marine users.

**Table 6-6 Impact assessment for interaction with other marine users**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Decision type** | A | | |
| **Activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Impact Consequence (inherent)** | | | |
| Consequence Level IV | | | |
| **Assessment of proposed Control Measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility Assessment** | **Adopt?** |
| PSZs are actively monitored by Esso to reduce interaction with other marine users. | Ensures safe operations for Esso and marine users and reduces likelihood of interactions with third parties. | PSZs have been in place for a long period of time, are a requirement of the OPGGS Act and are simple to monitor. | Adopted **(IMP02-CM01)** |
| IMR and subsea campaigns are communicated to Commonwealth maritime agencies and marine users. | Commercial fishers and maritime agencies are kept informed of ongoing activities so that they can plan to avoid interactions. | Esso's quarterly engagement forum has proven over many years to be an effective manner in which to communicate with commercial fishers.<br>Providing electronic communications to AMSA's Joint Rescue Coordination Centre to generate AUSCOAST warnings, and to the Australian Hydrographic Office so they can update fortnightly Notice to Mariners, has also proven an effective communication tool. | Adopted **(IMP02-CM02, CM03, CM04, CM05)** |

| Environmental Controls and Performance Measurement | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **IMP02-EPO01:** Interference with other marine users is avoided. | **IMP02-CM01:** Longford control room operators (using the collision avoidance radar system), monitor vessel traffic in the PSZs. | **IMP02-EPS01:** There are no interactions between other marine users and facilities or IMR and subsea campaign vessels. | Inspections verify that vessel traffic is monitored, and interactions are recorded when they occur. |
| | **IMP02-CM02:** Esso liaises with the Australian Hydrographic Office and provides campaign details (including location and timing) to enable the Australian Hydrographic Office to ensure temporary Notice to Mariners are issued. | | Communications records verify that Esso provided information to the Australian Hydrographic Office prior to IMR and subsea campaign activities. |
| | **IMP02-CM03:** Esso or vessel operator notifies the AMSA Joint Rescue Coordination Centre (JRCC) prior to vessel operations commencing outside PSZs, to enable AMSA to distribute an AUSCOAST warning. | | Communications records verify that Esso or vessel operator provided information to the Joint Rescue Coordination Centre before any operations outside established PSZs commenced. |
| | **IMP02-CM04:** Commercial fisheries are notified of Esso operations activities via the ongoing quarterly engagement forum. | | Relevant persons consultation records and minutes of quarterly engagement sessions verifies that information was distributed to relevant persons. |
| | **IMP02-CM05:** SMS updates are issued to the eastern fishing fleet advising of vessel movements and activities being performed outside the PSZ. | | SMS records containing vessel movements verify communication with the eastern fishing fleet. |
| **Impact Consequence (residual)** | | | |
| Consequence Level IV | | | |
| **Demonstration of ALARP** | | | |
| With the controls outlined in this table in place, the consequence has been assessed as Consequence Level IV (lower consequence) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual consequence further or would | | | |

<table>
<tr><td colspan="3">be grossly disproportionate to the residual consequence. Therefore, a Consequence Level IV residual impact consequence is considered to be ALARP.</td></tr>
<tr><th colspan="3">Demonstration of Acceptability</th></tr>
<tr><td>Principles of ESD</td><td colspan="2">The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant).</td></tr>
<tr><td>Legislative and other requirements</td><td colspan="2">The controls outlined in this table align with the requirements of:<ul><li>OPGGS Act, Section 280 - requires that a person carrying on activities in an offshore area under the permit, lease, licence, authority or consent must carry on those activities in a manner that does not interfere with navigation or fishing (among others) to a greater extent necessary than for the exercise of the rights conferred by titles granted</li><li>Rule 10 of COLREGs – Governs how vessels must navigate within and around traffic separation schemes which are established in busy or hazardous areas to reduce collision risks. Vessels less than 20m in length are exempt but must avoid interference</li><li>Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth)</li><li>Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 (Cth)</li><li>The Making of Offshore Man-made Structures (IALA, 2021).</li></ul></td></tr>
<tr><td rowspan="4">Industry practice</td><td colspan="2">The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity.</td></tr>
<tr><td>Environmental management in the upstream oil and gas industry (IPIECA-IOGP, 2020)</td><td>The controls developed for this hazard are in line with the management measures listed for offshore physical presence in Section 4.3.1 of the guidelines, which include:<ul><li>develop exclusion zones in consultation with key stakeholders, including local fishing communities; raise awareness of exclusion zones with all stakeholders (IMP02-CM02)</li><li>issue a Notice to Mariners through the relevant government agencies, detailing the area of operations (IMP02-CM02)</li><li>optimise vessel use to ensure the number of vessels required and length of time that vessels are on site is as low as practicable.</li></ul></td></tr>
<tr><td>Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production (European Commission, 2019)</td><td>There is no specific guidance regarding interference with marine users.</td></tr>
<tr><td>Environmental, Health and Safety</td><td>The controls listed in this table meet these guidelines with regard to:</td></tr>
</table>

| | | |
|---|---|---|
| | *Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | • ship collision (item 121). The relevant maritime, port, or shipping authority should be notified of all permanent offshore facilities, as well as safety zones **(IMP02- CM02)**<br>• ship collision (item 122). A subsea pipeline corridor safety zone should be established to define anchoring exclusion zones and provide protection for fishing gear.<br>Offshore pipeline exclusion zones are not granted in Australia. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls for this activity meets the code's following objectives for development and production:<br>• to reduce the impact on other marine resource users to ALARP and to an acceptable level<br>• to reduce risks to public safety to ALARP and an acceptable level. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to "comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist". |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 10-1 objective to maintain public awareness and confidence in the Operations Integrity (OI) of operations and facilities. |
| **External context** | No concerns have been raised by relevant persons regarding interactions with infrastructure or vessels.<br>Esso consulted with AMSA regarding legislative control measures. | |

## 6.3 Sound emissions

### *6.3.1 Source of impact*

This section evaluates the impacts associated with underwater sound emissions generated by operational activities. The sources of underwater sound are identified in Table 6-7.

**Table 6-7 Sources of underwater sound emissions**

| Activity | Applicable? | Source of sound emissions |
|---|---|---|
| Platform operations | **Yes** | • Onboard rotating and vibrating equipment and machinery (e.g. generators).<br>• Non-routine flaring. |
| Subsea facility operations | **No** | N/A |

| Activity | Applicable? | Source of sound emissions |
|---|---|---|
| Pipeline operations | **No** | N/A |
| Wellwork | **Yes** | Conductor cutting and removal. |
| IMR | **Yes** | ROV impellers, subsea cutting, grinding. |
| Support activities | **Yes** | Vessel DP thrusters, onboard machinery, helicopter rotor operations. |

#### 6.3.1.1 Context

The activities listed in Table 6-7 contribute to and have the potential to exceed ambient underwater noise levels in and extending beyond the OAs. Key acoustic sources, category (continuous or impulsive), estimated regularity and duration of sound associated with activities are summarised in Table 6-8 and described in the following subsections.

**Table 6-8 Summary of underwater sound sources**

| Activity and sound source | Sound category | Regularity | Duration |
|---|---|---|---|
| Platform activities | Continuous | 24 hours a day | Life of facility |
| Non-routine platform flaring | Continuous (when flaring) | As required, but irregular | Zero to five days |
| Wellwork operations – Conductor cutting and removal | Continuous | As required, but irregular | Approximately 12 days each campaign depending on the number of conductors to be cut |
| Pipeline and subsea facility IMR - Underwater cutting/drilling/grinding | Continuous | As required | Between 1 - 10 days each campaign |
| Pipeline and subsea facility IMR - Visual inspection utilising SSS, MBES, SBP | Impulsive | Undertaken every three or six years | Approximately 12 days each campaign |
| Pipeline and subsea facility IMR - USBL transponders | Impulsive | As required | Several hours while ROV in use |
| Support operations - Vessel DP thrusters, onboard machinery | Continuous | As required | Several hours while providing transfer operations |
| Support operations – ROV | Continuous | As required | Several hours while ROV in use |
| Support operations – Helicopters | Continuous | Two to four flight runs per day on average | Approximately 12.5 minutes each trip while in the OA |

The acoustic terms used throughout this Section are defined in Table 6-9.

**Table 6-9 Acoustic terminology**

| Term | Definition |
|---|---|
| Sound | A time-varying pressure disturbance generated by mechanical vibration waves travelling through a fluid medium such as air or water. |
| Decibel (dB) | Sound is measured on a logarithmic scale that expresses the ratio of two values of a physical quantity. It is used to measure the amplitude or 'loudness' of a sound. As the dB scale is a ratio, it is denoted relative to some reference level, which must be included with dB values if they are to be meaningful. The reference pressure level in underwater acoustics is 1 micropascal (µPa), whereas the reference pressure level used in air is 20µPa, which was selected to match human hearing sensitivity.<br>As a result of these differences in reference standards, sound levels in air are not equal to underwater levels.<br>There are four main metrics for underwater sound (ISO/DIS 18405.2:2017) – SEL, SPL, PK and PK-PK, all described in this table. |
| Frequency | The rate of oscillation of a periodic function measured in cycles-per-unit-time. The reciprocal of the period.<br>Unit: hertz (Hz). 1Hz is equal to 1 cycle per second. |
| Source level | A measure of sound pressure at a nominal distance of 1 m from a theoretical point source that radiates the same total sound power as the actual source.<br>Source level can be expressed as an SPL, SEL or PK.<br>Unit: dB re 1µPa$^2$m$^2$ (pressure level) or dB re 1µPa$^2$m$^2$s (exposure level). |
| Impulse/Pulse | The terms used to refer to the discharge of a sound source are impulse and pulse, therefore the terms used to describe a single discharge are per-impulse or per-pulse. |
| Sound exposure level (SEL) | A measure related to the sound energy in one or more pulses, or the ratio of the time-integrated squared sound pressure to the specified reference value.<br>Unit: dB re 1µPa$^2$s. |
| Peak-to-peak sound pressure (PK-PK)<br>Impulsive sounds | Sum of the peak compressional pressure (highest pressure variation) and the peak rare factional pressure (lowest pressure variation) during a specified time interval. PK-PK is the difference between the minimum and maximum instantaneous sound pressure levels in a stated frequency band attained by an impulsive sound.<br>Unit: dB re 1µPa. |
| Zero-to-peak sound pressure (PK) | The greatest magnitude of the sound pressure during a specified time interval. The PK levels are modelled to assess mortality and potential mortality to fish larvae and eggs, fish and turtles. A simple sound wave and three common methods to characterise the loudness of sounds, including zero-to-peak sound pressure.<br>Unit: dB re 1µPa. |

| Term | Definition |
|---|---|
| Root-mean-square sound pressure level (SPL) | The decibel ratio of the time-mean-square sound pressure, in a stated frequency band, to the square of the reference sound pressure over the duration of the acoustic event (i.e. the duration of a single sound pulse).<br>Because the SPL represents the effective sound pressure over the full duration of the acoustic event rather than the maximum instantaneous peak pressure (PK or PK-PK), it is regularly used to represent the effective or perceived loudness of a sound and to assess the potential for a behavioural response from marine fauna.<br>Unit: dB re 1µPa. |
| Temporary threshold shift (TTS) in hearing | TTS is the temporary loss of hearing sensitivity caused by excessive noise exposure.<br>Exposure to sufficiently intense sound may lead to an increased hearing threshold in any living animal capable of perceiving acoustic stimuli (Finneran J. , 2016). If this shift is reversed and the hearing threshold returns to normal, the effect is called a TTS. The onset of TTS is often defined as threshold shift of 6dB above the normal hearing threshold (GLaWAC, 2023).<br>Impairment to the hearing apparatus of a marine animal may result from a fatiguing stimulus measured in terms of SEL, which considers the sound level and duration of the exposure signal. Intense sounds may also damage the hearing apparatus independent of duration, so an additional metric of PK is needed to assess acoustic exposure impairment risk. |
| Permanent threshold shift (PTS) in hearing<br>Auditory Injury | PTS is the permanent loss of hearing sensitivity caused by excessive noise exposure. It is considered an auditory injury. If a temporary threshold shift (TTS) does not return to normal, the residual shift is called a PTS.<br>As discussed in (NMFS, 2024) and (Accomando, et al., 2024) intense noise exposures can cause auditory injury (represented by auditory injury). In this EP, auditory injury is used interchangeably. However, it is acknowledged that auditory injury may occur without PTS. |
| Behavioural response | The context of sound exposure plays a critical and complex role in behavioural responses in marine mammals (Gomex, et al., 2016). For example, different species (and different individuals or groups within a species) may respond differently to varying levels of sound depending on their behaviours and motivation at the time (depending on whether they're foraging, socialising, resting or mating) and other factors such as the type of sound, duration of exposure, and the suddenness of the onset of the received sound (Ellison, Southall, Clark, & Frankel, 2012) (Gomex, et al., 2016).<br>The National Marine Fisheries Service (a division of the National Oceanic and Atmospheric Administration (NOAA)) in the USA uses an impulsive noise criteria threshold of 160dB re 1µPa (SPL) for potential behavioural disturbance to marine mammals (NOAA, 2019). The threshold for behavioural response represents the level at which a moderate behavioural response may occur, such as changes in swimming speed, direction and dive profile, localised deviations in migratory patterns, brief to moderate shift in group distribution, short term cessation or modification of vocal behaviour (Finneran J. , Auditory weighting functions and TTS/PTS exposure functions for marine mammals exposed to underwater noise., 2016) (Southall, et al., 2007) (Tyack, 2008). Avoidance, however, is not directly related to sound level thresholds but also influenced by the state of the individuals (e.g. their reproductive, health and foraging condition) and the context of exposure. It is considered that avoidance behaviour represents only a minor effect on either |

| Term | Definition |
|---|---|
| | the individual or the species unless avoidance results in displacement of whales from areas of biological importance such as nursery, resting or feeding areas during an important period for the species.<br><br>Higher received levels are not always associated with stronger behavioural responses and vice versa, and a clear dose-response relationship has not been identified (Southall, et al., 2007). In addition, a behavioural response does not necessarily equate to a significant avoidance or deviation in cetacean movements that would displace individuals or the population from the wider area. Similarly, proximity of the animal to the sound source, irrespective of received level, has been identified as an influencing factor, with behavioural response in humpback whales being both dependent on the proximity of whale to the vessel source and also the received level (i.e. at the same received level no behavioural response was detected when the source was greater than 3km away) (Dunlop R. , 2016). |
| Masking | Acoustic masking may occur when a noise impedes the ability of an animal to perceive a signal (Erbe, Reichmuth, Cunnigham, Lucke, & Fooling, 2015) (Wood, Southall, & Tollit, 2012). For this to occur the noise must be loud enough, have similar frequency content to the signal, and must happen at the same time (Wood, Southall, & Tollit, 2012).<br><br>Masking and the potential effects of masking on communication and listening space of marine mammals are not fully understood and remain an area of active research (Cunnigham & Mountain, 2014) (Tenneson, 2016) (Cholewiak, et al., 2018) (Dunlop R. , 2016) (Gabriele, Ponirakis, Clark, Wombe, & Vanselow, 2018) (Putland, Merchant, Farcas, & Radford, 2018). Currently, there are no specific received level thresholds for reliably assessing or regulating masking responses to underwater noise (Gomex, et al., 2016). |

#### 6.3.1.2 Platform operations

Platforms generate low level continuous noise that can contribute to underwater sound within each OA.

Fixed structures such as platforms have lower radiated sound levels than floating platforms (NCE, 2007) because they do not use thrusters or propellers to maintain station. Equipment operating onboard platforms can contribute to marine environment sound. However, underwater noise produced from structures standing on metal jack-up supports is still relatively low given the small surface areas available for sound transmission via the legs and given the location of machinery (and activities such as non-routine flaring) are above the waterline. It is therefore expected that the dominant pathway for sound generation is structure-borne (i.e. vibration from machinery passing through the legs) (NCE, 2007).

To better understand the underwater sound generated by platform operations, Esso commissioned JASCO Applied Sciences (Australia) Pty Ltd (JASCO) to model this sound. JASCO (Matthews, Connell, & McPherson, 2023) created a Monopole Source Level (MSL) spectrum for a generic platform using BTA and KFB platform spectra. The modelling results indicate that the 'generic platform' scenario (Scenario 13 in the JASCO 2023 report) provided as Appendix I generates 151dB re 1µPa m (Matthews, Connell, & McPherson, 2023), but is expected to reduce to below the behavioural threshold of 120dB re 1µPa for Low Frequency Cetaceans (LFC) within 30m of the source.

#### 6.3.1.3 Support vessels

Support vessels generate continuous noise via propeller cavitation (the dominant sound source), on-board machinery and from operating DP thrusters. The sound levels generated by vessels are broadband and typically increase with increasing vessel size.

Currently, Esso's support vessel fleet comprises the *Skandi Darwin*, *Skandi Feistein* and *Skandi Kvitsøy* (*Feistein and Kvitsøy* are sisterships). The MSLs and the spectra for the *Skandi Feistein* were developed for Esso by JASCO (Matthews, Connell, & McPherson, 2023) and apply to the sistership the *Skandi Kvitsøy*. As

the *Skandi Darwin* has greater installed power than the *Skandi Feistein and Skandi Kivitsøy* (*Feistein* has 6,160kW; *Darwin* has 7,130kW), the *Skandi Darwin* was used in the modelling as a conservative analogue (and therefore analogous of any other OSV that may be used). The acoustic source level and spectrum were scaled up to give an estimated broadband energy source level for the vessels of 173.8dB re 1μPa$^2$m$^2$s (Muellenmeister et al., 2023) to allow for appropriate assessments of the sound emissions for representative vessels.

The effects of sound emissions from OSVs are assessed in Section 6.3.4.

#### 6.3.1.4 Subsea pipeline operations

Sound from the flow of gas through subsea pipelines is negligible. A study conducted by (Glaholt, 2008) found that sound measurements made over a 25.4cm (10") diameter subsea high-pressure gas pipeline (which is within the range of Esso's operational pipelines, which vary in diameter from 10 to 60cm) suggest that the pipeline was not producing any clearly resolvable noise. Methods for assessment of operational noise generated from the pipeline included a combination of field measurements, laboratory investigation and pipeline component analysis (Glaholt, Marko and Duke, 2011).

Given the low intensity of gas pipeline noise and the fact that species sensitive to underwater sound, primarily cetaceans, typically occupy ranges over many hundreds or thousands of square kilometres, impacts of sound through the pipeline on cetacean communication or foraging efficiency are unlikely to even be minor. As such, pipelines as a source of underwater sound are not assessed further in this EP.

#### 6.3.1.5 Wellwork – Conductor cutting and removal

Conductor cutting and pulling occurs after a well is P&A and the production casing strings are removed. Conductors may be cut by either mechanical means or with abrasive severance, with target depth of 2 - 3m below seabed. These works are irregular in nature and generally completed in approximately 12 days depending on the number of conductors to be cut.

Pangerc, Robinson, Theobald & Galley (2016) described continuous underwater sound measurement data during underwater diamond wire cutting of a 32" conductor (1m above seabed in approximately 80m water depth) and found that at lower frequencies, the operation was generally indistinguishable above the background noise of the vessel. This finding is consistent with results from acoustic modelling of a stationary vessel on DP at one location or a stationary vessel on DP using a ROV cutting tool at a separate location close by (Matthews, Connell, & McPherson, 2023). As such, underwater sound generated by conductor cutting is not assessed further in this EP.

#### 6.3.1.6 Helicopters

Helicopters are used to transport personnel and some freight to and from platforms as described in Section 2.10.2.

Most air traffic supporting offshore installations involves turbine helicopters flying along straight lines. Usually, a helicopter can be heard in air well before and after the brief period it passes overhead and is heard underwater. Sound pressure in the water directly below a helicopter is greatest at the surface and diminishes with increasing receiver depth. The peak received level diminishes with increasing helicopter altitude, but the duration of audibility often increases with increasing altitude.

Sound emitted from helicopter operations is typically below 500Hz and sound pressure is greatest at surface in the water directly below a helicopter, but this diminishes quickly with depth. Reports using the data for a Bell 214 helicopter (stated to be one of the noisiest) show it being audible in the air for four minutes before it passed over underwater hydrophones, and detectable underwater for 38 seconds at 3m depth and 11 seconds at 18m depth (Richardson, Greene, Malme, & Thomson, 1995). Noise from helicopter activities is therefore localised and temporary.

Noise levels reported for a Bell 212 helicopter during fly-over was reported at 162dB re 1μPa (SPL) and for Sikorsky 61 is 108dB re 1 μPa (SPL) at 305m (Simmonds M. D., 2004). Water has a very high acoustic impedance contrast compared to air, and the sea surface is a strong reflector of noise energy (i.e. very little noise energy generated above the sea surface crosses into and propagates below the sea surface (and vice versa) - most of the noise energy is reflected). The angle at which the sound path meets the surface

influences the transmission of noise energy from the atmosphere through the sea surface, angles >13° from vertical being almost entirely reflected (Richardson, Greene, Malme, & Thomson, 1995)).

Noting the above, and the typical characteristics of helicopter flights within the OA (duration, frequency, altitude and air speed), the opportunity for underwater noise levels to exceed the behavioural thresholds is not considered credible and is not assessed further in this EP.

#### 6.3.1.7 Pipeline and subsea facility inspection, maintenance and repair

*REPAIR/REPLACEMENT ACTIVITIES*

Of the subsea IMR activities, underwater cutting has the potential to generate the most noise (Matthews, Connell, & McPherson, 2023). However, as per conductor cutting activities, continuous sound emissions will not be distinguishable from those of the support vessel and therefore sound from this work is covered under the assessment of vessel sound in this EP (see Section 6.3.4).

*REMOTELY OPERATED VEHICLE*

Due to the low levels of underwater noise generated by ROV impellors, there has been limited research about the acoustic signatures of these and other subsea vehicles. However, Stimpert (2019) reported on a study using a continuously recording passive acoustic monitor attached to a stationary surveillance platform in rocky habitat off southern California (120m water depth). Data was collected over six days in October 2016 while ROV activity was underway. Results indicate baseline ambient underwater noise in the area during this time was estimated at 99 +/−3dB re 1µPa RMS (50–500Hz) with calm sea and wind conditions.

These results indicate that the level of continuous sound generated by an ROV are anticipated to make little contribution to the overall noise emissions associated with vessel activities. Accordingly, noise emissions from ROVs are not assessed further in this EP given that noise from ROVs do not reach behavioural thresholds for LFC.

*ACOUSTIC SURVEY EQUIPMENT*

During pipeline and subsea facility IMR activities, impulsive sound will be generated by high-resolution geophysical techniques such as SSS, MBES and SBP (deployed on the ROV).

The term *de minimis is applied* to the sound sources that are so low intensity, short in duration or operate outside the hearing range of marine mammals that they are considered unlikely to result in the incidental 'taking' (i.e. damage, harassment or injury) of marine mammals. Sound sources classified as *de minimis* include SSS, MBES, and SBP (Ruppel, Weber, Staaterman, E Labak, & Hart, 2022). The authors also state that the *de minimis* concept is accepted by the US Navy, which classifies *de minimis* sound sources as those having a low source level, narrow beams, downward directed transmission, short pulse lengths, frequencies outside known marine mammal hearing ranges, or a combination of these factors. The *de minimis* concept is based on the application of the sound pressure level (SPL) threshold for marine mammals of 160dB re 1µPa.

MBES and SSS are low-energy, high-resolution geophysical survey instruments (Table 6-10) that have operating frequencies ranging from 12kHz to 700kHz with peak pressure (PK) source levels between approximately 210 and 245dB re 1µPa at 1m (Jiménez-Arranz et al, 2020).

MBES generate micro-pulses of high frequency sound in a highly focused beam directed towards the seabed, which attenuates rapidly underwater compared to lower frequency sound sources. Due to this directionality and short pulse duration, there is relatively low sound energy and very limited horizontal sound propagation. The high operating frequencies of many MBES are typically above the hearing range of LFC (7Hz to 35kHz; (Southall, et al., 2019) (Figure 6-2). The high operating frequencies of MBES are also above the hearing ranges of marine turtles (Finneran, et al., 2017) and most fish species (100Hz to several kHz)( (Popper, et al., 2014) (Figure 6-2). Additionally, sound sources generated closer to the seabed have a lower received noise level in the horizontal direction due to seafloor scattering and absorption.

Like MBES, SSS produce micro-pulses of sound in a focussed swath directed at the seabed. SSS operating frequencies may range between 75kHz and 900kHz, with sound energy attenuating rapidly with horizontal distance from the main swath (Jiménez-Arranz et al, 2020). Representative source levels range between

200 and 235dB re 1µPa PK at 1m. The high operating frequencies of SSS places the dominant sound frequencies above the hearing range of most marine fauna species, including LFC , turtles and fish (see Figure 6-2), although some of the lower frequency devices may be audible to HFC (Matthews, Connell, & McPherson, 2022).

SBP (most often using compressed high intensity radar pulse) may also be undertaken to identify features under the seabed (in conjunction with MBES and SSS). Most commercial SBPs are small, low-powered, high-resolution and shallow penetrating systems, producing electrical pulses across a range of frequencies (Jiménez-Arranz et al, 2020). These instruments typically produce pulses of sound between approximately 2kHz and 30kHz (Table 6-10) with source levels between approximately 100 and 225dB re 1µPa PK at 1m. This frequency range overlaps the hearing range of cetaceans (Figure 6-2).

An assessment of SSS, MBES and SBP potential impacts was completed as part of the *Bass Strait Geophysical and Geotechnical Environment Plan* (AUGO-EV-EMM-015) which is published on NOPSEMA's website (A1180206). The accepted EP assesses the impacts of high-resolution geophysical techniques such as SSS, MBES and SBP to marine fauna was negligible. Noting the activity and area covered by the *Bass Strait Geophysical and Geotechnical Environment Plan* (AUGO-EV-EMM-015) mirrors those of this EP, impacts from high-resolution geophysical techniques are not considered further in this EP.

**Table 6-10 SSS, MBES and SBP frequency ranges and source levels**

| Survey equipment | Frequency range (kHz) | | Power output (sound pressure level, dB re 1µPa @ 1m) |
|---|---|---|---|
| SSS | 100 – 120 and up to 900 | Outside the hearing ranges of baleen whales and otariid pinnipeds. | 210 - 220 |
| MBES | 200 – 700 | Outside the hearing ranges of all marine mammals. | 236 - 242 |
| SBP | 0.05 – 24 | Overlaps hearing range of marine mammals. | 100 - 225 |

*SUBSEA POSITIONING EQUIPMENT*

Subsea positioning systems are technologies that generate impulsive sound and are used to determine the precise location of objects or vehicles underwater (such as an ROV).

Subsea positioning equipment consists of several transducers and receivers positioned on the subsea infrastructure. Subsea positioning systems typically emit short pulses of medium to high frequency sound, normally within the range of 15 to 40kHz. The estimated SPL would be 180 to 206dB re 1µPa @ 1m (Jiménez-Arranz et al, 2020). Transmissions are not continuous but consist of short 'chirps' with a duration that ranges from three to forty milliseconds. Transponders will not emit any sound when on standby (Jiménez-Arranz et al, 2020).

The distances to SPL isopleths for a comparable USBL system in open water calculated the distance to 160dB re 1µPa (SPL) to be 36m (Austin, Warner, & McCrodan, 2012). As the distance to behavioural effects for cetaceans from subsea positioning equipment is small, it is not assessed further in this EP.

### *6.3.2 Known and potential impacts*

Underwater sound from the activity has the potential to impact the following receptors to varying degrees:

- plankton (including commercially important fish larvae/eggs)
- marine invertebrate assemblages
- fish:
    - mobile pelagic and demersal species that are likely to move away as sound levels increase

    - site-attached/dependent fish species associated with reef habitats. These species are less likely to move away and are expected to seek shelter within reef areas where present.
    - target species for commercially important fisheries.
- marine mammals:
    - foraging, migrating and transient large whales known to occur in the region (e.g. PBW, SRWs and humpback whales)
    - dolphin species (e.g. bottlenose and common dolphins)
    - pinnipeds.
- marine reptiles (turtles).

Sudden exposure to very high sound levels or exposure for prolonged periods to high sound levels can result in impacts to marine fauna. Based on the current state of knowledge, there are three key effect categories that are relevant to all marine fauna (including invertebrates to a lesser degree than fishes). These are:

- physiological effects - Include auditory injury that may or may not result in permanent hearing loss (PTS). Also includes temporary hearing loss (TTS).
- behavioural effects - Behavioural responses or changes due to the anthropogenic noise exposure.
- masking effects - The interruption or interference of a biologically important signal by an invading noise (i.e. a masking noise).

The severity of effects decreases with increasing range from the noise source (Southall, et al., 2019) Physiological effects generally occur closest to a noise source and can have direct impacts on an animal's survival, foraging, and reproduction, referred to as vital tracks or vital rates (Southall, et al., 2019). Behavioural effects can range from minor to major (that can impact an individual's vital rates) depending on many variables but generally beginning at the higher levels of masking. Masking in and of itself is not necessarily a significant effect if the masking is short-lived and/or mild. However, if masking reaches levels that that are high enough or continuous enough to overwhelm an individual's masking release mechanisms, then animals may alter their behaviours to escape the noise or move away, potentially to a less suitable habitat.

### *6.3.3 Environment That May Be Affected*

The potential impacts on individual animals from exposure to elevated sound levels above ambient levels depends on several factors, including the extent of sound propagation underwater, its frequency characteristics and duration, its distribution relative to the location of the organisms, the sensitivity and range of spectral hearing among species (Carroll, Przeslawski, Duncan, Gunning, & Bruce, 2017).

Receptors that may be affected by an increase in underwater ambient sound levels are generally species that hear and communicate in a similar frequency range to the range of sounds produced (particularly baleen whale species).

To define sound EMBAs for marine mammals, Esso commissioned JASCO Applied Sciences (JASCO) (Liu & Stephen, 2025a) to revise their 2023 report for base business operations (Matthews, Connell, & McPherson, 2023) to take into account new modelling thresholds (NMFS, 2024). The results from this revised modelling study are reflected here. The scenario adopted (Scenario 15 in the 2023 modelling report available in Appendix I) was the most conservative, because it:

- is the loudest sound source - two support vessels alongside the BTA platform while using DP thrusters
- is continuous sound
- results in the greatest distances to the behavioural threshold for the most sensitive marine fauna group, marine mammals (LFC).

EMBAs for each activity and sound source (based on the scenario detailed above) are included in Table 6-11.

**Table 6-11 Summary of underwater sound EMBAs for LFC for each activity and sound source**

| Activity and sound source | Category | EMBA radius | Rationale |
|---|---|---|---|
| Platform operations | Continuous | 30m | JASCO modelling results indicate that the behavioural threshold for marine mammals for an operating platform is 30m (Matthews, Connell, & McPherson, 2023). |
| Support operations - Vessel DP thrusters, onboard machinery | Continuous | 3.09km | JASCO modelling results indicate that two support vessels close to a platform while using DP thrusters results in the greatest distance to the behavioural threshold for marine mammals, which is 3.09 km (Liu & Stephen, 2025a). |
| Wellwork operations - Conductor cutting and removal | Continuous | 3.09km | If cutting operations were performed from a support vessel (while alongside a platform), it is unlikely that the modelled distances to effect threshold would increase since the support vessel spectral levels are far higher than that of the ROV cutter (Matthews, Connell, & McPherson, 2023). Therefore, the EMBA for this activity is the same as for two support vessels when alongside a platform. |
| Pipeline and subsea facility IMR - Underwater cutting/drilling/grinding (away from platform) | Continuous | 3.09km | If cutting operations were performed from a support vessel (while alongside a platform), it is unlikely that the modelled distances to effect threshold would increase since the support vessel spectral levels are far higher than that of the ROV cutter (Matthews, Connell, & McPherson, 2023). Therefore, the EMBA for this activity is the same as for two support vessels when alongside a platform. |
| ROV | Continuous | 10m | Based on description in Section 6.3.1.7. |
| Helicopters | Continuous | 10m | Based on description in Section 6.3.1.6. |

### *6.3.4 Evaluation of environmental impacts*

As outlined in the EMBA discussion, it is continuous sound from support vessels that is the focus of the EIA presented in this section.

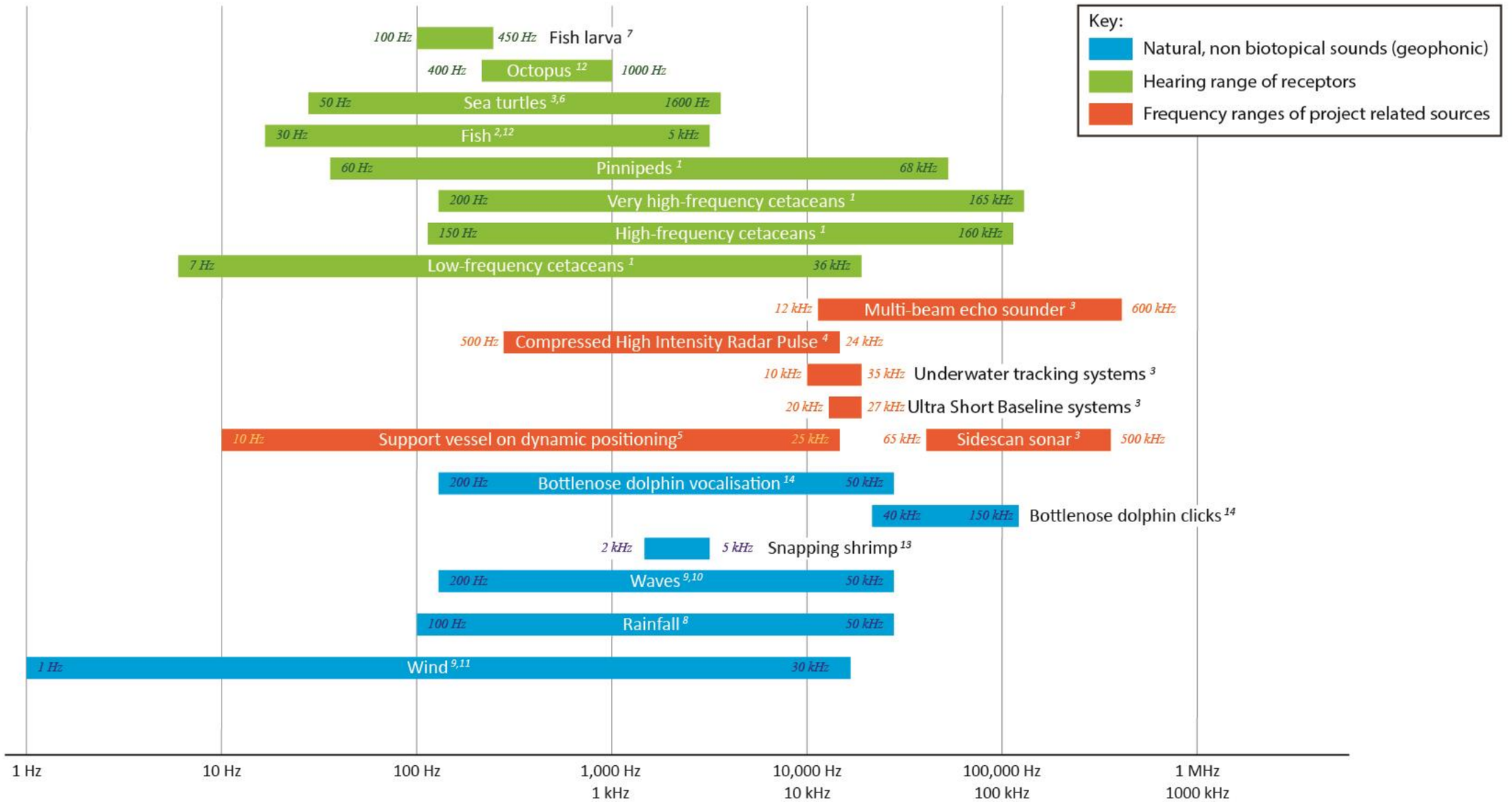
#### 6.3.4.1 Noise effect criteria

To assess the potential effects of a sound-producing activity, it is necessary to establish exposure criteria (thresholds) for which sound levels may be expected to have an adverse effect on marine fauna.

Whether acoustic levels might injure or disturb marine fauna is an active research topic. For example, since 2007, several expert groups have developed SEL-based assessment approaches for evaluating auditory injury, with key works including (Southall, et al., 2007), (Popper, et al., 2014), (Southall, et al., 2019) (Finneran, et al., 2017) and (NMFS, 2024). The noise effect thresholds for marine mammals, fish and marine turtles used herein are based on these scientific publications.

#### 6.3.4.2 Marine mammals

Marine mammal species differ significantly in their hearing abilities; both in terms of absolute sensitivity and the range of frequencies they can detect (NMFS, 2024). Accordingly, marine mammals have been categorised into distinct hearing groups based on their auditory features, which reflect their adaptations to different environmental and functional needs (Richardson, Greene, Malme, & Thomson, 1995) (Wartzok & Ketten, 1999) (Southall, et al., 2007) (NMFS, 2024). These groups are defined in Figure 6-2 and summarised in Table 6-12. Noise effect criteria are detailed in Table 6-13.




1 (NOAA, 2024), 2 (Slabbekoorn, et al., 2010), 3 (Ruppel, Weber, Staaterman, E Labak, & Hart, 2022), 4 (Department of Conservation, 2016), 5 (Spence, et al., 2007), 6 (Piniak, Mann, Harms, Jones, & Eckert, 2016)

7 (Poulsen, et al., 2019), 8 (Nystuen, Amitai, Anagnostou, & Anagnostou, 2008), 9 (Simmonds M. D., 2004), 10 (University of Rhode Island and Inner Space Center, 2025), 11 Swan, Neff, & Young (1994), 12 McCauley, Fewtrell, & Popper (2003), 13 Au & Banks (1998) and 14 United Parks & Resorts (2025)

**Figure 6-2 Hearing groups and overlap with sound sources relevant to this activity**

### *LOW FREQUENCY CETACEANS*

LFC, such as baleen whales (Mysticeti), exhibit auditory specialisations for detecting sounds predominantly within the range of approximately 7Hz to 35kHz (see Figure 6-2) with peak sensitivity at low frequencies. These species rely on acoustic signals for essential life functions, including long-distance communication and navigation, facilitated by the efficient propagation of low-frequency sound in marine environments (Erbe, 2023), (NMFS, 2024). Unlike odontocetes (beaked whales, and bottlenose whales), Mysticetes do not echolocate; instead, they produce and perceive tonal calls and infrasonic signals that can travel over hundreds of kilometres. Noise from support vessels is dominated by low-frequency components (<1kHz), overlapping with the functional hearing range of LFC and posing a risk of acoustic masking and behavioural disturbance (Erbe, 2023).

### *HIGH-FREQUENCY CETACEANS*

High-frequency cetaceans (HFC) such as dolphins, toothed whales (odontocetes), beaked whales, and bottlenose whales are specialised for detecting and producing sounds at frequencies well beyond the human hearing range (Erbe & McPherson, 2017). These cetaceans are known for their sensitivity to high frequencies typically within the 20 kHz to 150 kHz range, and some species may even hear frequencies above 200kHz (see Figure 6-2)

Echolocation clicks typically occur between 100 and 150kHz, overlapping with their most sensitive hearing range. Anthropogenic noise sources such as high-frequency sonar (e.g. SBP) pose a risk to HFC due to spectral overlap with their echolocation signals, potentially causing auditory masking and behavioural disruption (Erbe, Reichmuth, Cunnigham, Lucke, & Fooling, 2015).

### *VERY HIGH-FREQUENCY CETACEANS*

Very high-frequency cetaceans (VHFC) include species like true porpoises, *Kogia* (dwarf and pygmy sperm whales), river dolphins, Cephalorhynchids (e.g. *Cephalorhynchus* spp.) and *Lagenorhynchus* spp. (such as *L. cruciger* and *L. australis*). Their auditory thresholds and frequency ranges generally fall within the high-frequency to very high-frequency categories, above 100 kHz, often extending to 200kHz in species such as the beluga whale.

These species exhibit peak sensitivity in the very high-frequency range, with belugas, for example, demonstrating peak sensitivity at 100kHz to 120kHz (Southall, et al., 2019). The auditory thresholds of VHFC are typically low in their peak frequency ranges. Sperm whales, for instance, can detect high-frequency sounds with thresholds around 40 - 60dB SPL, which is crucial for their use of echolocation in deep waters where prey detection at great depths is essential (Erbe, Reichmuth, Cunnigham, Lucke, & Fooling, 2015). These thresholds indicate that VHFC, such as true porpoises, *Kogia*, and various river dolphins have highly sensitive hearing capabilities, particularly in the higher frequencies (above 100kHz), with thresholds ranging between 60 and 120dB SPL.

There are no VHFC identified within the ADE.

### *OTARIID PINNIPEDS*

Otariid pinnipeds, including sea lions and fur seals, exhibit amphibious auditory adaptations that enable effective hearing both underwater and in air, with aerial sensitivity generally exceeding underwater sensitivity (Southall, et al., 2019). Their underwater hearing range spans approximately 60Hz to 39kHz, with peak sensitivity between 1kHz and 16kHz.

Unlike cetaceans, otariids do not employ echolocation; instead, they depend on acoustic cues for social communication, spatial orientation, and predator detection (Southall, et al., 2019).

Anthropogenic noise from vessels predominantly occupies the low-frequency spectrum (<1kHz), overlapping with the lower end of otariid hearing capabilities and posing risks of auditory masking and behavioural disturbance (Jones, 2024). Consequently, vessel noise represents a source of potential impact to otariid pinnipeds.

There are no phocid pinnipeds identified within the ADE.

**Table 6-12 Marine mammal hearing groups**

| Hearing group | Frequency range (kHz) | Peak sensitivity (kHz) | Auditory threshold (dB SPL) |
|---|---|---|---|
| LFC | 0.007 – 36 | 0.02 – 1 | 50 – 100 |
| HFC | 0.15 – 160 | 40 – 100 | 60 – 120 |
| VHFC | 0.20 – 165 | 100 – 120 | 60 – 120 |
| Otariid pinnipeds | 0.06 – 39 | 1 – 16 | 30 – 60 |

**Table 6-13 Criteria for effects of non-impulsive noise exposure, including vessel noise, for marine mammals: unweighted SPL and weighted $SEL_{24h}$ thresholds**

| Hearing Group | (NOAA Fisheries, 2024) | (NMFS, 2024) | |
|---|---|---|---|
| | Behaviour | TTS onset thresholds (received level) | PTS/auditory injury onset thresholds (received level) |
| | SPL (Lp; dB re 1µPa) | Weighted $SEL_{24h}$ ($LE_{,24h}$; dB re 1µ$Pa^2$·s) | Weighted $SEL_{24h}$ ($LE_{,24h}$; dB re 1µ$Pa^2$·s) |
| LFC | 120 | 177 | 197 |
| HFC | | 181 | 201 |
| Otariid pinnipeds | | 179 | 199 |

$L_p$ denotes sound pressure level and has a reference value of 1µPa.

$L_E$ denotes cumulative sound exposure over a 24-hour period and has a reference value of 1µ$Pa^2$·s.

### 6.3.4.3 Fish (including sharks)

Sound exposure guidelines for fish, fish eggs, and larvae are listed in Table 6-14, adapted from Popper et al (2014).

**Table 6-14 Criteria for continuous sound exposure for fish**

| Type of animal | Mortality and potential mortal injury | Impairment | | | Behaviour |
|---|---|---|---|---|---|
| | | Recoverable injury | TTS | Masking | |
| Fish:<br>No swim bladder (particle motion detection) | (N, I, F) Low | (N, I, F) Low | (N) Moderate<br>(I, F) Low | (N, I) High<br>(F) Moderate | (N, I) Moderate<br>(F) Low |
| Fish:<br>Swim bladder not involved in hearing (particle motion detection) | (N, I, F) Low | (N, I, F) Low | (N) Moderate<br>(I, F) Low | (N, I) High<br>(F) Moderate | (N, I) Moderate<br>(F) Low |

| Type of animal | Mortality and potential mortal injury | Impairment | | | Behaviour |
|---|---|---|---|---|---|
| | | Recoverable injury | TTS | Masking | |
| Fish:<br>Swim bladder involved in hearing (primarily pressure detection) | (N, I, F) Low | 170 dB rms for 48h | 158 dB rms for 12h | (N, I, F) High | (N) High<br>(I) Moderate<br>(F) Low |
| Fish eggs and fish larvae | (N, I, F) Low | (N, I, F) Low | (N, I, F) Low | (N) High<br>(I) Moderate<br>(F) Low | (N, I) Moderate<br>(F) Low |
| Sea turtles | (N, I, F) Low | (N, I, F) Low | (N) Moderate<br>(I, F) Low | (N, I) High<br>(L) Moderate | (N) High<br>(I) Moderate<br>(L) Low |

RMS sound pressure levels dB re 1 µPa.

All criteria are presented as sound pressure even for fish without swim bladders since no data for particle motion exist.

Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near (N), intermediate (I), and far (F).

#### 6.3.4.4 Marine Turtles

For marine turtles, the peak pressure levels (PK) and frequency-weighted accumulated sound exposure levels ($SEL_{24h}$) are shown in Table 6-15 (Finneran, et al., 2017) for the onset of PTS and TTS in marine turtles.

**Table 6-15 Acoustic effects of continuous noise on turtles, weighted SEL (Finneran, et al., 2017)**

| PTS onset thresholds* (received level) | TTS onset thresholds* (received level) |
|---|---|
| 220 | 200 |

#### 6.3.4.5 Underwater sound modelling results and impact assessment

JASCO undertook a modelling study (Matthews, Connell, & McPherson, 2023) of underwater acoustic noise levels related to Esso's base business operations and future decommissioning operations in Bass Strait available in Appendix I. Since that study, new underwater noise criteria and thresholds for marine mammals (NMFS, 2024) have been published. Consequently, Esso commissioned JASCO to remodel the most relevant scenarios of the 2023 study using the new noise effect criteria (Liu & Stephen, 2025a) available in Appendix I. The revised modelling results indicate that the new thresholds only change the PTS and TTS results, while the behavioural results remain unchanged. The results of this modelling were used to inform the evaluation of impacts from continuous sound emissions.

For impulsive sound emissions, Esso's *Bass Strait Geophysical and Geotechnical Environment Plan* (AUGO-EV-EMM-015) (available on the NOPSEMA website here: A1180206) evaluates impacts and risks associated with equipment used for pipeline and subsea IMR activities (see Section 2.9).

There were numerous platforms modelled with one or two attendant vessels. The scenarios most relevant to this EP from (Matthews, Connell, & McPherson, 2023) are:

- Scenario 3 - BTA platform with two support vessels, at a water depth of 44m
- Scenario 6 - KFB platform with two attendant vessels, at a water depth of 75m

- Scenario 15 (including remodelling of this scenario in the 2025 addendum) - A generic platform with a OSV permanently on location and a support vessel on station for up to 2 hours at a water depth of 60m.

The spectral levels for the BTA platform (broadband MSL of 150.1dB re 1µPa; 20 Hz to 63 kHz) present higher levels at for higher frequencies (≥ 10kHz), which is likely due to the sound of snapping shrimps. On the other hand, the KFB platform (broadband MSL of 153.2dB re 1µPa; 20Hz to 63kHz) presents higher levels at low frequencies (< 80Hz), likely due to mooring flow noise.

The modelling report recommended the creation of a composite platform MSL spectrum to better represent a generic platform. To create a conservative, but generic spectra, the BTA platform spectral levels were used at frequency ≤80Hz and the level for the KFB platform were used at all higher frequencies. This eliminates the possible flow noise at low frequencies, and the noise from snapping shrimps at high frequencies. The monopole source representing the generic platform was also modelled in the middle of the water column at a depth of 30m.

The combined generic platform scenario (Scenario 15 in the 2023 JASCO report, including the 2025 addendum) is therefore used as a conservative estimate of the sound.

#### 6.3.4.6 Cetaceans

*RESULTS*

The results of underwater sound modelling for marine mammals, as presented in Liu & Stephen (2025a), are presented in Table 6-16. For the most conservative scenario (Scenario 15 in the 2023 report and remodelled in the 2025 addendum), the modelling results predict the following distances to threshold, as detailed in Table 6-16 based on the NMFS (2024) threshold criteria:

- behavioural – 3.09km
- TTS – 600m (LFC), 90m (HFC and otariid pinnipeds)
- PTS – 70m (LFC only, not reached for HFC or pinnipeds). PTS is not considered credible due to the extended duration (24 hours) for which an individual would need to remain near the sound source.

**Table 6-16 Maximum-over-depth distances (in km) to frequency weighted 24-hour sound exposure level ($SEL_{24h}$) based PTS/auditory injury and TTS for marine mammals using NMFS (2024) thresholds**

| Fauna group | NMFS (2024) | | | | |
|---|---|---|---|---|---|
| | Threshold ($LE_{,24h;}$ dB re 1µ$Pa_2$·s) | Scenario 3 (1-hour) | | Scenario 3 (2-hour) | |
| | | R95% (km) | Rmax (km) | R95% (km) | Rmax (km) |
| **PTS/Auditory Injury** | | | | | |
| LFC | 197 | 0.07 | 0.07 | 0.07 | 0.07 |
| HFC | 201 | - | - | - | - |
| Other Carnivores in Water (seals) | 199 | - | - | - | - |
| **TTS** | | | | | |
| LFC | 177 | 0.56 | 0.60 | 0.56 | 0.60 |
| HFC | 181 | 0.09 | 0.09 | 0.09 | 0.09 |

| Fauna group | NMFS (2024) | | | | |
|---|---|---|---|---|---|
| | Threshold ($LE_{,24h;}$ dB re 1µ$Pa_2$·s) | Scenario 3 (1-hour) | | Scenario 3 (2-hour) | |
| | | R95% (km) | Rmax (km) | R95% (km) | Rmax (km) |
| Other Carnivores in Water (seals) | 179 | 0.09 | 0.09 | 0.09 | 0.09 |

A dash (-) indicates the threshold is not reached within the limits of the modelling resolution (20m).

*IMPACT ASSESSMENT*

The key species of conservation significance in the OAs and sound EMBA are the LFC species, pygmy blue whale (PBW) and SRW. As such, they are the focus of this EIA.

***PYGMY BLUE WHALES***

PBW (as a subspecies of the blue whale) are listed as endangered under the EPBC Act and have known biologically important behaviours within the sound EMBA (Table 6-11). In the context of potential impacts from underwater noise emissions from continuous sources from this activity, a precautionary approach has been taken in assuming that blue whales may be present (albeit in relatively low numbers) in the Gippsland Basin at any time of year.

The OAs and the underwater sound EMBA overlap the foraging BIA for PBWs. The area affected by the behavioural threshold (26km$^2$) represents a small portion of the PBW known foraging BIA (0.014%). While TTS and PTS are not relevant because they are only triggered by the 24-hour SEL, theoretically the area affected by TTS (0.113km$^2$, being the largest area) represents a minuscule portion of the PBW foraging BIA (0.0157%). Given these small spatial overlaps, if the activity has a temporal overlap with the presence and/or foraging of PBW, it is unlikely to result in behavioural changes that affect foraging.

The *Conservation Management Plan for the Blue Whale 2015 – 2025* (Department of the Environment, 2015) (CMPBW) requires that 'anthropogenic noise in BIAs be managed such that any blue whale continues to utilise the area without injury and is not displaced from a foraging area. *Guidance on key terms within the Blue Whale Conservation Management Plan* (DAWE & NOPSEMA, 2021) defines the requirements further:

> *"to ensure that any blue whale can continue to forage with a high degree of certainty in a Foraging Area, and that any blue whale is not displaced from a Foraging Area."*

In the CMPBW, the OAs occur within an area defined as 'Possible Foraging Area' and in the *Guidance on key terms within the Blue Whale Conservation Management Plan* (DAWE & NOPSEMA, 2021) the broader term 'foraging' encompasses Foraging Area, Known Foraging Area and Possible Foraging Area.

The *Guidance on key terms within the Blue Whale Conservation Management Plan* (DAWE & NOPSEMA, 2021) suggests a whale could be displaced from a foraging area if stopped or prevented from foraging, caused to move when foraging, or stopped or prevented from entering a foraging area. A whale is considered to be displaced from a foraging area if foraging behaviour is disrupted, regardless of whether the whale can continue to forage elsewhere within that foraging area.

Underwater sound impact is assessed as Consequence Level III for the blue whale and PBW as there is potential for their displacement while foraging. This is considered acceptable because:

- there is limited data available on the blue whale and PBWs within the region, so a precautionary approach (ALARP Decision Context B) has been adopted in considering controls to minimise and/or mitigate potential impacts from underwater noise
- if blue whales or PBWs are present, they are unlikely to be in large numbers
- if blue whales or PBWs are present, they are assumed to be foraging
- the CMPBW states that:

  - shipping and industrial noise are classed as a 'minor' consequence (defined as: individuals are affected but no effect at a population level)
  - "It is the high intensity signals with high peak pressures received at very short range that can cause acute impacts such as injury and death." As vessel noise is a continuous noise source and does not have high intensity signals, it is unlikely that it would cause injury to a foraging PBW

- the area of overlap for the behavioural threshold is 0.0157% for the foraging BIA
- the western edge of the ADE is a significant distance (approximately 480km) away from the Bonney coast upwelling KEF, which is a known feeding aggregation area (Gill, et al., 2011) (McCauley R. , 1998).

Adopting the controls in Section 6.4.5 aims to prevent PTS, TTS and displacement impacts to blue whales or PBW that may be foraging in the OAs. *Guidance on key terms within the Blue Whale Conservation Management Plan* (DAWE & NOPSEMA, 2021) regarding the definition of 'displaced from a foraging area' states that mitigation measures must be implemented to reduce the risk of displacement occurring during operations where modelling indicates that behavioural disturbance within a foraging area may occur. The implementation of the control measures in Section 6.4.5 means that blue whale or PBW displacement from a foraging area is unlikely to occur. As such, the activity will be managed in a manner that is not inconsistent with the CMPBW, specifically Action Area A.2. An assessment against the key actions of the CMPBW is provided in Table 6-17.

**Table 6-17 Assessment of CMPBW**

| Description | Justification |
|---|---|
| **A1 - Maintain, implement, and improve efficacy of current legislative and management protection** | |
| 1. Continue or improve existing legislative management actions | The EP will implement the following Commonwealth legislation and management arrangements (as outlined in the CMPBW):<br>• Part 8 Division 8.1 of the EPBC Regulations<br>• Australian National Guidelines for Whale and Dolphin Watching 2017 (CoA, 2017)<br>• EPBC Act Policy Statement 2.1 - Interaction between offshore seismic exploration and whales (DEWHA, 2008). |
| **A2 – Assessing and addressing anthropogenic noise** | |
| 2. Assessing the effect of anthropogenic noise on blue whale behaviour | In commissioning activity-specific underwater sound modelling, Esso has used the latest science to ensure this EIA is accurate, which in turn informs the selection of control measures. |
| 3. Anthropogenic noise in BIAs will be managed such that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area | The controls adopted in this EP, combined with the small overlap with the foraging BIA (0.0157%), ensures that the activities will not prevent any PBW from utilising the BIA or cause auditory injury. |
| 5. Ensuring behavioural impacts are considered when developing and updating policy documents on the management of cetaceans and anthropogenic noise | The EIA presented in this EP demonstrates that Esso has considered the impacts of noise generating activities on blue whale and PBW foraging.<br>Esso has committed to control measures that will ensure that impacts to blue whale and PBW are ALARP. |

Given the small spatial overlaps between the underwater sound EMBAs for LFC, if the activity has a temporal overlap with the presence of migrating and/or foraging PBW, underwater sound generated by the activity will not result in TTS and is unlikely to result in behavioural changes that affect foraging given the vastness of the ocean in which its foraging resources are available. The consequence from underwater sound is assessed as Consequence Level III for PBWs as there is potential for the temporary displacement of PBWs from a small area while foraging.

### *SOUTHERN RIGHT WHALES*

The OAs overlap the SRW migration BIA, with the migration period recognised in the *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024) to be between April and October. The distance between the nearest platform OA and the SRW reproduction BIA is 19.3km (see Figure 3-7).

The SRW may avoid the area where the behavioural criteria are reached but there is no impediment to them continuing to move along their coastal reproduction BIA. The SRW is a highly mobile migratory species that travels thousands of kilometres between habitats used for essential life functions (DCCEEW, 2024). It is unlikely that calving SRWs would remain in the OAs (with water depths in the OAs between 38m and 95m to a maximum depth of 402m), as the whales prefer to occupy water depths of less than 10m during this life phase.

For SRW, the overlap between the underwater sound EMBA for the behavioural threshold and the migration BIA is 0.0012%, and the overlap between the TTS area and the migration BIA is 0.000003%. Given these small spatial overlaps, if the activity has a temporal overlap with the migration of SRW, it is unlikely to result in behavioural changes that affect migration.

The *National Recovery Plan for the SRW* (DCCEEW, 2024) notes that along the Australian coast, individuals SRWs use widely separated coastal areas (1,600 – 3,800km apart) within a season, indicating substantial coast-wide movement. As such, avoidance of the area is unlikely to prevent or hinder them from undertaking their seasonal migrations.

Although 160dB SPL is the recommended threshold for behavioural impacts (NOAA, 2019), there is uncertainty whether SRW have a lower sound threshold for other life stages such as the juvenile or reproduction life stages. Therefore, SEL results from the JASCO report will be considered as the precautionary approach for SRW.

The *National Recovery Plan for the SRW* (DCCEEW, 2024) states that movements of SRW are important to the migrating population and habitat connectivity. The largest area covered by the behavioural EMBA is 0.0012% of the SRW migration BIA and is therefore not likely to impede access to areas where biologically important behaviours are known to occur (i.e. reproduction areas in shallow coastal waters).

The *National Recovery Plan for the SRW* (DCCEEW, 2024) states the contribution to the marine soundscape occur mostly off the Gippsland coast of Victoria and the northern NSW coastline, where there is greater vessel traffic from domestic and international shipping transits. Table 6-18 presents an analysis of the activities against the *National Recovery Plan for the Southern Right Whale* (DCCEEW, 2024) requirements. Based on this assessment and control measures in place, the sound impacts are assessed as Consequence Level III for SRW.

**Table 6-18 Analysis of activities against the *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024)**

| Description | Justification |
|---|---|
| **A1 - Maintain, implement, and improve efficacy of current legislative and management protection for SRW** | |
| 1. Maintain, implement, and improve efficacy of existing legislation and management arrangements (e.g. Managements Plans and Guidelines) as | The following Commonwealth legislation and management arrangements (as outlined in Section 1.2.1 of the *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024)) are implemented: |

| Description | Justification |
|---|---|
| listed under section 1.2 of the *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024). | • Part 8 Division 8.1 of EPBC Regulations<br>• Australian National Guidelines for Whale and Dolphin Watching 2017 (CoA, 2017)<br>• EPBC Act Policy Statement 2.1 (see A5.4 below). |
| **A5 - Assess, manage, and mitigate impacts from anthropogenic underwater noise.** | |
| 2. Actions within and adjacent to SRW BIAs and habitat critical to survival should demonstrate that it does not prevent any SRW from utilising the area or cause auditory impairment. | The closest OA to the SRW reproduction BIA is located 19.3km away (see Figure 3-4).<br>The controls adopted in this EP, combined with the distance from the SRW reproduction BIA, ensures that the activities will not prevent any SRW from utilising the BIA or cause auditory injury. |
| 3. Actions within and adjacent to SRW BIAs and habitat critical to survival should demonstrate that the risk of behavioural disturbance is minimised. | As above.<br>There is a small overlap between the behavioural EMBA and the SRW migration BIA (0.0012% overlap) and no overlap with the reproduction BIA. |
| 4. Ensure environmental assessments associated with underwater noise generating activities include consideration of national policy (e.g. EPBC Act Policy Statement 2.1) and guidelines related to managing anthropogenic underwater noise and implement appropriate mitigation measures to reduce risks to SRW to the lowest possible level. | The assessment herein has considered national policy and guidelines related to managing anthropogenic underwater noise. Mitigation measures, appropriate to the nature and scale of potential impacts are adopted.<br>Although there are no seismic surveys as part of this activity, the control measures align with relevant sections of EPBC Act Policy Statement 2.1 (see Section 6.4.5). |
| 5. Quantify risks of anthropogenic underwater noise to SRW, including studies aimed to measure physiological effects, behavioural disturbance, and changes to acoustic communication (e.g. masking of vocalisations) to whales. | In commissioning activity-specific underwater sound modelling, Esso has used the latest science to ensure this EIA is accurate, which in turn informs the selection of control measures. |
| **A6 - Manage, minimise, and mitigate the threat of vessel strike.** | |
| 1. Assess risk of vessel strike to SRW in BIAs. | The watchkeepers onboard support vessels reduce the risk of vessel strike and entanglement as part of their normal duties as they continuously observe for marine megafauna and other marine users (see Section 7.1 for the assessment of physical interaction with marine fauna). |
| 3. Ensure environmental impact assessments and associated plans consider and quantify the risk of vessel strike and associated potential cumulative risks in BIAs and habitat critical to survival. | Vessel strike consequences are identified as 'major' in the National Recovery Plan for the SRW, however the consideration of the SRW recovery plan, national guidelines and modelling reports in developing the control measures in this EP has reduced the likelihood of vessel strike. This is further detailed in Section 7.1. |

| Description | Justification |
|---|---|
| 5. Ensure all vessel strike incidents are reported in the National Ship Strike Database managed through the Australian Marine Mammal Centre, Australian Antarctic Division. | Watchkeepers report SRW vessel strike incidents to DCCEEW (see Section 7.1). |

***OTHER LOW FREQUENCY CETACEANS***

For other LFC species, such as humpback whales that are known to migrate through Bass Strait, the consequence from underwater sound is assessed as Consequence Level IV as there are no biologically important behaviours identified within the OAs.

***HIGH FREQUENCY CETACEANS***

For HFC species that may migrate through Bass Strait and may be present in and around the OAs at various times of the year, the modelling results indicate that the PTS threshold will not be reached, and that TTS will be reached within 90m, while the behavioural threshold is the same for all marine mammals (3.09km). The consequence from underwater sound is assessed as Consequence Level IV as there are few such species known to occur in Bass Strait and no biologically important behaviours identified within the OAs.

#### 6.3.4.7 Pinnipeds

*RESULTS*

The distances to the TTS and PTS thresholds for pinnipeds are presented in Table 6-16 (90m for TTS and not reached for PTS), with the distance to the behavioural threshold being 3.09km.

*IMPACT ASSESSMENT*

While no BIAs for pinnipeds overlap the ADE, both Australian and New Zealand fur seals (otariid seals) spend time in the vicinity of the platforms, with seals consistently sighted by crew resting on platform jacket struts and swimming in the waters under and around the platforms.

Seals (and sea lions) produce sounds over a generally lower and more restricted bandwidth (generally from 100Hz to several tens of kHz) than cetaceans (see Figure 6-2). Their sounds are used primarily in critical social and reproductive interactions (Southall, et al., 2007). Most species of seal (and sea lions) have peak sensitivities between 1 and 20kHz (Southall, et al., 2007).

An 'at-sea and habitat use study' indicate that OA sea floor infrastructure represents foraging sites for Australian fur seal colonies at Kanowna and Rag islands (Arnould J. , et al., 2015). A recent study Arnould (2025) found that Australian fur seals that frequent these areas have greater foraging success and achieve most of their prey consumption in their vicinity. Anecdotal evidence suggests that vessel movement and in-air noise when alongside platforms has limited behavioural impacts to individual animals (seals remain on the platform jacket).

The underwater sound modelling undertaken for this activity (JASCO, 2025) (Table 6-16) indicates that the PTS threshold is not reached for pinnipeds, with TTS ($R_{max}$) restricted to within 90m of the source vessel. Impacts are therefore limited to temporary avoidance of the immediate area of the vessel. Accordingly, continuous underwater noise is assessed a Consequence Level IV for pinnipeds.

#### 6.3.4.8 Fish

Fish (including shark and ray) species likely to occur within the EMBA are described in Section 1.4.4 of Appendix A.

All fish studied to date can detect sound, with the main auditory organs in teleost (bony) fish being the otolithic organs of the inner ear (Carroll, Przeslawski, Duncan, Gunning, & Bruce, 2017). Hearing in fish primarily evolved the ability to sense acoustic particle motion via direct inertial stimulation of the otolithic organs or their equivalent. Many species also have the ability to sense sound pressure using an indirect path

of sound stimulation involving gas-filled chambers such as the swim bladder (Carroll, Przeslawski, Duncan, Gunning, & Bruce, 2017).

Limited research has been conducted on responses from elasmobranchs (sharks and rays, including juveniles) to underwater sound. This may be because sharks and rays differ from bony fish in that they have no accessory organs of hearing (i.e. a swim bladder) and therefore are unlikely to respond to acoustic pressure (Myrberg, 2001). Elasmobranchs sense sound via the inner ear and organs and as they lack a swim bladder it is thought that they are only capable of detecting the particle motion component of acoustic stimuli (Myrberg, 2001).

There is no direct evidence of mortality or potential mortality to fish from vessel sound emissions (Popper, et al., 2014). The risks of mortality and potential mortality, and recoverable injury impacts to fish with no swim bladder (sharks) or where the swim bladder is not involved in hearing is low and TTS may be a moderate risk at near distances (tens of metres) from the vessel (Popper, et al., 2014). However, some evidence suggests that fish sensitive to acoustic pressure show a recoverable loss in hearing sensitivity, or injury when exposed to high levels of sound and Popper et al. (2014) details SPL criteria for fishes with a swim bladder involved in hearing.

Impacts to fish from the activity will be limited to behavioural responses within a few metres of the noise source. Fish (including sharks and rays) may be temporarily displaced from the immediate vicinity of the sound source. For fish with a swim bladder involved in hearing, the risks of mortality and potential mortality impacts are low, as the range for support vessels is expected to be a maximum of 173.8db re 1µPa, while fish with a swim bladder may have impairment occur at 170dB RMS for 48 hours. Additionally, the sound emitted from support vessels would not exceed eight hours, meaning that sound levels would not reach the threshold criteria for fish, thereby resulting in Consequence Level IV impacts to fish.

#### 6.3.4.9 Plankton

Plankton (described in Section 1.4.3 of Appendix A) is very widely dispersed throughout the ocean and is transported by prevailing wind and tide-driven currents. They cannot take evasive behaviour to avoid anthropogenic sound sources. However, the potential for impacts is limited due to their widespread distribution and rapid population growth rates. This means that only a small percentage of a cohort will be exposed to sound from the activity at any one time. Invertebrate plankton species that have gas-filled flotation organs (such as cephalopods) are more likely to be affected by underwater noise than those without flotation organs.

Popper et al. (2014) laid foundational guidelines for assessing underwater noise impacts, but plankton-specific data were sparse. For plankton and fish eggs/larvae, Popper et al. (2014) conclude that the risk of injury or mortality from vessel noise is low, primarily due to their small size and lack of specialized hearing structures. This conclusion is supported by more recent literature, including (Aspirault, 2023), which suggest that vessel noise does not impact feeding behaviour and growth of different zooplankton species. The authors did however find an impact of vessel noise on the egg production of rotifers. The results support the conclusion that vessel sound represents a low risk to plankton. Accordingly, the impact consequence for plankton resulting from underwater noise generated by support vessels has Consequence Level IV at an ecosystem and population level.

#### 6.3.4.10 Marine turtles

Three EPBC Act-listed species of turtle may occur with the EMBA (see Appendix A).

The Recovery Plan for Marine Turtles in Australia (CoA, 2017) identifies noise interference as a threat to turtles. It details that exposure to chronic (continuous) loud noise in the marine environment may lead to avoidance of important habitat.

Morphological studies of green and loggerhead turtles found that the marine turtle ear is similar to other reptiles but has some adaptations for underwater listening (Macarena, Hansjoerg, Kunc, & Houghton, 2024). A thick layer of fat may conduct sound to the ear in a similar manner as the fat in jawbones of odontocetes, but marine turtles also retain an air cavity that presumably increases sensitivity to sound pressure. Sea turtles have lower underwater hearing thresholds than those in air, owing to resonance of the middle ear cavity, and hence they hear best underwater.

Electrophysiological and behavioural studies on green and loggerhead turtles found their hearing frequency range to be approximately 50 – 2,000Hz, with highest sensitivity to sounds between 200 - 400Hz (Lavender, Bartol, & Bartol, 2014) (see Figure 6-2) although these studies were all conducted in-air. Underwater audiograms are only available for three species. One of these species, the loggerhead turtle demonstrated higher sensitivity at around 500Hz. Recent work on green turtles has refined their maximum underwater sensitivity to be between 200 - 400Hz (Piniak, Mann, Harms, Jones, & Eckert, 2016).

At very close distances to a sounds source, there is also the possibility of temporary hearing impairment or perhaps even permanent hearing damage to turtles. The greatest impact is likely to occur if sound pulses are generated in or near areas where turtles congregate, and in seasons when turtles are concentrated in these areas.

Using semi-quantitative analysis, Popper et al. (2014) suggests that there is a low risk to marine turtles from shipping and continuous sound except for TTS near (tens of metres) to the sound source, and masking at near, intermediate (hundreds of metres) and far (thousands of metres) distances and behaviour at near and intermediate distances from the sound source. Based on this information, turtles may exhibit avoidance behaviour around a vessel using DP.

Revised thresholds for turtle PTS and TTS for continuous sound were subsequently developed by (Finneran, et al., 2017) (Table 6-15). These thresholds were not reached in the current study. These results, combined with the rare occurrence of turtles and the absence of turtle BIAs, nesting beaches or habitat critical to turtle species in the ADE and Bass Strait more broadly, means that physiological and behavioural impacts to turtles from underwater sound associated with the activity are unlikely. As a result, the consequence level for turtles is assessed as Consequence Level IV.

#### 6.3.4.11 First Nations Underwater Cultural Heritage

The intrinsic link between First Nations people and culturally significant species are understood to be based on First Nations obligations to care for the species (Weir, 2012). The management of culturally significant species is applied to the species at a population level. As a result, impacts to culturally significant species at a population level has the potential to disrupt the intrinsic link of First Nations people ability to care for culturally significant species.

*FISH*

Culturally significant food sources such as fish are found within and migrate through the South-East marine region. Fish have long been a staple for coastal First Nations groups, including the Gunaikurnai and Bunurong peoples, who continue to practise culturally and spiritually significant activities such as subsistence fishing and coastal resource collection (GLaWAC, 2015) (BIOSIS, 2023) (NOO, 2002). Heritage-listed fish traps in the region reflect this enduring connection. First Nations peoples also hold a cultural responsibility to care for fish and their habitats to ensure their sustainability (NOO, 2002).

As outlined earlier in this section, potential impacts to fish from underwater sound are assessed to have a Consequence Level IV, meaning there will be no effects on population viability and as such, impacts to the cultural value of key fish species is unlikely to be affected. The strong link between environmental health and First Nations cultural heritage is therefore expected to remain intact.

*MARINE MAMMALS AND TURTLES*

First Nations peoples across Australia have long held a deep cultural connection to marine mammals and turtles, with cetaceans regarded as totemic ancestors by some groups. In the South-East marine region, cetaceans hold particular cultural significance, featuring prominently in Dreaming stories, ceremonies, songs, and dances (NOO, 2002). These reviews confirm their importance, and First Nations communities have a cultural responsibility to ensure the health and protection of these species and their habitats.

Whales are central to the spiritual and physical wellbeing of many coastal First Nations groups, including through ongoing practices such as collecting parts of beached whales, which is a tradition maintained for thousands of years (NOO, 2002).

First Nations peoples may have kinship ties and custodial responsibilities for culturally significant species and their habitats. Impacts at the population level could hinder the ability to fulfil these obligations, potentially leading to a sense of disempowerment among those responsible for their care (Holcombe,

2022). A Consequence Level IV has been assessed for all marine fauna other than the SRW and PBW (with a Consequence Level III), meaning that impacts at a population level are not predicted to occur. Therefore, the intrinsic connection that First Nations people have with marine mammal and turtle cultural heritage values is expected to remain intact.

#### 6.3.4.12 Cumulative impacts

Cumulative impacts are defined in Elliot (2014) as those impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with an existing project.

*ADDITIONAL ESSO ACTIVITIES IN OPERATIONAL AREAS*

There are likely to be occasions when multiple support vessels may be unloading/loading or providing standby support services within the PSZ. Additional underwater sound modelling was undertaken by JASCO to consider two platforms, with a jack-up drilling rig, two supply vessels alongside, and an OSV on standby. With these additional noise sources, the distance to reach the behavioural threshold for LFC is estimated to be very similar to that already presented, at 3.07km (Liu & Stephen, 2025b). Therefore, the existing underwater sound EMBA for marine mammals of 3.09km does not change with an additional vessel in the PSZ.

If cutting operations were occurring simultaneously from an IMR or wellwork campaign, it is unlikely that the modelled distances to effect threshold would increase since the OSV spectral levels are far higher than that of the ROV cutter (Matthews, Connell, & McPherson, 2023). The platforms are all significant distances away from each other (no closer than 3.6km) so there is no expectation of cumulative noise across platforms.

*CUMULATIVE EFFECTS OF THE PRODUCING OPERATIONAL AREAS*

The producing facilities that may have underwater sound EMBAs that overlap in the rare circumstance where multiple support vessels are alongside nearby platforms are TNA and WTN (these platforms are 3.6km apart). The MLA and MLB platforms are adjacent to each other and as such, it is highly unlikely that a support vessel would be in attendance at each one at the same time; a support vessel would visit one and then the other, so these two platforms are excluded from this assessment.

As outlined at the start of this section, with additional noise sources within a single PSZ, the distance to reach the behavioural threshold for LFC is estimated to be very similar to that already presented, at 3.07km (Liu & Stephen, 2025b). Therefore, the combination of two underwater sound EMBAs for marine mammals of 3.09km does not change.

Jasco has previously advised in Beach Energy (2021) that a combination of seismic sound from two marine seismic surveys operating concurrently in nearby areas would increase sound levels by a maximum of 3dB SPL if the impulses were simultaneously incident at a point in space. Given that vessel sound is continuous (not impulsive) and not as loud as seismic survey sound, the increase in sound levels is likely to be less than the 3dB SPL for seismic surveys estimated by Jasco, and as such, unlikely to result in behavioural changes for LFC over a larger area than would be the case for one vessel.

*DECOMMISSIONING ACTIVITIES*

Underwater sound generated by Esso's Campaign #1 decommissioning activities (emanating from the *Pioneering Spirit* HLV, construction support vessels, subsea cutting tools and helicopters) is assessed in Section 6.11 of the *Gippsland Basin Decommissioning Campaign #1 Execution EP* (available here: Industry environment plans). The longest modelled distance to behavioural effects for LFC (representing a scenario of the HLV, support vessel and ROV cutter operating simultaneously, and excluding the scenarios modelled at vessel-to-vessel transfer locations outside the ADE closer to Corner Inlet) is 20.9km.

Facilities to be decommissioned that will have EMBAs overlapping the producing OAs are Flounder (overlap with TNA and WTN), Fortescue (overlap with MLA and MLB) and Whiting (overlap with SNA). The Gippsland Basin Decommissioning Campaign #1 Execution EP predicts that Campaign #1 will take up to 21 months, though the duration of operations for the largest (and loudest) vessel, the *Pioneering Spirit*, is estimated to be four months. Averaging that out among the 13 facilities to be decommissioned, this means the period for which the loudest scenario takes place will be about 8.5 days at each of the Flounder, Fortescue and Whiting platforms.

Combined, the 20.9km Campaign #1 underwater sound EMBA and the producing EMBA of the nearest Esso OA results in 0.77% overlap with the PBW foraging BIA and 0.06% overlap with the SRW migration BIA. Given the short time in which a 'combined' EMBA may occur (about 24 hours when a support vessel is alongside a platform), cumulative impacts to these LFC are predicted to be negligible.

*OTHER ACTIVITIES IN BASS STRAIT*

As outlined in Section 3.2, the ADE overlaps and is adjacent to other petroleum exploration licences and retention leases, an offshore wind feasibility licence area and GHG assessment permits. Activities to be undertaken in those areas during the life of this EP may generate underwater sound, including geophysical surveys, geotechnical surveys, seismic surveys and drilling, however these are not within the scope of this EP.

Esso's understanding of the status of activities in overlapped and adjacent areas that may increase underwater sound levels in the vicinity of the OAs is outlined below:

- VIC/P47 – Emperor Energy operates this exploration permit and is planning to undertake exploration drilling in the second half of 2026 according to the EP published on the NOPSEMA website. The drill site is proposed to be located about 6.5km northwest of KPA. Sound generated by the jack-up drill rig will be negligible and will not result in cumulative impacts to marine fauna in the OAs.
    - Underwater sound modelling results presented in Table 5-5 of the Judith-2 drilling EP (available here: Industry environment plans) note that the maximum distance to behavioural effect for LFC from the 2D survey for the campaign is 2km, and for VSP is 4.8km. There will be no overlap with the KPA or TNA OA with the 2km EMBA but there is a small overlap of 4.4km$^2$ between the Judith-2 VSP EMBA and the 3.09km sound EMBA for KPA. The VSP for Judith-2 is predicted to take no longer than 24 hours, so any cumulative impacts to marine fauna between Esso's vessel operations and the Judith-2 drilling campaign will be extremely limited in duration in the unlikely situation where an Esso-contracted vessel is working over the KPA wells at the same time as the VSP activity.
    - Underwater sound modelling results presented in Table 5-9 of the Judith-2 drilling EP note that the maximum distance to behavioural effect for LFC from vessels and the drill rig during pre-lay and positioning activities is 23.7km. This underwater sound EMBA entirely overlaps the 3.09km radius sound EMBA for KPA, TNA and WTN. This duration of this activity is not presented in its EP but is known to generally take up to several days. Any cumulative impacts to marine fauna between Esso's vessel operations in the OAs and the Judith-2 drilling campaign will therefore be of a limited duration.
    - Underwater sound modelling results presented in Table 5-9 of the Judith-2 drilling EP note that the maximum distance to behavioural effect for LFC during routine drilling activities (rig on location with one or two support vessels in the PSZ) is 5.2km. This underwater sound EMBA has a 6.4km$^2$ overlap with the sound EMBA for KPA. The Judith-2 drilling is predicted to take about 60 days. The two sound EMBAs combined results in 0.006% overlap with the PBW foraging BIA and 0.004% overlap with the SRW migration BIA, so cumulative impacts to these LFC are predicted to be negligible.
- VIC/L31 – Carnarvon Hibiscus Pty Ltd operates this licence, which is adjacent north of VIC/L1 that contains the BTA field. Carnarvon Hibiscus is planning to remove the West Seahorse-3 and Wardie-1 conductors during some point in 2026 using a vessel on DP (according to the EP, available here: Industry environment plans).
    - Underwater sound modelling results presented in Section 7.2.3.1 of the West Seahorse-3/Wardie-1 non-production operations EP notes that the maximum distance to behavioural effect for LFC during routine vessel operations is 8.6km. These wells are located 11.1km from BTA. This underwater sound EMBA has a 1.2km$^2$ overlap with the sound EMBA for BTA. The removal activity is expected to take 7-14 days. The combined results in 0.14% overlap with the PBW foraging BIA and 0.01% overlap with the SRW migration BIA, so cumulative impacts to these LFC are predicted to be negligible.

- VIC/RL13, RL14 and RL15 – Amplitude Energy operates these retention leases that contain the now depleted Baska, Manta and Gummy gas fields. The nearest well in this field is located 15.2km from KPA. Their BMG Closure Project (Phase 2) plans to decommission flowlines, umbilicals and other equipment not removed in previous phases of the closure project.
    - Underwater sound modelling results presented in Section 6.5.2.1.3 of the EP for this project (available here: Industry environment plans) predict that the maximum distance to behavioural effect for LFC associated with continuous vessel sound is 8.6km. The activity is estimated to take up to 50 days. This sound EMBA does note overlap that of the nearest Esso sound EMBA (for KPA), so there is no combined EMBA. Should there be concurrent vessel activity at KPA and the BMG closure project, there is a distance of 3.6km between the sound EMBAs in which whales can migrate and forage.
- G-19-P – CarbonNet operates this GHG assessment permit, which overlaps all the ADE and OAs, except for KPA. CarbonNet also operates the GX-6-AP GHG assessment permit, which is located to the west of West Barracouta. As of March 2026, the NOPSEMA website does not include any EPs submitted for activities in these permits, so no assessment of underwater sound impacts from activities that take place in these permits is possible at this stage.
- The Navigator North offshore wind feasibility licence – Navigator North Project Pty Ltd (a joint venture between RES and Origin Energy) is the licence holder for this project. The ADE is partially overlapped by the feasibility licence. The project lodged EPBC Referral 2024/10093 for early marine investigations comprising geophysical and geotechnical surveys and the deployment of a floating LiDAR buoy. The EPBC Referral states that the distance to TTS and PTS for LFC from underwater sound generated by the activities is predicted to be less than 10m. As such, these activities would be highly unlikely to result in cumulative underwater sound impacts to LFC or other marine fauna. The project is understood to currently be on hold.

### *6.3.5 Impact assessment*

Table 6-19 presents the impact assessment for underwater sound.

**Table 6-19 Impact assessment for underwater sound**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual represents business as usual, well understood activity, good practice is well defined | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest | | |
| **Impact Consequence (inherent)** | | | |
| Consequence Level III (PBW and SRW only) | | | |
| Consequence Level IV (all other marine fauna) | | | |
| **Assessment of Proposed Control Measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| Vessel masters and helicopter | Aims to minimise disruption to breeding, feeding, and | Adopting this guidance is simple to implement and is | Adopted |

| | | | |
|---|---|---|---|
| pilots apply the EPBC Regulations 2025 – Part 8 Division 8.1, in accordance with the *Australian National Guidelines for Whale and Dolphin Watching 2017* for helicopter operations and vessel movements (CoA, 2017). | migration. Also reduces the potential for disturbance from noise. | routine maritime practice for Esso. | **(IMP03-CM01)** |
| Vessel bridge crew apply the EPBC Regulations 2025 – Part 8 Division 8.1, in accordance with the *Australian National Guidelines for Whale and Dolphin Watching 2017* (CoA, 2017) for fauna observations. | Reduces the uncertainty on presence of cetaceans in the proximity of the vessel, in turn reducing potential impacts to whales.<br>Increases the confidence that there are no foraging PBW or migrating SRW in the behavioural zone that could be displaced upon the start of activities. | Bridge watchkeeping for marine traffic and whales is a routine maritime practice and simple to implement.<br>Vessel bridge crew are trained and competent in whale observation and species identification as part of vessel operator procedures and report any sighting as part of their ongoing compliance with the Part 8 Division 8.1 of the EPBC Regulations , which is implemented via the Australian National Guidelines for Whale and Dolphin Watching 2017 (CoA, 2017). | Adopted<br>**(IMP03-CM02)** |
| If a PBW or SRW is observed within the behavioural zone (3.9km), implement adaptive management and delay vessel movements | Reduces the likelihood of TTS or behavioural impacts. | Operationally feasible to proactively prevent the use of DP by delaying entry into the OA (preventing the vessel coming alongside the platform) if a PBW or SRW is identified within the behavioural zone (3.9km). | Adopted<br>**(IMP03-CM03)** |
| Move support vessel away from the platform during unloading/ loading when the | Reduces the potential for PTS, TTS and behavioural impacts to LFC. | If loading/unloading activities are able to be stopped safely and quickly, they will be ceased and the support vessel will move away from the platform and cease using | Adopted, if safe to do so<br>**(IMP03-CM03)** |

| | | | |
|---|---|---|---|
| vessel is using DP if a PBW or SRW is observed. | | DP until the whale moves out of the 3km radius behavioural zone or when 30 minutes have lapsed since the last sighting.<br>If a vessel is alongside the platform undertaking loading/unloading and a whale is sighted, it may not be practicable or safe for the operation to cease and the vessel to move away (e.g. during diesel bunkering, or complex lifts).<br>It may take some time to cease the activity of loading/unloading in a safe manner, by which time it is likely that an individual whale would have passed. If feasible, vessels in this scenario will reduce thrusters and adjust heading. | |
| Only conduct activity outside of indicative peak PBW season (April to June). | Reduces the potential for PTS, TTS and behavioural impacts to PBW. | Not feasible. The activity is a continuous activity supplying gas to the southeast Australian domestic gas market.<br>The implications of implementing this control are grossly disproportionate to the environmental benefits. | Not adopted |
| Only conduct the activity outside of the SRW migration season (approximately April to October). | Reduces the potential for PTS, TTS and behavioural impacts to SRW. | Not feasible. The activity is a continuous activity supplying gas to the southeast Australian domestic gas market.<br>The implications of implementing this control are grossly disproportionate to the environmental benefits. | Not adopted |
| Limit power to the support vessel thruster levels below normal operating levels while inside the OA. | Reduces the potential for PTS, TTS and behavioural impacts to LFC. | The use of thruster is already limited in accordance with the Activity Specific Operating Guidelines, Critical Activity Mode of Operation. Further reduction would compromise the ability of the support vessel to hold station to safely undertake loading | Not Adopted |

| | | | |
|---|---|---|---|
| | | and unloading operations while alongside a platform. | |
| Shut down all DP thrusters on the support vessel if whales (particularly PBWs and SRWs) are sighted near the vessel. | Reduces the potential for PTS, TTS and behavioural impacts to LFC. | Shutting down all thrusters would result in the support vessel drifting off location, which could result in it colliding with a platform and lead to damage to the vessel and/or platform, with the associated safety risks to personnel on the vessel and platform. This may also result in the potential for hydrocarbon release. | Not adopted |
| Use trained and experienced, dedicated marine mammal observer (MMOs) on vessels. | Reduces the potential for PTS, TTS and behavioural impacts to LFC. | To be effective, at least two MMOs are required on a vessel, with at least one of these MMOs on shift during daylight hours, means that a trained expert is dedicated to searching for whales and implementing whale management procedures.<br>Given the short distance to the behavioural threshold for LFC (3km) is only in effect when a vessel is alongside a platform while using DP, having MMOs onboard support vessels is grossly disproportionate to the environmental benefits of this control measure. | Not Adopted |
| Undertake the above-listed surveys with drones. | Increases the confidence that there are no LFC or other threatened fauna in the behavioural impact zone that could be displaced during the activity. | Drones have been considered as a method of increasing the observation distance of MMOs and monitoring the PTS, TTS and observation zones. Drone surveys have been carried out for cetaceans using MMOs, mainly in the nearshore marine environment via beach operations. The use of MMOs is not adopted for this activity (see previous row). | Not adopted |
| Undertake aerial surveys (light aircraft, helicopters or drones) around | Increases the confidence that there are no LFC or other threatened fauna in the behavioural impact zone that | Flights in small aircraft over open water introduce significant safety risks, and there is no guarantee that marina fauna will be spotted | Not adopted |

| | | | |
|---|---|---|---|
| OAs or platform-based observations ahead of support vessels coming alongside platforms for whales, sharks and turtles. | could be displaced during the activity | due to glare, rough seas, mist and fog and the inherent difficulty of sighting species that dive for long periods.<br><br>Implementing this control measure is grossly disproportionate to the environmental benefits for the following fauna groups for the reasons listed below:<br><br>• short distances to effect for LFC and the very small areas of overlap with PBW and SRW BIAs.<br>• low abundance of turtles in Bass Strait, with an absence of turtle BIAs or nesting beaches.,<br>• sharks do not have a swim bladder and are therefore less susceptible to underwater sound than cetaceans. There is only one platform in the white shark reproduction BIA. | |
| Use of Passive Acoustic Monitoring (PAM) to detect HFC and VHFC. | Increases the confidence that there are no deep- and long-diving cetaceans (that are difficult to visually detect) in the behavioural impact zone that could be displaced during the activity. | As a cetacean detection method, PAM has been used to detect whales that vocalise at high frequencies/intensities such as HFC and very HFC (e.g. sperm whales) and, in conjunction with visual monitoring, can enhance cetacean detection effectiveness.<br><br>PAM has the advantage of potentially detecting cetaceans during night hours and during periods of poor visibility when they cannot be visually detected.<br><br>Although PAM can be a valuable tool in identifying the presence of cetaceans, the following factors limit its effectiveness:<br><br>• most suitable for HFC and very HFC, which are generally of lower concern in this region | Not adopted |

| | | | |
|---|---|---|---|
| | | compared to LFC. It is difficult for PAM to pick up vocalisations of LFC such as PBW and SRW.<br>• bearing accuracy and range estimation is limited because it is not as accurate as visual observations.<br>• observations by Vessel Masters and crew negate the need for using PAM given that LFC (which surface to breathe more regularly that deeper-water HFC and very HFC) will generally be able to be easily detected. | |

| **Environmental Controls and Performance Measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **IMP03-EPO01:**<br>No displacement, injury of, or mortality to, EPBC Act-listed marine fauna as a result of noise generated by support vessels or helicopters during operations. | **IMP03-CM01:**<br>Helicopter pilots will not fly lower than 1,650ft (503m) when within 500m horizontal distance of a cetacean except when landing or taking off and will not approach a cetacean from head on.<br>Vessel masters will implement the following cetacean interaction management actions:<br>• caution zones - vessels will not knowingly travel faster than 6kn within 300m of an adult whale or 150m of an adult dolphin<br>• vessels will not knowingly get closer than 100m of a whale or 50m of a dolphin.<br>• if a cetacean approaches the vessel within the above zones, the vessel will avoid rapid changes in engine speed or direction. | **IMP03-EPS01:**<br>By implementing the *Australian National Guidelines for Whale and Dolphin Watching 2017* for helicopter operations and vessel movements (CoA, 2017), vessel masters and helicopter pilots meet the requirements of the EPBC Regulations 2025 – Part 8 Division 8.1. | Vessel bridge records include cetacean observations and interactions and any actions taken.<br>Helicopter pilots will record excursions. |
| | **IMP03-CM02:**<br>Vessel bridge crew are competent in whale observations and species identification as part of their normal duties:<br>• all Watchkeepers hold Certificates of Competency recognised by the vessel Flag State which can only be obtained by completing years of sea service, including understudy time on watch on the bridge<br>• vessel crews complete Marine Fauna Observer (MFO) training to ensure that | | Watchkeeper certificates of competency and vessel bridge crew MFO training records verify competency. |

| | | | |
|---|---|---|---|
| | obligations with respect to marine mammals are observed while they are in charge of the vessel. | | |
| | **IMP03-CM03:**<br>Vessel bridge crew undertake observations within the behavioural zone (3.9km) around the vessels while on route to the OAs.<br>If a PBW or SRW is observed (or if there is any uncertainty in species identification), the following adaptive management actions will be undertaken:<br>• delay support vessel operations or moves and delay the commencement of unloading/loading activities until PBW/SRW has been confirmed outside of the behavioural zone (3.9km) or no new sightings for 30 minutes<br>• if already in transit, vessels will reduce speed, adjust heading if safe to do so and apply the caution zone requirements of CM01<br>• during unloading/loading operations whilst a support vessel is alongside the platform, the support vessel will either stop operations if safe to do so and move away from the behavioural zone (3.9km), or if not safe to stop operations, reduce thrusters to as low as possible and adjust heading. | **IMP03-EPS02:**<br>Behavioural disturbance to PBW or SRW is avoided by undertaking adaptive management actions. | Vessel bridge records include cetacean observations and interactions and any actions taken. |

| **Impact Consequence (residual)** |
|---|
| Consequence Level IV |
| **Demonstration of ALARP** |
| With the controls outlined in this table in place, the consequence has been assessed as Consequence Level IV (lower consequence) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual consequence further or would be grossly disproportionate to the residual consequence. Therefore, a Consequence Level IV residual impact consequence is considered to be ALARP. |

| **Demonstration of Acceptability** | |
|---|---|
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). |
| **Legislative and other requirements** | The controls proposed to manage this impact meet the following legislative requirements:<br>• EPBC Act 1999 (Cth):<br>- Section 229, 229A – all cetaceans protected in Australian waters, and it is an offence to kill, injure or interfere with a cetacean. |

<table>
<tr><td></td><td colspan="2">
- EPBC Regulations 2025 (Part 8) – minimum approach distances to cetaceans.

Noise interference is a recognised threat to the species in the following conservation management plans and advice. The proposed controls are consistent with conservation/management actions in:

- CMPBW
- *Conservation Advice for humpback whales* (TSSC, 2015)
- *The National Recovery Plan for Southern Right Whales* (DCCEEW, National Recovery Plan of the Southern Right Whale (Eubalaena australis), 2024)
- *Conservation Advice for sei whales* (TSSC, 2015)
- *Conservation Advice for fin whales* (TSSC, 2015)
- *Recovery Plan for Marine Turtles in Australia, 2017-2027* (DoEE, 2017)
- *Recovery Plan for the White Shark (Carcharodon carcharias)* (DSEWPAC, 2013)
- *Recovery Plan for the Grey Nurse Shark (Carcharias taurus)* (DoE, 2014b)
- *Issues Paper for the Australian Sea Lion (Neophoca cinerea)* (DSEWPAC, 2013).
</td></tr>
<tr><td rowspan="4">Industry practice</td><td colspan="2">The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity.</td></tr>
<tr><td>Environmental management in the upstream oil and gas industry (IPIECA-IOGP, 2020)</td><td>The controls listed in this table meet the relevant mitigation measures listed for offshore activities with regard to:<br>• Acoustics (sound emissions) – offshore facilities consider engineering measures to minimise operational noise emissions; vessels ensure gradual start-up of engines and thrusters where possible to provide opportunity for species to take evasive action (IMP03-CM01-CM03).</td></tr>
<tr><td>Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production (European Commission, 2019)</td><td>There are no guidelines specifically regarding underwater sound for offshore activities.</td></tr>
<tr><td>Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development (World Bank Group, 2015)</td><td>Guidelines met with regard to:<br>• Noise (item 74). Environmental parameters that determine sound propagation in the sea are site specific, and different species of marine life have different hearing sensitivities as a function of frequency. An impact assessment should be conducted to:<br>- identify where and/or when anthropogenic sound has the potential to create significant impacts</td></tr>
</table>

| | | |
|---|---|---|
| | | - determine what mitigation measures, if any, are appropriate. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls developed for this activity meet the code's following objectives:<br>• reduce the impact on cetaceans and other marine life to ALARP and an acceptable level. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to "comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist". |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to qualify, evaluate and select contractors based on their ability to perform work in a safe, secure and environmentally sound manner. |
| **External context** | No relevant person concerns have been raised concerning sound emissions. | |

## 6.4 Light emissions

### *6.4.1 Source of Impact*

The sources of light emissions are summarised in Table 6-20.

**Table 6-20 Sources of light emissions**

| Activity | Applicable? | Source of light emissions |
|---|---|---|
| Platform operations | **Yes** | • Navigation lighting<br>• Intermittent flaring (including pilot light)<br>• Deck lighting<br>• Quarters lighting |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **No** | N/A |
| IMR | **Yes** | Light from ROV (subsea) |
| Support activities | **Yes** | • Vessel navigation and deck lighting |

Platform and vessel lighting is kept on 24 hours a day for safety purposes and is normally directed toward the deck, except when required for safe operations such as lifting operations, deployment/retrieval of equipment and evacuation lighting.

During subsea IMR, ROVs will emit light to illuminate areas of interest while staying in close proximity to the subsea infrastructure with the OAs.

### *6.4.2 Known and potential impacts*

The known and potential impacts of light emissions are:

- change in fauna behaviour (attraction of light sensitive species affecting predator-prey dynamics, behavioural disturbance leading to injury/mortality).

The light-sensitive receptors that may occur within the EMBA, as residents or migrants, include:

- plankton
- fish
- turtles
- seabirds.

### *6.4.3 Environment That May Be Affected*

The EMBA for light emissions is localised, based on the intensity of the light source, for example:

- Platform navigation lights – Are designed to be seen from about 10nm (18.5km) away, but light glow is limited to a few hundred meters radius given the small size of the lights. Deck lighting is maintained at levels that allow safe operations and has an equally small radius of light glow.
- Quarters lighting – Lighting within the living quarters, such as cabins, mess, galley, laundry, will be visible beyond the living quarters when porthole window blinds are not drawn (noting that many cabins do not have windows or that blinds are often permanently drawn for shift crew sleeping during the day). Light emanating from the windows does not contribute to light glow – outdoor lighting is a more significant source of light glow.
- Flaring – Is typically a small, safety pilot flame with limited light glow, however associated light may be seen from many kilometres away, depending on the volume of gas being flared (e.g. a process upset will typically result in more gas being flared and therefore a larger flame than flaring undertaken for planned maintenance activities). Flaring events of high magnitude are not common
- Vessel navigation lights - Are designed to be seen from afar but result in light glow limited to tens of metres radius given the small size of the lights.
- ROV lights – Forward facing lamps are designed to illuminate an area several metres ahead of the ROV, with the distance dependent on the types of lights used and water clarity.

### *6.4.4 Evaluations of environmental impacts*

#### 6.4.4.1 Impact assessment of change in fauna behaviour

*FISH AND PLANKTON*

Fish and zooplankton may be directly or indirectly attracted to light. Experiments using light traps have found that some fish and zooplankton species are attracted to light sources (Meekan, M. G., Wilson, S. G., Halford, A. and Retzel, A, 2001), with traps drawing catches from up to 90m (Milicich, M., Meekan, M. and Doherty, P., 1992). Lindquist et al (2005) concluded from a study of larval fish populations around an oil and gas platform in the Gulf of Mexico that an enhanced abundance of clupeids (herring and sardines) and engraulids (anchovies), both of which are highly photopositive, was caused by the platforms' light fields. The concentration of organisms attracted to light results in an increase in food source for predatory species and marine predators are known to aggregate at the edges of artificial light halos. Shaw et al (2002), in a similar light trap study, noted that juvenile tunas (Scombridae) and jacks (Carangidae), which are highly predatory, may have been preying upon concentrations of zooplankton attracted to the light field of the platforms. This could potentially lead to increased predation rates compared to unlit areas.

It is likely that squid (a light-attracted species) may congregate around areas of higher intensity light, making them more vulnerable to predators such as other fish, sharks and seabirds. Other fish and plankton may also congregate in higher numbers around the platforms if light glow is strong enough, particularly during periods of flaring when light is more intense, but this is highly localised to the area of light glow around the platform and therefore expected to have negligible impacts to the local and regional food web. As such, impacts to fish and plankton from light emissions have a Consequence Level IV rating.

*REPTILES*

Light glow can be an issue along, or adjacent to, turtle nesting beaches where emerging hatchlings orient to, and head towards, the low light of the horizon unless distracted by other lights which disorient and affect their passage from the beach to the sea (CoA, 2017). It was discovered that in the absence of illumination from the moon, the glow from tower flares may influence the orientation of turtle hatchlings at close range (30 – 100m).

Three listed/threatened species of marine turtle may occur within the OAs (see Section 3.2), although there are no BIAs, critical habitats or nesting beaches in Bass Strait, and all turtles are known for having a greater abundance in warmer waters to the north. Robertson & Coventry (2014) state turtles sighted within Victorian waters are likely to be rare vagrants outside of their usual range. The *Recovery Plan for Marine Turtles in Australia, 2017 – 2027* (DoEE, 2017) lists light pollution as a key threat, however this relates specifically to turtle hatchlings and nesting sites. In the absence of nesting sites, the light glow from the activities within the OAs therefore have a Consequence Level IV rating for turtles.

To date, Esso has no observation records of turtles around its platforms.

*SEABIRDS*

Seabirds may be attracted to platforms and vessels at night due to light glow. Bright lighting can disorientate flying birds resulting in behavioural changes such as circling light sources, which may lead to disrupted foraging and starvation, or exhaustion (leading ultimately to injury or mortality near the light source) (Wiese, et al., 2001).

Seabirds that are active at night while migrating, foraging or returning to colonies that are directly affected include petrels, shearwaters, albatross, noddies, terns and some penguin species. Fledglings are more affected by artificial lighting than adults due to the synchronised mass exodus of fledglings from their nesting sites. They can be affected by lights up to 15km away (DCCEEW, 2023). Artificial light can cause significant impacts on Procellariiformes (petrels and shearwaters) that breed in burrows and only attend breeding colonies at night (DCCEEW, 2023d). There are no breeding sites for this group of seabirds within 20km of the OAs.

Several shorebird and seabirds are known to migrate through and forage in the ADE and EMBA (Table 3-2) including petrels, shearwaters, albatross, noddies, terns and penguins. Species with BIAs overlapped by the ADE are listed in Table 6-21. In the event that deck or navigational lighting occasionally acts as an attractant to seabirds, it is not expected that this will permanently impact on migration or other behaviours.

Light emissions are not identified as a threat for albatross and petrels in the *National Recovery Plan for Threatened Albatrosses and Giant Petrels (2022)* (CoA, 2022) which states that seabird interactions are common on the continental shelf margins with seabirds being reported across marine infrastructure sectors including vessels (Black A. , 2005) and oil and gas platforms (Wiese, et al., 2001).

**Table 6-21 Seabird BIAs within the ADE**

| Scientific name | Common name | BIA overlap with the ADE |
|---|---|---|
| *Pelecanoides urinatrix* | Common diving-petrel | 0.35% |
| *Thalassarche bulleri* | Bullers albatross | 0.22% |
| *Thalassarche chlororhynchos bassi* | Indian yellow-nosed albatross | 0.15% |

| Scientific name | Common name | BIA overlap with the ADE |
|---|---|---|
| *Diomedea exulans (sensu lato)* | Wandering albatross | 0.13% |
| *Thalassarche cauta cauta* | Shy albatross | 0.13% |
| *Thalassarche melanophris* | Black-browed albatross | 0.09% |
| *Thalassarche melanophris impavida* | Campbell albatross | 0.09% |
| *Ardenna tenuirostris* | Short-tailed shearwater | 0.002% |

The impacts of light emissions from the activity are assessed against the light mitigation toolbox in the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023) (Table 6-22). Actions relating to breeding season have not been adopted due to the absence of breeding BIAs for light sensitive seabird species that may be foraging in the ADE.

Due to the small overlap of the OAs with seabird BIAs (all less than 0.5%), the distance from breeding colonies and the inherent low impact nature of offshore light, it is unlikely that the activity will results in injury or mortality of seabirds, with the most likely impact being a minor disturbance, which will not result in impacts at the species population level or ecosystem level.

Esso has no records of seabird injuries occurring as a result of platform operations. This illustrates the low impact of permanent but low-level light emissions from the activity. As such, impacts to seabirds from light emissions have a Consequence Level IV rating.

*MARINE MAMMALS*

There is no evidence to suggest that artificial light sources adversely affect the migratory, feeding or breeding behaviours of cetaceans. Cetaceans predominantly utilise acoustic senses to monitor their environment rather than visual sources (Simmonds, Dolman, & Weilgart, 2003), so light is not considered to be a significant factor in cetacean behaviour or survival.

**Table 6-22 Assessment of the light management options for seabirds from the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023)**

| Management Option | Achievable? | Justification |
|---|---|---|
| Maintain a dark zone between the rookery and the light sources. | N/A | The nearest breeding BIA is located over 100km away from the closest OA on the Tasmanian islands of Bass Strait. As such, there is a large dark zone between potential rookeries and the OAs. |
| Turn off lights during fledgling season. | **No** | Operations are conducted 24-hours a day and light is necessary for personnel safety. There are no bird breeding colonies within 20km of the ADE. |
| Use curfews to manage lighting. | **No** | As above. |
| Aim (deck) lights downwards and direct them away from nesting areas. | **Yes** | Where practicable, lights are directed towards working areas for the safety of personnel (see Table 6-23). |
| Use flashing/intermittent lights instead of fixed beam. | **No** | Operations are conducted 24-hours a day and light is necessary for personnel safety. Lighting is reduced to the extent possible for safe operations (see Table 6-23). |
| Use motion sensors to turn lights on only when needed. | **No** | As above. |
| Prevent indoor lighting reaching outdoor environment. | **Yes** | The light emitted from a platform or vessel cabin light is generally less than 60W or a bed light of 25W and a porthole size of 30 - 60cm (with many platform cabins not having windows or blind often being permanently drawn for shift crew sleeping during the day). This is a small amount of light and considered acceptable. |
| Reduce unnecessary outdoor deck lighting on all vessels and permanent and floating oil and gas installations in known seabird foraging areas at sea. | **Yes** | While the OAs overlap a number of seabird foraging BIAs (see Table 6-21), these overlaps are small (all less than 0.5%) Lighting is maintained at levels required for safe operations and by maritime legislative requirements (see Table 6-23). |
| Vessels working in seabird foraging areas during breeding season should implement a seabird management plan to prevent seabird landings on | N/A | Most seabirds in the region are migratory, with the closest breeding BIAs for light sensitive seabird species that may forage in the area located over 100km from the closest OA. |

| Management Option | Achievable? | Justification |
|---|---|---|
| the ship, manage birds appropriately and report the interaction. | | |
| Use luminaires with spectral content appropriate for the species present. | **No** | Platforms and vessels are equipped with lighting required under legislation to identify itself to other vessels, reduce the risk of at-sea collision and provide for the safety of its crew.<br>Most seabirds in the region are migratory, with the closest breeding BIAs for light sensitive seabirds located over 100km from the OAs. See Table 6-23 for adopted control and associated EPS. |
| Shield gas flares and locate them inland and away from seabird rookeries. | N/A | Not applicable – this activity is located offshore and does not impact seabird rookeries along the coastline. Offshore gas flares cannot be shielded. |
| Minimise flaring on offshore oil and gas production facilities. | **Yes** | There is no routine flaring. As described in Section 2.5.3, flaring only occurs in the event of a process upset or emergency. |

### *6.4.5 Impact assessment*

Table 6-23 presents the impact assessment for light emissions.

**Table 6-23 Impact assessment for light emissions**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Impact consequence (inherent)** | | | |
| Consequence Level IV | | | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| Implementing controls outlined in the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023d) | Reduces impacts to light-sensitive species, particularly seabirds. | Many of the controls outlined in the guidelines are standard practice for Esso and are feasible. Table 6-22 outlines which controls are not feasible and why. | Partially adopted **(IMP04-CM01)** |
| Implement MARPOL and AMSA maritime standards for platform and support vessel external lighting. | Designed to protect human safety but also reduces impacts to light sensitive species, particularly seabirds. | Lighting is required to provide navigational safety and meet legislative requirements.<br>Lighting is reduced to the lowest practicable level to allow for safe work practices and legislative compliance; this keeps light to the minimum whilst reducing the likelihood of impacts to fauna from platform and support vessel lighting. | Adopted **(IMP04-CM01)** |
| Exclude night-time operations and use curfews to manage light. | Excluding night operations reduces the chances of grounding of light-sensitive seabirds and decreases the impact on diurnal cycles of marine fauna. | Not feasible. The activity is a continuous activity supplying gas to the southeast Australian domestic gas market.<br>The implications of implementing this control are grossly disproportionate to the environmental benefits. | Not adopted |

| | | | |
|---|---|---|---|
| Turn lights off during seabird fledging, breeding and migration seasons. | May reduce impacts to natural behaviours during fledging, breeding and migration seasons of various fauna groups. | Not feasible. The activity is a continuous activity supplying gas to the southeast Australian domestic gas market.<br>The implications of implementing this control are grossly disproportionate to the environmental benefits. | Not adopted |
| Shields are used around lights on platform and vessel decks. | Reduces light glow to the marine environment. | External lighting is necessary for safe navigation and deck operations and shielding light may conflict with safety and navigation requirements. Implementing this control measure outweighs the minimal benefit this control measure would have. | Not adopted |
| Flaring is eliminated. | Eliminates impact of artificial light on sensitive species (e.g. seabirds and turtles). | The ability to flare hydrocarbons is a safety and integrity critical requirement for the facility. Implementing this control measure is therefore not feasible.<br>Note: Esso is committed to reducing flaring and has developed annual internal facility flare limits against which performance is stewarded (see Section 6.5.1.1). | Not adopted |
| Use of lighting with wavelengths that are less visible to turtles. | Turtles see 'white' light in the violet, blue and green end of the spectrum (such as fluorescent or halogen light) and do not see yellow, orange or red light well (such as low-pressure sodium lights). Use of lighting at the yellow, orange or red end of the spectrum may reduce impacts to turtles. | Given that there are few turtles in Bass Strait and no turtle hatchlings that would be attracted in great numbers around platforms or vessels (that may lead to increased predation on them by fish, sharks or birds), implementing this control measure is not warranted. | Not adopted |
| Use of dark, matte surfaces on platforms and support vessels. | Reduces the reflection and scattering of light resulting in light glow. | Repainting surfaces is unlikely to significantly affect light levels. The financial impact would outweigh the minimal environmental benefits with lighter colours painted on certain areas to reduce heat conduction. Safety must come first, and as such, it is not feasible to implement this control. | Not adopted |

<table>
<tr><th colspan="4">Environmental controls and performance measurement</th></tr>
<tr><th>EPO</th><th>Control</th><th>EPS</th><th>Measurement criteria</th></tr>
<tr><td>IMP04-EPO01:<br>No displacement, injury or death of seabirds as a result of lighting.</td><td>IMP04-CM01:<br>Lighting will be managed such that:<ul><li>unnecessary outdoor deck lighting is switched off (where local switches allow this)</li><li>lights are aimed downwards/inwards</li><li>glow from indoor lighting is prevented from reaching the outdoor environment.</li></ul></td><td>IMP04-EPS01:<br>Lighting is limited to that required for safe navigation and crew working requirements, with the exception of emergency events.</td><td>Internal environmental compliance inspection verifies that no excessive light is in use beyond that required for safe work and navigation.</td></tr>
<tr><th colspan="4">Impact Consequence (residual)</th></tr>
<tr><td colspan="4">Consequence Level IV</td></tr>
<tr><th colspan="4">Demonstration of ALARP</th></tr>
<tr><td colspan="4">With the controls outlined in this table in place, the consequence has been assessed as Consequence Level IV (lower consequence) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual consequence further or would be grossly disproportionate to the residual consequence. Therefore, a Consequence Level IV residual impact consequence is considered to be ALARP.</td></tr>
<tr><th colspan="4">Demonstration of Acceptability</th></tr>
<tr><td>Principles of ESD</td><td colspan="3">The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant).</td></tr>
<tr><td>Legislative and other requirements</td><td colspan="3">Management actions for seabirds and migratory shorebirds contained in the National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (DCCEEW, 2023d) have been adopted where relevant for platform operations and vessel-based activities.<br>Light pollution is a recognised threat to turtles, and the proposed activity is consistent with conservation/management actions in:<ul><li>Recovery Plan for Marine Turtles in Australia, 2017-2027 (DoEE, 2017).</li></ul></td></tr>
<tr><td rowspan="2">Industry practice</td><td colspan="3">The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity.</td></tr>
<tr><td>Environmental management in the upstream oil and gas industry (IPIECA-IOGP, 2020)</td><td colspan="2">The control listed in this table meet the relevant mitigation measures listed for offshore activities with regard to:<ul><li>Light emissions - Minimise external lighting to that required for navigation and safety, limit</li></ul></td></tr>
</table>

| | | |
|---|---|---|
| | | the occurrence and duration of flaring (where possible) **(IMP04-CM01)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | There are no guidelines specifically regarding lighting for offshore activities. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | The control listed in this table meet these guidelines with regard to:<br>• Ship collision (item 120). To avoid collisions with third-party and support vessels, offshore facilities should be equipped with navigational aids that meet national and international requirements, including navigational lights on support vessels **(IMP04-CM01)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The control listed in this table meet the following offshore development and production objectives:<br>• to reduce the impact of light to ALARP and an acceptable level<br>• to reduce risks to public safety to ALARP and to an acceptable level. |
| | **Light–specific guidelines** | |
| | *The National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023d) | An assessment of light operations against these guidelines is presented in Table 6-22. This assessment indicates that many of the measures relating to seabirds in these guidelines are achievable; those that are not relevant are because the ADE is remote from seabird rookeries.<br>Measures relating to turtles and shorebirds are not applicable. |
| **Internal context** | Consistent with Esso's Environment Policy. | Proposed activities are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*". |
| | Meets OIMS Objectives. | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements, and<br>• OIMS System 8-1 objective to qualify, evaluate and select contractors based on |

| | | |
|---|---|---|
| | | their ability to perform work in a safe, secure and environmentally sound manner. |
| **External context** | No relevant person concerns have been raised concerning light emissions. | |

## 6.5 Air emissions

This chapter evaluates the air emissions associated with the producing platforms (BTA, SNA, MLA, MLB, TNA and WTN), noting that production from the BTW and KPA subsea facilities is directed to BTA and WTN respectively.

### *6.5.1 Source of impact*

Air emissions associated with the producing platforms fall into two primary categories:

- atmospheric emissions (non-GHGs) - These include gases and particulates released from an activity or piece of machinery that have recognised adverse effects on human health and/or the environment. Key emissions in this category include:
    - carbon monoxide (CO)
    - oxides of nitrogen (NOx)
    - sulphur dioxide ($SO_2$)
    - particulate matter less than 10 microns ($PM_{10}$)
    - non-methane volatile organic compounds (VOCs)
    - benzene, toluene, ethylbenzene and xylenes (BTEX) compounds, a subset of VOCs of particular concern.
- GHG emissions - These are gases that trap heat in the atmosphere by absorbing longwave radiation reflected from the earth's surface. The main GHGs associated with petroleum activities include:
    - carbon dioxide ($CO_2$)
    - methane ($CH_4$)
    - nitrous oxide ($N_2O$).

Other GHGs include perfluorocarbons, hydrofluorocarbons (HFCs), and sulphur hexafluoride ($SF_6$).

The activities that result in air emissions are summarised in Table 6-24. Pipeline operations do not directly result in air emissions, noting that any depressurising of pipelines directs gas to the relevant platform.

**Table 6-24 Sources of air emissions**

| Activity | Applicable? | Source of air emissions |
|---|---|---|
| Platform operations | **Yes** | • Combustion of gaseous and liquid fuels.<br>• Flaring and venting.<br>• Fugitives from leaks/PFW. |
| Subsea facility operation | **No** | N/A |
| Wellwork activities | **Yes** | Flaring. |
| IMR activities | **Yes** | Fugitive leaks. |
| Support vessels | **Yes** | Indirect fuel combustion. |
| Helicopter activities | **Yes** | Indirect fuel combustion. |

Indirect emissions associated with the producing platforms result from hydrocarbon processing (onshore), third-party transport of products, regasification, distribution and combustion by end users.

#### 6.5.1.1 Direct emissions

Air emissions that come directly from Bass Strait facilities can be generated from the following sources;

- combustion of fuel gas in generators and compressors
- combustion of fuel gas for onsite electricity generation (e.g. gas turbines)
- combustion of diesel in backup equipment
- venting and flaring
- fugitive (e.g. from PFW discharge)
- leaks.

These direct emissions sources are further discussed below. Summaries of actual emission reported for each year is provided in Table 6-25 and by facility in Table 6-26.

*FUEL COMBUSTION*

As outlined in Section 2.5.2, fuel gas and diesel are used on the producing platforms to power essential equipment including turbines, compressors and generators on the platforms.

Fuel gas has historically been the primary energy source; however, usage is declining as platforms cease production and transition to diesel-based power generation where fuel gas is no longer accessible.

Forecast fuel gas consumption is provided in Section 2.5.2.3.

In 2024, fuel gas consumption across the facilities decreased by approximately 43% compared with 2023. This reduction reflects the cessation of production at CBA, HLA and WKF; the transition from fuel gas to diesel for power generation at BMB, FTA, KFB and WKF; and the de-staffing of MKA, which eliminated the requirement for continuous onboard power generation.

*FLARING*

As outlined in Section 2.5.3, all platforms – excluding MLA – are equipped with a flare boom to enable non-routine flaring for process safety, pressure management and equipment protection.

In 2024, approximately 2790km$^3$ of gas was flared across all of Esso's offshore facilities, representing a 22% reduction compared with 2023. Flaring decreased across all platforms, except WTN. The overall reduction is primarily attributable to the cessation of oil production during 2024, which significantly reduced the frequency and volume of blowdowns routed to flare. Flaring at SNA decreased markedly following the shutdown of the low-pressure compression system in mid-2024. In contrast, WTN recorded an increase in flared volumes associated with planned commissioning activities for the KPA compression project. Offshore flaring volumes have continued their long-term downward trend and are now approximately one-quarter of the levels recorded in 2017 and 2018 (14,146km$^3$ and 10,537km$^3$ respectively).

Forecast flaring volumes are provided in Section 2.5.3.4.

*VENTING*

As described in Section 2.5.3.5, venting may occur on the platforms during normal operations, primarily through controlled releases from process equipment and safety-related vent-systems.

The quantity of venting over the last four years is summarised in Table 6-25. The venting data indicates a step change increase between 2023 and 2024 which is attributable to improved accuracy in the calculation methodology being applied for open and closed pile purges.

*FUGITIVES/LEAKS*

Fugitive emissions are the unintentional release of gases or vapours from process equipment and associated infrastructure. On the platforms, these emissions may arise from components such as valves, screwed fittings, flanges, open-ended lines, pump seals, and pressure safety valves. Historically, fugitive emissions associated with PFW handling accounted for the majority of fugitive releases across the facilities.

Following the cessation of oil production in 2024, PFW handling activities have ceased and no associated GHG emissions from this source are currently occurring.

A leak detection and quantification survey was completed across the producing facilities in 2024 by an independent contractor (Klinger Integrity Services, 2024) to characterise current fugitive emission rates. The survey identified an aggregate emission rate of approximately 2.6kg/hour across the producing platforms, equating to an annualised release of 23,432t. This measured rate is less than 10% of the emissions that are calculated using the National Greenhouse and Energy Reporting (NGER) methodology, indicating that the NGER default factors are conservative for this emission source.

**Table 6-25 Summary of emissions 2021 - 2025**

| Totals for Bass Strait | Flaring ($km^3$) | Fuel gas usage ($km^3$) | Venting (t) | Diesel usage (kL) | GHG emissions (tonnes $CO_2$-e) |
|---|---|---|---|---|---|
| **Total 2021** | 3276 | 61,369 | 178.9 | 1565.6 | 135,157 |
| **Total 2022** | 3357.9 | 63,941.2 | 177.6 | 1323.8 | 139,876.5 |
| **Total 2023** | 2714.9 | 62,820.7 | 180.5 | 1061.1 | 135,594 |
| **Total 2024** | 2488 | 42,881 | 406.3 | 2192 | 97,816 |
| **Total 2025** | 2810.5 | 61,064.5 | 451.4 | 1725.7 | No data |

**Table 6-26 Summary of emissions 2021 - 2025 by facility**

| Producing facilities – and totals for all facilities across Bass Strait | Flaring ($km^3$) | Fuel gas usage ($km^3$) | Venting (t) | Diesel usage (kL) | GHG emissions (tonnes $CO_2$-e) |
|---|---|---|---|---|---|
| **BTA (including BTW)** | 940.1 | 4848.5 | 119.9 | 485.7 | 10,471.8 |
| **MLC** | 4961.1 | 108,424.1 | 1185.6 | 2040.6 | 182,043.4 |
| **SNA** | 671.2 | 20,979.4 | 38.1 | 1117.9 | 39,637.7 |
| **TNA** | 3680 | 51,894.2 | 35.3 | 1605.1 | 106,439.5 |
| **WTN (including KPA)** | 4394.7 | 105,930.2 | 15.7 | 2618.9 | 169,850.9 |
| **Total (2021-2025)** | **14,647.1** | **292,076.4** | **1394.6** | **7868.2** | **508,443.5** |

#### 6.5.1.2 Direct atmospheric emissions

The predominant source of atmospheric emissions is from the combustion of fuel gas and diesel used for power generation and compression, which produces pollutants such as oxides of nitrogen (NOx), carbon monoxide (CO), sulphur dioxide ($SO_2$), particulate matter ($PM_{10}$/$PM_{2.5}$), VOCs, and BTEX compounds. Additional emissions are generated through flaring, where hydrocarbons are combusted for safety or operational reasons; venting, which releases unburnt gases directly to the atmosphere; and fugitive emissions and leaks from valves, flanges, compressors, storage systems, and other process equipment. These atmospheric emissions are estimated and reported annually under Australia's NPI in accordance with its Emission Estimation Techniques for fuel combustion, flaring, venting, and fugitive sources.

The volume of atmospheric emissions generated from the offshore facilities in Bass Strait is presented in Table 6-27. These emissions are reported annually to DCCEEW through the NPI online reporting system. The data in Table 6-27 reflects combined emissions from all operated offshore facilities; therefore, when applied to the six currently producing platforms, the values represent a conservative estimate relative to actual emissions from those facilities alone.

**Table 6-27 Air emission from Esso's offshore facilities - Bass Strait (2019 - 2024)**

| Substance | Volume (kg) | | | | |
|---|---|---|---|---|---|
| | 2019 - 2020 | 2020 - 2021 | 2021 - 2022 | 2022 - 2023 | 2023 - 2024 |
| Oxides of nitrogen ($NO_X$) | 1,508,472 | 1,355,749 | 1,135,085 | 1,294,119 | 1,346,797 |
| Carbon monoxide (CO) | 511,460 | 1,355,749 | 1,135,085 | 1,294,119 | 1,346,797 |
| Total VOCs | 217,543 | 168,185 | 91,890 | 86,135 | 98,772 |
| Particulate matter 10.0µm | 50,848 | 36,164 | 25,665 | 25,995 | 44,081 |
| Particulate matter 2.5µm | 49,291 | 35,491 | 25,200 | 25,543 | 43,171 |
| n-Hexane | 187 | 3841 | 3379 | 3945 | 3080 |
| Sulphur dioxide ($SO_2$) | 17,319 | 1712 | 1476 | 1739 | 1440 |
| Toluene (methylbenzene) | 63 | 500 | 436 | 496 | 417 |
| Xylenes (individual or mixed isomers) | 36 | 326 | 290 | 312 | 260 |
| Benzene | 125 | 151 | 121 | 122 | 166 |
| Ethylbenzene | 1.3 | 120 | 106 | 121 | 93 |
| Cyclohexane | - | 112 | 109 | 97 | 69 |
| Hydrogen sulphide | 6.9 | 6.7 | 6.8 | 6.2 | 4.5 |
| Methanol | 31.3 | 8.6 | 7.3 | 5.2 | 3.7 |
| Nickel and compounds | 0.01 | 1.6 | 1.1 | 1.1 | 2.2 |
| Lead and compounds | 0.48 | 1.8 | 1.4 | 1.5 | 1.9 |

| Substance | Volume (kg) | | | | |
|---|---|---|---|---|---|
| | 2019 - 2020 | 2020 - 2021 | 2021 - 2022 | 2022 - 2023 | 2023 - 2024 |
| Cumene (1-methylethylbenzene) | - | 2.9 | 2.8 | 2.5 | 1.8 |
| Copper and compounds | 0.15 | 1.7 | 1.5 | 1.8 | 1.4 |
| Polycyclic aromatic hydrocarbons | 0.001 | 1.3 | 1.1 | 1.4 | 1.1 |
| Manganese and compounds | 0.69 | - | - | - | - |
| Arsenic and compounds | 0.01 | 0.3 | 0.2 | 0.2 | 0.5 |
| Beryllium and compounds | 0.02 | 0.3 | 0.2 | 0.2 | 0.4 |
| Cadmium and compounds | 0.01 | 0.2 | 0.1 | 0.1 | 0.3 |
| Mercury and compounds | 0.01 | 0.2 | 0.1 | 0.1 | 0.3 |
| Chromium (VI) compounds | 0.015 | 0 | 0 | 0.000013 | 0 |
| **Total volume (kg)** | **2,355,385** | **2,958,126** | **2,418,865** | **2,732,763** | **2,885,161** |

#### 6.5.1.3 Direct greenhouse gas emissions

Direct GHG emissions are emissions released from sources that are owned and controlled by the organisation, such as fuel combustion in onsite equipment or company-operated vehicles. They correspond to Scope 1 emissions under the GHG Protocol, covering emissions that occur within the operational boundary of the petroleum activity covered by this EP.

GHG emissions from these sources are quantified and reported under the National Greenhouse and Energy Reporting (NGER) Scheme, administered by the Clean Energy Regulator. Standardised methods are outlined in the NGER (Measurement) Determination, which provides detailed formulas and emission factors for calculating emissions from various sources. The internal *NGER Manual* (AUGO-PO-NGR-001) describes the processes followed to comply with NGER requirements. Fuel combustion and flaring rates are typically measured with known composition; while venting, fugitives and leaks use conservative emission factors based on throughput. Reported GHG emissions include emissions of carbon dioxide, methane and nitrous oxide.

The percentage contribution to total direct GHG emissions from Esso's producing Bass Strait facilities are indicated in the table below and based on representative historic data (from 2025 this no longer includes oil production and associated emissions).

**Table 6-28 Bass Strait Facilities Direct GHG emissions**

| Activity | | | % of total direct emissions |
|---|---|---|---|
| Emissions from the combustion of gaseous and liquid fuels | Combustion of fuel gas (~95%) | Electricity generation (~35%) | 77% |
| | | Production compressors (~60%) | |
| | Combustion of diesel (~5%) | | |

| Activity | | % of total direct emissions |
|---|---|---|
| Fugitive emissions (other than venting or flaring) | PFW (~70%) | 17% |
| | Leaks (~30%) | |
| Emissions from flaring (~75%) and venting (~25%) | | 6% |
| Total (of ~280,000 tCO2-e) | | 100% |

Note 1: The emissions estimates provided rely on FY2024 NGER data across all Bass Strait facilities, as this reflects the most accurate operational conditions following the cessation of oil production and the corresponding discontinuation of PFW handling activities.

Note 2: PFW generation and associated emissions have ceased following cessation of production from oil producing assets and is retained for contingency only in the event it is required at Marlin.

Note 3: Emissions reporting under the NGER Scheme currently estimates emissions associated with fugitive leaks using conservative emissions factors (per s3.73F Method 1 for 'shallow water' platforms).

The majority, nearly 80%, of total direct offshore GHG emissions result from the combustion of fuels. There are two types of fuel combusted offshore; fuel gas derived from offshore operations and diesel, shipped from onshore.

- Combustion of fuel gas accounts for the majority (approximately 95%) of combustion GHG emissions. Of this, approximately 35% arises from combustion of fuel gas for electricity generation, and 60% from combustion of fuel gas for production gas compression.
- Diesel is primarily combusted in backup equipment (e.g. power generators, nitrogen generators and back up pumps) and constitutes approximately 5% of the total combustion emissions.

Fugitive emissions (other than venting or flaring) are the second largest contributor to total direct GHG emissions. There are two key sources of emissions within this category, fugitives from PFW and fugitives calculated (under NGER s3.73F) as attributable to offshore natural gas production. This latter category will be referred to as 'leaks' for simplicity.

Fugitive emissions from PFW account for the majority (~70%) of fugitive emissions in this category based on historic datasets. Since cessation of oil production through 2024, there is no longer any discharge of PFW currently occurring and therefore no associated GHG emissions.

Fugitive leaks make up the remaining (~30%) portion of this category. While an emission factor is used for the purposes of reporting emissions under the NGER Scheme, in 2024 a leak detection survey was undertaken by a third-party contractor across the producing assets to quantify fugitive emission rates from valves, flanges, pumps, pressure safety valves and seals. The leak monitoring procedure was based on USEPA method 21 protocol and utilised both a catalytic combustion detector and optical gas imaging camera. The results provided an emission rate and annual emission estimate which was less than 10% of the calculated emission rate derived under the NGER methodology. This indicates that the NGER method is conservative for this emission source.

Emissions from flaring and venting are the final category constituting approximately 6% of total direct GHG emissions. Of this, approximately 75% is from safety flaring while the remaining 25% is from venting (e.g. subsea and pile vents).

Table 6-29 shows a breakdown of total $CO_{2\text{-}e}$ emissions from the producing platforms over the past five years (2020-2024). The emissions profile has transitioned from stable to significantly lower in 2024, driven by operational changes (e.g., cessation of oil production, reduced fuel gas use), with substantial reductions at SNA, TNA, and MLA/MLB leading the overall decline.

**Table 6-29 GHG emissions from the production platforms from 2020-2024**

| Facility | 2020 $CO_2$-e emissions (t) | 2021 $CO_2$-e emissions (t) | 2022 $CO_2$-e emissions (t) | 2023 $CO_2$-e emissions (t) | 2024 $CO_2$-e emissions (t) |
|---|---|---|---|---|---|
| BTA* | 2942 | 2661 | 2575 | 2453 | 2601 |
| SNA | 16,591 | 16,621 | 4916 | 9988 | 8113 |
| TNA | 29,541 | 25,954 | 31,291 | 30,221 | 18,974 |
| MLA/MLB | 58,483 | 45,864 | 51,486 | 49,094 | 35,599 |
| WTN** | 27,268 | 44,057 | 49,427 | 43,838 | 32,529 |
| **Total** | **134,825** | **135,157** | **139,695** | **135,594** | **97,816** |

* includes seahorse and tarwhine subsea facilities that are not producing

** includes the KPA subsea facility

The offshore producing facilities total direct GHG emissions (based on historic averages):

- when viewed as a proportion of total Esso's direct CO2-e emissions, are less than 14% of the total
- when benchmarked against oil and gas sector NGER data, are less than 1% of the total direct $CO_2$-e emissions reported
- when benchmarked against all industry NGER data, are less than 0.1% of the total direct $CO_2$-e emissions reported by facilities and corporations covered by the NGER Scheme.

*EMISSIONS FROM FUEL COMBUSTION*

As the primary direct GHG emissions source, combustion of fuels is the principal focus area for GHG emissions management for the producing facilities.

Approaches to managing GHG emissions from the combustion of fuels include:

- combustion optimisation
- monitoring and stewardship
- strategic projects (e.g. electrification, carbon capture storage, energy efficiency measures such as heat recovery/equipment right-sizing).

Diesel is primarily used in stand-by, temporary or discrete equipment and therefore used on an as-required or targeted basis. Its usage is monitored based on supply rates from onshore and platform inventory, allowing discrepancies (e.g. increases in usage) to be identified and responded to.

Fuel gas is the predominant fuel, with generator and compressor turbines being the primary consumers. Each producing platform has a detailed description of the fuel gas system in procedure XXX-140-901 (where XXX refers to the platform identification).

Optimising combustion efficiency in fuel gas consumers is the principal operational equipment control that can minimise associated emissions, including methane. The operational integrity of generator and compressor turbines is managed under OIMS 6-2 FIMS (see *OIMS System Summary* (AUGO-PO-SUM-001)). Under FIMS, compressors and turbines on producing platforms are categorised as critical equipment and associated equipment strategies establish the inspection, testing and preventative maintenance requirements to ensure operational integrity (05-OGCOMPR-EAPL; 00-OGCMPMLB-EAPL; 02-OGGENTURB-EAPL). The implementation of defined inspection, testing and preventative maintenance requirements and performance monitoring is stewarded, with exceptions being reported and escalated under defined OIMS 6-2 Key Performance Indicators (KPIs).

A suite of performance monitoring activities provide oversight and enable timely intervention to maintain the effective operation of generator and compressor turbines and ensure efficient combust:

- Control room - Operators perform real-time monitoring of performance metrics (e.g. actual versus expected compression performance; fuel gas usage; operating conditions (e.g. suction and discharge pressures, temperature profiles, lubrication and seal systems), trips and alarm logs). Variations are responded to as appropriate (e.g. operational response, Maintenance Work Order raised, escalation etc).
- Daily reporting - The OIM reviews daily fuel gas usage rates. Any abnormalities trigger follow-up and investigation.
- Bi-weekly Red Box meetings - A traffic light system is used to track the status of fuel gas users, ensuring transparent visibility and facilitating engagement with key stakeholders. Fuel gas usage versus forecast is also reviewed.
- Monthly technical monitoring - The offshore facility engineering group conducts a monthly review of fuel gas usage, comparing actual performance against forecast. Deviations are investigated to identify root causes and corrective actions.

Fuel-gas usage forecasts are developed using the Emissions Forecasting Protocol from first principles, drawing directly on machinery fuel-gas design bases, expected machinery uptime, and projected load. Assumptions are validated against historical operating data, with uptime cross-checked against the long-term activity schedule in the Business Plan and load forecasts aligned to platform production profiles. By grounding forecasts in design-optimised performance and incorporating ALARP principles, this approach establishes a stringent baseline for what constitutes efficient and expected fuel-gas use. As a result, even small deviations from forecast values prompt follow-up analyses to identify root causes and assess opportunities for optimisation or corrective action.

Fuel gas consumption is metered using instruments categorised as critical, and these are managed in alignment with *Hydrocarbon Control Practices Measurement and Analysis for Production Manual* (HCP-MAP) standards to ensure accuracy and reliability (see Section 8.10.2).

*FUGITIVE EMISSIONS*

Fugitive emissions, or leaks, of gas can occur from equipment components such as valves, screwed connections, flanges, open-ended lines and pump seals and pressure safety valves and are the focus area for this source of emissions.

Approaches to manage GHG emissions from fugitive leaks include:

- leak detection and quantification
- leak repair and mitigation
- strategic projects (e.g. equipment and design improvements such as valve and seal design, equipment upgrades).

Consideration has been given to the appropriate level of monitoring and quantification required to manage fugitive leaks from producing Bass Strait facilities appropriately.

The OGMP 2.0 is a comprehensive, measurement-based reporting framework for the oil and gas industry aimed at improving the accuracy and transparency of methane emissions reporting from organisations in the oil and gas sector.

As a member of the OGMP 2.0 framework, Esso seeks to achieve a minimum of Level 3 reporting under OGMP2.0. This is consistent with OGMP 2.0 requirements for non-material operated assets.

The different levels of reporting are defined in the OGMP 2.0 framework (OGMP_20_Reporting_Framework.pdf) and are based on reporting granularity, quantification method and uncertainty in quantification. The highest OGMP 2.0 reporting levels (3, 4 and 5) all involve reporting at the individual source level, but differ in the way in which the estimation is undertaken at the source level, and the degree to which these estimates are further substantiated.

While detection and quantification of fugitive leaks are foundational elements of any GHG emissions management strategy, these activities alone do not directly reduce emissions. Mitigation only occurs when detection is coupled with a robust and responsive leak repair program.

Recognising this, the approach to leak detection must be sufficiently detailed and accurate to inform and prioritise repair efforts. It must enable operators to:

- identify leak sources with precision, including component-level attribution
- quantify emissions to assess environmental impact
- rank leaks by severity, enabling targeted and cost-effective repair scheduling
- track repair outcomes, ensuring emissions reductions are realised and sustained.

The leak scan undertaken in by a qualified third-party contractor in 2024 and 2025 utilised both a catalytic combustion detector and optical gas imaging camera to provide component level emission rates and detailed 'leaker report'.

Given its scope, granularity, and alignment with OGMP 2.0 (Level 3), this leak scan approach is deemed sufficient to inform effective repair planning going forward. As estimation and substantiation methodologies continue to evolve under Levels 4 and 5 of the OGMP framework (e.g. overcoming technical challenges such as solar reflection from seawater affecting overflight surveys) the approach to leak detection and quantification should be periodically reassessed to ensure its suitability and effectiveness in the operational context.

The offshore Leak Detection and Repair process defines the required methodology, frequency, and scope for offshore leak-detection campaigns, and sets clear expectations for timely documentation of identified leaks and prompt entry of repair actions into the CMMS, ensuring a consistent and accountable approach to leak mitigation.

*EMISSIONS FROM FLARING AND VENTING*

Flaring and venting emissions, while the smallest contributor (approximately 6%) of the total offshore direct GHG emissions from the producing facilities, are typically major focal points in GHG emissions management (e.g. in the Future Gas Strategy, which commits the Australian Government to work with regulators and industry to reduce and where possible eliminate venting and flaring of gas).

Approaches to managing GHG emissions arising from flaring and venting include;

- elimination and reduction (e.g. World Bank's 'Zero Routine Flaring by 2030' (World Bank, 2015a), operational optimisation)
- combustion optimisation (flare)
- monitoring and measurement
- strategic projects (e.g. flare gas/vapour recovery, design improvements such as no-bleed devices, carbon capture and storage etc.)

Each producing platform has a detailed description of the flare system in procedure XXX-110-901 (where XXX refers to the platform identification).

During operations, including start-up, shutdown and maintenance, emissions from flaring and venting are managed through the following process controls and operational optimisations:

- automated pressure management to prevent overpressure scenarios that trigger emergency flaring (e.g. separator vessels, compressors, fuel gas system)
- preventive maintenance to reduce unplanned shutdowns that result in flaring
- optimised startup sequences to minimise gas release and/or use hot standby configurations to reduce flaring during transitions (e.g. SU procedures)
- alignment of production rates with processing capacity to avoid bottlenecks that lead to flaring (Gas Management System)
- coordinated pigging, well testing, and maintenance activities to minimise simultaneous flaring events (e.g. coordination planning)
- emergency blowdown system automation to stage a controlled de-inventory without compromising flare integrity (procedure).

The following procedures detail management of the offshore vent systems by platform. These vents release at the flare tip, facilitating combustion and are referred to as 'vent to flare'. The listed procedures contain operational requirements that minimise associated emissions e.g. by ensuring piles depressured to flare to avoid venting:

- *Critical De-Pressuring and Draining* XXX-110-402
- *Skimmer Vessel (vent to flare)* XXX-110-902
- *Open Drain Skimmer Pile (vent to flare)* XXX-110-903
- *Closed Drain Skimmer Pile (vent to flare)* XXX-110-904.

Optimising combustion efficiency in the flare is foundational to minimising associated emissions, including methane in circumstances where flaring is required. The operational integrity of the flare tip and associated equipment is managed under OIMS 6-2 FIMS (see *OIMS System Summary* (AUGO-PO-SUM-001)). Under FIMS, flares are categorised as critical equipment and associated equipment strategies establish the inspection, testing and preventative maintenance requirements to ensure operational integrity (02-OGFLRTIP-EAPL). The implementation of defined inspection, testing and preventative maintenance requirements and performance monitoring is stewarded, with exceptions being reported and escalated under defined OIMS 6-2 KPIs.

There is no provision for steam-assisted flaring or additional combustion controls offshore. All material directed to the flare possesses a sufficiently high calorific value to ensure complete and efficient combustion.

Flare flame-outs (and associated incomplete combustion and/or venting) are prevented by ensuring a minimum flow-rate of pilot/purge gas is maintained. Pilot gas rates are metered using instruments categorised as critical, and these are managed in alignment with HCP-MAP Standards to ensure accuracy and reliability. The implementation of defined inspection, testing and preventative maintenance requirements and performance monitoring is stewarded, with exceptions being reported and escalated under defined OIMS 6-2 KPI's and where required, a formal deviation raised under HCP-MAP Standards. Associated process control alarms and backup systems are described in the platforms *Flare System Procedure* (XXX-110-901). Operators verify that the flare is lit multiple times per shift during rounds (*Operators Platform Checks* (XXX-220-502)) and personnel working on the platform would notify operations if the flare was observed to be unlit. If a flare flame-out does occur, where applicable, platforms have a *Flare Ignition and Panel Operation* procedure (XXX-110-301) which details available flare ignition methods. Manual flare ignition using a flare gun is used as a last resort if all other methods of flare ignition are unsuccessful (*Flare Igniting using Flare Gun and Guidelines for Operation Without Flare Alight* (GEN-110-206). Flare flameouts are reported via the incident database and are infrequent, with one instance occurring in the last five years.

A suite of performance monitoring activities provide oversight and enable timely intervention to:

- Control room - Operators perform real-time monitoring of performance (e.g. system pressures, system response to process changes such as new wells online). Variations are responded to as appropriate (e.g. operational response, Maintenance Work Order raised, escalation etc)
- Daily reporting - The OIM reviews daily flare rates. Any abnormalities trigger prompt follow-up and investigation.
- Monthly technical monitoring - The offshore facility engineering group conducts a detailed monthly review of flaring, comparing actual performance against stewardable limits. Deviations are investigated to identify root causes and corrective actions.

Flaring forecasts are prepared annually for all offshore facilities under the business planning process using the Emissions Forecasting Protocol using equipment design-specified purge and pilot rates, supplemented by a planned-maintenance allowance derived from historical performance. This approach enables early identification of any upward trend ('creep') or unexpected safety-related flaring, ensuring each variation is reviewed and that all flaring remains justified, minimised, and continually reduced in line with ALARP principles. As a result, even small deviations from forecast values prompt follow-up analyses to identify root causes and assess opportunities for optimisation or corrective action.

Flaring volumes and pilot gas rates are metered using instruments categorised as critical, and these are managed in alignment with HCP-MAP Standards to ensure accuracy and reliability.

*DIRECT GHG EMISSIONS REDUCTION OPPORTUNITIES*

Opportunities for GHG-emission reduction are identified through engineering assessments, operational insights, audit findings, performance-data analysis, technology developments, and industry benchmarking. Assessment of opportunities is undertaken in accordance with the GHG Management Plan (AUGO-EV-EDS-003), which outlines two evaluation pathways: (1) tactical operational measures and (2) capital or technically complex initiatives. Decision inputs include feasibility screening, regulatory alignment, and economic evaluation techniques such as Marginal Abatement Cost Curve analysis.

Governance is provided by the Gippsland Emissions Reduction Leadership (GERL) Team, which conducts quarterly reviews to evaluate new and existing opportunities, monitor progress against GHG KPIs, update the multi-year emissions-reduction roadmap, and confirm alignment with Company-wide expectations, including the ambition to achieve net-zero operated-asset emissions by 2050. Initiatives endorsed through this process are incorporated into the Business Plan and tracked through established project-management systems, including assignment of accountable owners, schedule and budget control, and integration with maintenance and operational planning.

Implemented measures are subject to post-implementation validation, including review of measured operational data, reconciliation against expected abatement, and comparison with NGER-reported emissions trends.

As at 2025, GHG-reduction efforts are focused on the onshore processing facilities, which represent approximately 86% of Esso's direct NGER-reported emissions.

#### 6.5.1.4 Indirect (greenhouse gas) emissions

Indirect GHG emissions associated with the Bass Strait facilities refer to those emissions that occur beyond the petroleum activity covered in this EP and/or beyond the direct operational control of Esso. Consistent with the Environment Regulations, all potential environmental impacts and risks, including those that may occur indirectly, have been considered. Indirect GHG emissions are acknowledged in the context of the broader energy system but remain outside the company's operational control.

Examples of indirect consequences that occur beyond the petroleum activity but are associated with Bass Strait production include:

- gas processing - emissions from sources outside the OA associated with the Esso operation in the Bass Strait and are an indirect consequence of the petroleum activity.
- downstream use of products: emissions primarily resulting from the combustion of natural gas and petroleum products by third parties after sale
- upstream supply inputs: emissions embedded in purchased goods and services such as equipment, chemicals, and materials used in operations.

*ONSHORE PROCESSING AND DISTRIBUTION OF GAS*

Indirect GHG emissions associated with onshore processing and distribution occur at the Longford Gas Plant and the Long Island Point Gas Fractionation Plant, both of which are under the operational control of Esso. In Victoria, GHG emissions from onshore gas facilities are regulated through a combination of state legislation, environmental duty requirements, and national reporting obligations. The Environment Protection Act 2017 (Vic) establishes the General Environmental Duty (GED), which requires duty holders, including gas operators, to minimise risks of harm from pollution and waste—including GHG emissions—so far as reasonably practicable. This state-based framework operates alongside Commonwealth mechanisms such as the National Greenhouse and Energy Reporting (NGER) Scheme and the Safeguard Mechanism, ensuring regulatory consistency while avoiding duplication.

EPA Victoria's Statement of Regulatory Intent 2025–2027 (EPA, 2025) identifies major emitters, including gas facilities, as priority sectors for strengthened climate-risk integration and emissions-management expectations, consistent with the broader environmental duty framework.

Gas produced in the Bass Strait is processed at Longford and Long Island Point before being distributed into the eastern Australian Gas Market, supplying demand across Victoria, New South Wales, the Australian Capital Territory, South Australia, Tasmania, and smaller volumes in Queensland and the Northern Territory.

GHG emissions associated with onshore gas processing are additionally regulated within the legislative framework established by the Climate Change Act 2017 (Vic). This framework includes binding interim emissions-reduction targets for 2025, 2030 and 2035, and a legislated long-term target of net-zero emissions by 2045, which provides a regulated emissions-reduction pathway aligned with state, national, and international climate policy settings. The Victorian Climate Change Strategy (DEECA, 2025) reports that the State has already achieved measurable reductions in GHG emissions—approximately 31.4% below 2005 levels—and outlines sector-based measures that continue to support progress against legislated targets. Complementary measures, including legislated renewable-energy, storage and offshore wind targets, further support emissions reductions from the electricity sector, which remains the largest contributor to Victoria's overall emissions profile.

Emissions from onshore processing of gas are reported annually under the NGER Scheme, with emissions from offshore production, the Longford Gas Plant and the Long Island Point facility consolidated into a single cumulative figure reported by the operating entity. Total Scope 1 emissions as reported in NGER are detailed in Table 6-30.Table 1-1

### *DOWNSTREAM EMISSIONS (COMBUSTION OF SOLD PRODUCT)*

Combustion-related emissions from Bass Strait gas products are determined by downstream user behaviour and national energy system planning settings. These outcomes are influenced by the Australian Energy Market Operator (AEMO) through the Integrated System Plan (ISP) (AEMO, 2025a), which incorporates federal and state climate objectives into long-term energy system modelling. AEMO's accompanying planning documents, including the *Gas Infrastructure Options Report* (AEMO, 2025b) and related gas system assessments, identify Bass Strait gas as a transitional supply source that contributes to system reliability during Australia's progression toward net-zero emissions. Its treatment within the ISP reflects a coordinated, system-level framework for managing the emissions implications associated with ongoing gas use across multiple sectors.

Consistent with public data, AEMO has identified that the majority of such indirect GHG emissions in Australia result from end-use combustion of gas. According to AEMO's 2025 Gas Statement of Opportunities, Inputs, Assumptions and Scenarios Report, along with the 2025 Gas Infrastructure Options Report, despite falling consumption due to electrification, gas remains essential for industrial use and as a flexible backup for renewable electricity generation.

AEMO's modelling also confirms that Bass Strait gas is in structural decline, with production forecast to fall more rapidly than demand in southern states. This trend is expected to result in peak-day shortfalls from 2028 and annual supply gaps from 2029 without new supply or infrastructure solutions. Given that no scenario anticipates surplus production and demand is projected to exceed supply, the emissions linked to ongoing gas use are considered both necessary and proportionate to maintaining essential system reliability.

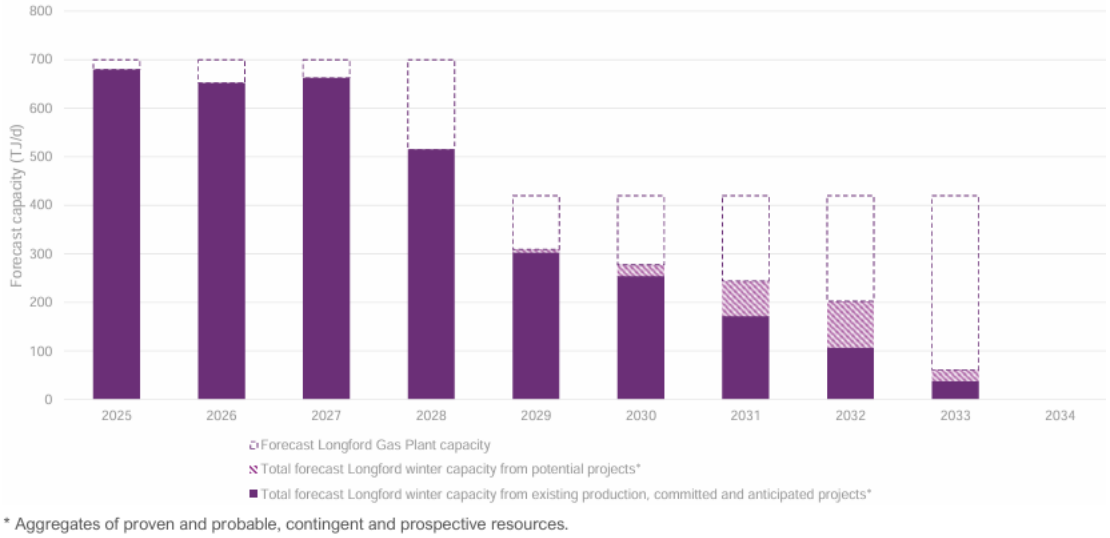



**Figure 6-3: Forecast Longford Gas Plant winter capacity, 2025 to 2034 (TJ/d) from AEMO 2025 Victorian Gas Planning Report (AEMO, 2025)**

Consistent with API guidance, Scope 3 Category 11 has been applied to estimate use-phase emissions. Based on 2025 production volumes, and assuming that 100% of produced hydrocarbons are ultimately combusted, the estimated Scope 3 emissions are approximately 5.63 Mt $CO_2$-e. This estimate uses volume-to-energy conversions from the GHG Protocol *Cross-Sector Tools* (Greenhouse Gas Protocol, n.d.) and emissions factors consistent with the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2025). For context, 5.63 Mt $CO_2$-e represents approximately 1.3% of Australia's total 2025 greenhouse gas emissions, based on the national emissions estimate of 437.5 Mt $CO_2$-e for the year to June 2025 (DCCEEW, 2025a).

A key assumption underpinning this calculation is that downstream combustion occurs within a reasonably equivalent timeframe. However, the nature of oil and gas supply chains—including co-mingling of products, international transport, storage, and varying end-use pathways—means that the timing and geographical distribution of Scope 3 Category 11 emissions cannot be determined with precision. Scope 3 emissions are expected to decline proportionally with the forecast reduction in production volumes (Figure 46).

*UPSTREAM EMISSIONS*

As established assets, the Bass Strait Facilities have limited ability to influence emissions embedded in purchased goods and services compared to greenfield projects. This is primarily due to the constraints of legacy infrastructure, established supply chains, and long-term contracts that limit flexibility in sourcing and design choices. Within those limits, environmental considerations are incorporated into procurement and project processes under the Operations Integrity Management System (OIMS). For example, supplier engagement processes consider opportunities to improve energy efficiency where practicable.

### *6.5.2 Known and potential impacts*

The known and potential impacts of air emissions are:

- localised and temporary decrease in air quality
- contribution to the GHG effect.

### *6.5.3 Environment That May Be Affected*

The EMBA for air emissions is the local air shed, likely to be within hundreds of meters of individual emission points, both horizontally and vertically.

Sensitive receptors that occur within this EMBA are seabirds, seals (that regularly gather under platforms) and other marine mammals that surface for air (whales and dolphins).

The health of the workforce on the platform and support vessels, with regard to air emissions, is considered and assessed in other health and safety documents and is outside the scope of this EP.

### *6.5.4 Evaluation of impacts*

#### 6.5.4.1 Decrease in air quality

Air emissions from facility operations, primarily NOx, CO, VOCs and particulate matter (PM), result in localised, short-lived reductions in air quality close to the emission source. Due to rapid dispersion in the offshore environment and the low emission concentrations relative to recognised health-based criteria, no adverse impacts to marine fauna, seabirds, or coastal communities are expected. The volume of non-GHG pollutants emitted to air from Esso's offshore facilities in Bass Strait are listed in Table 6-30. Esso reports this annually to the DCCEEW via the NPI online database. The data shown in Table 6-30 covers all facilities, meaning it is considered to be conservative compared to the actual volumes generated from the six producing platforms (of the 19 platforms in total). As shown in Table 6-30, NOx and CO represent the highest-volume emissions, followed by VOCs and PM. These substances may cause temporary, highly localised reductions in air quality immediately adjacent to the platforms, but dispersion assumptions (1km$^3$ mixing volume) indicate resulting concentrations would remain low.

#### 6.5.4.2 Oxides of nitrogen

NOx comprises a group of nitrogen–oxygen gases, with NO and $NO_2$ of most toxicological relevance. While NOx participates in atmospheric nitrogen cycling and photochemical reactions, it is rapidly diluted and reacts quickly in the marine environment.

- National Environment Protection Measure (Ambient Air Quality) guideline: 80ppb hourly average
- Estimated concentration per facility is approximately 6.5ppb (from kg/hour emission rate).

This is well below the National Environment Protection Measure guideline, and therefore unlikely to cause adverse effects to seabirds or other wildlife.

#### 6.5.4.3 Carbon monoxide

CO is produced from incomplete combustion of hydrocarbons:

- National Environment Protection Measure guideline: 9000ppb (8-hour average)
- Estimated concentration per facility is approximately 5.5 ppb (from 6.8kg/hour emission rate).

This is orders of magnitude below the guideline. As wildlife exhibit similar physiological responses to CO as humans, no health effects to seabirds or marine fauna are expected.

#### 6.5.4.4 Volatile organic compounds

VOCs represent a broad class of carbon-based compounds defined under the NPI. Their environmental impacts are primarily associated with photochemical smog formation, which requires a combination of high NOx/VOC emissions, urban-scale sources, stagnant air masses and solar radiation.

Such conditions do not occur offshore; therefore, smog formation and associated ecological impacts are not expected. Given the rapid air turnover and low concentrations, VOCs are not expected to cause adverse impacts to fauna.

#### 6.5.4.5 Particulate matter (PM10 and PM2.5)

PM emissions from combustion equipment disperse rapidly offshore:

- offshore winds and open-air conditions prevent accumulation
- PM levels dilute rapidly and do not reach coastal areas at harmful levels
- seabirds frequently occupy platforms without observed injury or behavioural change, supporting the conclusion of no material impact.

Therefore, PM emissions are expected to result in inconsequential impacts to fauna and coastal receptors.

#### 6.5.4.6 Cumulative effects

While multiple platforms are operating or transitioning, the minimum spacing of approximately 3.6 km, combined with the small scale of each emission footprint (likely hundreds of metres), means that plumes do not overlap at concentrations capable of causing cumulative environmental impacts. Any slight accumulation would remain well below thresholds of ecological concern and would not produce population- or ecosystem-level effects.

#### 6.5.4.7 Contribution to the greenhouse gas effect

The GHG effect refers to the primary driver of climate change largely determined by cumulative emissions of $CO_2$ and the other long-lived GHGs, and what proportion of those emissions persist in the atmosphere (CSIRO, 2025).

Climate change impacts cannot be attributed to any one activity as they are the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution started.

Within the context of Australia, research by the Intergovernmental Panel on Climate Change in their Sixth Assessment Report (AR6) Working Group I (released in August 2021) states *"[c]limate change is a global phenomenon, but manifests differently in different regions"* (IPCC 2021). The Intergovernmental Panel on Climate Change projections for climate change in Australia from the AR6 Working Group II (AR6-WGII) report include:

- further climate change is inevitable, with the rate and magnitude largely dependent on the emission pathway (very high confidence)
- ongoing warming is projected, with more hot days and fewer cold days (very high confidence)
- further sea level rise, ocean warming, and ocean acidification are projected (very high confidence)
- less winter and spring rainfall is projected in southern Australia, with more winter rainfall in Tasmania, less autumn rainfall in southwestern Victoria and less summer rainfall in western Tasmania (medium confidence), with uncertain rainfall changes in northern Australia
- more extreme fire weather is projected in southern and eastern Australia (high confidence)
- increased drought frequency is projected for southern and eastern Australia (medium confidence)
- increased heavy rainfall intensity is projected, with fewer tropical cyclones and a greater proportion of severe cyclones (medium confidence) (Lawrence et al., 2022).

Since the 1950s, heat extremes have become more frequent and more severe while cold extremes have become less frequent and less severe (CSIRO, 2024). Australia experienced its warmest year on record in 2019, with the years from 2013 to 2020 all ranking in the top 10 warmest years on record (CSIRO, 2024). In Australia specifically, ocean warming has resulted in longer and more frequent marine heatwaves, southeast Australia has seen drier conditions with more years of below average rainfall, and there has been an increase in fire weather extremity and season length, especially in southern Australia (CSIRO, 2024).

Changes to climate such as altered temperature, rainfall patterns and fire regimes, will drive significant ecosystem shifts, such as changes in the vegetation structure of terrestrial ecosystems and altered species interactions across Australia (Dunlop M. , 2012). The 'loss of climatic habitat caused by anthropogenic emissions of GHGs has been listed as a key threatening process under the EPBC Act (DCCEEW, 2021). The threatening process consists of reductions in the bioclimatic range within which a given species or ecological community exists due to emissions induced by human activities of GHGs (DCCEEW, 2021). The process is considered to have a continental distribution, including both terrestrial and marine areas. Ecosystems in which the process occurs include alpine habitats, coral reefs, wetlands and coastal ecosystems, polar communities, tropical forests, temperate forests, and arid and semi-arid environments (DCCEEW, 2021).

Widespread impacts from climate change on ecosystems and species across Australia are already evident. The Australian Government releases the State of the Environment (SoE) report every five years. The report released in 2021 concluded that climate change and extreme weather events are impacting the Australian environment and various taxa. In many cases the impacts are exacerbated by other pressures such as land

clearing and invasive species, but in some cases impacts can be unequivocally attributed to climate change (DELWP, 2021).

The *National Recovery Plan of the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024) states that:

> *"...modelling the links between krill and whale population dynamics with climate change, including changes in ocean temperature, primary productivity, and sea ice, suggests future ocean conditions are likely to have a negative impact on krill populations and in association the baleen whale species that feed on them."*

Climate change also impacts activities which rely on ecological values, including commercial and recreational fisheries and tourism. A change in temperature between 0.9°C to 2.0°C is forecast to reduce fishery yield around Australia by between 3% to 10% (IPCC, 2023). Additionally, climate change is having and will continue to have a significant impact of tourism due to the reliance of this sector on natural heritage and outdoor attractions (most notable the Great Barrier Reef) (IPCC, 2023). The 2019 - 2020 summer wildfires, for example, profoundly and negatively affected Australia's destination image. The Victorian ski season, in particular, is projected to contract by 65 - 90% under RCP8.5 (IPCC, 2023).

**Table 6-30 Total Esso Scope 1 emissions as reported in NGER**

| Year | 2019 - 2020 | 2020 - 2021 | 2021 - 2022 | 2022 - 2023 | 2023 - 2024 |
|---|---|---|---|---|---|
| Total $CO_{2\text{-}e}$ (t) | 2,435,245 | 2,243,653 | 1,857,397 | 1,738,625 | 1,506,654 |

The NGER data presented in Table 6-30, shows a significant decline in $CO_2$ over the last five years, with a 38% (or 928,591t) reduction in $CO_{2\text{-}e}$ reported in the 2023 - 2024 financial year compared to 2019 - 2020. The decline in $CO_{2\text{-}e}$ production is reflective of the overall decline in production.

### *6.5.5 Impact assessment*

Table 6-31 presents the impact assessment for air emissions.

**Table 6-31 Impact assessment for air emissions**

| ALARP decision context | |
|---|---|
| **Decision type** | B |
| **Activity** | Activities identified as generating air/GHG emissions are well understood. |
| **Risk and uncertainty** | Impacts from GHG emissions are relatively well understood though some uncertainty exists regarding precise level of impact. The control measures used to manage these impacts are established, industry standards. |
| **Stakeholder influence** | The management of GHG emissions in oil and gas operations is subject to ongoing public and media interest. Esso recognizes the importance of transparency and compliance with evolving regulatory expectations. |
| **Impact consequence (inherent)** | |
| Consequence Level IV | |

| Assessment of proposed control measures (ALARP assessment) | | | |
|---|---|---|---|
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| Vessel operations comply with Marine Order 97 (Marine Pollution Prevention – Air Pollution). | Reduces air pollution from vessels. | Marine Order 97 is required under Australian regulations; implementation is standard practice for commercial vessels as applicable to vessel size, type and class. | Adopted **(IMP05-CM01)** |
| The GHG emissions from Esso facilities are monitored in accordance with the NGER and NPI reporting. | Minimises environmental impact of emissions through planning, ongoing review, governance, and optimisation. | NGER and NPI provide established national mechanisms for estimating and reporting GHG emissions, energy use, and criteria pollutants. Reporting under these schemes is mandatory, well-defined, and supported by existing organisational systems. | Adopted **(IMP05-CM02)** |
| Esso applies for, manages, and maintains net direct emissions within the applicable Safeguard Mechanism baseline(s) established under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015, including implementation of required remediation, offsets, or reforms to ensure ongoing compliance. | The Safeguard Mechanism requires operators to offset carbon emissions in excess of the relevant baseline using appropriate credit units. | Control based on legislative requirement utilising the national reporting framework for the reporting of information related to GHG emissions. | Adopted **(IMP05-CM03)** |
| Fuel gas use forecasts are developed using facility design principles and ALARP | Provides early visibility of abnormal consumption or flaring trends, enabling proactive identification of inefficiencies or system issues, supporting overall | Forecasting tools, design-basis data, and operational performance information are already established within existing facility | Adopted **(IMP05-CM05)** |

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| considerations such that exceedances trigger further analysis to identify the cause and determine whether corrective action is required. | emissions minimisation and operational reliability. | engineering and operations workflows. | |
| Continuous monitoring of fuel gas usage and flaring volumes to identify trends, detect anomalies, and support minimisation/ optimisation efforts. | Provides early visibility of abnormal trends or anomalies, enabling timely investigation and optimisation, supporting emissions minimisation. | Fuel gas and flaring data are captured through existing instrumentation and routinely reviewed by operations and technical teams. | Adopted<br>**(IMP05-CM06)** |
| Flaring forecasts are developed and revised annually in accordance with the internal Emissions Forecasting Protocol using facility design principles and operational assumptions. Any material exceedance of forecast values will trigger further analysis to identify the cause and determine whether corrective action is required. | Provides early visibility of abnormal consumption or flaring trends, enabling proactive identification of inefficiencies or system issues, supporting overall emissions minimisation and operational reliability. | Forecasting tools, design-basis data, and operational performance information are already established within existing facility engineering and operations workflows. | Adopted<br>**(IMP05-CM07)** |
| Continuous monitoring of flaring volumes is undertaken to identify trends, detect anomalies, and support flaring minimisation efforts in line with | Prevents incomplete combustion and/or venting, thereby minimising air pollution. | These flows are continuously monitored and controlled through existing instrumentation and control-system logic. | Adopted<br>**(IMP05-CM08)** |

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| government expectations to reduce gas-related emissions. | | | |
| A minimum pilot/purge-gas flow rate is maintained at all times to ensure continuous flare ignition. | Prevents incomplete combustion and/or venting, thereby minimising air pollution. | This is standard industry and Esso practice. | Adopted **(IMP05-CM09)** |
| Annual Leak Detection and Repair program is implemented. | Identifies and reduces fugitive emissions arising from leaks. | Established IMR workflows can readily incorporate a scheduled, once-per-year leak survey and associated repairs. | Adopted **(IMP05-CM10)** |
| The approach to leak detection and quantification is reassessed annually. | Ensures the suitability and effectiveness of leak detection, in turn ensuring that air pollution is minimised. | Leak detection is a routine industry and Esso practice. | Adopted **(IMP05-CM011)** |
| A five-yearly review is completed within three months of each EP in-force anniversary (aligned with the in-force period of this EP) to reassess external factors influencing the management of indirect GHG emissions associated with third-party end use of domestic gas supplied by the Esso.. | Ensures the suitability and ongoing management of third-party end use influencing indirect emissions. | This is standard industry and Esso practice. | Adopted **(IMP05-CM012)** |
| A review is undertaken every five years, aligned with the EP revision cycle, to reassess the assumptions and accuracy of | Ensures the assumptions and accuracy of indirect emissions estimates. | This is standard industry and Esso practice. | Adopted **(IMP05-CM013)** |

| | | | |
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| estimated indirect emissions. | | | |
| Emissions and production data from Esso will be compiled and reported annually to the ultimate parent company to support accurate calculation of corporate GHG–related emissions. | Ensures ongoing stewardship and reporting to continue towards overall reduction in emissions | This is standard industry and Esso practice. | Adopted<br>**(IMP05-CM14)** |
| Use renewable electricity and battery storage systems to power the platforms. | Avoid emissions associated with power generation (fuel gas combustion), thereby avoiding air pollution. | Renewable electricity and large-scale battery storage are not presently viable for powering offshore facilities because current battery technologies cannot meet the high energy density, safety, and reliability requirements needed for continuous offshore operations. Offshore renewable systems also face major feasibility barriers, including harsh marine conditions, intermittency, and the need for significant new infrastructure and capital investment, making them unsuitable as a primary power source for essential offshore processing loads at this time. | Not adopted |
| Implement carbon capture and storage to reduce GHG emissions to atmosphere. | Reduction of $CO_2$ in the atmosphere. | Implementing carbon capture and storage at the Bass Strait Facilities would require a significant capital investment exceeding $150 million and depend upon third-party partnerships for feasibility. At present, carbon capture and | Not adopted |

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| | | storage is not commercially viable.<br>Feasibility will be periodically reassessed in light of market developments, technological advancements, third-party collaboration opportunities, and evolving cost structures. | |
| Use of flare cameras (CCTV) to monitor for continuous flare pilot light. | Minimal incremental benefit in so far as it may reduce the duration that pilot light remains unlit. | Pilot and purge gas minimum flowrates are continuously monitored by the control system, providing reliable, real-time confirmation that the flare remains lit. In addition, CCTV systems in offshore environments face significant reliability issues due to heat, glare, salt spray, and weather exposure, making them less dependable than instrumentation-based monitoring. As a result, CCTV offers little additional assurance beyond the existing, more robust instrumentation already in place. | Not adopted |
| Eliminate flaring by venting un-combusted hydrocarbons. | No benefit. | Routine venting is not considered good industry practice, as unburnt methane poses potential for greater environment impact compared to combustion emissions. The ability to flare hydrocarbons is a key safety feature on the platforms.<br>Removing the ability to flare hydrocarbons may result in unacceptable safety risks on the facility. | Not adopted |

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|---|---|---|---|
| Installation of flare gas recovery systems. | Reduces atmospheric emissions from flaring. | Significant retrofitting of the platforms would be required.<br>The addition of required equipment poses significant production sacrifice and potential domestic gas supply impacts due to the initial design layout, space and safety constraints. | Not adopted |
| **Environmental controls and performance measurement** | | | |
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **Vessels** | | | |
| **IMP05-EPO01:**<br>Fuel-combusting vessel equipment operates in accordance with MARPOL Annex VI (Prevention of Air Pollution from Ships). | **IMP05-CM01:**<br>Vessels comply with Marine Order 97 (Marine Pollution Prevention – Air Pollution), including:<br>• possession of an International Air Pollution Prevention (IAPP) Certificate, as required by vessel class<br>• use of low sulphur fuel (no greater than 0.5%m/m)<br>• possession and implementation of a Ship Energy Efficiency Management Plan, where required by vessel class. | **IMP05-EPS01:**<br>Emissions from vessels comply with the requirements of Marine Order 97 (Marine Pollution Prevention – Air Pollution). | Class certificate summary verifies compliance with MARPOL Annex VI. |
| **Facilities** | | | |
| **IMP05-EPO02:**<br>GHG emissions from Esso offshore activities are reduced in line with Australia's reformed Safeguard Mechanism | **IMP05-CM02:**<br>The GHG emissions from Esso facilities are monitored in accordance with the NGERS and NPI reporting. | **IMP05-EPS02:**<br>All reportable GHG emissions from Esso offshore operations are reported and submitted annually in compliance with | Annual NGER and NPI submissions completed and retained as verifiable records. |

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| requirements (inclusive of legislated net zero emissions by 2050). | | NGERS and NPI requirements. | |
| | **IMP05-CM03:**<br>Esso applies for, manages, and maintains net direct emissions within the applicable Safeguard Mechanism baseline(s) established under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015, including implementation of required remediation, offsets, or reforms to ensure ongoing compliance. | **IMP05-EPS03:**<br>Net direct emissions from Esso facilities remain within the approved Safeguard Mechanism baseline(s) each financial year, with any exceedances addressed through timely corrective or offset measures in accordance with the Rule. | Safeguard Mechanism baseline determinations, annual emissions position statements, and compliance documentation are maintained.<br>Internal records demonstrate that any required corrective actions (e.g. acquisition of the System of Management Controls, operational adjustments, or efficiency improvements) were implemented to prevent or address baseline exceedance. |
| | **IMP05-CM04:**<br>A GHG-reduction opportunity-assessment process is implemented in accordance with the GHG Management Plan (AUGO-EV-EDS-003), including periodic Gippsland Emissions Reduction Leadership Team reviews and the integration of approved GHG-reduction initiatives into the Business Plan for implementation, tracking, and monitoring. | **IMP05-EPS04:**<br>GHG reduction opportunities are identified, assessed and stewarded via a defined governance process that integrates approved initiatives into business planning and performance monitoring, supporting the reduction of GHG emissions. | Records (agenda, minutes, action lists) demonstrate that quarterly GERL reviews occurred which;<br>• considered offshore emissions-reduction opportunities.<br>• confirmed status of endorsed initiatives (in delivery, completed, or under evaluation)<br>• provide feedback on actual vs predicted reductions |
| **IMP05-EPO03:**<br>Fuel gas use from the Esso offshore facilities is optimised to ensure that any increases are identified, assessed and managed to ALARP. | **IMP05-CM05:**<br>Fuel gas use forecasts are developed and revised annually in accordance with the internal Emissions Forecasting Protocol using facility design principles and ALARP considerations. Any material exceedance of forecast values will trigger further analysis to identify | **IMP05-EPS05:**<br>Fuel gas forecasts are maintained in accordance with facility design principles and ALARP considerations. | Forecasts for fuel-gas use are documented, current, and based on design inputs. |
| | | | Records demonstrate that any exceedance of forecast fuel-gas use triggered follow-up analysis. |
| | | | Documented outcomes of analysis show whether |

| | | | |
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| | the cause and determine whether corrective action is required. | | corrective or mitigation actions were needed, and if so, that they were implemented or scheduled through internal processes. |
| | **IMP05-CM06:**<br>Continuous monitoring and routine operational review of fuel gas usage volumes is undertaken to identify trends, detect anomalies, and support optimisation efforts via:<br>• the distributed control system<br>• daily OIM report<br>• bi-weekly operations review (Redbox Meeting)<br>• monthly technical monitoring<br>• annual environmental business planning. | **IMP05-EPS06:**<br>Fuel gas usage trends, anomalies, and optimisation opportunities are identified and acted upon in a timely manner. | Fuel-gas usage data is continuously captured through the distributed control system. |
| | | | Daily OIM reports document fuel-gas usage and note any anomalies requiring follow-up. |
| | | | Bi-weekly operations review (Redbox Meeting) held includes discussion of usage versus forecasts. |
| | | | Monthly technical monitoring records demonstrate review of fuel gas usage trends, anomalies and optimisation actions. |
| | | | Annual environmental business-planning documentation includes assessment of fuel gas usage performance, trends, and planned optimisation initiatives. |
| | | | Evidence of corrective or optimisation actions is retained where anomalies or inefficiencies were identified. |
| **IMP05-EPO04:**<br>Flaring from offshore operations is managed (i.e. reduced and, where practicable, eliminated except where required for safety) consistent with the Australian Government's Future Gas Strategy | **IMP05-CM07:**<br>Flaring forecasts are developed and revised annually in accordance with the internal Emissions Forecasting Protocol using facility design principles and operational assumptions. Any material exceedance of forecast values will trigger further analysis to identify the cause and determine whether corrective action is required. | **IMP05-EPS07:**<br>Flaring forecasts are maintained in accordance with facility design principles and ALARP considerations, and any material exceedance is investigated promptly with corrective actions identified where required. | Flaring forecasts are documented, current, and based on design inputs. |
| | | | Records demonstrate that any exceedance of forecast fuel-gas use triggered follow-up analysis. |
| | | | Documented outcomes of analysis show whether corrective or mitigation actions were needed, and if so, that they were implemented or scheduled through internal processes. |

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| commitment and World Bank Zero Routine Flaring Initiative. | **IMP05-CM08:**<br>Continuous monitoring of flaring volumes is undertaken to identify trends, detect anomalies, and support flaring minimisation efforts in line with government expectations to reduce gas-related emissions via:<br>• the distributed control system<br>• daily OIM report<br>• bi-weekly operations review (Redbox Meeting)<br>• monthly technical monitoring<br>• annual environmental business planning. | **IMP05-EPS08:**<br>Flaring trends, anomalies, and optimisation opportunities are identified and acted upon in a timely manner. | Flaring data is continuously captured through the distributed control system. |
| | | | Daily OIM reports document flare volumes and note any anomalies requiring follow-up. |
| | | | Bi-weekly operations review (Redbox Meeting) held includes discussion of actual versus forecasts. |
| | | | Monthly technical monitoring records demonstrate review of flaring trends, anomalies and optimisation actions. |
| | | | Annual environmental business-planning documentation includes assessment of flaring volumes, trends, and planned optimisation initiatives. |
| | | | Evidence of corrective or optimisation actions is retained where anomalies or inefficiencies were identified. |
| | **IMP05-CM09:**<br>To prevent incomplete combustion and/or venting, a minimum pilot/purge-gas flow rate is maintained at all times to ensure continuous flare ignition. In the event of a flare flame-out, the *Panel Ignition and Panel Operation* (XXX-110-301) and *Flare Ignition Using Flare Gun and Guidelines for Operation w/o Flare* (GEN-110-206) procedures will be executed; and the event will be recorded in the facility's incident-management system. | **IMP05-EPS09:**<br>Continuous flare ignition is maintained, with any flame-out events managed in accordance with the *Panel Ignition and Panel Operation* (XXX-110-301) and *Flare Ignition Using Flare Gun and Guidelines for Operation w/o Flare* (GEN-110-206) procedures. | Distributed control system records demonstrate minimum pilot/purge-gas flow is maintained. |
| | | | Flare flame-out events are logged in the incident management system, with evidence that the *Panel Ignition and Panel Operation* (XXX-110-301) and *Flare Ignition Using Flare Gun and Guidelines for Operation w/o Flare* (GEN-110-206) procedures were followed. |

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| **IMP05-EPO05:**<br>Fugitive emissions from Esso operations are systematically identified, quantified, and reduced in line with the Oil and Gas Methane Partnership 2.0 (OGMP 2.0) measurement based framework. | **IMP05-CM10:**<br>Implement the annual Leak Detection and Repair program, applying ALARP-based mitigation in accordance with the internal offshore Leak Detection and Repair process including classifying leaks by magnitude/ criticality, setting maximum allowable repair windows, and implementing engineered fixes. | **IMP05-EPS10:**<br>Site-level fugitive emissions inventories are in place and drive timely leak repairs. | Leak Detection and Repair survey schedule and execution records demonstrate program undertaken annually, repairs are undertaken in accordance with the offshore Leak Detection and Repair process and logged in the CMMS. |
| | **IMP05-CM11:**<br>The approach to leak detection and quantification is reassessed annually to ensure its suitability and effectiveness in the operational context. | **IMP05-EPS11:**<br>The leak detection and quantification approach remains effective, fit-for-purpose, and aligned with current operational conditions and best-practice methodologies | An annual documented review of the leak detection and quantification approach is completed, assessing its suitability and effectiveness and identifying any required updates. |
| | | | Agreed improvements are recorded and incorporated into Leak Detection and Repair procedures or operational practices, with supporting updates (e.g. revised procedures, training, or equipment changes) implemented as applicable. |
| **IMP05-EPO06:**<br>Net GHG emissions from third-party end use of domestic gas supplied by the Esso will not constitute a significant share of national GHG emissions. | **IMP05-CM12:**<br>A five-yearly review is completed within three months of each EP in-force anniversary (aligned with the in-force period of this EP) to reassess external factors influencing indirect GHG emissions associated with third-party end use of domestic gas supplied by Esso. Each review will include consideration of:<br>• the most up-to-date climate science published by recognised international bodies | **IMP05-EPS12:**<br>A five-yearly review is completed by no later than three months of each EP in-force anniversary and documented in an internal Review Report.<br>The Review Report confirms that current climate science, regulatory requirements, international obligations, and | Review reports verify that five-yearly reviews of climate reports, climate-related regulatory frameworks, and projected domestic and global energy trends are undertaken. |

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| | (e.g. Intergovernmental Panel on Climate Change) or other validated scientific or corporate sources<br>• revised or emerging Australian regulatory requirements, as well as any applicable international agreements, guidelines, or standards relevant to indirect GHG emissions management<br>• current and projected domestic energy trends, including the anticipated role of Esso's domestic gas in future demand, supply, and sectoral decarbonisation scenarios. | domestic energy trend projections were evaluated. | |
| | **IMP05-CM13:**<br>A review is undertaken every five years, aligned with the EP revision cycle, to reassess the assumptions and accuracy of estimated indirect emissions. The review will:<br>• evaluate the validity of underlying assumptions used in emissions estimations<br>• assess the accuracy and currency of emission calculation methodologies and emission factors in effect at the time of the review<br>• incorporate updates from recognised national and international GHG accounting frameworks as relevant. | **IMP05-EPS13:**<br>Five-yearly reviews are completed and demonstrate that assumptions, methodologies, and emission factors used to estimate indirect emissions remain current, valid, and aligned with recognised national and international GHG accounting frameworks. | Records show that routine five-yearly reviews of assumptions and methodologies used in indirect emissions estimation were undertaken. |

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| | **IMP05-CM14:**<br>Emissions and production data from Esso will be compiled and reported annually to the ultimate parent company to support accurate calculation of corporate GHG-related metrics. | **IMP05-EPS14:**<br>Annual reporting of GHG-related metrics are complete, accurate, and consistent with corporate reporting requirements and methodologies. | Records show that annual production and emissions data from Esso was provided to the ultimate parent company. |

| **Impact consequence (residual)** |
|---|
| Consequence Level IV |
| **Demonstration of ALARP** |
| With the controls outlined in this table in place, the consequence has been assessed as Consequence Level IV (lower consequence) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual consequence further or would be grossly disproportionate to the residual consequence. Therefore, a Consequence Level IV residual impact consequence is considered to be ALARP. |
| **Demonstration of acceptability** |

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| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | |
| **Legislative and other requirements** | The controls outlined in this table align with the requirements of:<br>• *Navigation Act 2012* (Cth):<br>- Chapter 4 (Prevention of Pollution)<br>- AMSA Marine Order Part 79 (Marine pollution prevention – air pollution).<br>• *Protection of the Sea (Prevention of Pollution by Ships) Act 1983* (Cth):<br>- Part IIID (Prevention of Air Pollution)<br>- AMSA Marine Orders Part 97 (Air Pollution), enacting MARPOL Annex VI (especially Regulations 6, 14, 16).<br>• *National Greenhouse and Energy Reporting Act 2007* (Cth)<br>• National Environment Protection (National Pollutant Inventory) Measure 1998 (Cth) | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas industry* | The controls listed in this table meet the relevant mitigation measures listed for offshore activities with regard to:<br>• Section 4.4.3 - combustion emissions: |

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| | (IPIECA-IOGP, 2020) | - selection of low sulphur diesel **(IMP05-CM01)**<br>- regular plant maintenance **(IMP05-CM06, -CM08).**<br>• Section 4.4.4 – fugitive emissions:<br>- implementation of effective and regular leak detection and repair programs (**IMP05-CM10, -CM11).**<br>• Section 4.4.5 – venting:<br>- adoption of measures consistent with the Global Gas Flaring and Venting Reduction Voluntary Standard when considering venting options for offshore activities (**IMP05-CM04, -CM07, -CM08, -CM09)**<br>- tightly controlled and managed flow of gas **(IMP05-CM07, -CM08)**<br>- Preferentially flare rather than vent **(IMP05-CM07)**<br>- in the event of an emergency or equipment failure, excess gas should not be vented, but sent to an efficient flare gas system **(IMP05-CM07, -CM08).**<br>• Section 4.4.6 – flaring:<br>- adoption of measures consistent with the Global Gas Flaring and Venting Reduction Voluntary Standard when considering flaring options for offshore activities (**IMP05-CM04, -CM07, -CM08, -CM09)**<br>- ensuring a tightly controlled and managed flow of gas **(IMP05-CM07, -CM08)**<br>- maximise flare combustion efficiency by controlling and optimising flare fuel, air, and stream flow rates to ensure the correct ratio of assist stream to flare stream **(IMP05- CM04, -CM05, -CM06, -CM07, -CM08)**<br>- minimise flaring from purges and pilots – without compromising safety – through measures including installation of purge gas reduction devices, vapour recovery units, inert purge gas, soft seat valve technology where appropriate, and installation of conservation pilots (which manage the flow of gas) **(IMP05-CM06, -CM07, -CM08)**<br>- in the event of emergency or equipment breakdown, or during facility upset conditions, excess gas should be flared, not vented if possible **(IMP05-CM08)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | The following best available techniques for energy efficiency (Section 20.3) have been met:<br>• monitoring systems should be implemented widely where practicable in order to collect data, enrich data through appropriate modelling and to provide trends over time to highlight deviations or potential opportunities for energy performance improvement **(IMP05-CM02, -CM05, -CMO6, -CM07, -CM08, -CM09)**.<br>The following best available techniques for flaring (Section 21.3.1) have been met:<br>• consider either 'continuously lit pilots' and 'ignition-on-demand' as the primary ignition system. These can |

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| | | eliminate or at least minimise delay in achieving an ignited flare; and reliability of the ignition system **(IMP05-CM09)**<br>• perform flare monitoring to detect and address conditions that indicate inefficient combustion such as flame lift off, flame lick or visible black smoke **(IMP05-CM08)**<br>• regularly analyse gas sent to flaring and associated parameters of combustion (e.g. flow gas mixture and heat content, ratio of assistance, velocity, purge gas flow rate, pollutant emissions) **(IMP05-CM08)**<br>• perform flare IMR programmes to ensure continued flare efficiency **(IMP05-CM07)**.<br><br>The following best available techniques for fugitive emissions (Section 22.3.2) have been met:<br><br>• undertake leak detection **(IMP05-CM10)**<br>• assurance and verification – ensure that the breaking and re-making of flanged joints, including leak testing, is adequately covered by maintenance procedures as part of the facility planned maintenance system **(IMP05-CM10, -CM11)**. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Guidelines met with regard air emissions:<br><br>• Item 10 - aggregate GHG emissions from all facilities and offshore support activities should be quantified annually in accordance with internationally recognised methodologies **(IMP05-CM02, -CM03, -CM13)**<br>• Item 11- all reasonable attempts should be made to implement appropriate methods for controlling and reducing fugitive emissions in the design, operation, and maintenance of offshore facilities **(IMP05-CM10, -CM11)**.<br><br>Guidelines met with regard to exhaust gases:<br><br>• Item 12 - During equipment selection, air emission specifications should be taken into account, as should the use of low sulphur content fuels and/or natural gas **(IMP05-CM01)**.<br><br>Guidelines met with regard to venting and flaring:<br><br>• Item 16 - measures consistent with the Global Gas Flaring and Venting Reduction Voluntary Standard should be adopted when considering venting and flaring options for offshore activities (**IMP05-CM04, -CM07, -CM08, -CM09)**<br>• Item 18 - measures to minimise flare volumes should be evaluated and flaring should be considered as an interim solution, with the elimination of continuous production associated gas flaring as the preferred goal **(IMP05-CM07, -CM08)**<br>• Item 20 - If flaring is the only viable solution, continuous improvement of flaring through the implementation of good practices and new technologies should be demonstrated:<br><br>- maximise flare combustion efficiency by controlling and optimising flare fuel, air, and stream flow rates to |

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| | | ensure the correct ratio of assist stream to flare stream **(IMP05-CM08, -CM09)**<br>- use a reliable pilot ignition system **(IMP05-CM09)**<br>- minimise flame lift off and/or flame lick **(IMP05-CM09)**<br>- operate flare to control odour and visible smoke emissions (no visible black smoke) **(IMP05-CM07, -CM08, -CM09)**<br><br>Guidelines met with regard to fugitive emissions:<br>• Item 27 - leak detection and repair programs should be implemented (**IMP05-CM010, -CM11)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls for this activity meet the code's following objectives for offshore development and production:<br>• to reduce the impact of air emissions to ALARP and an acceptable level (all EPOs outlined in this table)<br>• to reduce GHG emissions to ALARP and an acceptable level (all EPOs outlined in this table). |
| | **Air emissions-specific** | |
| | IOGP Best Practice Guidelines | The following guidelines are met:<br>• petroleum industry guidelines for reporting GHG emissions (2011):<br>- as outlined in Section 3.2.1 companies within the petroleum industry should account for and report all Scope 1 (direct) GHG emissions from assets that fall within their established organizational boundaries **(IMP05-EPO2)**.<br>• Flaring management guidance (2021):<br>- management of non-routine flares<br>- flare management during non-routine/upset scenarios (**IMP05-EPO4** and associated EPS)<br>- setting flaring targets at the station level (Table 2-16) **(IMP05-EPS07)**<br>- root cause analysis and identification of 'bad actors' **(IMP05-EPS11)**.<br>• Recommended practices for methane emissions detection and quantification technologies – upstream (2025):<br>- this report provides oil and gas operators with a framework and guidelines to help select and deploy methane emissions detection and quantification technologies. Whilst this is not within the scope of this EP, Esso complies by undertaking annual fugitive emissions detection **(IMP05-EPS11)**. |
| | The Paris Agreement (2016) | The controls outlined in this table align with the overall Paris Agreement and Australia's commitment to reduce emissions to 43% below 2005 levels by 2030 and net zero by 2050 through ensuring emissions to air are kept to ALARP and align with regulatory requirements. |

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| | *Guidance on Upstream Flaring and Venting Policy and Regulation* (World Bank Group, 2009) | This guideline is directed at regulators, but Esso complies with the key issues to be regulated, which are focused on monitoring and reporting of emissions. |
| **Internal context** | Consistent with Esso's Environment Policy. | Proposed activities are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*". |
| | Meets OIMS Objectives. | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to qualify, evaluate and select contractors based on their ability to perform work in a safe, secure and environmentally sound manner. |
| | Internal GHG insights | The controls outlined in this table align with the following internal GHG insights:<br>• The guiding principles of *Protect Tomorrow. Today.*<br>• Esso's ultimate parent company's ambitions to achieve (per Advancing Climate Solutions 2025):<br>• Net-zero GHG for operated assets by 2050:<br>- 70 - 80% reduction in corporate-wide methane intensity versus 2016 by 2030<br>- 60 - 70% reduction in corporate-wide flaring intensity versus 2016 by 2030<br>- 40 - 50% reduction in upstream GHG intensity versus 2016 by 2030.<br>• zero routine flaring across all operated upstream assets by 2030, consistent with World Bank Zero Routine Flaring Initiative<br>• methane emissions measurement consistent with OGMP 2.0 Gold Standard reporting requirements<br>• Esso's adopted Model Regulatory Framework for mitigating methane emissions from the oil and gas industry |
| **External context** | No relevant person concerns have been raised concerning emissions to air. | |

## 6.6 Routine discharge – Domestic wastes and drainage

### *6.6.1 Source of Impact*

The activities that result in domestic waste and drainage discharges are outlined in Table 6-32.

**Table 6-32 Sources of domestic wastes and drainage**

| Activity | Applicable? | Sources of domestic waste and drainage |
|---|---|---|
| Platform operations | **Yes** | • Discharges of sewage (from toilets), grey water (from bathrooms, laundries and gallies), and food waste (from gallies).<br>• Brine discharge resulting from the desalination processes for potable water generation.<br>• Cooling water resulting from the use of seawater uptake, deoxygenation and sterilisation used to cool equipment.<br>• Note - Platform deck and drainage discharges are outlined in Section 6.7. |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **No** | N/A |
| IMR | **No** | N/A |
| Support activities | **Yes** | • Discharges of sewage (from toilets), grey water (from bathrooms, laundries and gallies), and food waste (from gallies).<br>• Brine discharge resulting from the desalination processes for potable water generation.<br>• Cooling water resulting from the use of seawater uptake, deoxygenation and sterilisation used to cool equipment.<br>• Vessel deck drainage and bilge discharges. |

#### 6.6.1.1 Cooling water from platforms and vessels

Seawater is drawn up from the ocean, where it is deoxygenated and sterilised by electrolysis and then circulated as coolant for equipment (HVAC) through the heat exchangers and then discharged to sea (and referred to as cooling water). Upon discharge, it is slightly warmer than the ambient water temperature. It is discharged above the sea surface to facilitate cooling prior to reaching the sea surface.

Cooling water on some vessels is discharged continuously but given that vessels are nearly always continuously moving within the OAs, the discharges are not in a single location.

#### 6.6.1.2 Brine from platforms and vessels

Brine (hypersaline water) is created through the desalination process that creates freshwater for drinking showers and cooking. This is achieved through RO, resulting in the discharge of seawater with a slightly elevated salinity (about 10 - 15% higher than seawater). The brine concentration depends on the throughput and efficiency.

Brine water is discharged from the platforms and vessels as required.

It is not possible to predict the volumes discharged from the vessels for the periods of time they remain in the OAs.

#### 6.6.1.3 Bilge and desk drainage from vessels

Bilge tanks on vessels receive fluids from closed deck drainage and machinery spaces that may contain contaminants such as oil, detergents, solvents, chemicals and solid waste. An oily water separator treats

this water prior to discharge overboard in order to meet the MARPOL Annex I requirement so that there is no greater than 15ppm OIW discharged to the sea. The volume of these discharges is small and intermittent (on an as-required basis, based on bilge tank storage levels).

Vessel decks that are not bunded or connected to closed deck drainage and drain directly to sea typically can lead to the discharge of 'green water' (ocean spray and rain) or discharges from deck washing that captures trace quantities of contaminants such as oil, grease and detergents, or a small hydrocarbon or chemical spill washed overboard.

#### 6.6.1.4 Sewage and grey water from platforms and vessels

The composition of sewage and grey water discharged from the platforms and/or vessels may include (when untreated):

- particulate matter including solids composed of floating, settleable, colloidal and dissolved matter, substances that affect aspects of aesthetics such as ambient water colour, the presence of surface slicks/sheens and odour
- chemical contaminants Including:
    - nutrients (e.g. ammonia, nitrite, nitrate and orthophosphate)
    - organics (e.g. volatile and semi-volatile organic compounds, oil and grease, phenols, endocrine disrupting compounds)
    - inorganics (e.g. hydrogen sulphide, metals and metalloids, surfactants, phthalates, residual chlorine).
- biological pathogens including bacteria, viruses, protozoa and parasites.

Tertiary sewage does not occur on the platforms (this is not required under MARPOL Annex IV because they are located greater then 12nm from the nearest shoreline) but does occur on the vessels.

Total volumes of sewage and grey water typically generated at offshore facilities ranges between 0.04 and 0.45m$^3$ per person per day (NERA, 2017). Estimated discharge volumes based on these numbers for producing facilities are presented in Table 6-33. NERA (2017) state that most large vessels generate 5-15m$^3$ of wastewater per day, the majority of which is grey water.

**Table 6-33 Estimated daily rates per facility**

| Facility | Maximum persons on board | Estimated daily sewage and grey water discharge range (m$^3$) |
|---|---|---|
| BTA | 24 | 0.96 – 10.8 |
| MLA | 93 | 3.72 – 41.86 |
| WTN | 82 | 3.28 – 36.9 |
| TNA | 51 | 2.04 – 22.95 |
| SNA | 60 | 2.4 – 27 |
| **Total daily range:** | | **12.4 – 139.5m$^3$** |

#### 6.6.1.5 Food (putrescible) waste

The average volume of putrescible waste from vessels depends on the number of persons on board and is estimated at 1 to 2kg per person per day (NERA, 2017), with these discharges being intermittent.

### *6.6.2 Known and potential impacts*

The known and potential environmental impacts of brine and cooling water discharges include:

- changes in water quality, such as:

  - increased salinity
  - increased water temperature
  - chemical exposure
  - nutrient loading (e.g. ammonia, nitrate and orthophosphate)
  - chemical exposure (organics and inorganics)
  - turbidity/sedimentation of particulate matter.
- changes in fauna behaviour – increased scavenging behaviour.

In addition to the quality of the receiving waters, receptors that may occur, either as residents or migrants, are:

- plankton
- pelagic fish
- cetaceans
- pinnipeds
- turtles
- seabirds.

### *6.6.3 Environment That May Be Affected*

The EMBA for brine and cooling water discharges associated with platform and vessel activities is likely to be the top 10m of the water column and a 100m radius from the discharge point. This is based on modelling of continuous wastewater discharges undertaken by Woodside (Woodside, 2008). Woodside found that discharge water temperature decreased quickly as it mixes with the receiving waters, with the discharge water temperature being less than 1°C above background levels within the top 10m of the water column and 100m radius from the discharge point.

The EMBA for bilge and deck water discharges is likely to be the top 10m of the water column and less than a 100m radius from the discharge point (Woodside, 2008).

The EMBA for sewage and food waste discharges is likely to be the top 10m of the water column and a 50m radius from the discharge point. This is based on modelling of continuous wastewater discharges (including treated sewage and food waste) undertaken by Woodside (2008), which found:

- rapid horizontal dispersion of discharges occurs due to wind-driven surface water currents
- vertical discharge is limited to about the top 10m of the water column due to the neutrally buoyant nature of the discharge
- a concentration of a component within the discharge stream is reduced to 1% of its original concentration at no less than 50m from the discharge point under any condition (Woodside, 2008).

### *6.6.4 Evaluation of impacts*

#### 6.6.4.1 Increased salinity

Reject water discharges from the RO system has an elevated salinity (approximately 10 - 15% higher than seawater). The freshwater produced is then stored in tanks. Upon discharge, the concentration of the brine is likely to range from 44 - 61ppm, which is 9 - 26ppm higher than seawater salt concentration (35ppm). Brine discharges will be sink through the water column and quickly disperse by ocean currents and rapidly mix with the surrounding marine waters, meaning that any potential impacts are limited to the source of the discharge where concentrations are highest (Abdul Azis, et al., 2003).

Changes in salinity can affect the ecophysiology of marine organisms such as plankton and fish. Most marine species are able to tolerate short-term fluctuations in salinity in the order of 20 - 30% (Walker & McComb, 1990). However, larval stages, which are crucial transition periods for marine species, are known to be more susceptible to impacts of increased salinity (Neuparth, Costa, & Costa, 2002). Mobile pelagic species may be subjected to slightly elevated salinity levels (approximately 10 - 15% higher than seawater) for a very short period of time, which they are expected to be able to tolerate.

The small EMBA and environmental impacts from brine discharges are inconsequential for water quality and marine fauna.

#### 6.6.4.2 Localised increase of water temperature

Once in the water column, cooling water will remain in the surface layer, where turbulent mixing and heat transfer with surrounding waters will occur. Prior to reaching background temperatures, the impact of increased seawater temperatures down current of the discharge may result in changes to the physiological processes of marine organisms, such as attraction or avoidance behaviour, stress or potential mortality.

The small EMBA and environmental impacts from the localised increase in water temperature are inconsequential for water quality and marine fauna.

#### 6.6.4.3 Decrease in water quality

*DECK DRAINAGE AND BILGE WATER*

The discharge of treated bilge water or deck drainage from support vessels is non-continuous and infrequent. Given the composition of bilge water and deck washing discharges, marine fauna most susceptible to toxic impacts are mainly limited to less mobile fish embryo, larvae, and other plankton. There is potential for short-term impacts to predator species that rely on plankton as a food source. Any impacts to prey species from treated bilge or deck drainage is temporary as the duration of exposure is limited due to the rapidly dispersing nature of the discharge plume, and fish larvae and other plankton are expected to rapidly recover as they are known to have high levels of natural mortality and a rapid replacement rate (UNEP, 1985) and unlikely to remain in the plume for an extended period of time.

*SEWAGE AND FOOD WASTE*

Given that sewage discharges from vessels and facilities are at or near the surface, and are buoyant discharges, the receptors with the potential to be impacted are also those within or on surface waters; for example, plankton, fish and the PBW, which has a foraging habitat overlapping the OAs and EMBA.

*TREATED DISCHARGE*

Sewage is treated to a tertiary standard through STPs on support vessels in line with the MARPOL Annex IV standards, so there are no potential impacts relating to the release of particulate matter, chemicals, and pathogens from the discharge of treated sewage.

Discharges will disperse and dilute rapidly, with concentrations of wastes significantly dropping with distance from the discharge point. The effects of sewage and sullage discharges on the water quality at Scott Reef (northwest Western Australia) were monitored for a drill rig operating near the edge of the deep-water lagoon area at South Reef. Monitoring at stations 20m, 50m, and 100m downstream of the rig and at five different water depths confirmed that the discharges were rapidly diluted in the upper 10m water layer and no elevations in water quality monitoring parameters (e.g. total nitrogen, total phosphorous and selected metals) were recorded above background levels at any station (Woodside Energy, 2011).

*UNTREATED DISCHARGES*

Untreated or primary treated (macerated) sewage discharges from the platforms may increase nutrient levels, such as phosphorus and nitrogen in receiving waters (although this usually only occurs in calm, inland waters). These nutrients may contribute to eutrophication causing algal blooms, which can degrade aquatic habitats by depleting oxygen levels and producing certain toxins, some of which are harmful to marine life and humans (Wang, 2024). This approach is consistent with MARPOL Annex IV requirements for discharges greater than 12nm from the nearest land. The effluent produces no floating solids or discoloration of surrounding water.

Given the tidal movements and strong currents in Bass Strait described in Section 1.3.2 of Appendix A, eutrophication from macerated sewage and food waste will not occur to receiving waters. There are no records of eutrophication occurring around Esso's Bass Strait operations.

#### 6.6.4.4 Chemical exposure

*BRINE AND COOLING WATER*

Scale inhibitors and biocide are used to control the growth of microorganisms in pipework, pumps and other equipment to maintain integrity by inhibiting corrosion and biofouling on producing platforms. Scale inhibitors are low molecular weight phosphorous compounds that are water-soluble and only have acute toxicity to marine organisms about two orders of magnitude higher than typically used in the water phase (Black, et al., 1994). The biocides typically used in the industry are highly reactive and degrade rapidly and are very soluble in water (Black, et al., 1994). These chemicals are inherently safe at the low dosages used, as they are usually 'consumed' in the inhibition process, ensuring there is little or no residual chemical concentration remaining upon discharge.

Biocides and scale inhibitors typically released with cooling water discharges are of low concentration and have a low level of bioavailability, meaning they will not accumulate within the food chain.

*DECK DRAINAGE AND BILGE WATER*

While small volumes and low concentrations of oily water from bilge discharges may temporarily reduce water quality, such discharges are not expected to induce acute or chronic toxicity impacts to marine fauna or plankton through ingestion or absorption through the skin or across membranes because the maximum 15ppm OIW discharge limit is designed to prevent such impacts.

In the event an oily water separator malfunction and discharge of off-specification water, toxicity impacts may occur to marine fauna swimming through the discharge plume, though this is only likely in a highly localised mixing zone (meaning that few individuals would be exposed).

In general, the impacts of bilge water and deck drainage to the physical and biological environment have inconsequential environmental impacts due to:

- low discharge volumes
- infrequent nature of discharges
- high dilution and dispersal factor in open water
- absence of sensitive habitats in the OAs.

#### 6.6.4.5 Injury or mortality to fauna

*PLANKTON*

Brine and cooling water

Elevated salinity concentrations in seawater can affect plankton. Plankton are known to have high levels of natural mortality and a rapid replacement rate, therefore recovery from disturbance is typically quick. As such, brine discharges will not result in serious or irreversible damage to organisms at population level. Any impacts will be highly localised and temporary, and the consequence will be inconsequential or have no adverse effect.

Early life stages of fish (embryos, larvae) and other plankton would be most susceptible to the toxic exposure from chemicals in the vessel cooling water discharges, as they are less mobile and therefore can become exposed at the site of discharge. However, scale inhibitors and biocides are generally typically fully or nearly fully 'consumed' at the time of discharge, so toxic levels of these chemicals are unlikely to occur at the point of discharge or in the discharge plume.

Exposure of planktonic communities to cooling water discharges has an inconsequential impact on their populations.

Sewage and food waste

Plankton forms the basis of all marine ecosystems, and plankton communities have a naturally patchy distribution in both space and time (ITOPF, 2011). They are known to have naturally high mortality rates (primarily through predation), however in favourable conditions (e.g. supply of nutrients), plankton populations can rapidly increase. Once the favourable conditions cease, plankton populations will collapse and/or return to previous conditions. Plankton populations have evolved to respond to these environmental perturbations by copious production within short generation times (ITOPF, 2011). However,

any potential change in phytoplankton or zooplankton abundance and composition is expected to be localised, typically returning to background conditions within tens to a few hundred metres of the discharge location (Abdellatif, Ali, Khalil, & Nyonje, 1993) (Axelrad, et al., 1981) (Parnell, 2003).

*FISH*

Modelling of continuous wastewater discharges (including cooling water) from an offshore drilling program in Western Australia found that the temperature of the discharge decreases quickly as the discharge stream mixes with the receiving waters, with the temperature being <1°C above ambient within 100m (horizontally) of the discharge point, and 10m vertically (WEL, 2014).

Fish passing through the area will be able to actively avoid entrainment in any heated plume (Langford, 1990). Acclimation of test organisms at 15, 20 and 25°C allowed them to tolerate temperature increments of 8 - 9°C without damage (UNEP, 1985).

The OAs are located within a distribution BIA for the great white shark; however, no threats related to water quality are identified in the *Recovery Plan for the White Shark* (*Carcharodon carcharias*).

Impacts to fish are expected to be highly localised (i.e. within 100m of the discharge stream in the direction of the prevailing current), and short-term (high-energy marine environment will dissipate the discharge stream quickly). Warm and saline discharges therefore have an inconsequential environmental impact on fish.

The long-term discharge of food waste and sewage from platforms and support vessels can result in increased scavenging behaviour around the discharge point. Discharge of food waste can result in a localised, temporary increase in scavenging behaviour by fish and birds. In the high-energy marine environment of Bass Strait, discharges are rapidly dispersed, and in addition, the rapid consumption of this food waste by scavenging fauna, and physical and microbial breakdown, ensures that the impacts of food waste discharges are limited to an area no greater than 50m from the discharge point.

Impacts to fish from the planned discharge of food waste are highly localised (due to the high energy marine environment, intermittent discharge and rapid consumption) and temporary (behavioural changes will cease once water quality returns to background levels).

*MARINE MAMMALS*

Similar to fish, marine mammals passing through brine and cooling water discharges will be able to actively avoid any heated plume (Langford, 1990). Acclimation of test organisms at 15, 20 and 25°C allowed them to tolerate temperature increments of 8 - 9°C without damage (UNEP, 1985).

The OAs are within the BIAs for the SRW (distribution), PBW (foraging, distribution), and several other threatened marine mammal species may pass through the OAs. A change (reduction) in water quality is not identified as a threat in any of the relevant conservation advice or management/recovery plans for these species.

Impacts to marine mammals are localised (i.e. 100m of the discharge stream), and short-term (high-energy marine environment will dissipate the discharge stream quickly). Warm and saline discharges will therefore have an inconsequential environmental impact on marine mammals.

*MARINE REPTILES*

Marine reptiles would be expected to behave in a similar way to fish and marine mammals and would actively avoid a heated plume (Langford T.E.L, 1990).

The *Recovery Plan for Marine Turtles in Australia, 2017 - 2027* lists chemical discharge as a key threat, specifically long-term exposure to anthropogenic contaminants.

Impacts to marine turtles are expected to be highly localised (i.e. 100m of the discharge stream), and short-term (high-energy marine environment will dissipate the discharge stream quickly).

Given the small plume area, combined with the low abundance of turtles in the ADE, warm and saline discharges have inconsequential impacts to turtles.

### *6.6.5 Impact assessment*

Table 6-34 presents the impacts assessment for utility system, drains and vessel discharge.

**Table 6-34 Impact assessment for utility systems, drains and vessel discharges**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Impact consequence (inherent)** | | | |
| Consequence Level IV | | | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Controls** | **Benefit** | **Feasibility** | **Adopt?** |
| Vessels >400 gross tonnes use approved equipment that ensures OIW content in discharged bilge water does not exceed 15ppm consistent with MARPOL Annex I. | Ensures that the OIW content of treated bilge water is <15ppm, which is designed to limit toxicity effects to marine life. | Treating oily water prior to discharge reduces impacts to water quality and marine fauna. oily water separator systems are part of routine vessel operations for vessels >400 gross tonnes and are legislated in Australia under AMSA Marine Order 91. | Adopted **(IMP06–CM01)** |
| Vessel deck cleaning agents may only be discharged overboard in accordance with MARPOL Annex V.<br>Any cleaning runoff mixed with oil, grease, or cargo residues must be collected and disposed of consistent with MARPOL Annex I. | Minimises potential chemical exposure impacts to water quality and marine fauna. | The use of deck cleaning products that are biodegradable is common practice on vessels. | Adopted **(IMP06–CM02)** |

| | | | |
|---|---|---|---|
| Sewage discharges from the vessels meet the requirements of MARPOL Annex IV (Marine Order 96). | Minimises impacts to water quality and marine fauna. | The use of STPs on vessels is standard maritime practice. | Adopted **(IMP06–CM03)** |
| Vessel garbage discharges meet the requirements of (Marine Order 95). | Eliminates the impacts to the marine environment. | The prevention of garbage to sea is standard maritime practice. | Adopted **(IMP06–CM04)** |
| Collect and dispose of platform and vessel sewage and greywater onshore. | Prevents reductions in water quality and discourages scavenging behaviour by marine fauna. | Would present increased health and safety risks from storing organic waste onboard and handling during transport. The platforms are permitted under legislation to discharge untreated sewage and greywater, while the vessels discharge via a STP. | Not adopted |
| Platform sewage treated prior to discharge. | Minimises impacts to water quality and marine fauna. | Under Marine Order 96, because the producing platforms are greater than 12nm from shore, discharge of untreated sewage is permissible. | Not adopted |
| Platform food waste macerated prior to discharge. | Minimises impacts to water quality and marine fauna. | Under Marine Order 95, because the producing platforms are greater than 12nm from shore, discharge of untreated food waste is permissible. | Not adopted |

| **Environmental controls and performance measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **IMP06-EPO01:**<br>Discharges from platform and vessel utility systems and drains meet the requirements of AMSA marine pollution prevention Marine Orders. | **IMP06-CM01:**<br>Vessels >400 gross tonnes use approved equipment (such as an oily water separator) that ensures OIW content in discharged bilge water does not exceed 15ppm. | **IMP06-EPS01:**<br>Oily water discharges meet the requirement of AMSA Marine Order 91 (Marine pollution prevention-oil). | The vessel Class Certificate Summary verifies that an International Oil Pollution Prevention certificate is in place and current. |

| | | | |
|---|---|---|---|
| | **IMP06-CM02**:<br>Cleaning products utilised onboard vessels are not 'harmful to the marine environment' (HME). For example,<br>• labelled 'MARPOL Annex V compliant' or are products approved under IMO /Organisation for Economic Co-operation and Development biodegradability standards<br>The Garbage Management Plan states that 'only non-HME cleaning agents are used for deck washing.'<br>Deck wash procedures confirm that:<br>• if oil contamination is possible, runoff is routed to collection (slop tank/bilge system)<br>• overboard scuppers are plugged or blanked during washing. | **IMP06-EPS02:**<br>Deck drainage reporting overboard (that may include cleaning products mixed with oil, grease, or cargo residues) meets the requirements of AMSA Marine Order 91 (Marine pollution prevention-oil) and AMSA Marine Order 93 (Marine pollution prevention-noxious liquid substances). | The vessel Class Certificate Summary verifies that the vessel is compliant with MARPOL Annex V. |
| | **IMP06-CM03:**<br>Vessels treat sewage in a STP prior to overboard discharge. | **IMP06-EPS03:**<br>Vessel sewage discharges vessels meet the requirements of AMSA Marine Order 96 (Marine pollution prevention-sewage). | The vessel Class Certificate Summary verifies that a current International Sewage Pollution Prevention certificate is in place. |
| | **IMP06-CM04:**<br>Vessels have in place and implement a Garbage Management Plan that contains procedures for:<br>• minimising, separating, and storing garbage<br>• handling, processing, and disposing of garbage<br>• crew responsibilities. | **IMP06-EPS04:**<br>Vessel garbage discharges meet the requirements of AMSA Marine Order 95 (Marine pollution prevention-garbage). | The vessel Class Certificate Summary verifies that a Garbage Management Plan and garbage records book is in place, readily available and |

| | | | |
|---|---|---|---|
| | Vessels keep a Garbage Record Book documenting:<br>• all garbage discharges<br>• garbage transfers to port reception facilities<br>• accidental losses<br>• incineration events. | | maintained current. |
| **Impact consequence (residual)** | | | |
| Consequence Level IV | | | |
| **Demonstration of ALARP** | | | |
| With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). Meaning, any additional or alternative control measures either fail to lower the residual impact consequence any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a 'Consequence Level IV' residual impact consequence is considered to be ALARP. | | | |
| **Demonstration of acceptability** | | | |
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | | |
| **Legislative and other requirements** | The requirements of MARPOL Annexes I and V have been adopted.<br>The following legislative and other requirements are considered relevant as they apply to the implementation of MARPOL in Australia:<br>• *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth)<br>• *Navigation Act 2012* (Cth) – Chapter 4 (Prevention of Pollution)<br>• Marine Order 91 (Marine pollution prevention – oil)<br>• Marine Order 93 (Marine pollution prevention-noxious liquid substances)<br>• Marine Order 95 (Marine pollution prevention – garbage)<br>• Marine Order 96 (Marine pollution prevention – sewage). | | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls listed in this table meet the relevant mitigation measures listed for offshore activities in relation to:<br>• Cooling water and desalination brine – Discharge point should be designed to aid rapid dispersion. Biocide dosing is kept to a minimum and freshwater generation is limited to the volumes necessary for operational requirements.<br>• Deck drainage and bilge water - Vessels carry a valid International Oil Pollution Prevention certificate. Hydrocarbon and chemical storage areas are bunded, an Oil Record Book is maintained and discharges to | |

| | | |
|---|---|---|
| | | sea are treated to ensure <15ppm OIW **(IMP06-CM01)**.<br>• Sewage and grey water – Ensure sewage and grey water is treated in an appropriate on-site marine sanitary treatment unit in compliance with MARPOL Annex V requirements **(IMP06–CM03)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | There are no guidelines for offshore activities with regard to managing cooling and brine water discharges.<br>• Management of drain water (item 24) - The best available techniques are met for platform and vessels with regard to ensuring deck coaming is in place, maintaining a chemical inventory, implementing an IMR schedule and ensuring that personnel are trained in the use of spill kits **(IMP06–CM04)**.<br>• Environmental monitoring (item 26) - The best available technique guidelines are met for the activity with regard to monitoring waste streams **(IMP06–CM04)**. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Guidelines met with regard to:<br>• Other waste waters (item 44) - Bilge waters from machinery spaces in support vessels should be routed to the closed drain system or contained and treated before discharge to meet MARPOL requirements. Deck drainage water should be routed to separate drainage systems. This includes drainage water from process and non-process areas. All process areas should be bunded to ensure that drainage water flows into the closed drainage system **(IMP06–CM01)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls listed in this table meet the following offshore development and production objectives:<br>• to reduce the volume of wastes produced to ALARP and to an acceptable level<br>• to reduce impact of routine waste discharges on the marine environment to as low as reasonably practical and to an acceptable level. |
| **Internal context** | Consistent with Esso's Environment Policy. | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist".* |
| | Meets OIMS Objectives. | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements |

| | | |
|---|---|---|
| | | • OIMS System 7-1 objective to evaluate change against an established set of criteria and establish endorsement/approval levels<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors. |
| **External context** | No relevant person concerns have been raised concerning domestic waste discharges and deck drainage. | |

## 6.7 Routine discharge – Operational fluids and solids

### *6.7.1 Source of Impact*

The sources of planned discharges of production fluids and solids are summarised inTable 6-35.

**Table 6-35 Sources of operational fluids and solids**

| Activity | Applicable (fluids)? | Applicable (solids)? | Sources of operational fluids and solids discharges |
|---|---|---|---|
| Platform operations | **Yes** | **No** | • Pile discharges.<br>• Deck drainage. |
| Subsea facility operations | **Yes** | **No** | • Gas weeps (see Section 6.7.1.6).<br>• Hydraulic fluids. |
| Pipeline operations | **No** | **No** | N/A |
| Wellwork | **No** | **No** | N/A |
| IMR | **Yes** | **Yes** | • Cleaning (see Section 2.9.1).<br>• Abrasive blasting (see Section 2.9).<br>• Repairs and maintenance (see Section 2.9).<br>• Hydraulic fluid release from subsea valve actuation. |
| Support activities | **No** | **No** | N/A |

During platform operations and IMR activities, discharges of residual production fluids and treatment chemicals to the marine environment via the piles will occur. Rainwater and deck drainage will be directed via the drains for discharge. Residual production fluids and treatment chemicals dosed into the production system are discharged to the platform drains during operations. Separator maintenance and pigging activities at the Marlin Complex and WTN platforms may result in the discharge of fluids containing trace concentrations of mercury.

IMR activities undertaken on the platforms will result in small amounts of solids being discharged into the marine environment.

As outlined in Section 2.9 , abrasive blasting involves the use of sand, grit or hydro gritting/ultra-high-pressure water for surface preparation including rust and paint removal. Blasting is also undertaken during recoating programs during which the original coating/paint is removed to ensure a clean surface remains for the new protective coating.

#### 6.7.1.1 Pile discharges

As described in Section 2.5.4.3, residual fluids from platform decks and operations are directed to the drain and pile systems. The pile system functions as a separation vessel, allowing hydrocarbons to separate from the water phase. Hydrocarbon vapours and liquids migrate to the top of the pile. Vapours are vented and

the liquids are either recycled to the process system, exported via the liquids pipeline or reinjected into a reservoir.

During stable production, water discharge rates from the pile are estimated at 3 - 8m$^3$/hour.

The water phase of the pile system interfaces with the sea through the pile window, and residual fluids remaining in the water phase will be discharged during operations, wellwork and IMR activities.

Only low concentrations of water-soluble chemicals separate into the water phase. Within the pile, these are further diluted by the volume of seawater, resulting in discharges that are primarily seawater containing diluted chemical residues. A list of production chemicals that are typically used on the platforms and that are discharged from the pile system, together with their CHARM/ Offshore Chemical Notification Scheme (OCNS) rankings, is provided in Table 6-36.

Fluids directed to the pile system that may contribute to discharges to the marine environment include:

- water-soluble chemicals dosed into the production system
- water containing cleaning detergents
- chemicals used during cleaning, flushing, leak detection and hydrate inhibition
- chemicals such as corrosion inhibitors and oxygen scavengers.

Modelling of pile discharges has been completed to characterise potential volumes and assess associated environmental impacts.

**Table 6-36 Typical chemicals used in production**

| Purpose | Chemical | Application | Ranking |
|---|---|---|---|
| Production | CGW24013 | Fin fan inhibitor | CHARM Silver |
| Production | CLW24242 | General purpose rig wash | CHARM Silver |
| Production | CRO24037 | Fin fan corrosion inhibitor | CHARM Gold |
| Production | CRW24266 | Fuel gas heater inhibitor | CHARM Gold |
| Production | CRW24340 | Oxy scavenger/biocide/corrosion inhibitor | CHARM Silver |
| Production | DMO24586 | Demulsifier/pipeline demulsifier | CHARM Gold |
| Production | PFR23 MeOH | Hydrate inhibition/mitigation | PLONOR |
| Production | RBW24122 | Water Clarifier | CHARM Gold |
| Production | RBW24980 | Upstream and downstream water clarifier | CHARM Gold |
| Production | SCW24050 | Scale inhibitor | CHARM Gold |

#### 6.7.1.2 Modelling of discharges from the piles

In 2013, Esso commissioned dispersion modelling to be undertaken for discharges from the WTN and MLB pile systems to assess dilution and dispersion characteristics in the receiving environment.

The WTN closed pile modelling is considered representative of dispersion behaviour for other producing platforms, as the majority of pile outlets (open and closed) discharge at depths greater than 30m, below the summer thermocline. This ensures that plume dynamics are influenced by similar stratified water column conditions. Using the WTN modelling as a reference provides a conservative basis for predicting dispersion at these facilities, as it incorporates conditions where plume trapping within the thermocline may occur, thereby limiting mixing. By adopting this conservative approach, the modelling is expected to

overestimate concentrations and environmental exposure, providing a conservative, precautionary and robust basis for assessing potential impacts.

The modelling applied near-field dispersion methods to predict plume behaviour under the influence of discharge momentum, buoyancy, and prevailing currents. The approach did not incorporate mixing from ambient wave-induced turbulence, contaminant decay or speciation, or eddy shedding from platform legs. As such, the modelling is considered conservative, tending to underestimate mixing and over-predict concentrations. Given there have been no changes to the design or input parameters the modelling is still considered a conservative analysis of the current producing assets.

A precautionary methodology was adopted to simulate a "worst case" scenario for plume transport. Key conservative assumptions included:

- constant current direction maintained throughout the model run
- sensitivity testing based on maximum current speeds to represent the least favourable dispersion conditions; current direction without interaction from platform structures (eddy shedding neglected)
- presence of a thermocline (primarily in summer) to trap plume and restrict buoyancy-driven mixing
- salinity of discharge water assumed equal to receiving waters (conservative, lower salinity would increase buoyancy-driven mixing and enhance dilution)
- calm conditions, with wave action and ambient turbulence neglected.

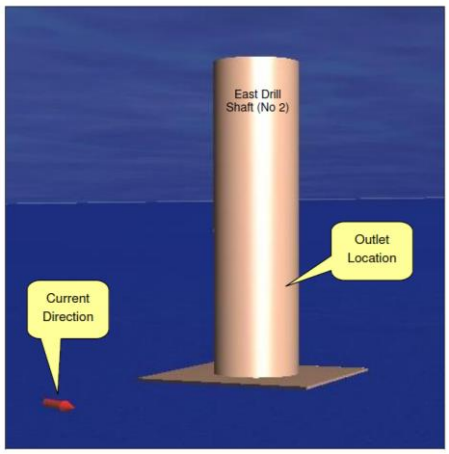
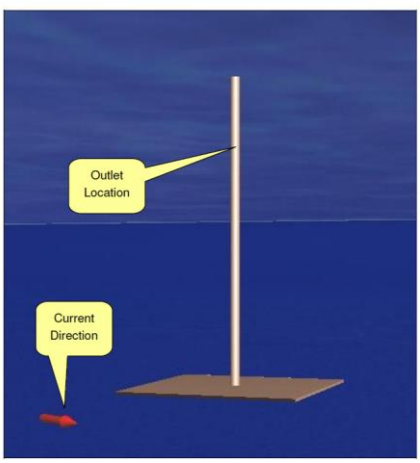
Input parameters to the model (summarised in Table 6-37) included:

- closed skimmer pile discharge salinity assumed equal to the receiving waters
- discharge temperature assumed equivalent to receiving water, with three scenarios modelled (10°C, 15°C and 20°C)
- discharge rates of 8.2m$^3$/hour for WTN and 2.7m$^3$/hour for MLB.

The near-field model was run across combinations of discharge locations (WTN and MLB), temperature (10°C, 15°C, 20°C), and current conditions (median and maximum). This approach provides a conservative characterisation of potential plume dispersion under a range of environmental conditions.

**Table 6-37 Pile discharge modelling (Worley Parsons, 2013)**

| Parameter | WTN closed skimmer pile | MLB closed skimmer pile |
|---|---|---|
| **Outfall configuration** | | |
| Total water depth | 61.1m | 60m |
| Pipe diameter | 0.45m | 0.25m |
| Depth of discharge | -44.1m MSL (17.1m from seabed) | -16.9m MSL (43.1m from seabed) |
| Orientation of discharge | Horizontal to pile | Facing downwards, parallel to pile |

| Parameter | WTN closed skimmer pile | MLB closed skimmer pile |
|---|---|---|
| Graphical representation |  |  |
| **Discharge properties** | | |
| Temperature | 10°C<br>15°C<br>20°C | 10°C<br>15°C<br>20°C |
| Flow rate | 8.2$m^3$/hour | 2.7$m^3$/hour |
| Salinity | 33.2ppt | 33.2ppt |
| **Receiving water** | | |
| Maximum current speed (surface) | 1.4m/s | |
| Maximum current speed (seabed) | 0.74m/s | |
| Medium current speed (surface) | 0.27m/s | |
| Medium current speed (seabed) | 0.16m/s | |
| Salinity | 33.2ppt | |
| Thermocline depth | 30m | |
| Temperature above thermocline | 20.9°C | |
| Temperature below thermocline | 14.5°C | |

#### 6.7.1.3 Modelling results

The outlet at MLB is located at a depth of 16.9m, within the warmer surface layer being above the thermocline. As discharge temperatures are consistently lower than the receiving waters, the resulting plume is negatively buoyant, with dispersion increasing in proportion to the temperature difference. This behaviour is illustrated in Figure 6-4.

The WTN outlet is located at a depth of 44.1m, within deeper, cooler waters below the thermocline. When the discharge temperature approximates that of the thermocline (14.9 to 20.9°C), the plume becomes trapped within this layer, inhibiting vertical mixing and dispersion. This is illustrated in Figure 6-5.

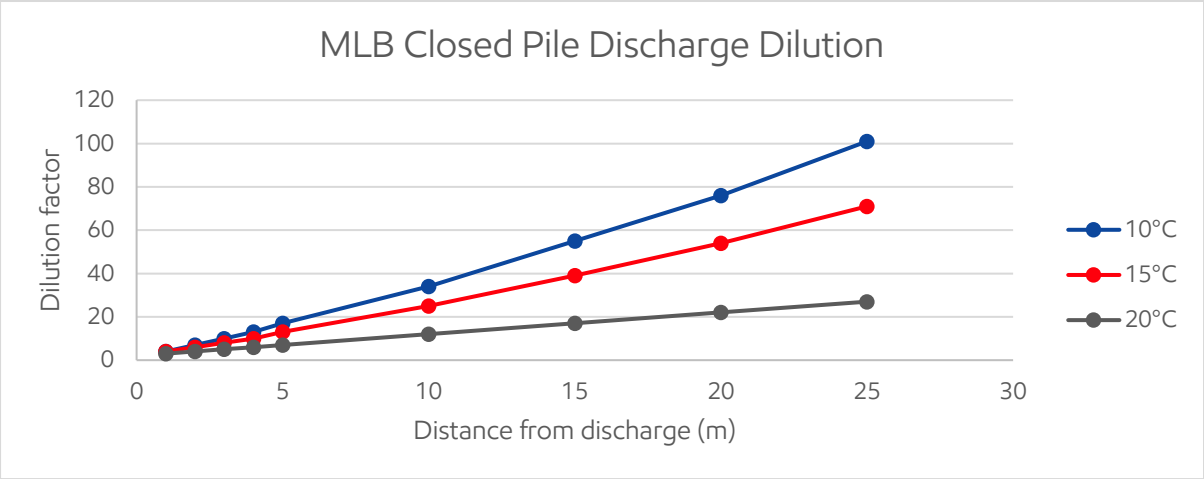



**Figure 6-4 MLB closed pile discharge dilution**

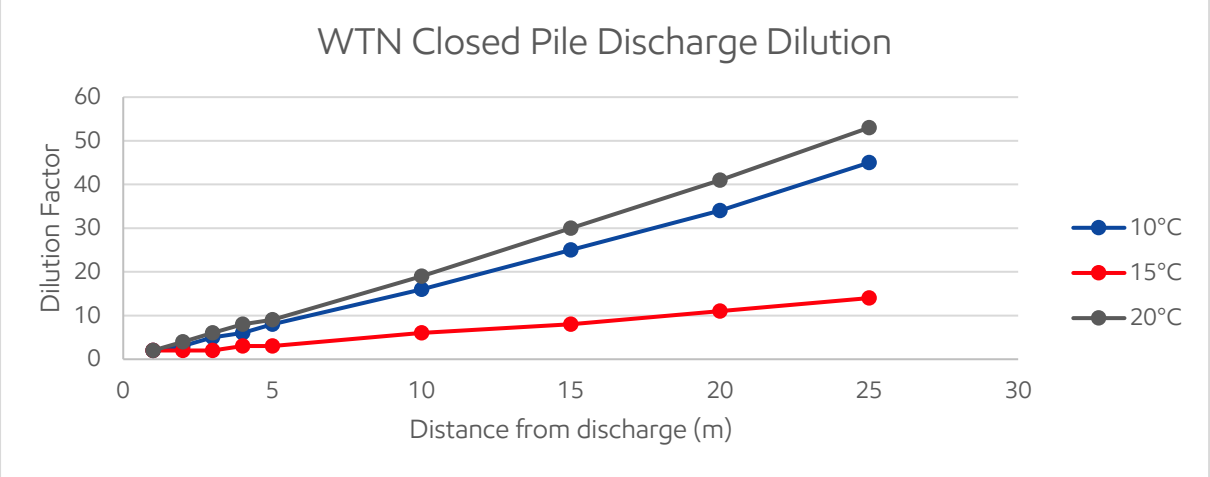



**Figure 6-5 WTN closed pile discharge dilution**

As outlined in Table 2-18, with the exception of MLB, all open and closed pile windows are located at depths greater than 30m and therefore discharge below the thermocline during summer months. On this basis, the modelling prepared for the WTN closed pile outlet is considered representative of dispersion behaviour for the other producing platforms.

The WTN closed pile modelling is considered representative of dispersion behaviour for other producing platforms, as the majority of pile outlets (open and closed) discharge at depths greater than 30m, below the summer thermocline. This ensures that plume dynamics are influenced by similar stratified water column conditions. Using the WTN modelling as a reference provides a conservative basis for predicting dispersion at these facilities, as it incorporates conditions where plume trapping within the thermocline may occur, thereby limiting mixing. By adopting this conservative approach, the modelling is expected to overestimate concentrations and environmental exposure, providing a precautionary basis for assessing potential impacts.

#### 6.7.1.4 Mercury discharges

During the 2010 Kipper Field development drilling program, reservoir sampling confirmed the presence of mercury in the KPA reservoir. Detailed analysis and engineering design were undertaken to ensure mercury was managed appropriately with regard to workforce health and safety, equipment integrity, environmental protection, and sales gas quality.

As a result, the Kipper production process (located on the WTN platform) was designed to direct produced liquids to shore for treatment at the Longford Gas Plant. Kipper process equipment does not routinely discharge liquids to the drain system.

Mercury is monitored both onshore and offshore to detect and manage any mobilisation from the reservoir:

- Offshore - KPA gas is sampled bi-monthly on WTN
- Onshore - Mercury is monitored at Longford at the processing plant inlet and outlet, with wastewater streams routinely analysed under the EAPL environmental monitoring program.

Since production commenced in 2017, mercury concentrations measured at WTN and Longford have been tested against a product specification limit of 1µg/m$^3$. If an exceedance is detected, enhanced sampling of water, gas and liquified petroleum gas streams takes place.

While there are no routine discharges of mercury-bearing liquids to the drain system, infrequent discharges may occur during maintenance activities (such as draining, depressurising, or pigging). These include:

- KPA well-draining and separator cleaning: Approximately once every one to two years, cleaning and inspection of the Kipper separator or pig launcher/receiver vessels may generate approximately 7m$^3$ of liquid (15% MEG, 85% water) containing low mercury concentrations (estimated 80ppb). These fluids are directed to the WTN closed pile for dilution prior to discharge to sea
- WTN pig receiver (MLB pathway): As KPA production flows over the MLB facility en-route to Longford, the WTN pig receiver represents a potential pathway for trace mercury discharges, with concentrations expected to be significantly lower than those at WTN. These fluids are directed to the closed pile system.

Dispersion modelling undertaken for WTN (Worley Parsons, 2013) showed mercury concentrations return to the Australian and New Zealand Environment and Conservation Council (ANZECC) (2000) ambient water quality guideline for 99% species protection (0.1ppb) within:

- 1.6 - 5.6m of the discharge point (as per Table 6-37) under median current speeds (0.27m/s surface; 0.16m/s seabed)
- 4.6 - 18.2m under 'worst case' maximum current speeds (1.4m/s surface; 0.17m/s seabed).

Modelling conservatively assumes an initial mercury concentration of 80ppb, representing full saturation of water/MEG with mercury (mercury solubility in water = 52ppb (Sabri, Ippolito, Tardio, & Bhargava, 2012)).

Comparable modelling for MLB indicated return to guideline concentrations within:

- 0.6 - 2.7m under median currents
- 1.9 - 8m under 'worst case' maximum currents

Downhole sampling and reservoir studies indicate mercury levels are not expected to exceed this conservative assumption.

#### 6.7.1.5 Inspection, maintenance and repair discharges

IMR activities on platforms can result in the discharge of small amounts of fluids and solids to the marine environment.

As outlined in Section 2.9, abrasive blasting on platforms is undertaken for surface preparation and recoating programs, including the removal of rust and original protective coatings. Blasting may involve the use of sand, grit, hydro-grit, or ultra-high-pressure water. Abrasive blasting areas are contained within scaffold frames wrapped in reinforced plastic sheeting (powerclad) and waste is collected and transported to shore for disposal.

Some areas of the platforms (e.g. ropes, sea deck, water line) cannot be fully contained due to the absence of a work floor beneath the blasting zone. In these cases, small quantities of abrasive blasting residue may be released to the sea.

#### 6.7.1.6 Subsea discharges

During routine subsea facility operations, small volumes of fluids are discharged. This includes hydraulic fluid released during actuation of subsea valves, which are located at the KPA and BTW subsea facilities. The hydraulic fluids used in these systems are low toxicity.

A summary of these operational releases is listed below:

- subsea control fluids - used to remotely operate subsea valves. The open-loop system releases control fluid during valve operations (up to approximately 5L per valve actuation)
- scheduled leak testing – as per normal valve operations, up to approximately 5L per valve actuation is released
- umbilical system losses/weeps - small, non-routine hydraulic or chemical fluid losses may occur from umbilical systems
- production chemicals - chemicals (e.g. corrosion inhibitors, scale inhibitors, biocides) are injected into subsea infrastructure and the production system
- minor fugitive hydrocarbons - intermittent weeps, seeps or bubble releases from wells and subsea equipment. A minor weep was detected in July 2025 at KPA where gas bubbles were noticed at the KPA A4 wellhead. Troubleshooting confirmed that the SCSSV valve is weeping gas. This rate was measured at 0.15L/m by ROV. The leak is only present when the valve is in the closed position. The valve is in the open position for well monitoring and production purposes. The SCSSV is only closed for routine well integrity testing (twice per year) to verify the valve is still operating within design parameters. It is also closed during emergency events or annual safety system testing (once to twice per year). These events on average will take place a combined three to four times per year, with an expected valve closure time of approximately 12 hours on each occurrence. Based off these parameters, estimated volumetric and mass release rates (calculated at release site, seabed depth) are shown in Table 6-38.

**Table 6-38 Estimated volumetric and mass release from KPA A4 SCSSV gas weep**

| Parameter | Volumetric release ($m^3$) | Mass release (kg) |
|---|---|---|
| Each 12-hour closure | 0.108 | 0.785 |
| Expected yearly release (four closures per year) | 0.432 | 3.138 |

Nominal fluid discharges associated with IMR activities may include:

- residual hydrocarbons from subsea lines and equipment, and small gas releases during isolation testing or breaking containment
- residual chemicals – intermittent, small-volume discharges from subsea lines, equipment, or flushed infrastructure during disconnection.

These discharges are intermittent, low volume and managed in line with established operations procedures.

In addition to routine discharges, non-routine events also result in the fluid releases. These typically occur during equipment replacement, testing, and flushing activities. Such operations can involve the discharge of MEG, methanol, hydraulic fluid, gas and condensate. Depending on the scope and nature of the activity, one-off discharge volumes can reach up to 1000L.

### *6.7.2 Known and potential impacts*

The known and potential environmental impacts of operational fluid and solid discharges are:

- temporary and localised reduction in water quality (including discolouration) within the mixing zone

- temporary and localised reduction in sediment quality from intermittent discharges of reservoir sand and/or silty scale from closed piles
- localised injury or mortality to marine fauna from exposure to contaminants in subsea discharges within the mixing zone
- localised sub-lethal effects to sessile platform-associated fauna from exposure to trace contaminants near discharge points.
- increased turbidity of the water column as solids fall to the seabed
- accumulation of solids on the seabed.

### *6.7.3 Environment That May Be Affected*

The EMBA for solid and fluids discharge is the immediate vicinity of the discharge points (typically within tens of metres). This is consistent with the expected behaviour of both solid and fluid discharges, with solid discharges settling rapidly to the seabed while fluid discharge disperses more broadly within the surrounding water column.

Solid discharges primarily interact with benthic receptors, including benthic habitats, benthic fauna and demersal biota, due to their rapid deposition to the seabed. Localised effects may also occur on plankton and fish species present within the near field mixing zone.

Fluid discharges disperse more widely, potentially interacting with a broader range of ecological receptors. These include mobile receptors such as fish (and fisheries) and marine mammals, but not more distant ecological values such as AMPs and KEFs.

Receptors that may occur within this EMBA, either as residents or migrants include:

- benthic habitat
- benthic fauna
- plankton
- demersal fish
- pelagic fish
- seals
- cetaceans
- commercial fisheries.

### *6.7.4 Evaluation of impacts*

#### 6.7.4.1 Impacts to water quality

Discharges of the described operational fluids and solids are characterised by small volumes, low toxicity and ready biodegradability, and rapid dilution in the high-energy marine environment of Bass Strait. Monitoring and modelling confirm that water quality impacts are confined to the immediate vicinity of discharge points and are short-lived. Operational fluids discharged may contain chemical additives that result in a localised and temporary reduction in water quality near the discharge point. Hydrodynamic modelling indicates that discharges from closed piles are diluted by a factor of 5 - 20 within 10m of the platform, and 12 - 35 times at MLB platform, significantly reducing contaminant concentrations at source.

This is supported by in-situ water quality monitoring conducted around the TNA platform in 2018, which tested compliance with ANZECC (2000) 99% species protection guidelines. Of 34 samples collected between 59m and 1574m from the platform:

- zinc exceeded the 7µg/L trigger in one sample (40µg/L at 59m and 20m depth); however, zinc was not detected elsewhere and raw PFW contained <5µg/L, suggesting the exceedance was unrelated to PFW
- chromium, cobalt and copper exceeded criteria (8µg/L, 0.005µg/L, 0.3µg/L respectively) in a single sample at 1574m and 5m depth, with no correlation to plume modelling or effluent composition
- cyanide exceeded the 0.002mg/L criterion in one sample (0.006mg/L at 1574m); a duplicate exceedance at 973m was not replicated and was discounted

- all other analytes, including BTEX, total recoverable hydrocarbons (TRHs), polycyclic aromatic hydrocarbons (PAHs), monocyclic aromatic hydrocarbons, phenols, phthalates, solvents, nutrients and inorganics, were below ANZECC criteria at all distances.

These isolated exceedances were attributed to sample quality control issues, were inconsistent with raw PFW composition, or unrelated to the discharge plume. Overall, the study concluded that ANZECC 99% criteria were met outside a small near-field area within approximately 10 - 50m pf the platform discharge point, and that water quality impacts from operational discharges are unlikely beyond the immediate vicinity of the outlet.

Operational discharges are small and continuous, influenced by rainfall, personnel numbers and machinery activity. Impacts are confined to surface waters (<5m), temporary (hours), and limited to the immediate discharge area, with rapid dispersion restoring background conditions.

Subsea discharges during IMR or wellwork are infrequent and low volume, typically <6L per valve actuation, occurring near the seabed. These dilute rapidly, resulting in localised, short-term impacts. Some surface discharges may pose brief exposure risks to ecological receptors (i.e. whales, turtles, fish, plankton) but given the transient presence of fauna and rapid dilution, no population-level effects are expected, including within the PBW foraging BIA.

Monoethylene glycol (MEG), a commonly discharged chemical, is readily biodegradable under aerobic and anaerobic marine conditions, degrading to <10% of original concentration within 1 - 21 days (Staples, Williams, Craig, & Roberts, 2001). MEG is practically non-toxic, non-bioaccumulative, and classified by OSPAR as posing little or no risk (PLONOR) (Staples, Williams, Craig, & Roberts, 2001).

Brine discharges mix rapidly with ambient seawater, with salinity-related effects confined to the discharge vicinity. Most marine species tolerate short-term salinity fluctuations of 20 - 30% (Walker & McComb, 1990), with only larval stages being more sensitive (Neuparth, Costa, & Costa, 2002), and as such, effects are minor and temporary.

Gas and condensate releases may occur during IMR activities or during verification testing. Methane rises rapidly through the water column and disperses into the atmosphere at the sea surface without measurable water quality effects. Soluble gases (i.e. $CO_2$, $SO_2$) dissolve in small amounts with no significant impact. Condensate droplets rise with gas bubbles and evaporate at the sea surface, with any sheen being localised and temporary, below biological effect thresholds. As the gas weep at the KPA A4 is intermittent and minor in volume, no sheens occur at the sea surface.

Other fluids (e.g. hydraulic control fluids, marker dyes, biocides, oxygen scavengers, scale inhibitors, hydrate management fluids) are used in small volumes. Potential impacts include short-term, localised water quality reduction and possible toxicity to benthic fauna. Biocides are toxic to unicellular organisms, but effects are short-lived in the open marine environment. Oxygen scavengers and scale inhibitors degrade or disperse rapidly, limiting exposure duration.

Minor fugitive hydrocarbon releases (seeps, weeps, bubbles) from subsea infrastructure are low volume and dissipate quickly, with negligible impact.

All fluids planned for discharge are reviewed under the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) as described in 8.13.3 which evaluates toxicity, biodegradability, and bioaccumulation potential. Chemicals are selected to ensure environmental risk is acceptable, consistent with ALARP and ESD principles.

Given the small volumes, rapid dilution, and low toxicity of chemicals used, overall, the environmental impacts are assessed as Consequence Level IV.

#### 6.7.4.2 Mercury

Dispersion modelling (Section 6.9.2.4) demonstrates that mercury concentrations in the receiving environment meet the ANZECC 99% species protection guideline within 18.2m at WTN and 8m at MLB under worst-case scenarios, and at shorter distances under median conditions.

Mercury discharges are infrequent, of small volume, and originate from low-concentration fluids discharged via the closed pile system. Potential exposure of pelagic or benthic organisms is therefore

expected to be localised and short-term. The risk of mercury bioaccumulation in marine mammals, seabirds, fish or other marine organisms is considered negligible. This is supported by the elimination half-life for mercury in marine organisms (approximately two months) (Agency for Toxic Substances and Disease Registry, 2024), combined with the small and infrequent nature of discharges, making accumulation to harmful levels unlikely.

The high-energy marine environment of Bass Strait promotes rapid mixing and dilution of mercury-containing fluids, with concentrations expected to return to background levels within tens of metres of the discharge point. Consequently, mercury discharges during operations are predicted to cause only temporary and localised changes in water quality, with no measurable effect on sediment quality, negligible risk of bioaccumulation or long-term toxicity, and no significant impacts on sensitive receptors, protected species, or ecological communities within the OA.

Given the infrequent nature, small volumes, low concentrations, and rapid dispersion of potential mercury containing discharges, the environmental impact on the receiving environment is assessed as localised, temporary, and inconsequential.

Overall, the environmental impacts are assessed as Consequence Level IV.

#### 6.7.4.3 Impacts to sediment quality

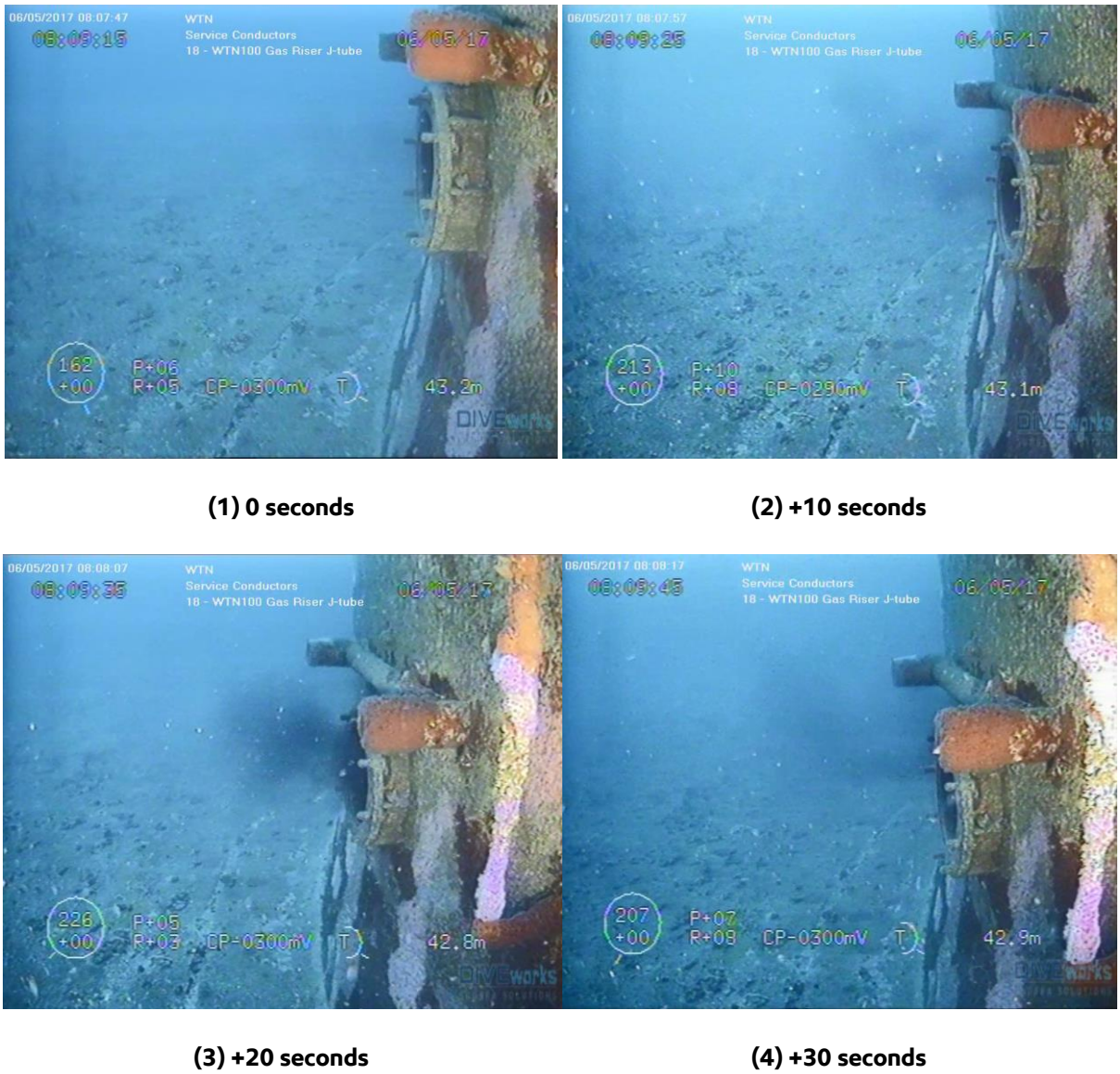
Closed pile discharges in Bass Strait are characterised by small, intermittent releases of solid laden water that are rapidly diluted and dispersed by prevailing currents. Monitoring and field observations confirm that sediment quality impacts are localised and short-lived, with no evidence of long-term accumulation or ecological harm. The presence of benthic fauna near discharge points and compliance with ANZECC sediment guidelines further support the conclusion that these discharges pose minimal environmental risk.

Small, intermittent discharges of solid-laden water have been observed from the closed pile systems, notably at the WTN platform in 2017. During routine pumping, accumulated reservoir sand or silty scale at the base of the pile was mobilised and discharged through the pile window due to minor pressure fluctuations.

This event, captured in Figure 6-6 over a 30 second period, illustrates the transient nature of such discharges. Although not previously recorded at other platforms, similar events are expected to occur intermittently across all closed pile systems. These discharges are typically short in duration and do not result in sediment accumulation at the base of the pile. The presence of encrusting marine fauna at the pile window further suggests smothering effects are negligible, temporary, and localised.

The high-energy nature of Bass Strait facilitates rapid sediment dispersion, preventing accumulation and maintaining concentrations near background levels. This is supported by in-sea sediment monitoring conducted at the TNA and WKF platforms, which assessed potential impacts from PFW and other operational discharges (see Section 6.7.4.1). Overall, sediment quality impacts from operational discharges were confined to within approximately 100 - 120m of platform structures, with metals and hydrocarbons maintained at low and acceptable levels. No evidence of significant ecological risk was identified.

While small volumes of solids discharged from closed pile systems or other operational sources may cause temporary mortality of sessile benthic fauna and infauna due to smothering, the affected area is spatially limited relative to the broader availability of soft-sediment habitat in the ADE and Bass Strait in general. Given the rapid dispersion of fine particles, the intermittent and small-scale nature of discharges, and the dynamic conditions of Bass Strait, impacts are expected to be temporary, localised and inconsequential in terms of long-term effects on sediment quality, benthic community diversity, or ecosystem function.




**(1) 0 seconds** **(2) +10 seconds**

**(3) +20 seconds** **(4) +30 seconds**

**Figure 6-6 ROV footage from WTN closed pile window (2017)**

### 6.7.4.4 Increased turbidity of the water column

The discharge of solids can result in temporary increased turbidity in the water column. The volumes of solids released from wellwork and IMR activities will be small, and discharges will be infrequent due to the sporadic nature of wellwork and IMR activities. Any discharges will be quickly dissipated in the high energy marine environment, with impacts confined to be within close proximity to the discharge point.

Overall, the environmental impacts are assessed as Consequence Level IV.

### 6.7.4.5 Accumulation of solids on the seabed

Residue amounts of solids such as sand, grit, swarf, rust and paint chips will settle on the seabed during or after IMR activities.

Sand discharges will not have long-term impacts given that the seabed around the platforms are predominantly sand. Discharged sand will settle on the seabed and become congruous with its sandy surrounds (as described in Table 3-2).

Other solids such as grit, swarf, rust and paint chips that dislodge from the platforms or subsea facilities and settle on the seabed are not expected to form a physical or chemical impediment to biota settling on or in the seabed sediments.

The high-energy nature of Bass Strait facilitates rapid sediment dispersion, preventing accumulation and maintaining concentrations near background levels. This is supported by in-sea sediment monitoring conducted at the TNA and WKF platforms, which assessed potential impacts from PFW and other operational discharges (see Section 6.7.4.1). Overall, sediment quality impacts from operational discharges were confined to within approximately 100 - 120m of platform structures, with metals and hydrocarbons maintained at low and acceptable levels. No evidence of significant ecological risk was identified.

Similarly, sediment sampling undertaken by AECOM for Esso around the SNA and MLB platforms in 2023 (AECOM, 2024) indicates that the operations of the platforms, including from current and historic discharges, have influenced the sediment chemistry surrounding the platforms particularly with respect to some metals, but that beyond 100m from these platforms (which are likely to be representative of other platforms), none of the contaminants sampled reported concentrations above the relevant ANZ guidelines (2018) DGVs (AECOM, 2024).

Overall, the environmental impacts are assessed as Consequence Level IV.

#### 6.7.4.6 Impacts to biota

Operational discharges in the Bass Strait are managed to minimise ecological risk through chemical assessment and natural dispersion processes. Modelling and field observations confirm that exposure to contaminants is limited to small areas near discharge points and is short-lived. Sessile and mobile marine organisms may experience brief exposure, but impacts are expected to be inconsequential given the brief exposure to individuals. Hydrocarbon separation and chemical screening further reduce the potential for bioaccumulation or toxicity. Overall, impacts to marine biota are considered localised, temporary, and minor.

Marine biota may be exposed to contaminants associated with pile discharges; however, dispersion modelling (Section 6.9.2.4) indicates that exposure is restricted to a small, localised area in close proximity to the discharge point. Other subsea discharges within the OAs (Section 6.7.1.6 ) are infrequent, low volume, and subject to rapid dilution and dispersion be prevailing currents, resulting in a low likelihood of exposure for marine fauna.

Sessile organisms such as sponges, corals and crustaceans colonising subsea infrastructure, and mobile invertebrates in the immediate vicinity, may experience acute or chronic exposure to toxicants in operational discharges. However, any effects are expected to be spatially confined and not significant at a population level. The potential for bioaccumulation of sediment-associated contaminants such as metals or PAHs in higher trophic organisms (e.g. fish) is considered negligible, as hydrocarbons are separated and removed from pile discharge streams prior to release.

##### *IMPACTS TO BENTHIC COMMUNITIES AND HABITAT*

Benthic communities surrounding offshore platforms in Bass Strait are unlikely to be measurably affected by operational discharges. This is supported by in-situ water and sediment monitoring, and the physical characteristics of the receiving environment. Potential impacts are limited to localised, temporary effects on sessile organisms in close proximity to discharge points, with no credible risk of population-level consequences.

In well-mixed, deepwater environment such as those found in Bass Strait, benthic organisms are largely protected from operational discharges due to natural dispersion and vertical stratification (Furuholt, 1996). Changes to benthic distributions are typically observed only in shallow, poorly flushed waters (1 - 8m depth) or continental shelf zones up to 12m (Osenberg, Shima, Miller, & Stier, 2011; Rabalais, McKee, Reed, & Means, 1992). Discharges from platform piles and decks occur above the seabed, minimising direct exposure. As a result, only organisms colonising the platform structure itself are likely to experience direct effects.

Theoretical impacts from direct exposure to PAHs on benthic fauna such as scallops, crustaceans and molluscs may include chronic developmental effects, such as reduced juvenile survival or size (Querbach,

et al., 2005) and reduced larval viability (Raimondi & Schmitt, 1992). Sponges and soft corals located near discharge points may experience reduced settlement and metamorphosis potential (Luter, et al., 2019). However, hydrocarbons are separated prior to pile discharge, and residual chemicals are highly diluted, making direct PAH exposure highly unlikely.

Potential effects on benthic flora and fauna may also arise from contaminant accumulation in sediments, particularly metals such as barium associated with drilling fluids. While ecotoxicological impacts depend on factors such as bioavailability, chemical speciation, and redox state, few studies have directly linked sediment concentrations to biological effects (ANZECC, 2000, pp. 8.4-26). Although many studies have measured contaminant concentrations in sediments, correlations with benthic population changes or laboratory bioassays remain limited.

In-situ sediment monitoring around the TNA and WKF platforms further supports the conclusion that benthic impacts from operational discharges are minimal and localised (see Section 6.7.4.1). The monitoring findings confirm that sediment contamination, where it does occur, is confined to a narrow zone immediately surrounding the platforms and does not exceed thresholds likely to cause ecological harm. Importantly, hydrocarbons were not detected above guideline values in any samples, and any metals of concern were either absent or present at low levels.

In light of these results, benthic biota around the producing platforms are unlikely to be affected by pile or other operational discharges. Any effects would be confined to chronic, sub-lethal impacts (e.g. changes in growth, metamorphosis or reproduction) to sessile organisms such as sponges or benthic fauna located within close proximity to discharge points. The low toxicity nature of the discharges, the limited spatial extent of potential impacts and the dynamic marine environment and supporting sediment data, mean that population-level effects are unlikely.

*IMPACTS TO PLANKTON*

Plankton may be exposed to operational discharges as they move with currents near the discharge point and through discharge plumes. Plankton are the most susceptible to toxic exposure from hazardous fluids due to their limited mobility and presence in the upper water column. However, their wide distribution, abundance, and rapid replenishment capacity mean that any impacts are inconsequential.

Phytoplankton generally accumulate oil rapidly but are not highly sensitive to its effects, while zooplankton are more vulnerable to hydrocarbons (Hook S. , Batley, Holloway, Irving, & Ross, 2016). Water column organisms exposed to oil may suffer mortality or sub-lethal effects such as reduced egg production, hatching rates, and swimming speeds ( (NRDA, 2012); (Hook S. , Batley, Holloway, Irving, & Ross, 2016).

Fluorochemical-containing firefighting foams (e.g. aqueous film-forming foams) can cause chronic effects due to their bioaccumulation potential. Plankton, which are known to bioaccumulate these substances, may be affected (Klein, 2009).

Effects of discharges to plankton are localised and temporary. Plankton populations exhibit high natural mortality and rapid regeneration rates (UNEP, 1985), enabling swift recovery once discharge activities cease. Consequently, potential impacts will not result in measurable changes at the population level or to affect plankton productivity. Any degradation of water quality is anticipated to be minor, spatially restricted, and reversible through natural processes within a short timeframe.

Plankton within the OA are unlikely to be significantly affected by pile or other operational discharges, any effects would be confined to short-term, sub-lethal impacts (e.g. temporary physiological stress) for organisms located within close proximity to discharge points. The limited spatial extent of potential exposure, combined with the dynamic marine environment and the high natural turnover of plankton populations, means that population-level effects are not credible.

*IMPACTS TO FISH*

Early life stages of fish (embryos and larvae) are the most susceptible to chemical exposure because of their limited mobility, which increases the likelihood of encountering discharge plumes near outfall points. Documented effects range from no observable impact (Mathieu, et al., 2011) to gill damage in turbot larvae (Brown, Stephens, & Stagg, 1999). Hormonal disruptions have been reported in cod (Meier, et al., 2002), but these occur only under very high exposure concentrations or when immune systems are compromised

by other stressors (Hamoutene, et al., 2011; Burridge, Boudreau, Lyons, Courtenay, & Lee, 2011). Such conditions are unlikely in this context, as pile discharges will be highly diluted within the pile system, and other operational discharges will occur at concentrations that meet environmental discharge criteria.

Later-life pelagic species are highly mobile and therefore unlikely to experience chronic exposure at concentrations that could lead to adverse effects.

BTEX compounds are known to be toxic to fish and invertebrate eggs and larvae, with potential developmental defects documented (Fucik, Carr, & Balcom, 1995). However, BTEX is volatile, resulting in brief residence times in water. Rapid active and passive excretion from tissues further limits in-tissue concentrations, and BTEX does not bio-accumulate (Neff, 2002). Many fish species metabolise hydrocarbons, reducing bioaccumulation risk (NRDA, 2012). Additionally, hydrocarbons are removed from discharge streams through separation prior to release, further mitigating potential impacts.

The ADE overlaps 12.15% of the reproduction BIA for the great white shark; however, given the localised nature of the discharge and transient behaviour of sharks in the area, no impacts are expected. The discharge activity does not constitute a threat listed in the *White Shark Recovery Plan* and is not inconsistent with its conservation objectives.

Fish within the OA are unlikely to be significantly affected by pile or other operational discharges, with any effects confined to short-term, sub-lethal impacts for early life stages located within close proximity to discharge points. The limited spatial extent of potential exposure, combined with the dynamic marine environment and the mobility of later-life stages, means population-level effects are not credible.

#### *IMPACTS TO SEALS*

Seals do not spend all their time in the water and, when they do, they are highly active, travel long distances, and forage at various depths (Arnould H. , 2025). Given the depth of pile discharges, it is highly unlikely that seals would spend extended periods in close proximity to discharge points. Surface and other operational discharges will be one-off or infrequent and of small volumes, which will disperse rapidly in the open ocean currents within the OA.

Operational discharges consist of dissolved contaminants that are rapidly diluted. The lowest observable level, a silvery sheen (as defined by the Bonn Agreement), may occasionally occur but is infrequent and patchy due to the dynamic nature of the plume and mixing processes. Unlike a crude oil release, which can coat fur and mucous membranes leading to hypothermia or sensory impairment, operational discharges do not result in oil coating at the sea surface.

The area potentially exposed to discharge is small compared to the overall distribution of fish and does not represent a significant proportion of seal feeding habitat. Indirect impacts, such as altered prey abundance or ingestion of bioaccumulated contaminants, are considered negligible given the localised nature of discharge plumes and the dynamic marine environment.

Australian fur seals and New Zealand fur seals are regular visitors to the platforms; however, no breeding occurs on or around the platforms, and the area is not identified as critical habitat or a BIA. According to the International Union for Conservation of Nature (IUCN), the Australian fur seal is listed as 'Least Concern' and its population is increasing (Goldsworthy, 2015). There is no relevant Conservation Advice or Threat Abatement Plan for these species.

When assessed against the *Matters of National Environmental Significance Significant Impact Guidelines* (DoE, 2013), the discharge activity will not result in a long-term decrease in population size, fragmentation of populations, adverse effects on critical habitat, or disruption of breeding cycles. Therefore, significant impacts on seals are unlikely.

Given the above, seals within the OA are unlikely to be significantly affected by pile or other operational discharges. Any effects are expected to be confined to short-term, sub-lethal interactions for individuals transiting near discharge points. The limited spatial extent and short duration of potential exposure, combined with the high mobility of seals and absence if breeding habitat, mean population-level effects are unlikely.

*IMPACTS TO CETACEANS*

Cetaceans in Bass Strait are considered unlikely to experience measurable impacts from the discharge of operational fluids and solids. This is supported by the physical characteristics of the receiving environment, the intermittent and small-volume nature of discharges, and the high mobility of cetaceans. Any potential exposure would be confined to localised areas near discharge points and would be short-term in duration, presenting no credible risk of population-level consequences (Marine Mammal Commission, 2024; Geraci & St Aubin, 1980; DoE, 2013). Given the transient behaviour of cetaceans, any interaction with discharge plumes would be brief, typically minutes, and confined to a small area (Fish, Howie, & Murray, 2023).

Indirect impacts, such as changes in prey abundance or ingestion of bioaccumulated contaminants, are considered negligible, with the mixing zone represents only a minor fraction of the overall cetacean feeding habitat, and operational discharges are diluted before discharge. Consequently, effects on prey species such as fish and plankton are unlikely, and any secondary impacts on cetaceans are not expected (Kiszka, Woodstock, & Heithaus, 2022).

When assessed against the *Matters of National Environmental Significance* (Significant Impact Guidelines 1.1) (DoE, 2013), the activity does not trigger any criteria for significant impact. Specifically, there will be no long-term decease in population size or area of occupancy, no fragmentation of populations, no adverse effect on habitat critical to survival, and no disruption to breeding cycles.

Given the depth and dispersion of discharges, their intermittent nature and small volumes, and the high mobility of cetaceans, the potential for impact is assessed as negligible. Any exposure would be short-term and localised, resulting in no measurable effect on individuals or populations, habitats, or ecological processes. Therefore, operational discharges are considered to pose no adverse effects on cetaceans.

#### 6.7.4.7 Impacts to fisheries – Commercial and recreational

Fisheries resources in Bass Strait are unlikely to be measurably affected by operational discharges. This is supported by discharge modelling and the physical characteristics of the receiving environment. Potential impacts are limited to localised, temporary exposure of individual organisms within discharge plumes, with no credible risk of population-level consequences.

Fish and shellfish are not fished in close proximity to the producing platforms (fishing is excluded within a 500m radius), and modelling indicates that piles discharges disperse rapidly within a short radius of the facility. Other subsea discharges associated with maintenance activities are one-off or infrequent, and of small volumes that dilute quickly in the open ocean currents of the OA. Mapping presented in Section 3.2 indicates that the fishing intensity for the CTS (Danish seine) and Shark Gillnet fisheries is very high in the ADE, which is likely to indicate these fisheries are unaffected by operational discharges.

Fisheries target species, such as squid, crustaceans (rock lobster, crabs), and molluscs, may experience chronic sub-lethal effects if present within the discharge plume. However, the spatial extent and depth of these plumes are minimal, and any exposure would be short-term. Offshore platforms may provide artificial reef habitat that enhances local fish stocks, but this effect is minor compared to natural fish nurseries located nearshore, such as the Gippsland Lakes Ramsar site, which contribute substantially to regional fisheries productivity. Studies confirm that oil and gas platforms can act as artificial reefs, increasing local fish abundance and diversity, but these effects are localised and do not offset the broader ecological drivers of fisheries productivity (CoA, 2020; Lawrence, Heath, Speirs, & Fernandes, 2024).

Sub-lethal effects from contaminants, such as hydrocarbons or metals, have been documented in other regions, but these impacts typically require prolonged exposure and occur in poorly flushed environments. In high-energy systems like Bass Strait, rapid dispersion and dilution significantly reduces the likelihood of such effects reaching ecologically relevant concentrations.

Given the limited scale of operational discharges, rapid dispersion in a high-energy marine environment, and the absence of commercial fishing around the platforms, operational discharges are assessed as having no adverse effects to commercial fish species and associated fisheries.

#### 6.7.4.8 Impacts to other receptors

*AUSTRALIAN MARINE PARKS, NATIONAL PARKS AND RESERVES*

Given the distance of AMPs from discharge plumes, impacts to these receptors are not considered credible.

*KEY ECOLOGICAL FEATURES*

**Upwelling East of Eden** - This KEF is characterised by nutrient-rich sediment turnover associated with natural upwelling processes. Approximately 359km$^2$ of the ADE lies within the KEF, which equates to 1.56% of the total area of the KEF (DCCEEW, n.d.). Any additional nutrient discharges from operational activities are consistent with naturally occurring seabed constituents and are therefore unlikely to alter the ecological values of this KEF. Discharges of other contaminants are not relevant to the values of this KEF.

**The Bass Cascade** – Operational fluid discharges are characterised by small volumes, low toxicity, ready biodegradability, and rapid dilution in the high energy marine environment. As a result, these discharges are not expected to interact with the Bass Cascade KEF, and impacts to its ecological values are not considered credible. The negligible spatial footprint and short-lived nature of operational fluid discharges ensure that the ecological processes of the KKEF will not be compromised.

**Shelf rocky reefs and hard substrates (South-East Marine Region), including the South East Reef** - The same assessment applied to benthic habitats and communities is relevant to this KEF. At the CBA location (near the Halibut producing platform), mapping indicates the presence of South East Reef beneath the platform, however, this does not coincide with increased biotic abundance. Consequently, any potential impacts to biota from operational discharges are expected to be negligible and will not affect the ecological integrity of the KEF. It is noted that the South East Reef is not mapped as a KEF in the DCCEEW protected matters search tool.

#### 6.7.4.9 Cumulative impacts with other discharges

Pile systems primarily exchange seawater, meaning any discharge from the piles is expected to be close to neutrally buoyant at the subsea outlet. PFW discharges to the sea are not currently occurring, however may occur during the life of this EP. Dispersion modelling indicates that even under non-stratified conditions, the maximum plunge depth of any potential PFW discharge would remain above the depth of pile discharge points, making cumulative interaction unlikely.

At MLB, although both discharge points are located above the thermocline, modelling shows that the maximum plunge depth of PFW remains above the pile window depth, further reducing the likelihood of interaction. Given the varying buoyancy of discharge plumes, the high mobility of marine mammals and the tendency of fish to avoid plumes, cumulative impacts on marine fauna are considered unlikely. Commercial and recreational fishing does not occur within 500m of platforms, further reducing potential interaction.

Other intermittent discharges (e.g. desalination brine, sewage, grey water, food waste, vessel liquid discharges) may interact with PFW plumes; however, these events are short in duration and low in volume, making cumulative impacts negligible. Suspended solids within pile contents will settle inside the pile or disperse gradually over long distances without measurable sediment impact. Therefore, cumulative impacts on sediment quality are considered to be inconsequential.

#### 6.7.4.10 Consequence evaluation

In summary:

- dispersion modelling indicates that operational discharges will remain within close proximity to the discharge point, limiting impacts to a localised area
- chemicals discharged have low-toxicity ratings
- potential effects on biota, including benthic habitats and communities, plankton, fish, seals and cetaceans, are expected to be confined to the immediate mixing zone and are considered negligible. These impacts do not meet the criteria for significance under the *Significant Impact Guidelines* (DoE, 2013)
- sub-lethal, direct or indirect effects may occur for non-mobile organisms (e.g. fish embryos or juveniles) within the discharge plume; however, these effects are unlikely to occur at a population level

- mercury concentrations are monitored and are expected to remain low, dispersing rapidly to meet ANZECC 99% species protection criteria within close proximity to the platform.

Intermittent and small-volume discharges of operational fluids disperse rapidly in the high-energy marine environment of Bass Strait. As a result, any impacts are restricted to the OA, are localised, and of low to moderate intensity. No adverse effects to identified receptors are anticipated, and the residual consequence is assessed as Consequence Level IV.

### *6.7.5 Impact assessment*

Table 6-39 presents the impact assessment for the discharge of operational fluids and solids.

**Table 6-39 Impact assessment for operational fluids and solids discharges**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Impact consequence (inherent)** | | | |
| Consequence Level IV | | | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Controls** | **Benefit** | **Feasibility** | **Adopt?** |
| Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any chemical being used in the production process that has the potential for subsea release or via the drains. | Reduces toxicity levels and therefore environmental impacts associated with planned discharges. | The *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) is both a Work Management System (WMS) and EMM requirement<br>This process is underpinned by the OCNS, a widely recognised and industry-endorsed framework for evaluating the environmental risks of operational chemicals. Chemical suppliers are well-acquainted with OCNS requirements, ensuring that substances used offshore meet stringent environmental standards.<br>At an individual platform level, chemicals are selected and assessed in accordance with this scheme, allowing only those with acceptable environmental profiles to be used. The process is well-established, consistently applied across the industry, and has demonstrated its effectiveness in managing chemical risks. Its proven performance confirms both its feasibility | Adopted<br>**(IMP07-CM01 and CM08)** |

| | | | |
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| | | and its suitability as a best-practice control measure.<br><br>Any chemicals planned to be discharged will be subject to the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) to ensure they are low environmental impact chemical and are approved for discharge.<br><br>This includes subsea hydraulic fluids and production chemicals. | |
| Deck drains are checked weekly to confirm system functioning and correction of identified defects is undertaken in accordance with OIMS 6-2 FIMS. | Ensures that drains are operational and preventing untreated release to the environment. | Weekly drain checks are performed to ensure they are functioning as required. This is normal routine operation. | Adopted **(IMP07-CM02)** |
| The platform closed drain and open drain piles are operated by trained and competent personnel. | Reduces the likelihood of unplanned discharges to the environment. | Implementing targeted training for operations personnel is a feasible and effective control measure to mitigate the risk of unplanned discharges from pile systems.<br><br>The Flare, Vent and Drain Operation training module provides a structured understanding of the pile systems and their associated environmental risks, equipping personnel with the knowledge required to identify and respond to operating conditions that could lead to environmental harm. Competency tracking ensures that only qualified individuals operate the drains, supporting accountability and operational integrity.<br><br>Its practicality, proven performance, and alignment with existing systems confirm its suitability as a feasible and reliable risk mitigation measure. | Adopted **(IMP07-CM03)** |
| Maintenance and testing of the skimmer pile pumps and level indication equipment is planned and executed in accordance with OIMS 6-2 FIMS:<br>• routine operational pile pump and level | Ensures adequate availability and functionality of the piles system, reducing the likelihood of unplanned discharges to the environment. | Pile pumps and level indication devices are classified as environment critical under OIMS 6-2 FIMS. Inspection and maintenance requirements are embedded in FIMS strategies and executed via CMMS schedules. Exception handling ensures timely resolution of issues, confirming the process is structures, feasible, and effective in mitigating environmental risks. | Adopted<br><br>**(IMP07-CM04)** |

| | | | |
|---|---|---|---|
| indication function tests are performed<br>• status of pile equipment is stewarded on a fortnightly basis with operations.<br>• spare pile pumps are stocked.<br>Where any out of service pumps and/or level indication equipment are identified, these are repaired or replaced within defined service deliverable date under a temporary defeat. | | | |
| A technical monitoring report is completed monthly for each platform, detailing pile system performance trends.<br>Any abnormalities are identified, with follow-up actions recorded and stewarded to closure. | Provides routine monitoring of pile system functionality, enabling identification of any performance issues or trends, which reduces the likelihood of uncontained discharges overboard. | Implementing a technical monitoring program for critical pile systems is a feasible and effective approach to maintaining equipment functionality. The program involves periodic reviews of operational data to identify trends that may signal equipment malfunction or failure, enabling early intervention and reducing the risk of unplanned outages. Outcomes of these reviews are documented in a monitoring report, which includes any required corrective actions. This structured approach supports proactive maintenance planning and aligns with existing operational capabilities, making it a practical and proportionate control measure. | Adopted<br>**(IMP07-CM05)** |
| Re-design of platform drain systems. | Eliminates discharges of residual chemicals to the environment. | Retrofitting new drain systems on the platforms to eliminate residual chemical discharges into the marine environment would require significant facility upgrades. Given the low environmental risk associated with planned discharges, the financial investment required for redesign is considered disproportionate to the marginal benefit and risk reduction (more so in light of the late life of the platforms and the transitioning nature of several of them). Therefore, such upgrades are not feasible. | Not adopted |

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| Direct monitoring of fluids discharged to the platform drain systems. | Reduced risk of discharge of chemicals overboard.<br>Improved visibility and traceability of discharge sources may support earlier detection of unexpected contaminants or operational anomalies enabling more targeted maintenance or corrective actions. | Direct monitoring of fluids entering the drain systems is not feasible due to the intermittent and variable nature of discharges, the complexity of isolating individual sources, and the limitations of available monitoring technologies in offshore environments. | Not adopted |
| All solids are retained onboard the platforms for onshore disposal (via support vessels). | Eliminates the need to discharge solids overboard. | Re-engineering such that all solid wastes are contained onboard and disposed of onshore, onshore treatment, and increase in fuel consumption due to multiple vessel transfers would be disproportionate to the environmental benefit gained given the rapid dilution in offshore water and inconsequential impact from the residue discharges.<br>Use of containment and solid collection equipment means that only residual amounts of solids are released into the marine environment. | Not adopted |
| In accordance with Safe Work Practice (SWP) SWP 50.101, abrasive blasting area is contained to limit the spread of blast dust and thorough clean-up of the work area must be conducted once job is complete. Waste materials are disposed of in accordance with the *Waste Management Manual* (AUGO-EV-EDS-002) (WMM). | Minimises the volume of waste discharged into the marine environment. | The use of enclosures for abrasive blasting is consistent with Section 3.4 of the Safe Work Australia *Abrasive Blasting Code of Practice* (2020) and is considered standard practice offshore. Containment of abrasive blasting areas using scaffold frames and reinforced plastic sheeting (powerclad) is technically straightforward and operationally practical during IMR activities. This measure significantly reduces the release of blasting resides (paint, rust, grit) to the marine environment, with captured solids managed through established onshore waste disposal processes. | Adopted<br>**(IMP07-CM06)** |
| Enhanced sampling of water, gas and liquified petroleum gas streams is | Prevent mercury discharge to the environment. | Routine testing of mercury levels is standard practice to confirm that mercury levels remain in trace amounts, whilst there is no routine discharge of | Adopted |

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| implemented if Kipper mercury levels exceed the product specification of 1µg/m$^3$ to inform EPMOC if mercury levels increase. | | process fluids there is the possibility of discharge during IMR or pigging. EPMOC will ensure if any changes from testing noted appropriate action can be undertaken. | |
| Stop the subsea valve weep at KPA. | Prevents gaseous discharges to the marine environment. | Five separate remediation options with ranging complexity were assessed as part of the risk assessment to ensure KPA A4 was safe to keep producing. These can be simply described as:<br>1. Remediate via locking out and installing an insert valve within the existing SCSSV.<br>2. Modifications to the subsea high pressure hydraulic control system.<br>3. Installation of additional hardware to close a manual valve on the KPA A4 subsea tree.<br>4. Mobilize a vessel to close a manual valve on the KPA A4 subsea tree each time the SCSSV is closed.<br>5. Inject a sealant-type material into the SCSSV control line to stop the leak.<br>Each option presents a variety of risks ranging from environmental to safety. Ultimately, the ALARP recommendation was to continue operating this well with additional controls to limit the time the SCSSV is closed during the year.<br>Details of the additional controls adopted can be observed below. | Not adopted |
| The known leak at KPA will be continually monitored.<br>During routine shut-ins modifications to planned isolation schemes will be updated to ensure SCSSSV remains open to prevent the leak occurring. | To prevent discharges to the marine environment. | It is normal process to have continual monitoring of the pipeline pressures to assess for leaks and known leaks are monitored and appropriate action taken to repair them is undertaken.<br>Specifically for KPA A4, a variety of hydraulic trends can be monitored to infer the weep condition on the known SCSSV vulnerability.<br>Procedural updates have been made, with more in progress to further reduce the likelihood of KPA A4 SCSSV remaining closed for a significant period of time. | Adopted **(IMP09-CM09)** |

| Environmental controls and performance measurement | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **IMP07-EPO01:**<br>No impact to marine environment from discharges in the drain system. | **IMP07-CM01:**<br>Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any chemicals likely to be discharged via the drain system. | **IMP07-EPS01:**<br>All chemicals intended or likely to be discharged from the drain system to the marine environment will be assessed and approved prior to use in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) to ensure the impacts associated with their use are ALARP and acceptable. | Chemicals approved for discharge register demonstrates the chemical assessment and approval process for selected chemicals is followed. |
| | **IMP07-CM02:**<br>Deck drains are checked weekly to confirm system functioning and correction of identified defects is undertaken in accordance with OIMS 6-2 FIMS. | **IMP07-EPS02:**<br>The open drain system maintains its design function (collection, conveyance and containment of routine operational discharges) throughout operations. | CMMS records confirm weekly checks undertaken and that relevant repairs are completed. |
| | **IMP07-CM03:**<br>The open and closed drain piles are operated by trained and competent personnel. | **IMP07-EPS03:**<br>Personnel who operate the open and closed pile system will demonstrate competency through completion of the Flare, Vent and Drain Operation (Operator Tech Training).<br>Operators run pile pumps in automatic or manual mode according to operational requirements. | Demonstrated competency signed off in WebCAT (UTDT-S206). |

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| | **IMP07-CM04:**<br>Maintenance and testing of the skimmer pile pumps and level indication equipment is planned and executed in accordance with OIMS 6-2 FIMS, which involves:<br>• a pile pump is available in every pile slot<br>• performing routine operational pile pump and level indication function tests<br>• stewarding status of pile equipment on a fortnightly basis with operations<br>• stocking spare pile pumps<br>• where any out of service pumps and/or level indication equipment are identified, these are repaired or replaced within a defined Service Deliverable Date under a temporary defeat. | **IMP07-EPS04**:<br>Pile pump and level indication availability is maintained in accordance with OIMS 6-2 FIMS. | CMMS records verify routine operational pile pump and level indication function tests are undertaken to schedule<br>Completed first day on shift checklists verify pump function tests<br>Fortnightly Redbox Meeting held to verify operational status of pile equipment is monitored as per Section 8.13.11.5<br>Maintenance Reliability Optimisation (IBM MRO) inventory tool confirms a spare pump is available for each platform, held on the platform or at Longford<br>CMMS records verify pumps and level indication equipment are repaired or replaced within defined Service Deliverable Date under a temporary defeat. |
| | **IMP07-CM05:**<br>A technical monitoring report is completed monthly for each platform, detailing pile system performance trends against defined performance parameters.<br>Any abnormalities are identified, with follow-up actions recorded and stewarded to closure. | **IMP07-EPS05:**<br>The pile system operates within defined performance parameters and abnormalities are actioned as appropriate. | Offshore technical monitoring report outlines the performance of the pile system and details any action taken to address abnormalities. |
| **IMP07-EPO02:**<br>Abrasive blasting residues are contained with | **IMP07-CM06:**<br>In accordance with SWP 50.101, abrasive blasting area is contained to limit the spread of blast dust and | **IMP07-EPS06:**<br>Abrasive blasting area is contained in accordance with the Abrasive blasting SWP 50.101 to capture | Internal inspection confirms abrasive blasting area is contained as per SWP 50.101. |

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|---|---|---|---|
| only residual trace quantities discharged where they cannot be captured. | thorough clean-up of the work area must be conducted once job is complete. Waste materials are disposed of in accordance with the WMM. | solids and fines for onshore disposal. | |
| **IMP07-EPO03:**<br>No discharge of mercury to the marine environment. | **IMP07-CM07:**<br>Enhanced sampling of water, gas and liquified petroleum gas streams is implemented if Kipper mercury levels exceed the product specification of 1µg/$m^3$ to inform EPMOC if mercury levels increase. | **IMP07-EPS07:**<br>EPMOC is triggered to confirm no change to risk if mercury levels increase. | EPMOC is available where enhanced sampling has been triggered. |
| **IMP07-EPO04:**<br>No impact to marine environment from chemical discharges from subsea valve actuation. | **IMP07-CM08:**<br>Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for hydraulic fluid to be released from subsea valve actuation. | **IMP07-EPS08:**<br>All chemicals intended or likely to be discharged to the marine environment will be assessed and approved prior to use in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) to ensure the impacts associated with their use are ALARP and acceptable. | Chemical Assessment Register demonstrates the chemical assessment and approval process for selected chemicals is followed. |
| **IMP07-EPO05:**<br>No unplanned release of gas or condensate from the KPA subsea valve. | **IMP07-CM09:**<br>Operators monitor a variety of hydraulic trends to infer the weep condition on the known SCSSSV vulnerability.<br>Warning to operators in the shutdown plans to limit closure time in KPA Well SCSSSV and Tree Valve Testing – KPA-050-502.<br>Procedural updates have been made, with more in progress to further reduce the likelihood of KPA A4 SCSSSV remaining closed for a significant period of time. | **IMP07-EPS09**<br>The known leak at KPA is continually monitored.<br>During routine shut-ins, modifications to planned isolation schemes will be updated to ensure SCSSSV remains open to prevent the leak occurring. | KPA shut-in records verify continual monitoring of trends and that the SCSSSV remains open where possible, verified by production data acquisition and visualisation system. |

| Impact consequence (residual) | | |
|---|---|---|
| Consequence Level IV | | |
| **Demonstration of ALARP** | | |
| With the controls outlined in this table in place, the consequence has been assessed as Consequence Level IV (lower consequence) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual consequence further or would be grossly disproportionate to the residual consequence. Therefore, a Consequence Level IV residual impact consequence is considered to be ALARP. | | |
| **Demonstration of acceptability** | | |
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity.<br>Note that guidance relating to the unplanned release of hazardous substances is addressed in Section 7.4. | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls developed for this hazard are in line with the management measures listed in Sections 4.5 and 4.6 of the guidelines, which include:<br>• contaminated deck drainage and bilge water to be contained and treated prior to discharge **(all IMP07 controls)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | The controls developed for this hazard are in line with the management measures listed in Sections 18, 19 and 24 of the guidelines, which include:<br>• ensure HSE documentation is in place **(OIMS, this EP)**<br>• ensure that measures are in place to manage hydrocarbon storage and handling on the facility **(all IMP07 controls)**<br>• monitor the integrity of hydrocarbon storage using pressure and level monitoring equipment to detect unintended releases **(IMP07-CM02, -CM03, -CM04)**<br>• ensure inspection, repair and maintenance of drain system integrity via a planned maintenance system **(IMP07-CM02, -CM04, -CM05)**. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | The EPS developed for this hazard are in line with the management measures listed in the guidelines, which include:<br>• Section 44 – drainage water - open and closed drainage systems are in place. Contaminated drainage |

| | | |
|---|---|---|
| | | waters should be treated before discharge **(IMP07-CM02)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The control for this activity meets the code's following objectives for offshore production:<br>• to reduce the impact on other marine resource users to ALARP and to an acceptable level<br>• to reduce the impact of routine waste discharges in the marine environment to ALARP and to an acceptable level<br>• to reduce the risk of any unplanned release of material into the marine environment to ALARP and to an acceptable level. |
| **Internal context** | Consistent with Esso's Environment Policy. | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist."* |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements. |
| **External context** | No specific stakeholder concerns have been raised concerning the planned discharge of operational fluids and solids. | |

## 6.8 Planned discharge – Wellwork solids and fluids

### *6.8.1 Source of Impact*

The sources of wellwork discharges to the marine environment are outlined in Table 6-40.

**Table 6-40 Sources of wellwork discharge**

| Activity | Applicable? | Source of wellwork solids and fluids discharges |
|---|---|---|
| Platform operations | **No** | N/A |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **Yes** | Fluids and solids contained within the well can be discharged:<br>• as part of P&A operations (described in Section as described in Sections 2.8.2.7 and 2.8.2.8) |

| Activity | Applicable? | Source of wellwork solids and fluids discharges |
|---|---|---|
| | | • as part of sand washing and wellbore clean-out operations (as described in Section 2.8.2.7 and Section 2.8.2.8)<br>• in the final stages of conductor cutting (see Section 2.8.2.10)<br>• during milling (see Section 2.8.2.12)<br>• minor volumes of residual fluids can also be released<br>• discharge of cement. |
| IMR | **No** | N/A |
| Support activities | **No** | N/A |

Wellbore cleanout operations (such as conductor cutting and milling activities) during wellwork will result in trace amounts of solids such as metal shavings (swarf) or sand from inside the well bore being discharged to the seabed. Solid collection equipment (such as filters, sieves and settling vessels), shakers and magnets are used to separate any solids for disposal onshore before fluids are discharged into the marine environment, meaning only minute particles are released.

A typical sand discharge during conductor cleanout operations is 150bbl (or 23.9m$^3$) of entrained sand in brine.

Wellwork operations (such as P&A workovers) will also result in a small discharge of cement (mixed with seawater to make a slurry) into the marine environment at the sea surface.

The estimated volumes of cement discharged to the environment include:

- small volumes of dry cement dust from the bulk transfer process may be blown overboard during pneumatic transfer operations
- washing the cementing pump, piping, and blending tanks with seawater to prevent curing, resulting in a release of cement/water mix of 1 - 2bbl (0.15 - 0.31m$^3$) per well
- no bulk discharge of dry (unmixed) cement
- potentially a small volume of mixed slurry at the end of the campaign in the event that it is the cement cannot be transferred for use in another Esso operation, cannot be transferred to another operator, cannot pumped down hole and cannot be transferred onshore, subject to a feasibility analysis. For a typical workover campaign, the estimated excess cement slurry volume is 20 - 30bbl (3.17 - 4.76m$^3$) per well.
- it is possible that larger amounts of cement slurry (50 - 200bbls or 7.95 - 31.8m$^3$) could be discharged in unforeseen circumstances or emergencies (i.e. the work has to be abandoned). These volumes are based on a typical P&A cement plug.

Quality control, in particular cement quality, is an important consideration for well cementing activities, as the consequences of a failed cement job have considerable commercial and well integrity implications.

Cement is a hygroscopic material that actively absorbs moisture from the atmosphere. This process is accelerated in the offshore environment due to the high humidity. Cement will also absorb water from the compressed air used during the pneumatic transfer process to move cement from the bulk tanker to the vessel and from the vessel to platform, and from any residual moisture present in the transfer lines. For these reasons, cement sent offshore is typically sent in batches allocated for specific jobs in order to minimise the number of transfers and the amount of time that cement is held offshore before use.

Cement held offshore for an extended period and returned to shore is regarded as a contaminant and vessel storage tanks are required to be cleaned prior to new cement being added to those tanks. This is a complex process requiring confined space entry procedures and removes a vessel from service for the

period of time in which the tanks take to be cleaned. Where the cement has absorbed enough water from the atmosphere and the transfer processes, cement may set in place in the transfer tanks of the vessel forming large rocks which block the transfer systems, requiring disassembly of the system to clear the blockages. In extreme situations, cement may require removal by jack hammer and other percussive techniques.

The additional exposure time in which the cement is present in a humid environment offshore, coupled with the additional transfer operations required to return unused surplus cement from a platform back onshore for disposal, represents a significant increase in risk exposure when compared to the initial process of transferring newly manufactured cement offshore. As an abandonment program approaches completion, cement volumes are actively managed to reduce the amount of bulk cement product remaining on board. Contingency quantities of cement are required, so as to allow a job to be repeated in the event that difficulties are encountered during the initial cementation attempt.

In ideal circumstances (subject to weather conditions and sea states) this contingency will be held on the support vessel such that it can be readily transferred to other Esso abandonment operations. All efforts will be made to minimise the quantity of cement remaining on the platforms.

Small amounts of leftover cement will only be mixed and discharged into the marine environment if it cannot be transferred to another Esso operation and if onshore disposal is not feasible.

#### 6.8.1.1 Wellwork surface discharges

During wellwork operations, fluids contained within the well, such as residual packer fluid (consisting of polymer viscosifier, corrosion inhibitor, and soluble salts for weight control), completion brine, and residual drilling muds, are circulated out and returned to the platform. Hydrocarbons and solids are separated and sent to shore for disposal. Whole non-aqueous fluids are also returned to shore, while remaining fluids are discharged to the pile system.

Some chemicals may have been introduced into the wells over their years of operations, and due to the age of the wells, their exact compositions are largely unknown. Further details on wellwork fluid handling and discharge processes are provided in Section 2.8.2, and a summary of typical wellwork chemicals used (low-toxicity and OCNS-rated) is provided in table Table 6-41.

During the P&A activities, return fluids are often discoloured. The P&A programme is undertaken in two stages (Batch-1 and Batch-2), and based on previous sampling, during both stages the first half of the well returns is typically darker in colour. This discolouration is caused by Pyrrhotite-5H, a naturally occurring iron sulphide mineral that is non-toxic and suitable for discharge. Any fluids containing visible hydrocarbons are directed to shore for disposal, however, anecdotal evidence indicates that discolouration can still occur in fluids with no detectable hydrocarbons that would otherwise be suitable for overboard discharge.

A 2023 water sampling program conducted by Esso in Bass Strait using Rhodamine dye to trace PFW and pile discharges demonstrated that coloured plumes dissipate rapidly once dye application ceases, reflecting the high energy marine environment at the platforms. Therefore, well fluids exhibiting strong discolouration are expected to disperse quickly in the receiving environment and become no longer visible shortly after discharge stops. Discharges are expected to occur for approximately 1.5 hours per well (based on volumes of up to 700bbl for Batch-1 and 720bbl for Batch-2 at a discharge rate of 8bbl/min). However, the dark coloured portion is unlikely to persist for the full duration, as the darker fluids represent approximately half of the total return volume and some proportion may have been diverted to shore if hydrocarbons are present. Consequently, the dark coloured discharge is expected to occur for only 30-60 minutes per well.

**Table 6-41 Typical wellwork chemicals and rankings (as of January 2026)**

| Chemical | Application | Ranking |
|---|---|---|
| Class G cement | Cement | OCNS E |
| CFR-8L | Additives | CHARM Gold |
| GasCon 469 | Additives | OCNS E |

| | | |
|---|---|---|
| Halad 413L | Additives | CHARM Gold |
| HR-6L | Additives | OCNS E |
| NF-6 | Additives | CHARM Gold |
| Barazan D Plus (for high viscosity pills) | Other | CHARM Gold |
| Baraklean II, Baraklean NS Plus (surfactant) | Other | CHARM Gold |
| CRW24340 (inhibitor) | Other | CHARM Silver |
| SEALMAKER | Other | OCNS E |
| Vortex A-Liquid | Other | OCNS E |
| Vortex B-Liquid | Other | OCNS E |

#### 6.8.1.2 Summary of discharges

Table 6-42 provides a consolidated summary of all wellwork discharges that may occur during the production stage of Bass Strait facilities. Each discharge is described in terms of its source, composition, indicative volumes, and discharge point.

**Table 6-42 Wellwork discharges summary**

| Activity | Discharge point | Reasoning for discharge | Discharge material | Operational discharges | | |
|---|---|---|---|---|---|---|
| | | | | Approx. solids discharged ($m^3$) | Approx. fluids discharged (bbl) | Frequency |
| Cementing | Surface | Contingency only in the event cement cannot be used downhole | Green cement | None | ~8 - 80bbls | Contingency only – has only occurred once in last five years (<10bbls) |
| Wellbore cleanout | Surface | To clean out the well to access deeper parts of the wellbore | Entrained sand in brine | Trace (<0.1$m^3$) | ~200bbls | Per well |
| P&A | Surface | Fluid returns from well workovers | Wellwork fluids and chemicals as per Table 6-41(without hydrocarbons) | None | 700 - 720bbl | Per well |
| | | | Discoloured wellwork fluids | None | Approx. 240 - 480bbl discoloured | 30-60 minutes per well |
| Conductor cutting (mechanical or abrasive) | Surface | Non-aqueous fluids or solids may adhere to the inside of surface casing and be flushed over the conductor top during pre-cutting jetting operations | Non-aqueous fluids or solids | None | Most transferred with the casing to the deck for removal – small quantities may be lost | Infrequent |
| | Subsea | Contents of the conductor once cut | Inhibited seawater | None | 10bbls (average, water level drops to MSL) | Per well, one time only |
| | Subsea | | Garnet and seawater for cutting | 1000kg<br>0.24$m^3$ | Sea water 63bbls | Per well, one time only |

| Activity | Discharge point | Reasoning for discharge | Discharge material | Operational discharges | | |
|---|---|---|---|---|---|---|
| | | | | Approx. solids discharged ($m^3$) | Approx. fluids discharged (bbl) | Frequency |
| Conductor pulling | Subsea | Contents inside conductor | Inhibited seawater | | ~32bbls (per conductor) | Per well, one time only |
| | | Remnants of production by surface casing annulus contents, if production annulus barriers have occurred hindering removal | Solids and historic well chemicals | 2 – 3$m^3$ OR | 2 – 3$m^3$<br><br>Material could be solids or liquid (gelled solids) | Contingency only, when barriers outside production casing prevent normal circulation and removal of production casing (has occurred twice in 200+ P&A wells) |
| | | Marine growth contents outside the conductor | Marine growth | ~1 - 2$m^3$ (per conductor) | None | Per well, one time only |
| Sand washing | Surface | Used to clean out conductors | Entrained sand in typically seawater (can be other) | Sand | ~100bbls | Infrequent – has not been required within the last five years |
| Milling | Surface | Contingency only – has not been required within the last five years | Metal swarf | Fine metal shavings maximum 0.1$m^3$ (contingency only) | N/A | Contingency only |

### *6.8.2 Known and potential impacts*

The known and potential impacts of cement discharges are:

- reduction in water quality via increased turbidity
- reduction in sediment quality and potential toxicity.

### *6.8.3 Environment That May Be Affected*

The EMBA for cement slurry discharges is likely to be within the immediate vicinity of the discharge point (e.g. tens of metres from the platform (BP, 2013)).

Receptors that may occur in the EMBA include:

- plankton
- benthic habitat
- demersal and pelagic fish.

### *6.8.4 Evaluation of impacts*

#### 6.8.4.1 Reduction in water quality

Increased turbidity of the water column will occur during cement discharge, however, due to the small volumes of cement being released, the environmental impacts are considered to be inconsequential.

Cement released from the surface will result in increased turbidity in close proximity to the release.

BP (2013) undertook modelling for larger cement volumes (i.e. 480bbl/hour, equivalent to approximately 76m$^3$/hour) discharged intermittently at the surface (following flushing of lines and equipment) which is useful as a conservative comparison of the potential impacts from this activity. The results indicate that two hours after the start of discharge, plume concentrations are between 5 to 50mg/L with the horizontal and vertical extents of the plume approximately 150m and 10m respectively (BP, 2013). The modelling indicates that the plume will have completely dispersed to concentrations of less than 5mg/L four hours after the start of the discharge (BP, 2013).

The environmental receptors with the potential for exposure and considered to be most sensitive to an increase in turbidity include pelagic fish species and plankton found in the area around the well locations (see Appendix B for a list of fish species that may be present in the OAs).

Suspended sediments greater than 500mg/L are likely to produce a measurable impact upon larvae of most fish species (Jenkins & McKinnon, 2006). Levels of 100mg/L may affect the larvae of several marine invertebrate species, and fish eggs and larvae are more vulnerable to suspended sediments than older life stages. The modelling undertaken by BP (2013) suggests that plume concentrations modelled will not be at or near levels required to cause an effect on fish or invertebrate larvae as outlined by (Jenkins & McKinnon, 2006). Cement volumes anticipated to be released as a result of wellwork (8 - 80bbl but typically less than 10bbl, which is significantly less than that modelled in the BP study) are subsequently not expected to have an impact on fish or invertebrate larvae.

The area of the turbidity plumes is an extremely small percentage of the foraging grounds of protected seabirds and marine mammals that may be present in the OAs (as outlined in Table 3-2). Therefore, impacts to seabirds and marine mammals are not expected.

Impacts of increased turbidity will be highly localised, temporary and anticipated to quickly cease following the discharge. Any impacts to marine mammals (as listed in Appendix B) will be inconsequential or have no adverse effect, resulting in Consequence Level IV.

#### 6.8.4.2 Reduced sediment quality and potential toxicity

*CEMENT*

Sediment quality may be reduced as a result of cement discharges, however, given the small volumes of discharge and low deposition concentration, the impacts are considered to be inconsequential. Chemical additives mixed into cement have the potential to be toxic to the marine environment, but as only low toxicity additives will be selected, no adverse effects are expected.

Modelling of larger cement surface discharges undertaken by De Campos et. al. (2017) (18m$^3$ of cement wash) shows an average deposition of 0.05mg/m$^2$ of material on the seabed; with particulate matter deposited within

the three-day simulation period. Given the low deposition concentration, it is therefore expected that the sediment deposits created by the cement discharges will have inconsequential effects on sediment quality.

Furthermore, wellwork will be undertaken at existing wells where cement discharges have already occurred, therefore no further changes to sediment quality are expected as a result of additional cementing during this activity. Any impacts to ambient sediment quality and composition are expected to be inconsequential or have no adverse effect, resulting in Consequence level IV.

Chemical toxicity to seabed sediments may result from chemical additives added to the dry cement. Only low toxicity additives are used in cement, and discharges are highly localised. Once hardened, toxic effects will cease (Terrens, G. W., Gwyther, D., Keogh, M. J., & Tait, R. D., 1998); (CIN, 2005). Therefore, potential toxicity through chemical exposure is expected to be inconsequential or cause no adverse effects, resulting in Consequence Level IV.

It has been noted that trace amounts of mercury can be present in cement originating from the raw materials used in the process. Research indicates that the mean concentration of mercury expected in Portland cement is 0.01ppm (Krzysztof, K., Gorecki, J., & Burmistrz, P., 2021), which is significantly below the 1ppm criteria (see Section 1.3.5).

Esso will ensure that the contaminant limit concentrations of mercury in cement are at or below a Mercury (Hg) concentration of <1mg/kg (1ppm) as outlined in the API standards.

*OTHER CONTAMINANTS*

Residue amounts of solids such as sand, grit, swarf, rust and paint chips will settle on the seabed during or after wellwork activities.

Sand discharges will not have long-term impacts given that the seabed around the platforms are predominantly sand. Discharged sand will settle on the seabed and become congruous with its sandy surrounds (as described in Table 3-2).

Other solids such as grit, swarf, rust and paint chips that dislodge from the platforms or subsea facilities and settle on the seabed are not expected to form a physical or chemical impediment to biota settling on or in the seabed sediments. As discussed in Section 6.7.4.2 and Section 6.7.4.5, the deposition of these materials on the seabed will not result in sediment contamination beyond 100m from the platforms or contaminants concentrations above the relevant ANZ guidelines (2018) DGVs (AECOM, 2024).

The area of impact will be small (localised around the work area), and the dynamic nature of the seabed environment (rapid shifting/mixing of sands) means the impacts are inconsequential.

### *6.8.5 Impact assessment*

Table 6-43 presents the impact assessment for the discharge of wellwork solids and fluids.

**Table 6-43 Impact assessment for discharges of wellwork solids and fluids**

| ALARP decision context | |
|---|---|
| **Factor** | A |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. |
| **Impact consequence (inherent)** | |
| Consequence Level IV | |

| Assessment of proposed control measures (ALARP assessment) | | | |
|---|---|---|---|
| **Controls** | **Benefit** | **Feasibility** | **Adopt?** |
| The *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) is applied to any chemical planned to be discharged from wellwork activities. | Ensures wellwork discharges will not have toxic effects to marine receptors. | The *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) is both a WMS and EMM requirement and therefore adopted.<br>The process uses the OCNS ranking in conjunction with toxicity, biodegradation, and bioaccumulation data to determine potential impacts to the environment and acceptability of planned discharges. The process also checks for mercury limits. | Adopted<br>**(IMP08-CM01)** |
| Minimise bulk inventory of cement on the platforms during well workovers. | Reduces the amount of leftover excess cement that may need to be discharged overboard. | Managing the cement stock loaded to platforms during is routine practice during wellwork campaigns and ensures that only the minimum amount required to undertake the successful operation is maintained. | Adopted<br>**(IMP08-CM02)** |
| Dispose of excess cement down hole from wellwork campaigns. | Ensures no discharges to the marine environment. | Where possible, cement will be used downhole on the existing wells to avoid discharging into the marine environment. | Adopted<br>**(IMP08-CM02)** |
| Transfer of unused dry cement back to vessel for onshore disposal at the completion of wellwork campaigns. | Eliminates the need to mix and discharge it overboard. | Transferring excess cement onshore requires the product to be sent from the platform back to a vessel. This process increases the risk of moisture contamination of the product within the transfer hoses and tanks of the vessel.<br>This risk is different to when the cement is transported to the platform as the cement has not yet been exposed to moisture.<br>In the event that cement was to be transferred from the platform back to shore, it would be via pneumatic processes from the vessel into a cement bulk trailer. Third-party equipment is being evaluated to help address pressure limitations associated with these pneumatic processes.<br>Disposal of cement from this trailer at an appropriate landfill facility will also require a pneumatic transfer process to get the bulk product out of the tanker. Landfill sites are typically not set up | Not adopted |

| | | | |
|---|---|---|---|
| | | with facilities to handle pressurised delivery of bulk products, further complicating the onshore disposal process.<br><br>This, combined with the additional time, vessel logistics and associated fuel use (and therefore GHG emissions) required to transfer the cement onshore is considered to outweigh the benefit gained. The activity does not intentionally carry excess cement and good management of bulk cement volumes on the platforms will minimise excess cement at the end of wellwork activities. | |
| Excess mixed cement is transferred to another Esso operation. | Eliminates the need to discharge cement overboard. | Once cement is mixed, it needs to be used within a limited amount of time (usually hours) before it starts to set. Mixed cement must be pumped while it is still in a slurry state. It is therefore impractical to transfer mixed cement to a different operation once the chemical process of cement curing has started. This control measure is therefore not feasible. | Not adopted |
| No discharge of unused dry bulk cement or other bulk products. | Diluted cement poses less environmental risk compared to un-mixed cement. | By applying the controls outlined for cement (or other dry bulk products) such as inventory management and down whole disposal, there is no discharge of bulk cement.<br><br>Discharge to the marine environment will only occur when there are no other safe or technically feasible options.<br><br>In the event that none of the above control measures for disposal of excess cement are available or feasible, the last option will be to mix the minor quantities of residual cement into a diluted slurry for discharge overboard, which is routinely undertaken for cementing operations. | Partially adopted<br><br>**(IMP08-CM02)** |
| No overboard discharge of well circulation fluids containing hydrocarbons. | Eliminates OIW discharges to the marine environment. | Workover fluids used during well circulation consist of a brine solution (typically seawater) with a dilute concentration of chemical additives and will be discharged as part of workover operations. Fluids with hydrocarbon returns are monitored such that hydrocarbon is not discharged overboard. | Adopted<br>**(IMP08-CM03)** |

| | | | |
|---|---|---|---|
| Solids collection equipment (such as filters, sieves and settling vessels), magnets and shakers are used to capture solids during wellwork for disposal onshore. | Only residual amounts of solids are released into the marine environment. | Use of containment and solid collection equipment (filters, sieves, settling vessels, magnets, shakers) is technically straightforward and operationally practical, requiring only minor integration into wellwork activities. This measure ensures that solids are captured for onshore disposal, with only residual amounts released to the marine environment. | Adopted<br>**(IMP08-CM04)** |

| **Environmental controls and performance measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **IMP08-EPO01:**<br>No impact to the marine environment from chemicals contained in wellwork discharges. | **IMP08-CM01:**<br>Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any chemical planned to be discharged during wellwork. | **IMP08- EPS01:**<br>All wellwork chemicals (solids and fluids) planned for discharge are assessed and approved for discharge in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013).<br>Implementing this process also ensures that the contaminant limit concentrations of mercury in cement are at or below a concentration of <1mg/kg (1ppm) as outlined in the API standards. | The 'Chemicals approved for discharge register', demonstrates all wellwork chemicals are assessed and approved for discharge in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013). |
| **IMP08-EPO02:**<br>No overboard discharge of bulk powders or bulk cement from the platform associated with wellwork. | **IMP08-CM02:**<br>In line with cementing procedures, stock management is undertaken to limit the volume of excess unused cement at the end of the wellwork activities in the following order of preference:<br>• minimise inventory of cement on board<br>• all cement is used in the wellwork activities with no discharge required | **IMP08-EPS02:**<br>Stock management of bulk powders and cement is optimised to prevent excess volumes and discharge. | Daily drilling report verifies no discharge of bulk cement.<br>Cement report verifies stock management process and lists volume of any discharge of cement slurry.<br>Feasibility analysis records verifies if onshore disposal is a viable option for the scenario assessed. |

| | | | |
|---|---|---|---|
| | • where possible, excess cement will be used downhole on the existing wells. If that is not possible, then<br>• remaining cement will be used in another Esso operation, and if that is not possible, then.<br>• transfer cement onshore for disposal – subject to feasibility analysis, and if not possible, then<br>• minimal cement is mixed into a slurry and discharged into the marine environment at the end of wellworks.<br><br>Discharge to the marine environment will only occur when there are no other safe or technically feasible options. | | |
| **IMP08-EPO03:**<br><br>Wellwork fluids are less than 1% OIW by volume prior to discharge overboard. | **IMP08-CM03:**<br><br>Circulated fluids/tank washings/NaCl brine fluids are measured to ensure OIW content of less than 1% prior to discharge. | **IMP08-EPS03:**<br><br>Circulated fluids/tank washings/NaCl brine fluids are less than 1% OIW by volume at discharge. | Test reports verify that circulated fluids/tank washings/NaCl brine fluids are measured for OIW content prior to overboard discharge and that it is less than 1% OIW.<br><br>OIW content of circulated fluids/tank washings/NaCl brine fluids is recorded in environmental performance fluid tracking when discharge occurs. |
| **IMP08-EPO04:**<br><br>Wellwork solids residues are contained, with only residual trace quantities (dust) discharged where they cannot be captured. | **IMP08-CM04:**<br><br>Solid collection equipment, magnets and shakers are used when completing wellwork activities in order to capture solids for onshore disposal, as per the wellwork scope or plan. | **IMP08-EPS04:**<br><br>Solids content is captured for onshore disposal. | Workover program includes a solid collection plan.<br><br>Daily drilling reports confirm implementation of solid collection plan during each workover activity. |

| Impact consequence (residual) | | |
|---|---|---|
| Consequence Level IV | | |
| **Demonstration of ALARP** | | |
| With the controls outlined in this table in place, this risk has been assessed as a Consequence Level IV (lower risk) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual impact consequence further would be grossly disproportionate to the residual consequence. Therefore, a Consequence Level IV residual impact is considered to be ALARP. | | |
| **Demonstration of acceptability** | | |
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | |
| **Legislative and other requirements** | No environmental legislation or other requirements were deemed relevant to this particular impact. | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls developed for this hazard are in line with the management measures listed for offshore cement management Section 4.5.8 of the guidelines, which includes:<br>• volume of cement to be used for each well to be planned to minimise excess bulk at the end of campaign and volumes discharged into the ocean **(IMP08- CM02)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | No guidance is provided regarding wellwork discharges. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | No guidance is provided regarding wellwork discharges. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls developed for this activity meet the code's following objectives for development and production:<br>• to reduce impact of routine waste discharges on the marine environment to ALARP and to an acceptable level<br>• to reduce the impacts to benthic communities to acceptable levels and to ALARP. |

| | | |
|---|---|---|
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist"*. |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 7-1 objective to evaluate change against an established set of criteria and establish endorsement/approval levels<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors. |
| **External context** | No specific stakeholder concerns have been raised concerning wellwork discharges. | |

## 6.9 Planned discharge (contingency) – Produced formation water at Marlin B

### *6.9.1 Source of Impact*

The sources of PFW discharges are summarised in Table 6-44.

**Table 6-44 Activities that result in PFW discharge**

| Activity | Applicable? | Source of PFW |
|---|---|---|
| Platform operations | **Yes** | Contingency PFW discharge from MLB only |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork activities | **No** | N/A |
| IMR | **No** | N/A |
| Support activities | **No** | N/A |

PFW is naturally occurring water found within formations of a reservoir. During platform operations, wells bring water to the surface alongside the gas and condensate.

As outlined in Section 2.5.9, there is currently no discharge of PFW; all platforms either send the PFW to shore via pipeline for processing or re-inject it into available wells.

For MLB overboard discharge is considered a contingency option only. At present, PFW is reinjected; however, there is some uncertainty regarding the reservoir's long-term ability to sustain this process. Hence, the option to discharge PFW from MLB has been retained as a contingency in this EP.

MLA A5 and MLA A14 wells were drilled to deplete the Marlin gas reservoir and have since been converted into liquid injection wells. PFW reinjection into these wells is critical to production operations at the Marlin complex because PFW cannot be sent to Longford due to liquid processing restrictions at Longford Plants, and the management of hydrates in offshore gas pipelines. Maintaining PFW overboard discharge capability serves as a backup in the event the injection wells become unavailable.

There is an option to transport PFW to Longford via the MLA500-LFD gas pipeline at significantly reduced rates due to high glycol-dosing requirements.

In the event that overboard discharge of PFW from MLB is required, the following steps would be undertaken prior to discharge:

- confirm necessary procedures are current, and in the system
- confirm the training status of operators
- confirm that laboratory service equipment is available
- ensure all maintenance work orders are up to date for the hydrocyclones and the degasser vessels
- calibrate the sigrist OIW analyser
- bring the hydrocyclones and degasser vessel online
- confirm the overboard valve closes on a high OIW trip.

It is important to note that separation of PFW from reservoir fluids is not entirely effective. Treated PFW may still contain trace amounts of residual process chemicals or naturally occurring substances, such as:

- dispersed oil or condensate
- dissolved organic compounds (e.g. aliphatic and aromatic hydrocarbons, organic acids and phenols)
- inorganic compounds (e.g. dissolved metals, soluble inorganic chemicals).

Further details on the existing PFW system are provided in Section 2.5.9.

### *6.9.2 Marlin B platform*

#### 6.9.2.1 Volume

There is no expected discharge of PFW to sea from any of the producing platforms. If the MLB system is required to discharge PFW to sea due to re-injection failure, the design capacity of the system is 2450kL/day. The current rates of PFW reinjection at MLB are 100kL/day. These rates are expected to continue at this level and decline with declining gas rates late in field life.

#### 6.9.2.2 Composition

At present, no samples are available to directly characterise the complete physical and chemical composition of PFW from MLB. This is due to there currently being not enough water produced to run the hydrocyclones to be able to take a representative sample. Mercury sampling undertaken in February 2026confirmed that mercury is present in trace levels < 0.0001mg/L.

Of the fields with data available, TNA is the most proximal to MLB. Tuna has a mix of oil and gas reservoirs whereas the other fields are only oil fields. It is worth noting that the Tuna PFW will be dominated by free water rather than the water of condensation that dominates the current Marlin PFW. Therefore, in the absence of MLB data, the historical composition of PFW discharged from the TNA is considered a conversative analogue for MLB modelling (see Table 6-46 and Table 6-47).

The chemical additives to be used in the MLB PFW handling system cannot be determined until the PFW composition is confirmed. It is anticipated that additives may include a water clarifier or demulsifier. Chemicals introduced during MLB operations that may persist at residual levels in the water handling system are likely to be limited to fin fan corrosion inhibitor (e.g. Baker-Hughes CRO24037 - oil soluble).

Chemicals introduced to and discharged through the water handling system will be assessed and approved in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) to ensure the impacts associated with use are ALARP and acceptable.

The OIW concentrations will be monitored on the platform using an online fluorescence-based system in accordance with the *System Monitoring, Recording and Reporting* (GEN-100-102) work aid. This system detects oil levels by measuring the scattering of ultraviolet (UV) light, providing real-time data on discharge quality.

A summary of the potential PFW discharge characteristics for MLB based on the MLB design and the TNA analogue is provided in Table 6-45.

**Table 6-45 PFW discharge characteristics**

| Platform | MLB |
|---|---|
| Discharge depth | 11m |
| Water depth | 59m |
| Discharge orientation | Vertically downward |
| Discharge rate (kL/day) | 1000 – 2450 |
| Meets all ANZECC 95% water quality criteria | <12m |
| Meets all ANZECC 99% water quality criteria | <12m |
| Hydrocarbons dilution* | 16x |
| PAH dilution* | 16x |
| Metals dilution* | 47x |
| Meets all ANZECC shellfish taint criteria | <7.8m |
| Meets whole effluent ecotoxicology 95% species protection criteria | <90m |
| Meets whole effluent ecotoxicology 99% species protection criteria | <140m |
| Meets background total organic carbon (TOC) and hydrogen sulphide levels | <90m |
| Mixing zone extent | 140m |

Mixing zone extents are determined based on the distance required to meet whole effluent ecotoxicity 99% species protection levels (greater distance from 2014 and 2020 data). Distance is calculated using the results from a dispersion model for each platform's discharge.

For MLB, TNA has been used as an analogue for chemical characterisation.

*Dilution as the number of times the maximum detected result (2014 - 22 sampling rounds) is above ANZECC 99% water quality criteria. Hydrocarbons are inclusive of Benzene, 1,2,4-trichloro benzene, naphthalene, phenol, pentachlorophenol, 1,1,2-trichloroethane. Metals are inclusive of cadmium, chromium, cobalt, copper, lead, mercury, silver, vanadium and zinc. PAH's naphthalene.

**Table 6-46 TNA PFW composition 2019 - 2022**

| Parameter | 2019 | 2020 | 2021 | 2022 | Mean | Standard error | Lower 95% confidence level | Upper 95% confidence level | Minimum detected (mg/l) | Maximum detected (mg/l) | Background levels | Dilution factor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature (°C) | - | - | - | - | 68 | 6 | 55 | 80 | 55 | 80 | 14a | 6 |
| Conductivity (µS/cm) | - | 50,000 | 57,000 | 44,000 | 48,833 | 2728 | 43,366 | 54,301 | 41,000 | 57,000 | 46,500b | 1 |
| pH (units) | 7.8 | 7 | 7.2 | 6.6 | 7.1 | 0.1 | 6.8 | 7.3 | 6.6 | 7.8 | 8.2c | 1 |
| Suspended solids | 20 | 14 | 15 | 62 | 24 | 6 | 12 | 37 | 14 | 51 | 34d | 2 |
| Total dissolved solids | 30,000 | 34,000 | 37,000 | 23,000 | 30,571 | 1107 | 28,354 | 32,789 | 23,000 | 34,000 | N/A | N/A |

a = Surface: 14°C - 20°C.

b = 35psu - 36psu = 45,900µS/cm – 47,000µS/cm assuming 18°C.

c = pH default trigger values given in ANZECC (2000) for physical and chemical stressors for southeast Australia for slightly disturbed ecosystems (marine, offshore).

d = non-detect to 34mg/L, from 19 reference site samples taken at BTW location prior to drilling.

**Table 6-47 Tuna platform chemical composition data 2019 - 2022**

| Parameter | 2019 | 2020 | 2021 | 2022 | % detected | No. times detected | Mean | Standard error | Lower 95% confidence level | Upper 95% confidence level | Minimum detected (mg/l) | Maximum detected (mg/l | ANZECC 95% level (mg/l) | ANZECC 99% level (mg/l) | Dilution factor to ANZECC 95% | Dilution factor to ANZECC 99% | ANZECC seafood taint threshold (mg/l) | Dilution to ANZECC seafood taint threshold |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 3.1 | 4.2 | 4 | 8.7 | 100 | 8 | 3.74 | 0.40 | 2.93 | 4.55 | 2.10 | 6.00 | 0.7 | 0.5 | 9 | 12 | | |
| Toluene | 4.3 | 4.7 | 4.8 | 9.9 | 100 | 8 | 5.67 | 0.69 | 4.30 | 7.04 | 3.25 | 9.90 | | | | | 0.25 | 40 |
| Ethylbenzene | 0.21 | 0.13 | 0.2 | 0.33 | 100 | 8 | 0.24 | 0.09 | 0.05 | 0.42 | 0.13 | 0.42 | | | | | 0.25 | 2 |
| m&p-Xylenes | 1.6 | 1.3 | 1.6 | 2.3 | 100 | 8 | 1.85 | 0.25 | 1.35 | 2.35 | 0.90 | 3.30 | | | | | | |
| o-Xylene | 0.55 | 0.48 | 0.66 | 0.98 | 100 | 8 | 0.64 | 0.09 | 0.47 | 0.81 | 0.40 | 1.10 | | | | | | |
| 1.2.4-trimethylbenzene | 0.28 | 0.15 | 0.25 | 0.29 | 100 | 8 | 0.23 | 0.03 | 0.17 | 0.30 | 0.11 | 0.44 | | | | | | |
| 1.3.5-trimethylbenzene | 0.096 | 0.045 | 0.086 | <0.2 | 90 | 8 | 0.09 | 0.01 | 0.06 | 0.12 | 0.04 | 0.18 | | | | | | |
| Benzyl chloride | < 0.005 | | <0.005 | <0.005 | 11 | 1 | 0.02 | 0.05 | 0.00 | 0.16 | 0.02 | 0.02 | | | | | | |
| Dibenzofuran | < 0.005 | <0.05 | 0.005 | <0.005 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| Nitrobenzene | < 0.05 | <0.05 | <0.05 | <0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | |
| 1,2,4-trichlorobenzene | < 0.005 | <0.003 | <0.005 | <0.005 | 0 | 0 | | | | | | | 0.08 | 0.02 | Not detected | Not detected | | |

| Parameter | 2019 | 2020 | 2021 | 2022 | % detected | No. times detected | Mean | Standard error | Lower 95% confidence level | Upper 95% confidence level | Minimum detected (mg/l) | Maximum detected (mg/l | ANZECC 95% level (mg/l) | ANZECC 99% level (mg/l) | Dilution factor to ANZECC 95% | Dilution factor to ANZECC 99% | ANZECC seafood taint threshold (mg/l) | Dilution to ANZECC seafood taint threshold |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 0.066 | 0.82 | 0.24 | 0.24 | 100 | 8 | 0.24 | 0.06 | 0.12 | 0.37 | 0.07 | 0.82 | 0.07 | 0.05 | 12 | 16 | 1 | 1 |
| 2-methylnaphthalene | 0.052 | 0.48 | 0.13 | 0.12 | 100 | 8 | 0.16 | 0.05 | 0.07 | 0.26 | 0.05 | 0.48 | | | | | | |
| Fluorene | < 0.001 | 0.0085 | <0.001 | 0.002 | 60 | 5 | 0.004 | 0.002 | 0.000 | 0.008 | 0.001 | 0.009 | | | | | | |
| Phenanthrene | < 0.001 | 0.0097 | | 0.002 | 60 | 5 | 0.005 | 0.002 | 0.000 | 0.009 | 0.002 | 0.010 | | | | | | |
| Acenapthene | < 0.001 | <0.004 | <0.001 | 0.001 | 20 | 1 | 0.00107 | 0.00207 | 0 | 0.0064 | 0.00107 | 0.00107 | | | | | 0.02 | 0 |
| Anthracene | < 0.001 | <0.001 | <0.001 | <0.001 | 14 | 1 | 0.00058 | . | . | . | 0.00058 | 0.00058 | | | | | | |
| Pyrene | < 0.001 | <0.001 | <0.001 | <0.001 | 10 | 1 | 0.00028 | . | . | . | 0.00028 | 0.00028 | | | | | | |
| Flouranthene | < 0.001 | <0.001 | <0.001 | <0.001 | 10 | 1 | 0.0003 | 0 | 0 | 0 | 0.0003 | 0.0003 | | | | | | |
| Isopropyl benzene | < 0.05 | 0.006 | <0.05 | <0.2 | 13 | 1 | 0.006 | 0.00707 | 0 | 0.09585 | 0.006 | 0.006 | | | | | 0.25 | 0 |
| Phenol | 0.20 | 3.60 | 1.1 | 0.017 | 100 | 8 | 0.98 | 0.20 | 0.58 | 1.37 | 0.20 | 3.60 | 0.4 | 0.27 | 9 | 13 | 1 | 4 |
| m & p Cresole | 0.13 | 2.2 | 0.68 | 0.09 | 100 | 8 | 0.65 | 0.16 | 0.34 | 0.96 | 0.13 | 2.20 | | | | | 0.2f | 11 |
| o-Cresol | 0.10 | 1.40 | 0.43 | 0.079 | 100 | 8 | 0.42 | 0.10 | 0.22 | 0.63 | 0.10 | 1.40 | | | | | 0.4 | 4 |
| 2,4-dimethylphenol | 0.051 | 0.77 | 0.22 | 0.13 | 100 | 8 | 0.20 | 0.07 | 0.07 | 0.33 | 0.05 | 0.77 | | | | | 0.4 | 2 |
| Pentachlorophenol | < 0.01 | <0.05 | <0.01 | <0.01 | 0 | 0 | | | | | | | 0.022 | 0.011 | Not detected | Not detected | | |
| TRH C6-C9 | 10.0 | 13.0 | 23 | 31 | 100 | 7 | 17.5 | 2.9 | 11.7 | 23.4 | 7.8 | 37.0 | | | | | | |
| TRH C10-C14 | 1.2 | 5.5 | 2.2 | <0.05 | 89 | 7 | 5.5 | 4.4 | 0.0 | 14.4 | 1.2 | 10.0 | | | | | | |
| TRH C15 -C28 | 0.4 | 2.0 | 1.3 | 0.6 | 100 | 7 | 7.4 | 8.3 | 0.0 | 24.2 | 0.4 | 22.0 | | | | | | |
| TRH C29-C36 | < 0.1 | 0.1 | 0.2 | <0.1 | 78 | 6 | 1.5 | 0.5 | 0.4 | 2.5 | 0.1 | 4.5 | | | | | | |
| 1,1,2-trichloroethane | < 0.05 | <0.003 | <0.05 | <0.2 | 10 | 0 | | | | | | | 1.9 | 0.14 | Not detected | Not detected | | |
| Oil, emulsifiabled | | | | | | | | | | | | 73.5 | | | | | 15 | 5 |
| Ammonia (as N) | 44 | 46 | 47 | 37 | 100 | 8 | 42.0 | 1.6 | 38.7 | 45.3 | 30.0 | 46.0 | 0.91 | 0.5 | 51 | 91 | | |

| Parameter | 2019 | 2020 | 2021 | 2022 | % detected | No. times detected | Mean | Standard error | Lower 95% confidence level | Upper 95% confidence level | Minimum detected (mg/l) | Maximum detected (mg/l | ANZECC 95% level (mg/l) | ANZECC 99% level (mg/l) | Dilution factor to ANZECC 95% | Dilution factor to ANZECC 99% | ANZECC seafood taint threshold (mg/l) | Dilution to ANZECC seafood taint threshold | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phosphate | 0.11 | 0.08 | <0.1 | | 60 | 3 | 0.1 | 0.4 | 0.0 | 1.0 | 0.1 | 0.1 | | | | | | | |
| Sulphide | | <0.5 | 1.8 | 0.8 | 89 | 6 | 1.2 | 2.1 | 0.0 | 5.3 | 0.0 | 2.5 | | | | | | | |
| Cyanide (total) | < 0.005 | <0.004 | <0.005 | <0.005 | 10 | 1 | 0.008 | 0.017 | 0.000 | 0.056 | 0.008 | 0.008 | 0.004 | 0.002 | 2 | 4 | | | |
| Total nitrogen as N | 45 | 46 | 47 | 38 | 100 | 8 | 313 | 95 | 123 | 502 | 34 | 2200 | | | | | | | |
| Biological Oxygen Demand | > 60 | 160 | >300 | 290 | 78 | 6 | 228 | 36 | 157 | 300 | 160 | 270 | | | | | | | |
| Calcium | 340 | 390 | 330 | 370 | 100 | 8 | 299 | 21 | 257 | 341 | 150 | 390 | | | | | | | |
| Iron | 6 | 0.032 | 3.9 | 4.8 | 100 | 8 | 4.7 | 0.5 | 3.7 | 5.7 | 0.0 | 9.2 | | | | | | | |
| Manganese | 0.17 | 0.19 | 0.17 | 0.21 | 100 | 8 | 0.19 | 0.06 | 0.07 | 0.32 | 0.17 | 0.24 | | | | | | | |
| Arsenic | < 0.001 | <0.0005 | <0.001 | <0.001 | 10 | 1 | 0.001 | 0.046 | 0.000 | 0.130 | 0.001 | 0.001 | | | | | | | |
| Cadmium | < 0.0002 | <0.0001 | <0.0002 | <0.0002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0055 | 0.0007 | Not detected | Not detected | | | |
| Chromiuma | < 0.001 | <0.0002 | <0.001 | 0.002 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0274b | 0.0077b | Not detected | Not detected | | | |
| Chromiuma | < 0.001 | <0.0002 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0044c | 0.00014c | Not detected | Not detected | | | |
| Cobalt | < 0.001 | 0.00014 | <0.001 | <0.001 | 11 | 1 | 0.00014 | 0.00000 | 0.00000 | 0.00000 | 0.00014 | 0.00014 | 0.001 | 0.000005 | 0 | 28 | | | |
| Copper | < 0.001 | <0.0002 | <0.001 | <0.001 | 10 | 1 | 0.014 | 0.000 | 0.000 | 0.000 | 0.014 | 0.014 | 0.0013 | 0.0003 | 11 | 47 | 1 | 0 | |
| Lead | < 0.001 | <0.0001 | <0.001 | <0.001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0044 | 0.0022 | Not detected | Not detected | | | |
| Mercury | < 0.0001 | <0.0002 | <0.0001 | <0.0001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0004 | 0.0001 | Not detected | Not detected | | | |
| Nickel | 0.003 | 0.0061 | 0.004 | 0.004 | 70 | 5 | 0.006 | 0.003 | 0.000 | 0.013 | 0.001 | 0.018 | 0.07 | 0.007 | 0 | 3 | | | |
| Selenium | 0.001 | <0.001 | <0.001 | <0.001 | 40 | 4 | 0.006 | 0.005 | 0.000 | 0.018 | 0.001 | 0.021 | | | | | | | |
| Silver | < 0.005 | <0.0001 | <0.005 | <0.005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0014 | 0.0008 | Not detected | Not detected | | | |

| Parameter | 2019 | 2020 | 2021 | 2022 | % detected | No. times detected | Mean | Standard error | Lower 95% confidence level | Upper 95% confidence level | Minimum detected (mg/l) | Maximum detected (mg/l | ANZECC 95% level (mg/l) | ANZECC 99% level (mg/l) | Dilution factor to ANZECC 95% | Dilution factor to ANZECC 99% | ANZECC seafood taint threshold (mg/l) | Dilution to ANZECC seafood taint threshold | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vanadium | < 0.005 | <0.0003 | <0.005 | <0.005 | 20 | 1 | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 | | 0.16 | 0.05 | 0 | 3 | | |
| Zinc | < 0.005 | 0.002 | <0.005 | <0.005 | 20 | 2 | 0.008 | 0.019 | 0.000 | 0.049 | 0.002 | 0.013 | | 0.015 | 0.007 | 1 | 2 | 5 | 0 |
| TOC | 160 | 160 | 170 | 150 | 100 | 8 | 176 | 41 | 93 | 259 | 130 | 370 | | | | | | | |
| Surfactants (methylene blue active substances) | < 0.2 | 1.3 | 0.6 | 1.4 | 56 | 3 | 0.67 | 0.38 | 0.00 | 1.52 | 0.20 | 1.30 | | | | | | | |
| 2-butanone (methyl ethyl ketone) | < 0.05 | | 0.27 | <1 | 25 | 1 | 0.05 | 0.06 | 0.00 | 0.21 | 0.05 | 0.05 | | | | | | | |
| 2-propanone (acetone) | < 0.05 | | 1.4 | <1 | 44 | 3 | 0.35 | 0.11 | 0.10 | 0.59 | 0.24 | 0.52 | | | | | | | |
| Bis-(2-ethylhexyl) phthalate | < 0.005 | <0.5 | <0.005 | <0.005 | 20 | 2 | 0.009 | 0.007 | 0.000 | 0.028 | 0.006 | 0.012 | | | | | | | |
| Methylene chloride | < 0.05 | <0.015 | <0.25 | <1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| Acetophenone | < 0.005 | <0.05 | <0.005 | <0.005 | 10 | 1 | 0.01 | . | . | . | 0.01 | 0.01 | | | | | 0.5 | 0 | |
| Methanol | < 0.5 | <1 | <0.5 | 14 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |
| Glycol | < 20 | 13 | 200 | 0 | 30 | 1 | 13 | . | . | . | 13 | 13 | | | | | | | |
| Maximum dilution to reach criteria | | | | | | | | | | | | | | | 51 | 91 | | 40 | |

a = Total chromium

b = Chromium III

c = Chromium IV

d = Taken to mean, TRH C6-C36

e = m&p Cresol

f= m-Cresol

g = p-Cresol

#### 6.9.2.3 Ecotoxicology

Currently, no ecotoxicological data specific to the PFW from MLB is available. In the absence of direct sampling results, the TNA platform discharge is considered a suitable analogue (as outlined in Section 6.9.2.2).

#### 6.9.2.4 Movement, dispersion and dilution

A calibrated three-dimensional dispersion model was developed by RPS APASA (2016) to simulate the behaviour of PFW discharge from the MLB platform under representative oceanographic conditions. The modelling integrated near-field (UM3) and far-field (MUDMAP) components to provide a comprehensive understanding of plume dynamics. Oceanographic inputs were sourced from HYCOM current predictions and HYDROMAP tidal data, and validated against field measurements from BTA, KFB and TNA platforms. The model showed strong alignment with observed current speeds, directions and tidal elevations, confirming accurate representation of hydrodynamic conditions.

UM3 simulated the initial jetting, rise and dilution of the plume post-discharge, while MUDMAP tracked its far-field dispersion over a representative annual period (January to December 2014). The plume initially descended before rising due to buoyancy, with its transport influenced by current strength. Under typical conditions, dispersion occurred in a predominantly east-northeast and west-southwest axis, driven by tidal oscillations. Dilution factors generally exceeded 1:1000 within 100 - 300m of the discharge point, with lower concentrations observed during weaker currents.

The model also accounted for potential accumulation under low-mixing scenarios, representing a conservative worst-case. Validation against rhodamine dye studies at TNA confirmed accuracy, with predicted dilutions within a factor of two of measured values. Assessment of nearby facilities indicated minimal potential for plume overlap, with only minor interaction predicted between Fortescue and Halibut. Overall, the model provides a robust and validated prediction of PFW dispersion under prevailing environmental conditions.

*MODEL SETUP AND CALIBRATION*

The modelling framework developed by RPS APASA (2016) was designed to simulate the mixing and dispersion of PFW discharges under representative annual oceanographic conditions. The model framework comprised three key components:

- **Oceanographic data integration:** A hybrid dataset was developed by combining HYCOM ocean current predictions with high-resolution tidal currents from RPS APASA. Tidal variability was modelled using RPSs HYDROMAP program, which incorporates astronomical forcing, bottom friction, and wind effects. The model employed nested gridding for spatial resolution and was validated against measured surface elevations at KFB, showing strong correlation with observed tidal cycles.
- **Near-field mixing modelling:** The UM3 (Visual Plume suite) was used to simulate initial plume behaviour, accounting for discharge characteristics, ambient salinity and temperature profiles, and static 3D currents. The model predicted plume trajectory, rise rate, and effective dilution, with outputs informing the far-field model setup.
- **Far-field dispersion modelling:** MUDMAP was applied to simulate plume transport and dilution over time, using UM3 outputs as initial conditions. The model treated the discharge as a conservative tracer and incorporated time-varying currents to assess potential accumulation and recirculation effects. Annual simulations captured tidal oscillations and slack current events, identifying worst-case exposure zones.

Model calibration involved comparison of predicted currents with measured data at multiple platforms (BTA, KFB and TNA), demonstrating strong consistency in speed and directionality. Validation of dilution predictions was achieved through in-situ dye tracing at TNA, with observed dilution factors aligning closely with modelled estimates.

Comparative studies showed similar dilution predictions across both models, with MUDMAP/UM3 providing slightly more conservative estimates. Overall, the integrated modelling system demonstrated robust performance in simulating discharge plume behaviour under dynamic oceanographic conditions.

*MODEL INPUTS*

The key input parameters for the MLB dispersion model are summarised in Table 6-48.

**Table 6-48 MLB dispersion model inputs**

| Parameter | Value |
|---|---|
| Discharge rate (kL/day) | 4800kL/day |
| Discharge temperature | 80°C |
| Discharge salinity | 34ppt |
| Outlet diameter | 0.25m |
| Outlet orientation | Vertically downward |
| Outlet depth below MSL | 11m |
| Water depth at site | 59m |

*MODEL OUTPUTS*

The model predicted rapid dilution of the PFW plume within the near-field zone. Table 6-49 summarises the dilution factors achieved at increasing distances from the platform.

**Table 6-49 predicted dilution factors with distance**

| Distance from platform (m) | Dilution factor (1:X) |
|---|---|
| 2.4 | 10 |
| 12 | 100 |
| 90 | 500 |
| 140 | 1000 |
| 260 | 4000 |

The modelled dilution was compared against relevant physical, chemical, and ecological thresholds. Table 6-50 summarises the distances at which key criteria are met.

**Table 6-50 Compliance with water quality and ecotoxicity data**

| Criterion | Required dilution (1:X) | Distance achieved |
|---|---|---|
| Physical parameters background levels | 6 | <2.4m |
| ANZECC 95% species protection (chemical) | 51 | <12m |
| ANZECC 99% species protection (chemical) | 91 | <12m |
| Hydrogen sulphide background levels | 56 | <12m |
| Total Organic Carbon (TOC) background levels | 370 | <90m |
| ANZECC seafood taint thresholds | 40 | <7.8m |
| 95% species protection (whole effluent toxicity) | 227 | <90m |

| Criterion | Required dilution (1:X) | Distance achieved |
|---|---|---|
| 99% species protection (whole effluent toxicity) | 952 | <140m |

*INTERPRETATION AND ENVIRONMENTAL SIGNIFICANCE*

The modelling demonstrates that the PFW discharge from MLB achieves rapid dilution within a short distance of the platform. All relevant physical, chemical, and ecotoxicological criteria are met within 140m of the discharge point, with most criteria met within 12m. These results indicate a low potential for adverse environmental impacts beyond the immediate vicinity of the platform.

The outputs provide a sound basis for assessing potential exposure zones and informing risk-based management of the discharge.

#### 6.9.2.5 Fate and transport of Marlin B PFW

Dispersion modelling for the MLB platform indicates that discharged PFW undergoes rapid mixing with the surrounding marine environment. Upon release, the jet initially sinks before rising due to buoyancy, stabilising at a depth where its density matches that of the receiving water. Transport is primarily governed by prevailing tidal and ocean currents.

Model results show the plume disperses along an east-northeast and west-southwest axis, consistent with tidal oscillations. Near-field dilution typically exceeds 1:1000 within 100 - 300m of the discharge point, with concentrations decreasing rapidly as the plume is advected and mixed. Stronger currents enhance dispersion and dilution, while temporary accumulation may occur under low-current conditions before being further dispersal.

Far-field modelling confirms the plume remains highly diluted and transient, with negligible potential for long-term accumulation. It is fully entrained within dynamic surface and mid-water currents of the Gippsland Basin, resulting in no measurable elevation of contaminant concentrations. Interaction with nearby discharge sources is minimal, with only minor overlap predicted between FTA and HLA facilities.

In summary, the modelling demonstrates that PFW discharged from MLB rapidly disperses and dilutes under prevailing hydrodynamic conditions, with low, short-lived concentrations confined to the near-field zone.

#### 6.9.2.6 Receptors at Marlin B platform

PFW discharged to the marine environment has the potential to result in the following impacts:

- change in water quality
- change in sediment quality.

As a result of a change in water quality or sediment quality, further impacts may occur, which include:

- injury to fauna
- change in habitat
- change to the function, interests or activities of other users.

### *6.9.3 Evaluation of impacts*

This section assumes an analogue for composition and ecotoxicology of the discharge is TNA PFW discharge, with dispersion occurring at MLB in accordance with the dispersion modelling results.

#### 6.9.3.1 Impacts to water quality

Impacts to ocean water quality from PFW discharges at MLB are expected to be highly localised and temporary, due to rapid weathering and dispersion in well-mixed oceanic waters, as demonstrated in Section 6.9.2.4. Upon discharge, PFW undergoes a series of physical and chemical transformations, including turbulent mixing, dilution, volatisation, adsorption, and biodegradation, that significantly reduce the concentration and toxicity of its constituents.

Dispersion modelling conducted by RPS APASA (2016) indicates that physical properties of seawater are re-established within 10m of the discharge point. The average temperature of the PFW plume returns to within 3 °C of ambient seawater due to turbulent mixing caused by the initial plunge and subsequent buoyant rise of the

effluent. Salinity levels are comparable to ambient seawater, and oxygen demand is not considered a concern (Neff, Lee, & DeBlois, 2011).

Chemical contaminants in PFW dilute rapidly during the initial plunge and more gradually through dispersion in the platform currents. At the point of discharge, concentrations exceed ANZECC 99% species protection criteria by:

- 16 times for hydrocarbons
- 47 times for metals
- 91 times for inorganics.

These concentrations reduce to 10 times within 2.4m and 50 times within 7.8m of the discharge point. Both ANZECC 95% and 99% species protection criteria are met within 12m, indicating rapid attenuation of ecotoxicological risk.

PFW is also discharged at up to:

- 56 times background hydrogen sulphide levels
- 370 times background TOC levels (see Table 6-48).

These constituents return to background concentrations within 90m of the discharge point, which defines the extent of the mixing zone for MLB platform. Within this zone, the potential for adverse effects on marine organisms is considered negligible.

Major ions such as sodium, calcium, magnesium, potassium, chloride, sulphate, bromide, and bicarbonate are present in PFW but are common in seawater and therefore not considered further (Pillard, Tietge, & Evan, 1996). NORM is not expected to occur in quantities that could result in significant environmental impacts and are therefore excluded from further discussion. Geological formations associated with the MLB and TNA platforms have no historical evidence of elevated radionuclide levels in produced fluids. Previous characterisation studies and operational monitoring have consistently shown that NORM is not a constituent of concern in Gippsland Basin PFW streams.

The TNA platform serves as a conservative analogue for chemical composition and ecotoxicity for MLB. Historical monitoring from TNA and other Bass Strait platforms has consistently shown NORM levels at or below background concentrations in PFW. Even if trace amounts of NORM were present, validated dispersion modelling demonstrates rapid dilution within 90m of the discharge point, reducing concentrations to background levels well within the 90m radius mixing zone. This indicates a negligible risk to the receiving environment. Should future monitoring or operational changes indicate potential NORM mobilisation or accumulation, the risk assessment and management measures will be reviewed and updated accordingly.

The discharge of PFW from MLB is predicted to have highly localised and temporary effects on water quality. Physical properties return to near-ambient conditions within 10m, chemical concentrations meet ANZECC 99% species protection criteria within 12m, and background levels for TOC and hydrogen sulphide are achieved within 90m. No significant impacts are anticipated beyond this zone. These findings align with ANZECC guidelines and demonstrate that impacts are limited, well understood, and managed under the approved monitoring framework.

#### 6.9.3.2 Impacts to sediment quality

Monitoring of sediments around the TNA and WKF platforms indicates that potential impacts from PFW are highly localised and minimal. Over 96% of particles in PFW are ≤63µm in size (silt/clay), the fraction most associated with contaminants, while larger particles are rare and generally inert. Field surveys found no exceedances of ANZECC (Simpson, Batley, & Chariton, 2013) interim sediment quality guideline values for PAHs and only isolated detections of metals above 'low' criteria within 120m of the platforms, with no sustained gradients beyond this range.

Observed anomalies, such as elevated zinc or lead, were infrequent, likely linked to platform structures rather than PFW discharge, and remained well below 'high' guideline thresholds. Bass Strait's high-energy environment and buoyant plume dynamics further limit sediment deposition, ensuring natural dispersion controls concentrations to near-background levels. Given MLB's similar discharge characteristics and shallower depth, sediment impacts from PFW discharge are predicted to be negligible and consistent with ANZECC guidelines.

TNA PFW contains some PAHs and metals/metalloids that could be chemicals of concern for marine sediments where ANZECC (2000) interim sediment quality guideline value exists. The precise chemicals of concern and their

concentrations in MLB PFW will be determined during commissioning and start-up of the MLB water handling system.

There is no physical interaction of the plume with the seabed, and hence no direct exposure of PFW constituents to sediment. However, there is a potential pathway for impacts through settling of constituents in the plume. Analysis of TNA PFW discharge found that 96.2% of particles are ≤63µm in size (clay or silt), which is typically considered the chemically active fraction associated with potential contaminants of concern (UNEP/WHO, 1996). Larger particles (>63µm), which may settle, are primarily stable inorganic materials and generally not associated with contaminants of concern.

Monitoring results for offshore facilities generally show that natural dispersion processes control concentrations of potential contaminants in sediments to slightly above background levels (Neff, Lee, & DeBlois, 2011). In-situ sediment monitoring at TNA confirmed no valid samples for PAHs or metals above ANZECC ISQG 'low' criteria (Simpson, Batley, & Chariton, 2013). Occurrences of metals/metalloids were isolated, remained low, and detections above reference locations were localised despite some gradients away from the platform.

While both TNA and MLB platforms are located in waters of equal depth (59m), the MLB outlet is positioned shallower in the water column (11m below MSL) compared to TNA (28.8m). MLB would also operate with a significantly lower PFW discharge rate (2450kL/day maximum design, current reinjection at 100kl/day)) than TNA (11,462kL/day), while maintaining identical discharge temperature, salinity, outlet diameter and orientation.

The shallower outlet depth at MLB may result in faster plume surfacing and enhanced vertical mixing, contributing to more rapid dilution of discharged constituents. However, shallower outlet depth does not inherently reduce precipitation rates or sediment contamination potential, instead, the buoyant nature of the PFW discharge, combined with rapid dilution and dispersion, limits the potential for contaminant settling and interaction with the seabed.

**Table 6-51 Comparison of PFW discharge parameters between TNA and MLB**

| Parameter | TNA platform | MLB platform |
|---|---|---|
| Discharge rate (kL/day) | 11,462 | 4800 (modelled rate-maximum design 2450kL/day |
| Discharge temperature (°C) | 80 | 80 |
| Discharge salinity (ppt) | 34 | 34 |
| Internal diameter of outlet (inch) [m] | 9.48 [0.25] | 9.84 [0.25] |
| Outlet orientation | Vertically downward | Vertically downward |
| Depth of outlet window below MSL (m) | 28.8 | 11 |
| Total water depth at site (m) | 59 | 59 |

Sediment impacts from MLB PFW discharge are predicted to be inconsequential. The plume does not physically interact with the seabed, and any potential for contaminant settling is limited to fine particles, which are largely controlled by natural dispersion processes. Evidence from TNA monitoring shows no exceedances of ANZECC sediment quality guidelines, and similar discharge characteristics at MLB support this conclusion. Consequently, impacts to sediment quality are expected to remain within acceptable limits, consistent with ANZECC guidelines.

#### 6.9.3.3 Impacts to biota

Potential impacts of PFW to biota have been assessed through Whole Effluent Toxicity (WET) testing, which was used to establish the extent of the mixing zone. Marine biota inside this zone may experience chronic exposure to contaminants in PFW, however, the zone is localised around the discharge point only.

Process chemicals are discharged in residual amounts if they partition into PFW and are not removed during treatment. WET testing was performed on samples containing chemical additives, making the results representative of routinely discharged PFW. A comprehensive study by Henderson et al. (1999) tested 11 commonly used process chemicals (including biocides, corrosion inhibitors and demulsifiers) for acute toxicity to marine bacterium, both in aqueous preparations and after partitioning between oil and water phases. The study concluded that toxicity of PFW was not significantly altered by the presence of most process chemicals at typical concentrations. A review by Schmeichel (2017) further notes that process chemicals contribute only marginally to the overall acute toxicity profile of PFW discharges.

Relevant to all receptor types are the TNA WET testing results, which serve as an analogue for MLB discharge:

- 95% species protection criteria are met within 90m of the discharge point, where water quality reflects ecosystems with only minor, measurable human influence and largely retained ecological integrity
- 99% species protection criteria are met within 140m, where water quality reflects an effectively unmodified, high conservation-value ecosystem (ANZECC, 2000, pp. 3.1-10)
- beyond 140m, contaminants continue to dilute to background seawater concentrations, at which levels they are not expected to have any impact to biota.

The biological impacts of MLB PFW discharge are predicted to be localised and negligible beyond the mixing zone. WET testing confirms that 95% species protection is achieved within 90m and 99% protection within 140m of the discharge point. Process chemicals present in PFW do not significantly alter toxicity, and residual concentrations are well within acceptable limits. Outside the mixing zone, contaminants reduce to background levels, ensuring ecosystem integrity is maintained. These findings align with ANZECC guidelines and demonstrate that impacts are well understood, limited in scale, and will be effectively managed under the approved monitoring framework if required to be implemented as per Section 8.13.8.

*IMPACTS TO BENTHIC COMMUNITIES AND HABITAT*

PFW discharge at MLB is expected to have minimal influence on benthic communities and habitats. Dispersion modelling confirms that the PFW plume is positively buoyant and remains in the upper water column, with no interaction with the seabed. Consequently, exposure pathways for benthic infauna are limited, and impacts are confirmed to a small radius around the platform (Cardno, 2019).

Chronic biological effects, such as altered growth, reproduction, or metamorphosis, may occur in encrusting organisms (e.g. sponges, bryozoans, crustaceans) attached to the platform structure within 140m of the discharge point. These effects are highly localised and do not extend to the seabed due to the plume's buoyancy (ANZECC, 2000; Cardno, 2019). Toxicity thresholds for species such as *Allorchestes compressa, Heliocidaris tuberculata*, and *Mytilus galloprovincialis* are only exceeded within a few metres of the discharge point, and dilution at MLB ensures concentrations fall below these thresholds within 2.4 to 7.8m (Cardno, 2019).

Sediment monitoring data from TNA, used as a conservative analogue for MLB, shows low and isolated occurrences of metals/metalloids, with concentrations mostly below guideline criteria and no significant biological effects (Cardno, 2019). In-situ studies around TNA and WKF found no significant difference in benthic infauna distributions, with observed changes attributed to natural sediment variability (e.g. particle size, moisture content, trace metals) rather than contaminant exposure (ANZECC, 2000). Even at WKF, which had the highest metal and PAH loading among Bass Strait platforms, impacts were confined to within 110m of the platform (Cardno, 2019).

PFW may affect benthic communities through two primary pathways:

- uptake of contaminants from the water column
- accumulation of hydrocarbons in sediments.

However, comprehensive assessment indicates that the potential for impact is minimal. Bioaccumulation risks are low, with PAHs and other hydrocarbons detected at trace levels, well below harmful thresholds (Neff, 2002). Compounds such as BTEX and hydrogen sulphide are not bioaccumulative (Neff, 2002; ANZECC, 2000). Tissue analyses from Neff et al. (2011) showed non-detectable or trace levels of monocyclic aromatic hydrocarbons and phenols, with PAH concentrations in molluscs and crustaceans well below guideline values. A broader study in the Gulf of Mexico found no correlation between proximity to discharge and contaminant levels on edible tissues of marine animals (Continental Shelf Associates, 1997).

Fouling species (e.g. algae, mussels, bryozoans) attached to platform structures may periodically be exposed to the PFW plume. Research indicates that these species can bioaccumulate PAHs, but not metals, phenols or BTEX

(Neff, Lee, & DeBlois, 2011). PAHs were detected at higher concentrations in bivalves than fish, due to difference in metabolic capacity. However rapid dilution of PFW (approximately 1,000:1 within minutes) significantly limits exposure time to aromatic hydrocarbons (OGP, 2002). Chronic toxicity (e.g. impaired germination or development) in fouling species would require continuous exposure for 48 - 72 hours, which is unlikely given the dynamic nature of the plume and oceanographic conditions (OGP, 2005). Sparse fouling communities on MLB structures further reduce the potential for trophic transfer to higher-order predators.

Impacts from direct exposure to PAHs in PFW on fauna such as scallops, crustaceans, and other molluscs within 140m of the discharge could pose chronic developmental or growth impacts, including reduced juvenile survival and smaller adult size. This was demonstrated in a study where scallops exposed to greater than 10% raw PFW effluent exhibited significant developmental effects (Querbach, et al., 2005). Similarly, hydrocarbon exposure has been shown to impair larval viability in abalone (Raimondi & Schmitt, 1992). However, such effects are highly unlikely to occur at the MLB platform, where effluent is diluted more than ten-fold within 2.4m of the discharge point. Additionally, the plume's positive buoyancy prevents contact with the seabed, meaning that only encrusting organisms on the platform structure itself are likely to be exposed, while benthic fauna on the seabed remain protected from direct exposure (Furuholt, 1996).

Studies have found that provided water depth is greater than the discharge depth, benthic organisms will not be affected by PFW, as the concentration of any oil or adhered/adsorbed components will be low (Furuholt, 1996). Studies that have reported changes to benthic distributions were in shallow, moderate-to-poorly flushed waters of 1 - 8m or continental shelf waters up to 12m (Osenberg, Shima, Miller, & Stier, 2011; Rabalais, McKee, Reed, & Means, 1992). It can be expected that in deeper, well-mixed ocean environments such as that at the MLB location, the potential for impacts to benthic infauna would be even lower.

Comprehensive assessment indicates that the potential for PFW discharge to impact benthic communities and habitats around the MLB platform is minimal. Chronic effects such as altered growth or reproduction may occur in encrusting organisms (e.g. sponges and crustaceans) within 140m of the discharge point, but these are highly localised and not expected to affect population-level dynamics. Sediment monitoring shows low and isolated metal concentrations, with no significant biological effects observed. Bioaccumulation risks are low, with PAHs and other hydrocarbons detected at trace levels, well below harmful thresholds, studies confirm that deeper, well-mixed waters like those at MLB significantly reduce exposure risks, an in-sit data from comparable platforms support the conclusion that benthic infauna distributions remain unaffected. Toxicity testing further demonstrates that effluent dilution at MLB effectively mitigates acute and chronic effects, limiting any potential impact to a small radius near the discharge point. Overall, the discharge is not expected to pose credible risks to benthic ecosystems.

*IMPACTS TO PLANKTON*

Planktonic communities may interact with PFW through three primary pathways:

- chemical toxicity
- nutrient enrichment
- thermal effects.

Plankton is generally most abundant in the upper layers of the water column (Volkman, Miller, Revill, & Connell, Oil Spills, 1994). Plankton floating through the PFW plume with the currents are exposed to OIW and TPH concentrations that may result in lethal and sub-lethal effects.

At MLB, this potential is  low, given the small size of the mixing zone, the fact that the discharge and the plume is largely confined to the mid-water column (where plankton is less abundant), the open ocean environment, and that currents are constantly moving through the region (current speed around MLB is predicted to range between 0.16 and 0.27m/s). Based on the lowest current speed (0.16m/s) and the size of the mixing zone (140m), individual plankton would be exposed to the plume for less than one minute. Such brief exposure to the PFW plume will therefore pose a negligible risk of acute or chronic toxicity impacts to plankton.

Ecotoxicological testing (WET) confirms that any toxic effects are restricted to the 140m mixing zone, where the discharge meets the 99% species protection level. Given plankton's high natural mortality and rapid turnover (UNEP, 1985), population-level impacts are not expected, and broader ecological functions are unlikely to be affected.

PFW nutrients, such as ammonia, could stimulate plankton growth under certain conditions (Neff, Lee, & DeBlois, 2011). However, significant water quality changes are considered low due to rapid dispersion in the dynamic environment surrounding the platform. Nitrate and phosphate concentrations in the discharge are low and typical

of produced waters, reducing the eutrophication risk. Historical data from Bass Strait Esso facilities support this, with no recorded phytoplankton blooms linked to PFW discharge.

Thermal modelling (RPS APASA, 2016) shows the plume temperature returns to within 3°C of ambient seawater within 10m of the discharge point, making effects negligible.

In this highly dispersive open ocean environment, the relative size of the potential impact area is insignificant compared to surrounding waters and any impacts to plankton at a population level are expected to result in inconsequential impacts to planktonic communities.

*IMPACTS TO FISH*

There are three primary pathways through which fish may be impacted by PFW discharges:

- direct exposure to the PFW plume
- exposure to contaminated sediments
- chemical and thermal ecotoxicity.

The PFW plume is dynamic, influenced by tides, currents, winds, and internal waves. Transient fish species are unlikely to experience prolonged exposure to elevated contaminant concentrations. The predicted interaction duration is intermittent and short (minutes at a time), and the spatial extent of water quality impacts is limited (140m radius to meet TOC background levels). As such, no significant impacts are expected for fish populations when assessed against the EPBC Act Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (DoE, 2013). These criteria include no long-term population decline, no fragmentation of populations, no adverse effects on critical habitat, and no disruption to breeding cycles.

Although the mixing zone overlaps with the distributional BIA for the white shark, the localised nature of the discharge and the species' transient behaviour mean that no impacts are expected. The discharge is not listed as a threat in the White Shark Recovery Plan and is not inconsistent with its objectives (DSEWPAC, 2013).

Adverse effects such as gill hyperplasia and pancreatic necrosis have been observed in fish exposed to sediment PAH concentrations above 22mg/kg (Hickle-Conn, Flleger, Gregg, & Carman, 1998).The highest PAH concentration recorded near the TNA discharge point was 0.004mg/kg, which is well below harmful thresholds (Cardno, 2019). Therefore, sediment toxicity impacts to demersal fish is not considered a credible risk.

Chronic toxicity testing of tropical species such as barramundi (*Lates calcarifer)* has shown adverse effects only at concentrations exceeding 50% raw effluent. However, this species is not representative of the cool-temperate offshore conditions of Bass Strait. More ecologically relevant studies have been conducted on Atlantic cos (*Gadus morhua*), a cold-water pelagic species with similar habitat preferences to those found in southern Australian waters. Laboratory studies by Meier et al. (2010) and Hansen et al. (2019) exposed early-life stage Atlantic cod to PFW concentrations up to 1%. These studies observed jaw deformities, disrupted pigmentation, reduced feeding success, and cardiotoxicity (e.g. reduced heart rates and craniofacial abnormalities). However, these effects were only evident under prolonged exposure durations (up to 96 hours), which are not representative of field conditions in Bass Strait. In offshore discharge scenarios, PFW is diluted more than ten-fold within 2.4m of the discharge point, making such concentrations unlikely to persist beyond the immediate mixing zone.

BTEX compounds, although known to be toxic to fish eggs and larvae, are highly volatile, do not bioaccumulate, and are rapidly excreted (Fucik, Carr, & Balcom, 1995). Many temperate fish species can metabolise hydrocarbons, further reducing the risk of bioaccumulation (NRDA, 2012). The dilution ratio required to meet the ANZECC 99% species protection criteria for benzene is 12, and this is typically achieved within the near-field zone of offshore discharges, indicating that BTEX is not expected to pose a toxicological risk.

Thermal modelling indicates that the average temperature of the PFW plume returns to within 3°C of ambient conditions within 10m of the discharge point (RPS APASA, 2016). Given the transient nature of fish movement and the absence of habitat features that would attract site-attached species, fish are not expected to remain within the discharge plume for extended periods. Thermal effects are therefore not considered credible.

Later-life pelagic species common to Bass Strait are highly mobile and unlikely to be exposed to contaminant concentrations that would result in chronic effects. These species also exhibit strong avoidance behaviour to substances such as hydrogen sulphide, further reducing the likelihood of exposure (USEPA, 1986). In contrast, early life-stage fish (embryos and larvae) are more susceptible due to their limited mobility. Within the 140m zone, where 99% species protection criteria are met, potential effects may range from none (Mathieu, et al., 2011) to minor, such as gill damage (turbot larvae, (Brown, Stephens, & Stagg, 1999) or hormonal disruption (cod, (Meier,

et al., 2002), but only under conditions of high exposure or in the presence of additional stressors (Hamoutene, et al., 2011; Burridge, Boudreau, Lyons, Courtenay, & Lee, 2011). Fish larvae entrained in the PFW discharge plume are expected to experience only brief exposure due to their buoyancy and the dynamic nature of the plume (Querbach, et al., 2005). Beyond the 140m mixing zone, no effects are anticipated.

Gagnon (2011) emphasised that PFW loading (concentration x volume) is a more relevant metric than concentration alone when assessing environmental risk. Therefore, reinforcing the conclusion that, under typical offshore discharge conditions in Bass Strait, chronic toxicity impacts to fish are not expected to occur.

Given the dynamic nature of the PFW plume, the limited spatial extent of water quality impacts, and the transient behaviour of key species such as the white shark, the effects to fish are inconsequential. Direct exposure to contaminants, including PAHs, BTEX and thermal effects, is unlikely to exceed thresholds of concern due to rapid dilution and low contaminant concentrations. Early life-stage fish within the immediate vicinity of the outfall may experience brief exposure, but this is not expected to result in population-level effects. The discharge activity does not conflict with the White Shark Recovery Plan (DSEWPAC, 2013) and is consistent with the EPBC Act Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (DoE, 2013). Overall, the discharge is not expected to result in a significant impact on fish populations, habitats, or critical ecological processes.

*IMPACTS TO SEALS*

There are four potential pathways for impacts to seals from the discharge of PFW, these being:

- direct exposure to toxic constituents if seals are present within the plume for extended periods
- inhalation of hydrocarbon vapours from surface sheens
- physical irritation effects from contact with hydrocarbons in the water
- bioaccumulation through ingestion of contaminated prey.

PFW plumes typically consist of dissolved contaminants and rarely form a visible surface layer. The lowest observable level, a silvery sheen (as defined by the Bonn agreement), may occasionally occur. It is infrequent and patchy due to the dynamic nature of the plume and rapid mixing processes. Given that PFW discharges consist of dissolved hydrocarbons that are rapidly diluted and do not form persistent slicks, contact-based exposure pathways (fur contact or ingestion) are not credible. Unlike crude oil slicks, which can coat fur and mucous membranes leading to hypothermia or sensory impairment, PFW discharges do not result in oil coating at the sea surface.

Seals are highly mobile, spending limited time in water and foraging across wide areas and depths (Arnould J. P., et al., 2015). Their behaviour significantly reduces the likelihood of prolonged exposure to the plume. Seals are physiologically adapted to metabolise and excrete petroleum hydrocarbons. Experimental studies show that pinnipeds rapidly metabolise PAHs, with only low concentrations detected in tissues of oiled seals (Stimmelmayr, et al., 2018). While lipid-rich tissues such as blubber may temporarily store PAHs, transfer to pups via milk has been shown to be minimal (Frost & Lowry, 1994). Earlier toxicological work demonstrated that pinnipeds possess enzyme systems capable of metabolizing and excreting hydrocarbons (Engelhardt, 1982; Addison & Brodie, 1984; Addison, Brodie, Edwards, & Sadler, 1986).

Bioaccumulation through prey ingestion is also unlikely. The principal diet of fur seals consists of fish and cephalopods, which are not prone to significant accumulation of petroleum hydrocarbons compared to bivalves or suspension feeders. Importantly, no evidence of deleterious bioaccumulation of petroleum hydrocarbons in seals has been documented (Geraci & St. Aubin, 1988; Stimmelmayr, et al., 2018). Observations of seals under and around platforms without signs of avoidance further support that hydrocarbon vapours or sheens are not present at levels causing discomfort or injury. Taken together, these findings confirm that contact-based exposure pathways (fur contact or ingestion) are not credible for seals in relation to PFW discharges.

Australian and New Zealand fur seals occur around the platforms, but no breeding occurs within the MLB OA, and it is not identified as critical habitat or a seal BIA. The Australian fur seal is listed as 'Least Concern' by the IUCN, with a growing population (Hofmeyr, 2015). There are no relevant Conservation Advice or Threat Abatement Plans for Australian fur seals or New Zealand fur seals.

Based on the dynamic nature of the PFW plume and the behavioural ecology of seals, significant impacts are not expected. The plume is subject to constant movement due to tides, currents, and internal waves, while seals are highly mobile.

Indirect impacts, such as changes in prey (fish) availability or bioaccumulation, are considered negligible due to the localised and low-intensity nature of the discharge. No breeding occurs within the OA, and the discharge does not affect critical habitat. Therefore, when assessed against the Significant Impact Guidelines 1.1. (DoE, 2013), the discharge is not expected to result in:

- long-term population decline
- fragmentation of populations
- adverse effects on critical habitat
- disruption of breeding cycles
- reduction in habitat quality or availability
- interference with species recovery.

Consequently, the discharge of PFW from MLB is expected to have no adverse effects on seals (at an individual or population level).

*IMPACTS TO CETACEANS*

There are four potential pathways for impacts to cetaceans from the discharge of PFW:

- direct exposure to toxic constituents if cetaceans are present within the plume for extended periods
- inhalation of hydrocarbon vapours from surface sheens
- physical irritation from contact with hydrocarbons in the water
- bioaccumulation through the ingestion of contaminated prey.

Cetaceans are highly mobile and transitory, making prolonged exposure to the PFW plume unlikely. Additionally, many marine mammals possess liver enzymes capable of metabolising hydrocarbons into polar derivatives, which are excreted efficiently (Ball & Truskewycz, 2013).

Inhalation of hydrocarbon vapours may cause lung congestion (Geraci & St. Aubin, 1990) or mucous membranes irritation (Helm, et al., 2015). However, PFW plumes rarely produce silvery sheens (the lowest level under the Bonn agreement), resulting in low vapour concentrations. Given cetaceans' transient surfacing behaviour, this pathway is not considered significant.

Physical contact with hydrocarbons could lead to eye irritation (Geraci & St. Aubin, 1990). However, due to their mobility and brief presence in a PFW mixing zone, cetaceans are unlikely to experience chronic effects.

Bioaccumulation through ingestion is also improbable. Impacts to primary food sources (e.g. plankton and fish) are minimal (see Section 6.9.3.3), and the mixing zone does not represent a significant portion of cetacean feeding grounds.

The mixing zone overlaps with the foraging BIA for the blue whale and the distribution BIA for the SRW. However, due to the localised nature of the discharge and the transient presence of whales, no impacts to whale foraging or migrating are expected to result from the PFW discharge. The discharge is not listed as a threat in the Conservation Management Plans of either species (Department of the Environment, 2015; DCCEEW, 2024) and is not inconsistent with those plans.

The dynamic nature of the PFW plume, driven by tides, currents, winds and internal waves, combined with the mobility of cetaceans, significantly reduces the likelihood of prolonged exposure. Indirect impacts, such as changes in prey abundance or ingestion of bioaccumulated compounds, are considered negligible due to the limited spatial extent of the discharge and its low ecological intensity.

The 140m-radius mixing zone is small, and cetacean interaction with the plume is brief (minutes at a time). No critical habitat is affected, and the discharge does not disrupt breeding cycles or population dynamics. When assessed against the EPBC Act Matters of National Environmental Significance – Significant impact guidelines 1.1. (DoE, 2013), the discharge will not result in:

- long-term population decline
- fragmentation of populations
- adverse effects on habitat critical to survival
- disruption of breeding cycles
- reduction in habitat quality or availability
- interference with species recovery.

Therefore, the discharge of PFW from the MLB platform is expected to have an inconsequential impact on cetaceans.

#### 6.9.3.4 Impacts to fisheries – Commercial and recreational

There are three potential pathways for impacts to fisheries from the discharge of PFW:

- tainting of catch due to hydrocarbon accumulation in fish tissue
- impacts to human health through consumption of contaminated seafood
- reduction in fisheries stocks due to direct effects on target species and nurseries.

Based on dispersion modelling undertaken by RPS APASA (2016), the ANZECC seafood taint criteria of MLB PFW (using TNA composition as an analogue) are expected to not be exceeded more than 7.8m from the discharge point. The affected area is approximately 191m$^2$ (1/50$^{th}$ of a hectare), representing a negligible portion of the total fisheries area.

Commercial fishers are not permitted to enter the PSZ, and MLB is located too far offshore for most recreational fishing (but they are also excluded from entering the PSZ). The exclusion of fishing within the PSZ, combined with the small mixing zone for seafood taint criteria, and the fact that fish caught commercially or recreationally that may pass through the plume would so do fleetingly, means the PFW discharge will have an inconsequential impact to fisheries and will not cause fish taint. As such, there is no credible pathway for human exposure through seafood consumption.

Some individual fish and invertebrates (e.g. squid, rock lobster, crabs, scallops, abalone) may be exposed to chronic sub-lethal effects within the 140m mixing zone. However, due to the limited spatial extent and depth of exposure, population-level impacts are considered highly unlikely. Offshore structures may even enhance fish stocks by providing hard substrate and protection from fishing.

No complaints have been raised with Esso by fishers regarding taint, food safety or stock reduction.

Therefore, the discharge of PFW at MLB, if it does occur, will have inconsequential effects on commercial and recreational fisheries.

#### 6.9.3.5 Impacts to other receptors

*AUSTRALIAN MARINE PARKS, NATIONAL PARKS AND RESERVES*

The nearest AMP is located 88.4km southwest of the ADE, well beyond the spatial extent of the PFW plume. This separation ensures that discharges do not interact with these protected areas, either directly or indirectly. Given the distance of AMPs from the PFW mixing zone, impacts to these receptors are not considered credible.

*KEY ECOLOGICAL FEATURES*

***UPWELLING EAST OF EDEN***

The ADE has a 1.56% overlap with the Upwelling East of Eden KEF.

The PFW mixing zone is highly localised (140m radius) and represents a negligible fraction of the KEF's overall extent. The rapid dilution and dispersion of hydrocarbons within the mixing zone ensures that PFW discharges will not alter the listed values of the KEF, these being high primary productively due to nutrient enrichment events created by the upwelling.

***THE BASS CASCADE***

Due to the highly localised nature of the PFW mixing zone, PFW discharges are not expected to interact with the Bass Cascade KEF, and impacts to its ecological values are not considered credible. The negligible spatial footprint of the mixing zone ensure that the discharge will not compromise the ecological processes of the KEF.

***SHELF ROCKY REEFS AND HARD SUBSTRATES (SOUTH-EAST MARINE REGION), INCLUDING THE SOUTH EAST REEF***

The same assessment applied to benthic habitats and communities is relevant to this KEF. While mapping indicates the presence of the South-East Reef beneath MLB, this does not coincide with increased biotic abundance. Consequently, any potential impacts to biota from PFW discharges are expected to be negligible and will not affect the ecological integrity of the South-East Reef.

#### 6.9.3.6 Cumulative impacts from multiple discharges

Other continuous discharges from the same platform are limited to discharges from pile subsea windows. These discharge at 16.9m (ODSP) and 16.9m (CDSP) below sea level (Table 2-18), deeper than the PFW effluent pipe, which is 11m below sea level. Piles are expected to be exchanging predominantly sea water, hence any discharge from the piles will be close to neutrally buoyant at the subsea window. Discharges of water containing chemicals or dissolved hydrocarbons from the pile will be intermittent or infrequent, and of small volumes that will disperse rapidly in the open ocean currents within the OA. It is therefore expected that any exposure will be limited in duration.

Dispersion modelling for MLB PFW shows the maximum plunge depth from the discharge point under all current speeds is to 12.5m below sea level, hence any cumulative impacts from the interaction with the produced water effluent plume within the mixing zone is considered unlikely.

Other non-continuous discharges (such as desalination brine, sewage and grey water, putrescible waste, liquid discharges from vessel operations, and wellwork discharges) could overlap with the PFW plume but such discharges are of short duration and hence will interact with the PFW plume for only short periods of time, meaning any cumulative impacts are unlikely to occur.

Any suspended solids in the pile contents will settle out within the pile, or if finer and suspended in the pile, then they will gradually settle out at far distances from the platform as they are carried by the current and result in no noticeable impacts to sediments. Hence any cumulative impact of the pile discharges to sediment is considered highly unlikely.

Historical activities such as discharging muds and cuttings during drilling may have resulted in changes to the seabed sediment chemical characterisation above background levels. This includes the discharge of water-based muds and barite containing barium, an inert metal; and the discharge of cuttings from natural rock formations encountered during drilling, together with small amounts of residual drilling muds on cuttings. Any changes to sediment quality from historical impacts from background will be considered as part of the surrender of title process. The Turrum drilling program at MLB is currently being undertaken and is due to be completed during 2026, however as there is no current PFW discharge, any discharged fluids or solids from the drilling program is expected to have at least partially been dispersed or bioremediated by the time any PFW discharge occurs at MLB (if at all). There is not expected to be a significant cumulative impact to sediment quality from the additive effect of discharging PFW to sediments containing higher levels of barium or residual drilling mud constituents.

Given the varying buoyancy of the plumes, the mobile nature of marine mammals and the tendency of fish to avoid plumes, cumulative impacts on marine fauna are unlikely.

As fishing is not carried out within 500m of the platform, which is beyond the mixing zone of 140m no cumulative impacts from multiple discharges is likely on commercial and recreational fishing.

Given the distance to other sensitive receptors, cumulative impacts to water quality and marine fauna from multiple discharges are highly unlikely.

#### 6.9.3.7 Marlin B consequence evaluation

Impacts from MLB PFW discharge are confined to a highly localised mixing zone extending up to 140m from the discharge point. Within this zone, changes to water quality and potential effects on marine biota are considered minor, consistent with the outcomes of validated dispersion modelling and ecotoxicological assessment. Outside the mixing zone, where all relevant water quality criteria are met, impacts are considered inconsequential and not significant under Significant Impact Guidelines (DoE, 2013). Sediment interaction is negligible, with no predicted exceedances of ANZECC sediment quality guidelines, further supporting the conclusion that environmental risks remain within acceptable limits.

Effects could be ongoing, including through bioaccumulation of PAHs and persistent chemicals, but effects are confined to some biota on the platform structure itself (e.g. crustaceans) at low and safe concentrations. Within the mixing zone, there could be sub-lethal, direct or indirect effects on organisms, but this would likely only apply to non-mobile receptors, such as fish embryos/juveniles, and would not apply at a population level.

The consequence level is therefore assessed as Consequence Level III (minor).

### *6.9.4 Water handling system – Marlin B platform*

Monitoring and management of the water handling process system and the OIW monitoring system consists of operations and maintenance actions and surveillance and optimisation actions. Both these management controls act in concert in order to ensure the OIW is kept at low if it is discharged overboard.

#### 6.9.4.1 Water handling system - Operations and maintenance

Operations procedures outline how to establish control of the process on the platform, start-up the water handling system, and troubleshoot the system. These procedures will be reviewed (and revised as necessary) as part of the preparations for starting the MLB water handling system. For example:

- water handling startup procedure (MLB-100-301) details how to perform a hot or cold restart. In order to ensure that discharge of water on start-up is controlled (CM10d), implementation of the procedure requires:
    - correct valve line-up/operation, auto controller function and separator levels/flow, ratios across hydrocyclones
    - implementation of troubleshooting guides as required (i.e. poor water quality at separator or poor water quality post-separator).
- MLB-100-301 includes troubleshooting advice to ensure that secondary separation equipment for managing PFW are operating optimally. This could include troubleshooting of internal blockages, wear or deterioration and general operating principles (i.e. start up, normal operation and shutdown, start up after normal shutdown, and shutdown for vessel inspection)
- *Water Handling Matrix and Bypass Controls* (GEN-100-201) procedure is used in conjunction with the *System Monitoring, Recording and Reporting* (GEN-100-102) work aid to ensure OIW levels of the discharge stream are monitored and are below the 30mg/L 24-hour average (CM10a). Implementation of the procedure requires:
    - backup protective devices must be in operation should a piece of equipment be bypassed or isolated. In particular, if the online OIW monitor is down for maintenance, low flow, spurious, or out of service, then an hourly Spec 21 must be conducted.

Maintenance is performed to keep the system working properly. For example:

- *Hydrocyclone Liner Tube Removal and Cleaning work aid* (OFS MP MLB 100) details the cleaning and inspection of platform Vortoils (hydrocyclones), including removal and replacement of liners, gaskets, o-rings, inspection for wall thickness and cleaning of vessel internals.

#### 6.9.4.2 Oil in water monitoring - Operations and maintenance

Instantaneous monitoring of OIW is available on the platform and a comparison of platform results with the Longford laboratory takes place on a regular basis to cross-check the platform's online monitor. For example:

- *System Monitoring, Recording and Reporting* (GEN-100-102) work aid is implemented:
    - primarily to ensure that OIW levels of the discharge stream is continuously monitored and maintained at concentrations below 30 mg/L 24-hour average (CM10a). Implementation of the procedure requires: sigrist alarms to be set correctly and daily reporting of OIW sampling results
    - secondly, to ensure the 24-hour average of online monitor is verified via the requirement that a Spec reading using an infrared Spectrophotometer (Infracal unit) be taken every six hours
    - thirdly, to ensure that the online monitor is calibrated (CM10b). This requires that a verification sample be sent to the shore laboratory every month for cross-check.
- *Oil In Water Monitor Cleaning and Lamp Replacement* (GEN-100-503) procedure details Sigrist shutdown, start up and general troubleshooting, Sigrist cleaning (including cleaning of the degasser pot and sample conditioning pot as well as lenses and air eductor) and spectrophotometer lamp replacement
- *Determination of Oil In Formation Water* (GEN-100-701) procedure details correct methodology to accurately determine oil in formation water to ensure that the online monitor is calibrated (CM10b). This requires:
- execution of the correct sample and extraction method including:
- extraction with the use of acid and Horiba via a solvent extraction method
- recycling of contaminated Horiba Solvent S-316 in order to purify it for reuse

- testing and calibration of the InfraCal spectrophotometer unit.

Maintenance and calibration is performed on the online OIW monitoring unit, and alarms are functional in order to initiate water handling shutdown if required based on the OIW monitor.

- Oil In Water Monitor Service procedure (OFS MP ALL 512) is implemented to ensure the online monitor accuracy is maintained through servicing (CM10c). Implementation of this procedure requires:
    - checking the accuracy and maintaining the condition of OIW monitor
    - cleaning of lenses, use of a calibration rod to system-calibrate the online OIW monitor, air dryer maintenance, electrical maintenance, UV lamp replacement, testing the oscillating mirror in SIPRO units and troubleshooting common problems
    - critical function testing tests ensures the alarm and shutdown functionality at the online OIW monitor are working. For the system to be considered functional
    - the water handling system to shut down after 30 minutes where online OIW monitor readings exceed 50mg/L and 15 seconds where readings exceed 100mg/L, and water is either directed to the onshore pipeline, or the platform is shut down.

#### 6.9.4.3 Monitoring and management framework

Esso has developed a comprehensive monitoring and management framework to support the oversight of PFW discharges from offshore assets.

Environmental values are defined as "*particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, welfare, safety or health and which require protection from the effects of pollution, waste discharges and deposits*" (ANZECC, 2000). The relevant environmental values considered in this assessment include:

- Aquatic ecosystem integrity – Encompassing ecosystem processes (e.g. primary production, trophic interactions) and the quality of water, biota and sediment
- Cultural and spiritual values – Including the protection of commercial and recreational fisheries.

To maintain ecosystem integrity, three key elements have been identified:

- water quality
- sediment quality
- biological indicators (biota).

Monitoring is designed to detect changes in these elements, with indicators selected for each. Monitoring includes:

- routine assessment of water and sediment quality at representative facilities
- WET testing to evaluate potential toxicity
- implementation of management measures to ensure changes remain within acceptable limits.

The indicators used to assess potential impacts include:

- physio-chemical stressors
- toxicants in water
- biological indicators
- toxicants in sediment.

Trigger values have been established for each indicator and are monitored to provide early warning of potential exceedances. These values are designed to ensure that discharges remain within acceptable limits both within and beyond the designated mixing zone. Acceptable limits of change from PFW discharge include:

- no significant impacts to MNES, as defined by the *Significant Impact Guidelines* (DoE, 2013)
- no direct impact to benthic habitats
- no tainting of fisheries stock
- no seafood rendered unsafe for human consumption
- no interference with commercial fishing operations.

If PFW discharge resumes at MLB, monitoring will take place within six months of first discharge overboard to determine whether these limits are exceeded and then every two years. The approved mixing zone is designed to protect 99% of marine species, based on the statistical distribution methodology developed by Warne et al (2018),

using sub-lethal chronic toxicity endpoints. This level of protection is consistent with ANZECC (2000) guidelines and represents no detectable deviation from natural variation.

The following aspects will be assessed if PFW is being discharged overboard:

- discharge regime including volume and flow rate
- PFW composition - physical and chemical characteristics, chemical additives, constituents of potential concern, and ecotoxicological profile
- potentially impacted area and receptors including dispersion modelling and in-situ research findings
- potential impacts within the mixing zone, including:
    - proximity and sensitivity of environmental receptors (exposure assessment)
    - likely and cumulative impacts to receptors
    - fate and transport of PFW and associated impact pathways
    - whole effluent composition and ecotoxicology.

### *6.9.5 Impact assessment*

Table 6-52 presents the impact assessment for the discharge of PFW from MLB.

**Table 6-52 Impact assessment for PFW discharges from MLB**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Impact Consequence (inherent)** | | | |
| Consequence Level IV | | | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt** |
| The hierarchy of controls is applied to PFW discharge in the following order:<br>• re-injection of PFW<br>• transferred to Longford via the pipeline<br>• overboard discharge. | Ensures PFW overboard discharge to the marine environment is limited. | All facilities currently either re-inject or send PFW via the pipeline so this is standard operations. Overboard discharge is a contingency only for MLB. | Adopted<br>**(IMP09-CM01)** |
| Prior to first initiation of overboard discharge, pre-defined checks of the PFW handling system are conducted to ensure its functionality. | Ensures OIW limits are met so as to reduce the impacts on marine receptors. | All PFW discharge start-up processes in place are part of routine operations process for ensuring PFW can be discharged. | Adopted<br>**(IMP09-CM02)** |

| | | | |
|---|---|---|---|
| The PFW handling system is operated by trained and competent personnel. | Ensures effective operation and reduces risk of out-of-specification PFW discharges. | Operation of the water handling system by trained and competent personnel is a practical and readily implemented control that supports effective environmental risk management. Operators gain competency through the completion of the Offshore Operations Technicians 1 training unit, which provides a structured understanding of the systems and their associated environmental risk. This control is already integrated into existing training frameworks, and ensures personnel are equipped to identify and respond to abnormal conditions that could lead to unplanned discharges.<br><br>The training program is aligned with the operational requirements and is tracked through internal competency management systems, providing assurance that only qualified personnel operate the PFW system. | Adopted<br>**(IMP09-CM03)** |
| The online OIW analyser is calibrated via 6 hourly InfraCal measurements in field and cross-checked against monthly manual sampling in accordance with the *System Monitoring, Recording and Reporting* (GEN-100-102) work aid. | Ensures no OIW discharge greater than 30mg/L over any 24-hour period. | Maintenance and inspection of the PFW system, including Sigrist online monitor and alarms, is planned and executed in accordance with the CMMS schedule and FIMS equipment strategies to ensure ongoing equipment reliability and environmental performance.<br><br>The current approach to PFW system maintenance and inspection is considered effective and feasible in managing environmental risks. | Adopted<br>**(IMP09-CM04)** |
| Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any chemicals planned to be discharged via the water handling system. | Ensures that only substances with low environmental toxicity are used in the PFW process, thereby minimising impacts to marine receptors. | The environmental risk associated with the discharge of PFW is effectively managed through the implementation of a robust chemical selection process based on the OCNS. This scheme is widely recognised and adopted across the offshore industry, with chemical suppliers well-versed in its requirements. At the platforms, chemicals are selected and assessed in accordance with this process, ensuring that only substances with acceptable environmental profiles are used. This proactive approach significantly reduces the environmental impact of planned discharges and represents an industry-standard, effective means of managing chemical risks without the | Adopted<br>**(IMP09-CM05)** |

| | | | |
|---|---|---|---|
| | | need for impractical additional treatment measures. | |
| OIW concentrations in the overboard discharge stream are monitored in accordance with the *System Monitoring, Recording and Reporting* (GEN-100-102) work aid.<br><br>Where online monitoring is unavailable, manual sampling is conducted to verify compliance. | Minimises impacts to marine receptors and ensures compliance with international best practice and legacy Australian regulation. | The 30mg/L OIW threshold aligns with international best practice and legacy Australian regulation under the former Environment Regulations 29 and 29A and remains consistent with global benchmarks such as the International Finance Corporation Environment Health and Safety Guidelines (2015), which allow up to 42mg/L OIW daily maximum. The produced water handling equipment on MLB (installed in 2011) was designed to meet the30mg/L standard, and retrofitting new treatment systems to achieve tighter limits is constrained by available space and high capital investment requirements.<br><br>Given these constraints and the diminishing returns associated with further reductions, additional tightening of discharge limits is not considered practicable. | Adopted<br><br>**(IMP09-CM06)** |
| Monthly OIW performance trends are monitored. | Minimises the likelihood of OIW discharge greater than 30mg/L being discharged over any 24-hour period. | Offshore technical monitoring report documents monthly water handling performance trends and actions taken to address abnormalities. This is standard practice for facilities discharging PFW overboard. | Adopted<br><br>**(IMP09-CM07)** |
| The PFW Adaptive Monitoring and Management Framework is implemented at MLB, which involves the following once discharge occurs. | Confirms stability of PFW composition and toxicity while maintaining proportionate, risk-based oversight. | As part of the PFW Adaptive Monitoring and Management Framework, the frequency of routine WET testing is conducted on a three yearly basis.<br><br>The composition of PFW has been shown to be relatively stable over time, supported by multiple years of analytical chemistry data and prior WET testing (2014, 2020 at CBA, HLA, SNA, TNA and WKF and 2023 at CBA, HLA and WKF, as TNA and SNA were not available for testing). According to ANZECC (2000) Section 8.3.6.8, periodic or one-off WET testing may be appropriate where the discharge and receiving environment are well understood.<br><br>WET testing is resource-intensive, involving high volumes of sample handling, offshore logistics, and the frequent use and death of test | Adopted<br><br>**(IMP09-CM08)** |

| | | | |
|---|---|---|---|
| | | organisms, for a relatively low environmental return. More frequent testing would not significantly enhance environmental protection, given the proven consistency of PFW composition and toxicity, and the availability of theoretical toxicity calculations and routine chemical surveillance.<br><br>Additionally, non-routine WET testing may be triggered by the Adaptive Monitoring and Management Framework when it is warranted by a change in discharge or uncertainty in toxicity. Therefore, routine three yearly WET testing remains an appropriate, risk-based and proportionate approach. | |
| Sediment and water sampling is designed and executed in accordance with ANZECC/ANZ guidelines and completed within two years of the start of overboard PFW discharge at MLB and every two years while discharge occurs. | Provides empirical verification of seabed and water quality to determine the impacts from PFW discharges. | An approach of using multiple lines of evidence has been applied to assess the potential environmental impacts of PFW discharge across Bass Strait platforms. Historic and recent monitoring efforts, including sediment and water quality sampling (e.g. 2018 studies at TNA and WKF and 2024 at MLB), dispersion modelling, and WET testing have consistently shown a low likelihood of significant adverse environmental impact where discharges are managed through prior treatment.<br><br>Given logistical feasibility, access to the site, and precedents for similar sampling, sediment and water sampling at MLB is technically feasible. The additional environmental insight it offers justifies its implementation as a verification tool to confirm that impacts from PFW discharges are indeed minor. | Adopted<br><br>**(IMP09-CM09)** |
| Reinjection of PFW to the reservoir. | Eliminates offshore disposal, and thus impacts to marine receptors, by returning water to subsurface formations. | This method has proved effective and is being used at BTA, MLA/MLB, SNA and WTN. | Adopted for all producing platforms, except TNA (transported onshore). **(IMP09-CM01)** |
| Disposal of PFW onshore via pipelines. | Eliminates offshore discharges by diverting PFW to onshore treatment facilities, | Although associated with technical challenges (corrosion, operability issues, heating requirements, and downstream capacity constraints), these have been effectively managed | Possible only for TNA, BTA and SNA.<br><br>Only used for TNA.<br><br>**(IMP09-CM01)** |

| | | | |
|---|---|---|---|
| | reducing direct marine impacts. | through enhanced corrosion control, operational procedures, and adaptive management strategies.<br>This approach is feasible where infrastructure exists and is supported by the established processes at Longford.<br>Currently the gas line is not suitable for use from MLB to Longford as the amount of glycol required to prevent hydrates in the gas pipeline is too great to be sustainable. | |
| Storage and re-treatment of off-specification PFW prior to overboard discharge. | Avoids occasional off-specification overboard discharges by holding and re-processing PFW. | On platforms with high water production rates, such as 10ML/day, a standard platform vessel would reach capacity in approximately 2 - 3 minutes given inflow rates of around $7m^3$/minute and typical vessel volumes of approximately $15m^3$. To accommodate this, a significantly larger vessel would be required, likely necessitating a new separate vent line up the flare boom to safely manage vapours. These modifications would require substantial space, which is unavailable on the producing platforms. The operational complexity of implementing such infrastructure is grossly disproportionate to the marginal environmental benefit of avoiding occasional off-specification PFW discharge. | Not adopted |
| Install additional separation equipment or technologies (e.g. membranes). | Improves water treatment performance. | The produced water handling equipment on the MLB platform was installed in 2011 and retrofitting new treatment systems to achieve tighter limits is constrained by available space and high capital investment requirements.<br>Retrofitting additional equipment faces major spatial constraints due to the limited deck space available on offshore platforms. Therefore, the environmental benefits of such upgrades are not justified given the effectiveness of current systems and the option to optimise existing controls.<br>The PFW handling system installed at MLB is equivalent to the existing infrastructure in place, and the change of liquid from oil to condensate means | Not adopted |

| | | | |
|---|---|---|---|
| | | that separation efficiencies will improve. | |
| Install additional/change OIW monitoring equipment or technologies. | Use of other OIW measurements versus UV fluorescence methods, such as total recoverable hydrocarbons (TRH). | The MLB platform currently uses the Sigrist oil guard online OIW analyser, which is UV fluorescence-based and suitable to analyse OIW for hydrocarbon liquids with certain aromatic/aliphatic balance that is present in Bass Strait.<br><br>A comparative evaluation in 2019 against other laser-induced and UV fluorescence technologies confirmed the Sigrist as a reliable continuous monitoring solution for the hydrocarbons present. Furthermore, TRH is a fundamentally different metric and includes a broader range of naturally occurring organic compounds that are not directly linked to environmental impacts from petroleum discharges. TRH cannot be continuously monitored offshore, nor is it internationally recognised for routine PFW discharge standards, which are typically based on UV fluorescence. | Not adopted |

| **Environmental controls and performance measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **IMP09-EPO01:**<br><br>Avoid overboard discharge of PFW where technically feasible to do so. | **IMP09-CM01:**<br><br>The hierarchy of controls is applied to PFW discharge in the following order:<br><br>• re-injection of PFW<br>• transferred to Longford via the pipeline<br>• overboard discharge. | **IMP09- EPS01:**<br><br>This discharge hierarchy is applied to PFW discharge. | PFW records confirm discharge pathway. |
| **IMP09-EPO02:**<br><br>Where it is not technically feasible to avoid overboard discharge (MLB only), there is no impact to the marine environment outside of the PFW discharge mixing zone. | **IMP09-CM02:**<br><br>Per Section 6.9.4.1, the required pre-defined checks for start-up of PFW discharge are conducted, including:<br><br>• confirm necessary procedures are current, and in the system<br>• confirm the training status of operators | **IMP09- EPS02:**<br><br>The functionality of the PFW handling system is tested and confirmed in accordance with pre-defined start-up procedures. | Inspection verifies that pre-defined checks have been conducted prior to first initiation of PFW discharge overboard. |

| | | | |
|---|---|---|---|
| | • confirm that laboratory service equipment is available<br>• ensure all maintenance work orders are up to date for the hydrocyclones and the degasser vessels<br>• calibrate the Sigrist OIW analyser<br>• bring the hydrocyclones and degasser vessel online<br>• confirm the overboard valve closes on a high OIW trip. | | |
| | **IMP09-CM03:**<br>Operators gain competency through the completion of the Offshore Operations Technicians 1 competency. | **IMP09-EPS03:**<br>The PFW handling system is operated by trained and competent personnel. | Demonstrated competency signed off in Offshore Operations Technicians 1 competency. |
| | **IMP09-CM04:**<br>The online OIW analyser is calibrated via 6-hourly InfraCal measurements in-field and cross-checked against monthly manual sampling in accordance with the *System Monitoring, Recording and Reporting* (GEN-100-102) work aid.<br>• InfraCal results must be within +/-6mg/L of the Sigrist reading and if not, the Sigrist is cleaned and another InfraCal sample taken and analysed. If the retest difference is still >6mg/L, the Sigrist is serviced and a calibration check performed using a calibration rod<br>• A monthly crosscheck sample between the Sigrist and InfraCal is performed within a given calendar month for any discharge occurring within that month of >48 hours total duration<br>• Anomalies are investigated as per the procedure and action taken. | **IMP09-EPS04:**<br>Maintenance and testing of the Sigrist is planned and executed in accordance with OIMS 6-2 FIMS. | CMMS records verify maintenance and testing undertaken to schedule.<br>Distributed control system records confirm 6 hourly InfraCal measurements are within 6mg/L of Sigrist completed.<br>Laboratory records demonstrate that where overboard discharges >48 hours (continuous) occur during a calendar month, a cross-check sample is analysed for calibration with OIW analyser.<br>Inspection verifies compliance with the procedure. |
| | **IMP09-CM05:**<br>Implement the *Chemical Discharge Assessment Process* | **IMP09-EPS05:**<br>All chemicals used in the water handling system that | Chemical Assessment Register |

| | | | |
|---|---|---|---|
| | (AUGO-EV-PCE-013) for any chemicals planned to be discharged via the water handling system. | are planned for discharge are assessed and approved for discharge in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013). | demonstrates that chemicals approved for use meet criteria for discharge. |
| | **IMP09-CM06:**<br>OIW concentrations in the overboard discharge stream are monitored in accordance with the *System Monitoring, Recording and Reporting* (GEN-100-102) procedure.<br>Where online monitoring is unavailable, manual sampling is conducted to verify compliance. | **IMP09-EPS06:**<br>OIW discharge concentrations do not exceed 30mg/L over a 24-hour rolling average. | Distributed control system records confirm OIW concentrations and oil load limits are met daily.<br>Distributed control system records confirm where online monitoring is unavailable, manual sampling is undertaken. |
| | **IMP09-CM07:**<br>Monthly OIW performance trends are monitored. | | Offshore technical monitoring report documents monthly water handling performance trends and actions taken to address abnormalities. |
| | **IMP09-CM08:**<br>Sediment and water sampling is designed and executed in accordance with ANZECC/ANZ guidelines and completed within two years of the start of overboard PFW discharge at MLB and every two years while discharge occurs. | **IMP09-EPS07:**<br>Sediment and water sampling is conducted to verify potential impacts are within ANZECC/ANZ environmental quality benchmarks. | Sediment and water sampling reports verify that sampling is undertaken every two years from the start of PFW overboard discharge.<br>Where required, responsive actions are documented and stewarded to closure. |
| | **IMP09-CM09:**<br>The PFW Adaptive Monitoring and Management Framework is implemented at MLB, which involves the following once discharge occurs:<br>• annual compositional sampling and chemical analysis | **IMP09-EPS08:**<br>Toxicity of PFW discharges remains within ANZECC/ANZ guidelines.<br>Appropriate management responses are undertaken where deviations from expected discharge quality occur. | • Test records confirm compositional sampling and Microtox screening collection and analysis occurred within |

| | | | |
|---|---|---|---|
| | • annual Microtox screening of PFW toxicity<br>• six-monthly compositional testing for the first two years if overboard discharge is required<br>• WET testing within six months of overboard discharge and every three years thereafter unless earlier testing is triggered as outlined in Section 8.13.8)<br>• implementation of management measures where monitoring indicates increased risk or uncertainty per Section 8.13.8 of the Implementation Strategy. | | the required timeframes<br>• Test records confirm WET testing sample collection and analysis occurred within the required timeframes<br>• Monitoring data is reviewed when available<br>• Evidence of management responses where monitoring indicates deviations from expected discharge quality. |

| **Impact consequence (residual)** |
|---|
| Consequence Level IV |
| **Demonstration of ALARP** |
| With the controls outlined in this table in place, this risk has been assessed as a Consequence Level IV (lower risk) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the residual impact consequence further or are grossly disproportionate to the residual impact consequence rating. Therefore, a 'Consequence Level IV' residual impact is considered to be ALARP. |
| **Demonstration of acceptability** |

| | | |
|---|---|---|
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | |
| **Legislative and other requirements** | The performance standards outlined in this EP align with the requirements of:<br>• *Protection of the Sea (Prevention of Pollution by Ships) Act 1983* (Cth): Part II (Prevention of Pollution by Oil)<br>• AMSA Marine Orders Part 91 (Oil Pollution), enacting MARPOL Annex I. | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas* | The controls listed in this table meet the relevant mitigation measures listed for offshore activities with regard to:<br>• Produced water – Minimise the amount of PFW that is produced, evaluate options for treatment and disposal, where offshore |

| | | |
|---|---|---|
| | *industry* (IPIECA-IOGP, 2020) | discharge is the selected disposal option, establish mitigation targets, design the discharge outfall to maximise dispersion **(all IMP09 controls)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | The controls listed in this table meet these guidelines for offshore activities with regard to:<br>• produced water handling and management (item 23). The best available techniques are met for MLB operations **(all IMP09 controls)**. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Guidelines with regard to PFW management items 30, 32, 33, 34, 35 and 36) were met in the planning phase of the development. |
| | *Code of Environmental Practice* (APPEA, 2008) | The EPS developed for this activity meet the code's following objectives for development and production:<br>• to reduce impact of PFW on the marine environment to ALARP and to an acceptable level.<br>• to reduce the impact of routine waste discharges on the marine environment to ALARP and to an acceptable level. |
| | **PFW-specific guidelines** | |
| | *Risk Based Assessment of Offshore Produced Water Discharges* (IOGP, 2020) | This provides guidance on the assessment and management of potential toxic risks to the marine environment caused by PFW. The guidelines aim to improve consistency in the application of assumptions, levels of conservatism and selection of risk endpoints.<br>The risk-based assessment framework described in Section 2.3 of the guidelines is applied to the management of MLB PFW discharges. |
| | OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations | The purpose of this Recommendation is to eliminate pollution by oil and other substances caused by discharges of PFW into the sea.<br>The main EPS for this OSPAR Recommendation is that individual offshore installations should not exceed 30mg/L dispersed oil in PFW and that the method used to determine this is as per OSPAR Agreement 2005/15 **(IMP09-CM06)**. |
| | OSPAR Reference Method for Analysis for the Determination of the Dispersed Oil Content in Produced Water (Agreement 2005/15) | This agreement provides guidance on the methodology for determining dispersed OIW concentrations. The laboratory PFW testing uses this methodology **(IMP09-CM09)**. |

| | | |
|---|---|---|
| | OSPAR Recommendation 2012/5 for the Risk based Approach to the Management of Produced Water Discharges from Offshore Installations | The purpose of this Recommendation is to provide general guidance for undertaking PFW environmental risk assessments, based on the determination of NOEC. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist"*. |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 7-1 objective to evaluate change against an established set of criteria and establish endorsement/approval levels<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors. |
| **External context** | No specific stakeholder concerns have been raised concerning PFW discharges. | |

# 7 Environmental risk assessment

This section describes the outcome of the environmental risk assessment of unplanned events associated with activities described in this EP.

The purpose of the risk assessment is to ensure that all risks associated with the activity are identified and evaluated, and the resulting risks are demonstrated to be reduced to ALARP and acceptable levels in accordance with the Esso impact and risk assessment methodology outlined in Section 5.

A summary of the risk to activities mapping is included in Table 7-1, and Figure 7-1 graphically illustrates these risks.

A summary of the risk assessment is included in Table 7-2.

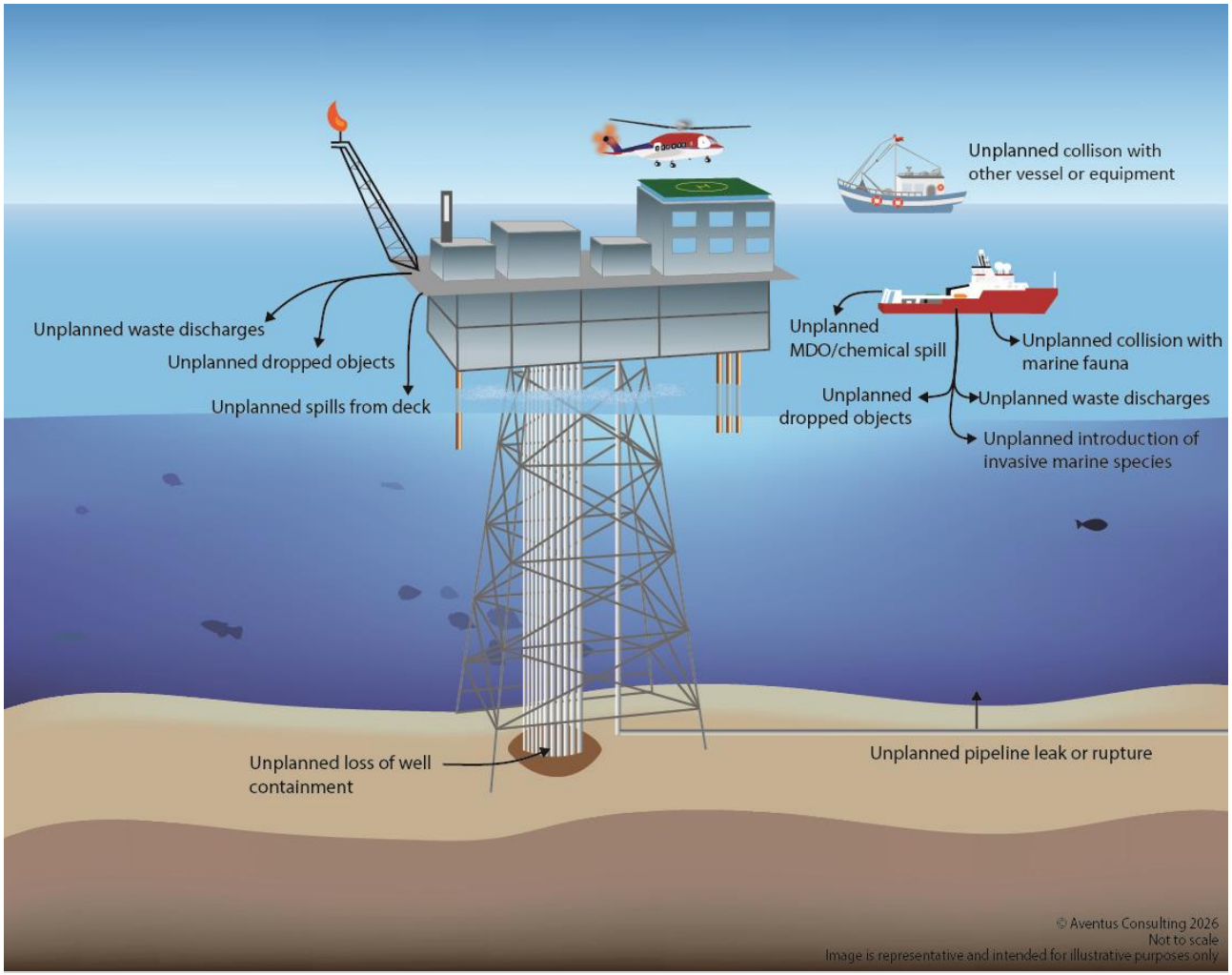



**Figure 7-1 Summary of risks**

**Table 7-1 Activities to risk mapping**

| Activity | Physical presence - Collision with marine fauna | Physical presence - Introduction of IMS | Unplanned release – Dropped objects | Unplanned release – Hazardous substances | Unplanned release – Waste | Unplanned release – LOC of MDO | Unplanned release – LOC from pipeline | Unplanned release – LOWC: Reservoir hydrocarbons |
|---|---|---|---|---|---|---|---|---|
| Platform activities - Producing | - | - | Y | Y | Y | - | Y | Y |
| Subsea facility operations | - | - | - | Y | - | - | - | - |
| Pipeline operations | - | - | - | - | - | - | Y | - |
| Wellwork | - | - | Y | Y | Y | - | - | Y |
| IMR | Y | Y | Y | Y | Y | Y | Y | - |
| Support operations | Y | Y | Y | Y | Y | Y | Y | - |

Y = yes

C = contingency

dash = no

**Table 7-2 Summary risk assessment**

| Identifier | Hazard | Inherent Consequence Level | Residual Consequence Level | Residual Likelihood Category | Risk Category |
|---|---|---|---|---|---|
| 1 | Physical presence – Collision with marine fauna | IV | IV | E | 4 |
| 2 | Physical presence – Introduction of IMS | III | IV | D | 4 |
| 3 | Unplanned seabed disturbance - Dropped objects | IV | IV | D | 4 |
| 4 | Unplanned release – LOC of hazardous substances | IV | IV | D | 4 |
| 5 | Unplanned release - Waste | IV | IV | D | 4 |
| 6 | Unplanned release – LOC of marine diesel oil (MDO) | III | IV | E | 4 |
| 7 | Unplanned release - LOC of hydrocarbons from pipeline rupture | III | IV | E | 4 |
| 8 | Unplanned release – LOC of hydrocarbons from a LOWC | III | III | E | 4 |

## 7.1 Physical Presence - Collision with marine fauna

### *7.1.1 Source of risk*

The activities that may result in collision with marine fauna are summarised in Table 7-3.

**Table 7-3 Potential sources of marine fauna collision**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **No** | N/A |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork activities | **No** | N/A |
| IMR | **Yes** | • Collision with moving vessels. |
| Support activities | **Yes** | • Collision with moving vessels. |

### *7.1.2 Known and potential risks*

Interaction with marine fauna has the potential to result in:

- injury and/or mortality to marine fauna.

Receptors that may be at risk include:

- cetaceans (whales and dolphins)
- seals.

### *7.1.3 Environment That May Be Affected*

The EMBA associated with marine fauna is limited to the immediate area around the platform and pipeline, and immediate area around vessels.

### *7.1.4 Evaluation of risks*

#### 7.1.4.1 Injury/death to fauna

Vessel strike data from (1997-2015) for marine species in Australian waters was reviewed and identified the following (Peel, Smith, & Childerhouse, 2016):

- off the Victorian coast there are fewer than ten records of vessel strikes with whales (historic and modern records)
- whales including the humpback whale (*Megaptera novaeangliae*), PBW, Antarctic blue whale (*Balaenoptera musculaus interndedia*), SRW, dwarf minke (*Balaenoptera acutorostrata*), Antarctic minke whale (*Balaenoptera bonaerensis*) fin whale (*Balaenoptera physalus*), Bryde's whale (*Balaenoptera edeni*), pygmy right whale (*Caperea marginata*), sperm whale (*Physeter macroephalus*), pygmy sperm whale (*Kogia breviceps*) and pilot whale species were identified as having interacted with vessels. The humpback whale exhibited the highest incidence of interaction followed by the SRW. A number of these species may be observed in the waters within the vicinity of the OAs
- dolphins including the Australian humpback (*Sousa sahulensis*), common bottlenose (*Tursiops truncates s. str.*), Indo-Pacific bottlenose (*Tursiops aduncus*) and Risso's dolphin (*Grampus griseus*) species were also identified as interacting with vessels. The common bottlenose dolphin exhibited the highest incidence of interaction. A number of these species may be observed within the vicinity of the OAs
- there were no vessel interaction reports during the period for either the Australian or New Zealand fur seal. There have been incidents of seals being injured by vessel propellers, however all interactions are attributed to be the seal interacting/playing with a vessel, rather than a 'boat strike', with experts indicating the incidence of 'boat strike' for seals is low
- all turtle species present in Australian waters are identified as interacting with vessels. The green and loggerhead species exhibited the highest incident of interaction.

The Australian and New Zealand fur seals are highly agile species that haul themselves onto Esso's platform jackets. As such, it is likely that they will avoid any collision with moving support vessels.

Although collisions with marine fauna can happen anywhere in Australian waters, the risk of collision is greater in breeding areas and along seasonal migration routes. Collision risk also increases in shallower waters where a vessel has less under-keel clearance, leaving an animal less room to avoid the vessel (AMSA, 2023). Larger vessels with reduced manoeuvrability moving in excess of 10kn may cause fatal or severe injuries to cetaceans, with the most severe injuries caused by vessels travelling faster than 14kn (Laist, Knowlton, Mead, Collet, & Podesta, 2001). Vessels typically used to support these activities do not have the same limitations on manoeuvrability and would not be moving at these speeds when conducting activities inside the OAs.

If a fauna strike occurred and resulted in death of a marine mammal or turtle, it is not expected that it would have a detrimental effect on the overall population of that species. This type of event may result in a localised, short-term impact to species of recognised conservation value but is not expected to affect the population or local ecosystem function. Consequently, the potential consequence from fauna strike is considered to be Consequence Level III (short-term, minor adverse effects).

While there is the potential for mammals such as dolphins and seals to interact and be playful with slow moving vessels or vessels in DP mode operating in the OAs, incident reports covering the time period between 2020 and 2024 confirms there have been no recorded cases of marine species being struck by Esso vessels. The likelihood of such interactions causing injury or death of an individual has not been an issue and is considered Likelihood Category D (very unlikely) during these activities.

### *7.1.5 Risk assessment*

Table 7-4 presents the risk assessment for vessel collisions with marine fauna.

**Table 7-4 Risk assessment for vessel collision with marine fauna**

| ALARP decision context | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Risk ranking (inherent)** | | | |
| **Likelihood** | **Consequence** | **Risk category** | |
| D | IV | 4 | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| Eliminate the use of support vessels. | Eliminates the likelihood of collision with megafauna. | The use of support vessels is the only way in which the activity can proceed. | Not adopted |
| Eliminate use of vessels during SRW and PBW migration and breeding season. | Reduces the likelihood of collision with threatened cetaceans. | The use of support vessels is the only way in which the activity can proceed. | Not adopted |
| No night-time/low visibility operations. | Reduces the likelihood of collision with megafauna. | No night-time or low visibility operations will double the length of time required to complete activities such as IMR resulting in increased impacts and risks in other areas such as routine discharges and potentially a greater collision risk due to additional time spent on water. | Not adopted |
| Restrict support vessel speed to no greater than wake speed knots in the OAs. | Reduces the likelihood of collision with megafauna. | Preventing vessels from travelling at speed when required (e.g. in the event of an emergency) is not commensurate with the risk rating for this hazard. | Not adopted |
| Dedicated MFO/MMO onboard the support vessels for all activities. | Improves the ability to spot megafauna by allowing vessel masters to focus on navigation duties, thereby | All vessels currently have dedicated officers of the watch as part of the bridge crew, who as part of their watch keeping training and certification, are instructed to keep watch for hazards such as megafauna. | Not adopted |

| | | | |
|---|---|---|---|
| | reducing the likelihood of collision. | Additional MFO/MMOs would not significantly reduce this risk further.<br>This control measure is also disproportionate to the low risk associated with this hazard in light of the absence of vessel strikes with megafauna experienced by Esso in Bass Strait. | |
| Implement the *Australian National Guidelines for Whale and Dolphin Watching* (2017) (giving effect to the 'interacting with cetaceans and whale watching' in EPBC Regulations Part 8). | Reduces the likelihood of collision with megafauna. | Observing for megafauna is a regulatory requirement. | Adopted<br>**(RSK01-CM01)** |
| Use of tunnel thruster guards on vessels. | Grates on vessel tunnel thrusters would prevent entrapment of marine mammals, in particular seals, which are known to approach/play with vessels while stationary on DP. | Smaller support vessels (such as those used to deploy ROVs) do not generally have grates on tunnel thrusters, however it is more common for larger platform supply vessels.<br>Adding grates to thrusters significantly impacts efficiency of vessels leading to increased fuel usage and air emissions, particularly for small vessels. Further, grates lead to increased potential for marine growth (which further reduces efficiency of thrusters). | Not adopted |

| **Environmental controls and performance measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK01-EPO01:**<br>No collisions with megafauna. | **RSK01-CM01:**<br>Vessel masters implement the following cetacean interaction management actions as outlined in the *Australian National Guidelines for Whale and Dolphin Watching 2017* (CoA, 2017):<br>• caution zones - vessels will not knowingly travel faster than 6kn within 300m of an adult whale or 150m of an adult dolphin. | **RSK01-EPS01:**<br>Vessel masters comply with EPBC Regulations 2025 (Part 8, Division 8.1) for vessel movements within the OAs. | Vessel bridge records include cetacean observations and interactions, and any actions taken. |

| | | | |
|---|---|---|---|
| | • vessels will not knowingly get closer than 100m of a whale or 50m of a dolphin.<br>• if a cetacean approaches the vessel within the above zones, the vessel will avoid rapid changes in engine speed or direction. | | |

| Risk ranking (residual) | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| E | IV | 4 |

**Demonstration of ALARP**

With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means any additional or alternative control measures do not lower the risk ranking any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a residual risk category score ranking of 4 is considered to be ALARP.

**Demonstration of Acceptability**

| | |
|---|---|
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). |
| **Legislative and other requirements** | Requirements of the EPBC Regulations – Part 8 Division 8.1: Interacting with cetaceans, although more relevant for tourism activities, have been adopted.<br>The control outlined in this EP aligns with the requirements of:<br>• *EPBC Act 1999* (Cth):<br>- Section 199 (failing to notify taking of listed species or listed ecological community).<br>• EPBC Regulations 2025 (Cth):<br>- Part 8 (Interacting with cetaceans and whale watching).<br>Vessel collision (and disturbance) is a recognised threat to the species in the following conservation management plans and advice. The proposed controls are consistent with conservation/management actions in:<br>• CMPBW<br>• *Conservation Advice for humpback whales* (TSSC, 2015a)<br>• *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024)<br>• *Conservation Advice for sei whales* (TSSC, 2015b)<br>• *Conservation Advice for fin whales* (TSSC, Conservation Advice Balaenoptera physalus fin whale, 2015c)<br>• *Recovery Plan for Marine Turtles in Australia 2017-2027* (DoEE, 2017)<br>• *Conservation Advice for leatherback turtles* (CoA, 2017). |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. |

| | | |
|---|---|---|
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The control listed in this table meets the relevant mitigation measures listed for offshore activities with regard to:<br>• Collision with marine fauna - Vessels should monitor for the presence and movements of large cetaceans and pinnipeds so that avoidance action can be taken where marine fauna is observed on a collision course with vessels (**RSK01-CM01**). |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | There are no guidelines for offshore activities with regard to minimising the risk of collisions with megafauna. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | There are no guidelines regarding minimising the risk of vessel strike or entanglement with megafauna. |
| | *Code of Environmental Practice* (APPEA, 2008) | The control listed in this table meets the following offshore development and production objectives:<br>• To reduce the risks to the abundance, diversity, geographical spread and productivity of marine species to ALARP and to an acceptable level. |
| | **Megafauna collision-specific** | |
| | *The Australian Guidelines for Whale and Dolphin Watching* (CoA, 2017). | The control listed in this table is aligned with the requirements of these guidelines, despite the fact that the support vessels are not acting in the capacity of dedicated whale or dolphin watching vessels. |
| | *National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna* (CoA, 2017). | The control listed in this table is aligned with objective 3 of this strategy, which is to reduce the likelihood and severity of megafauna vessel collisions. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist".* |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors. |
| **External context** | No stakeholder concerns have been raised in relation to collisions with marine fauna. | |

## 7.2 Physical presence – Introduction of invasive marine species

### *7.2.1 Source of risk*

The potential sources of risk for the introduction and establishment of IMS are summarised in Table 7-5.

**Table 7-5 Potential sources of IMS**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **No** | N/A |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **No** | N/A |
| IMR | **Yes** | • Discharge of ballast water from support vessels containing non-indigenous species.<br>• Translocation of non-indigenous species through biofouling of support vessel hulls and niches.<br>• Translocation of foreign non-indigenous species through biofouling of immersible retrievable equipment (e.g. ROVs). |
| Support activities | **Yes** | |

IMS are non-indigenous organisms that that have been introduced into regions beyond their natural range. These species can survive and form self-sustaining populations. IMS can include fish, seastars, crabs, molluscs, worms, sponges, microscopic dinoflagellates, shellfish, algae, bacteria, and viruses (Agriculture Victoria, 2025).

IMS are introduced to, and translocated within, Australian waters from ballast water discharges and biofouling on hulls and inside internal seawater pipes of vessels and facilities, as well as from marine debris and ocean currents. Shipping, via discharge of ballast water and translocation of foreign species through biofouling, is a significant mechanism for species introductions (Agriculture Victoria, 2025).

Support and IMR activities that utilise vessels or other equipment have the potential to result in the introduction and establishment of IMS via:

- discharge of ballast water from support vessels containing non-indigenous species
- translocation of non-indigenous species through biofouling of vessel hulls and niches
- translocation of foreign non-indigenous through biofouling of immersible retrievable equipment (e.g. ROVs).

#### 7.2.1.1 Ballast water

The Department of Agriculture and Water Resources (DAWR) estimates that ballast water is responsible for 30% of all marine pest incursions into Australian waters (DAWR, 2018) and declares that all saltwater from ports or coastal waters outside Australia's territorial seas presents a high risk of introducing foreign marine pests into Australia. DAWR (2018) notes that the movement of vessels and marine infrastructure is the primary pathway for the introduction of IMS.

Support vessels may ballast and de-ballast to improve stability, even out stresses and adjust draft, list and trim. During the uptake of ballast water from the surrounding environment, it is possible for a vessel to take in water that contains planktonic biota, including holoplankton, gametes, spores and larvae. This biota may then be discharged at the vessel's new location during ballast water exchange. The risk of species introduction is greatest when coastal water is taken up in one location and discharged at another with similar physical and environmental characteristics.

#### 7.2.1.2 Biofouling

Biofouling is the accumulation of aquatic microorganisms, algae, plants and animals on vessel hulls and submerged surfaces. Research indicates that biofouling has been responsible for more foreign marine introductions than ballast water (DAWR, 2018).

The time a vessel spends in a location (residence time) influences the likelihood of species attachment or uptake. Longer residence times increase the likelihood of colonisation by biofouling species and can impact the performance of antifouling coatings (DAWR, 2018).

The translocation and introduction of IMS is less likely for submersible equipment and workover rigs that are transported to site out of water, as biofouling generally dehydrates and dies between locations.

### *7.2.2 Known and potential risks*

The introduction and establishment of IMS may result in:

- Changes in ecosystem dynamics – Benthic habitat
- Changes to the functions, interests, or activities of other marine users – Commercial shellfish.

### *7.2.3 Environment That May Be Affected*

The EMBA associated with the introduction of IMS is limited to the OAs (wherever vessel movements occur). If IMS successfully establish, and then spread, the EMBA may become more widespread.

### *7.2.4 Evaluation of risks*

#### 7.2.4.1 Context

It is estimated that there are more than 250 exotic species in the Australian marine environment and that about one in six introduced marine species become 'pests' (i.e. the effects of the introduced organisms are sufficiently severe) (DCCEEW, 2022). There are at least 100 confirmed records of introduced and 61 cryptogenic marine pests found in Victoria's Port Phillip Bay (DCCEEW, 2022). The most concerning marine pest species in Victoria (Parks Victoria, 2023) are identified below:

- Northern Pacific seastar (*Asterias amurensis*) - Prefer mobile sediment habitat (mud, sand and pebble substrates), but also use artificial structures and rocky reefs, living in water depths usually less than 25m but up to 200m water depths in its native environment). It is thought to have been introduced through ballast water from Japan
- Wakame/Japanese kelp (*Undaria pinnatifida*) - Occupies cold temperate oceanic waters up to 20m deep, growing on rock, reef, stones and artificial structures. It rapidly forms dense forests and overgrows native species. It first established in Port Phillip Bay in the 1980s (Parks Victoria, 2023)
- Pacific oyster (*Crassostrea gigas*) – Native to Japan, it was introduced intentionally to North America, Europe, New Zealand, and Australia to establish oyster aquaculture industries. It attaches to hard surfaces in shallow coastal waters. In Australia, it has been predicted that M. gigas may displace Saccostrea glomerata, the native Sydney rock oyster, in both mid- and low intertidal zones (Krassoi, Brown, Bishop, & Summerhaye, 2008) where it is also known to alter native species assemblages (Parks Victoria, 2023)
- Green shore crab (*Carcinus maenus*) - Prefers intertidal areas, bays, estuaries, mudflats and subtidal seagrass beds, but occurs in waters up to 60 m deep. It is widespread across Victorian intertidal reef and common in Western Port
- European fan worm (*Sabella spallanzanii*) - Attaches to hard surfaces, artificial structures and soft sediments, preferring sheltered waters up to 30 m deep. It reached Port Phillip Bay in the mid-1980s and is a nuisance fouler (Parks Victoria, 2023)
- New Zealand screw shell (*Maoricolpus roseus*) - Lies on or partially buried in sand, mud or gravel in waters up to 130m deep. It can densely blanket the sea floor with live and dead shells and compete with native scallops and other shellfish for food.
- Long-spined sea urchin (*Centrostephanus rodgersii*) – The long-spined sea urchin is considered a range expanding native species of New South Wales that is known to exist in the Bass Strait region and down the east coast of Tasmania. The long-spined sea urchin was first observed as far south as Tasmania in the late 1970s (Ling. S D, 2018) and is considered invasive due to its ability to overgraze kelp beds,

forming and maintaining stable barrens. Long-spined sea urchins have been observed in ROV footage across the OAs.

Of these pest species, the New Zealand screw shell is known to have become established in Bass Strait and off the coasts of eastern and northern Tasmania, Victoria and NSW (MESA, 2025). Figure 7-1 shows the current known distribution of the New Zealand screw shell. New Zealand screw shells are suspension feeders and are restricted to the seabed surface. Unlike most biofouling organisms, they do not settle on and attach to hard surfaces. (McLean et al, 2022a) reported that the New Zealand screw shell is likely to displace similar related species of screw shells, several of which occupy the same depth range and sediment profile. It is also understood that the ability of this species to reach densities of thousands of shells per square metre has presented problems for commercial scallop fishers (MESA, 2025).

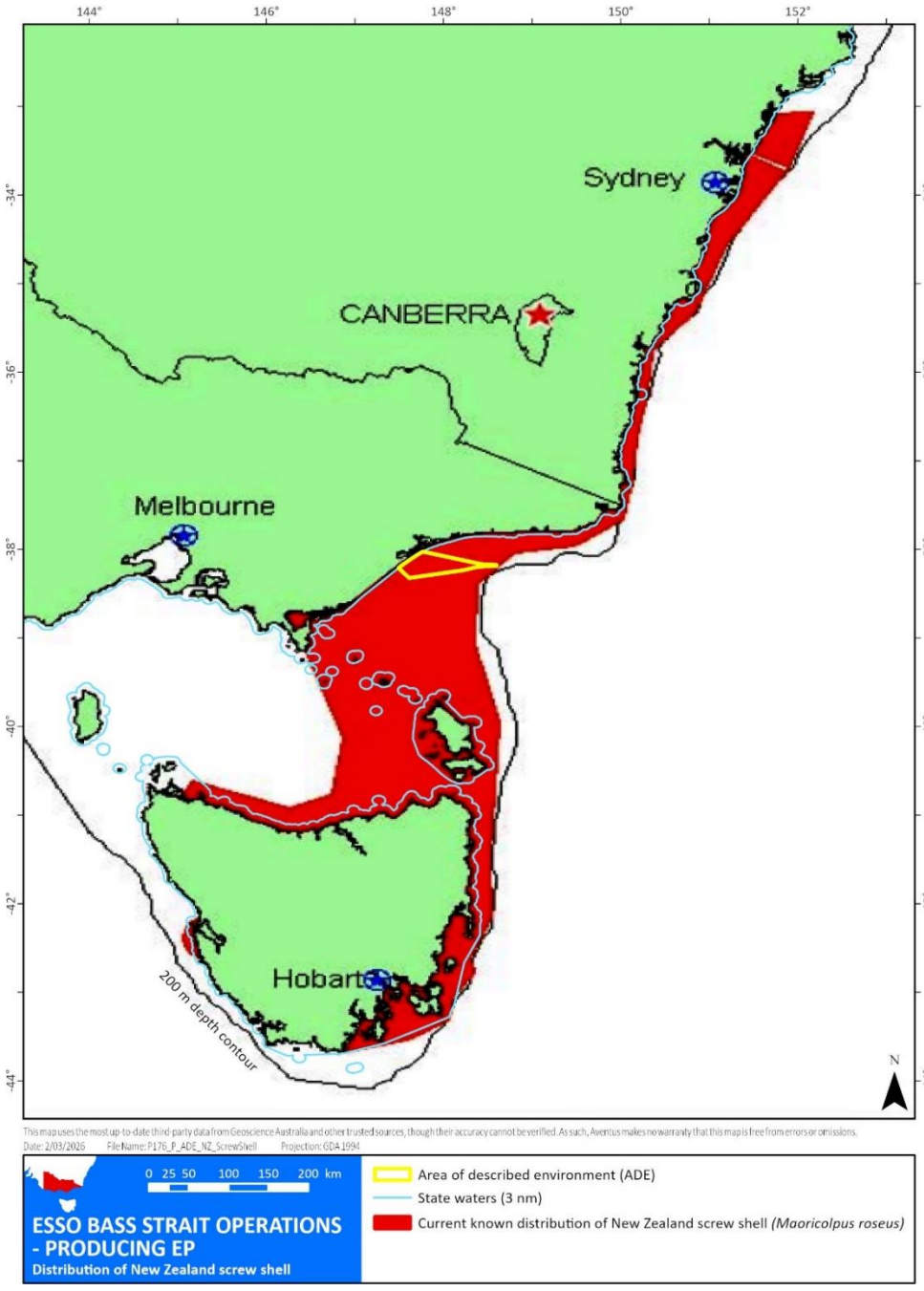



**Figure 7-2 Current known distribution (in red) of New Zealand screw shell (*Maoricolpus roseus*) in south-eastern Australian waters (CSIRO, 2004)**

Moreover, published studies suggest that the Northern Pacific seastar has expanded outside of Port Phillip Bay via larval disbursal and recruitment (Ellis, et al., 2025). The Northern Pacific seastar is an opportunistic predator that feeds on a variety of epifaunal and infaunal species including oysters, cockles, scallops, molluscs, ascidians, bryozoans, sponges, crustaceans, polychaetes, fish and echinoderms. The presence of this species in Tasmania has caused a decline in native bivalve species that live in the Derwent Estuary and resulted in significant economic loss for the local shellfish industry. Australia adopted a National Control Plan for the Northern Pacific seastar in 2000 that aims to minimise the rate of spread of the seastar and reduce its impacts on Australia's marine biodiversity and industries. Experience in Port Phillip Bay suggest that, even at low densities, once the species is established there is little chance for eradication (Parry & Cohen, 2001). Therefore, the National Control Plan has a strong focus on vector control, to prevent the species arriving in the first place. This specieswas listed as an Australian pest species of national priority in 2019 because of its impacts on aquaculture, commercial shellfish industries (APMPL, 2025).

#### 7.2.4.2 Changes in ecosystem dynamics/changes in functions, interests, or activities of other marine users

For an IMS to pose a biosecurity risk once present at a recipient location, viable IMS propagules and/or individuals must be able to transfer from the colonised area (e.g. a vessel hull), survive in the surrounding environment, find a suitable habitat, and establish a self-sustaining population.

Vessels supporting the activity may act as a source of IMS propagules either through the uptake and discharge of high-risk ballast water containing IMS and/or via the presence of IMS within biofouling communities on vessels. IMS propagules may also be transferred via natural dispersion. Natural dispersal mechanisms could involve a mobile life-history stage (such as actively swimming adults or larval stages) with sufficient swimming capacity and/or larval durations to directly reach suitable habitats in coastal waters. Natural dispersal from offshore locations for IMS with shorter pelagic dispersal capabilities to coastal areas is also theoretically possible via intermediate steps (stepping-stone dispersal), where intermediate populations establish in suitable habitats closer inshore, and subsequent generations then spread towards coastal regions.

Should an IMS become established, it could reduce, fragment or displace native marine invertebrates and benthic assemblages, and disrupt the breeding cycle of local benthic populations, impacting the population viability, causing long-term declines to native populations. Marine pest species can also deplete fishing grounds and aquaculture stock, with between 10% and 40% of Australia's fishing industry being potentially vulnerable to marine pest incursion. Accordingly, should an IMS become established and spread, there is the potential for change in ecosystem dynamics and impacts to the functions, interests of other marine users (e.g. commercial shell fishery) resulting in an inherent Consequence Level II rating.

However, it is considered Very Unlikely (D) that Esso activities would result in the introduction of a novel (new) IMS or the further spread of a known IMS and subsequent establishment because of the control measures outlined in the risk assessment and because:

- AIMS' conclusion that the high (>95%) cover of hard structures such as jackets have provided effective defence against the establishment of IMS on sub-tidal platform hard areas
- the high energy oceanographic processes within the ADE will result in rapid dispersion of IMS larvae or algal spores, limiting successful reproduction and establishment on the submerged hard surfaces of the facilities.

### *7.2.5 Risk assessment*

Table 7-6 presents the risk assessment for the introduction of IMS.

**Table 7-6 Risk assessment for the introduction of IMS**

| ALARP decision context | |
|---|---|
| **Factor** | A |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. |

| | | | |
|---|---|---|---|
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Risk ranking (inherent)** | | | |
| **Likelihood** | **Consequence** | **Risk Category** | |
| D | III | 4 | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Controls** | **Benefit** | **Feasibility** | **Adopt?** |
| Apply the *IMS Risk Assessment Procedure* (AUGO-EV-PCE-014) to all the vessels and relevant immersible equipment undertaking activities in the OAs. | Minimises the risk of introducing IMS. | The *IMS Risk Assessment Procedure* (AUGO-EV-PCE-014) incorporates best practice IMS prevention measures from numerous government and industry IMS management guidelines and has been successfully implemented for many years. Vessel contractors that regularly work for Esso are familiar with these requirements and factor them into their routine operations. | Adopted **(RSK02-CM01)** |
| All vessels manage their ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management (BWM) requirements. | Minimises the risk of introducing IMS. | The BWM Convention (as enacted in Australia by the *Biosecurity Act 2015*) requires that all vessels designed to carry ballast water implement a Ballast Water Management Plan and carry out ballast water management procedures in accordance with approved methods. | Adopted **(RSK02-CM02)** |
| Internationally sourced support vessels manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements. | Minimises the risk of introducing IMS. | Internationally sourced vessels are required under the *Biosecurity Act 2015* (Cth) and Biofouling Management Regulations 2023 to submit biofouling and ballast water status via the Maritime Arrivals Reporting System online reporting system. This is well established and Esso makes vessels contracted to it familiar with the requirements of this system, and has been established as a feasible control measure to minimise the risk of introducing IMS to the OAs. | Adopted **(RSK02-CM03)** |
| Use freshwater ballast. | Minimises the risk of introducing IMS. | Some vessel owners prefer to carry freshwater ballast in order to preserve internal systems, however, this is not always possible on every | Not adopted |

| | | | |
|---|---|---|---|
| | | vessel, or every vessel type for operational and safety reason. | |
| **Environmental controls and performance measurement** | | | |
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK02-EPO01:**<br>No establishment of IMS within the OAs resulting from the activity. | **RSK2-CM01:**<br>The *IMS Risk Assessment Procedure* (AUGO-EV-PCE-014) is applied to vessels and applicable immersible equipment undertaking activities in the OAs. | **RSK02-EPS01:**<br>Vessels and applicable immersible equipment are determined to be low risk of introducing IMS and must maintain this low-risk status prior to mobilisation.<br>Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as treating internal systems) will be implemented to minimise the likelihood of IMS being introduced. | IMS Vessel Risk Assessment reports are maintained for all support vessels and applicable immersible equipment and verify they have a low IMS risk. |
| | **RSK02-CM02:**<br>Vessels manage their ballast water using one of the approved ballast water management options, as specified in the most current version of the Australian Ballast Water Management requirements (DAFF, 2023a) as defined under the *Biosecurity Act 2015* (Cth). | **RSK02-EPS02:**<br>Compliance with Australian Ballast Water Management Requirements (aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments) to prevent the introduction of IMS. | Ballast water exchange records maintained by vessels verify compliance with the Ballast Water Management requirements. |
| | **RSK02-CM03:**<br>Internationally sourced support vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements (DAFF, 2023a). | **RSK02-EPS03:**<br>Compliance with Australian Biofouling Management Requirements. | Electronic pre-arrival report records confirm implementation of biofouling management requirements. |

| **Risk ranking (residual)** | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| D | IV | 4 |

| **Demonstration of ALARP** |
|---|
| With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means any additional or alternative control measures either fail to lower the residual impact consequence any further or are grossly disproportionate to |

<table>
<tr><td colspan="3">the residual impact consequence rating. Therefore, a residual risk category score ranking of 4 is considered to be ALARP.</td></tr>
<tr><th colspan="3">Demonstration of acceptability</th></tr>
<tr><td>Principles of ESD</td><td colspan="2">The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant).</td></tr>
<tr><td>Legislative and other requirements</td><td colspan="2">The controls proposed to manage this risk meet the following legislative requirements:<ul><li>Biosecurity Act 2015 (Cth)<ul><li>Chapter 5, Part 3 (Management of discharge of ballast water)</li><li>Chapter 4 (Managing biosecurity risks)</li></ul></li><li>International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (the Ballast Water Management Convention)</li><li>Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 (Cth):<ul><li>Part 2 (Application or use of harmful anti-fouling systems)</li><li>Part 3 (Anti-fouling certificates and anti-fouling declarations)</li></ul></li><li>AMSA Marine Order 98 (Marine Pollution Prevention - Anti-fouling Systems)</li><li>Environment Protection (Ships Ballast Water) Regulations 2006.</li></ul></td></tr>
<tr><td rowspan="4">Industry practice</td><td colspan="2">The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity.</td></tr>
<tr><td>Environmental management in the upstream oil and gas industry (IPIECA-IOGP, 2020)</td><td>The controls developed for this activity are in line with the management measures listed for the introduction of IMS in Section 4.7.6 of the guidelines:<ul><li>complying with the International Convention on the Control of Harmful Anti-fouling Systems on Ships (RSK02-CM03)</li><li>ensuring vessels of appropriate class have International Anti Fouling Systems certificates (RSK02-CM03)</li><li>ensuring compliance with local regulatory guidelines.</li></ul></td></tr>
<tr><td>Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production (European Commission, 2019)</td><td>There are no guidelines for offshore activities with regard to minimising the risk of introducing IMS.</td></tr>
<tr><td>Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development (World Bank Group, 2015)</td><td>There are no guidelines regarding preventing the introduction of IMS.</td></tr>
<tr><td>Code of Environmental Practice (APPEA, 2008)</td><td>The control measures for this activity meet the code's following objectives for offshore drilling operations:<ul><li>to reduce the risk of introduction of marine pests to ALARP and to an acceptable level</li></ul></td></tr>
</table>

| | | |
|---|---|---|
| | | • to reduce the impacts to benthic communities to ALARP and to an acceptable level. |
| | **IMS-specific** | |
| | *Reducing marine pest biosecurity risks through good practice biofouling management* (NOPSEMA, 2024b). | The controls in this table reflect the guidance regarding biofouling management |
| | *Anti-Fouling and In-Water Cleaning Guidelines* (DAFF, 2024). | The controls in this table reflect the general guidance regarding managing fouling in the DAFF guidelines. |
| | *Australian Biofouling Management Requirements* (DAFF, 2023a) | The controls in this table reflect the guidance regarding biofouling management. |
| | *Offshore Installations – Biosecurity Guide* (DAFF, 2023b) | The controls in this table reflect the guidance provided in the DAFF guide, which largely references other guidelines listed here. |
| | *Guidelines for the Control and Management of Ships Biofouling to Minimise the Transfer of Invasive Aquatic Species* (IMO, 2023) | The controls in this table reflect the guidance regarding minimising the transfer of IMS from biofouling. |
| | *Australian Ballast Water Management Requirements* (DAWE, 2020) | The controls in this table reflect the guidance regarding ballast water management in the DAWE guide. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist".* |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to qualify, evaluate and select contractors based on their ability to perform work in a safe, secure and environmentally sound manner. |
| **External context** | No specific relevant person concerns have been raised concerning the introduction of IMS. | |

## 7.3 Unplanned seabed disturbance – Dropped objects

### *7.3.1 Source of risk*

The activities that may result in dropped objects are outlined in Table 7-7.

**Table 7-7 Potential sources of dropped objects**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **Yes** | Dropped tools or equipment. |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **Yes** | Dropped tools or equipment. |
| IMR | **Yes** | Dropped tools or equipment. |
| Support activities | **Yes** | |

Unplanned seabed disturbance can occur through dropped objects from the platforms and support vessels. This could be caused by operator error, bad weather events or equipment failure.

This risk assessment relates to large equipment that has the potential to impact the seabed and existing benthic habitat, habitat established on subsea infrastructure (e.g. on risers, pipelines and flowlines).

Vessel-to-platform and platform-to-vessel transfers of equipment occur frequently, as well as crane lifts on the platforms to transfer bulk materials from one area of the platform to another. Critical lifts may occur between the platform pedestal cranes and vessels during operations. Critical lifts may refer to a heavy or complicated lift, as defined in the applicable lifting standard, and require specific vessels with appropriately rated cranes, lifting equipment and lifting plan. A loss of suspended load may arise from:

- lifting equipment failure
- incorrectly slung loads
- excessive loads
- crane operator error
- adverse weather conditions.

Objects that may be lost from support vessels that don't involve suspended loads include a dropped anchor or lost piece of equipment.

Note that accidental release of non-hazardous waste items (i.e. rubbish) is assessed in Section 7.5. Non-hazardous waste is not captured on the SMR. Dropped objects have the potential to land on a pipeline which could result in a LOC of hydrocarbons, and this is addressed in Section 7.7.

### *7.3.2 Known and potential risks*

The potential risks of dropped objects to the ocean are:

- smothering of benthic habitats.

### *7.3.3 Environment That May Be Affected*

The EMBA for dropped objects is highly localised to where the item is dropped (likely to be an area of up to 10m$^2$) around either one of the producing platforms, subsea facilities or pipelines.

Receptors that may occur within this EMBA are:

- benthic fauna and habitat.

### *7.3.4 Risk evaluation*

#### 7.3.4.1 Smothering of benthic habitat

A dropped object will settle on the seabed and smother benthic habitat. In such an event, effects will be limited to localised physical disturbance to benthic communities arising from equipment sinking to and possibly dragging across the seabed. Any environmental impact caused by damage to small areas of seabed and associated communities would be mitigated by the ubiquitous distribution of similar habitat in the OAs and ADE. As such, impacts from dropped objects are inconsequential.

Severity of impacts to benthic communities is affected by the density of biota, sensitivity of biota to disturbance and recovery potential of benthic communities. Physical disturbance to the seabed from a dropped load would be limited to the footprint of the load (estimated at ≤10m$^2$) and would be temporary in nature (if the item is retrieved) or long-term (if the item is irretrievable). Both are likely to pose inconsequential environmental risk as the seabed within the OAs is largely sandy sediment with benthic assemblages (as outlined in Table 3-2) that are not particularly sensitive to physical disturbance.

Considering the possible footprint of a dropped object (against the total area of similar habitat within the Bass Strait region), it is highly unlikely that a dropped object would have an effect on any benthic community other than a minor and localised one that is assessed as a Consequence Level IV. Given the controls in place, a Category D (very unlikely) likelihood is assigned to dropped objects.

### *7.3.5 Risk assessment*

Table 7-8 presents the risk assessment for dropped objects.

**Table 7-8 Risk assessment for dropped objects**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Risk assessment (inherent)** | | | |
| **Likelihood** | **Consequence** | **Risk Category** | |
| D | IV | 4 | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| Maintain facility lifting equipment to prevent lifting equipment failure or dropped/swinging loads. | Reduces the likelihood of a dropped load from equipment failure, thereby reducing the likelihood of seabed disturbance. | Crane operations and maintenance is standard industry and company practice. Esso and its vessel contractors have well established procedures in place to manage this that platform crane operators and dogmen are familiar with. | Adopted **(RSK03-CM01)** |

| | | | |
|---|---|---|---|
| Procedures are in place and implemented for platform lifts and bulk transfers and cargo loading. | Working to procedures that have been refined over many years reduces the likelihood of dropped objects and seabed disturbance. | Lifting procedures and checklists are standard industry and company practice. Esso and its vessel contractors have well established procedures in place to manage this. | Adopted **(RSK03-CM02)** |
| Only trained crane operators and dogmen operate the cranes. | Reduces the likelihood of dropped objects and seabed disturbance. | Using only trained crane operators and dogmen is a routine requirement when working offshore. Esso and its vessel contractors have well established procedures in place to manage this. | Adopted **(RSK03-CM01)** |
| In the event of equipment dropped overboard, attempts to recover it will be made when it is considered safe and feasible to do so. | While this control measure does not change the likelihood of the event (as it has already occurred), it may reduce the consequence by removing the equipment from the environment promptly. | It is not always technically feasible or safe to retrieve equipment dropped overboard; however, attempts to do so are made where it is safe to do so and there is some likelihood of success. | Adopted **(RSK03-CM03)** |
| Any dropped objects that cannot be recovered and remains on the title is added to the Subsea Materials Register (SMR). | Assists in attempted recovery of the objects in the future, which will reduce the period of time it creates an impact on the seabed. | Adding unrecovered objects to the SMR is routine Esso practice and is a feasible way of tracking all dropped objects so that attempts to retrieve them can be made in the future. | Adopted **(RSK03-CM04)** |

| **Environmental Controls and Performance Measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK03-EPO01:**<br>No seabed disturbance due to dropped objects from activities in the OAs. | **RSK03-CM01:**<br>Maintenance and testing of the platform cranes, rigging and lifting gear is planned and executed in accordance with OIMS 6-2 FIMS, as per the:<br>• *Crane Operations, Maintenance and Inspection Manual* (COMI) (COMI-OFFS-1-001) procedures define the responsibilities for Crane Operators, Maintenance Technicians and the Maintenance Reliability group<br>• the Lifting Equipment Manual includes guidelines for use, storage, maintenance, inspection and | **RSK03-EPS01:**<br>Platform lifting equipment is maintained in compliance with OIMS 6-2 FIMS to prevent lifting equipment failure or dropped/swinging loads. | CMMS records verify that inspections and testing of cranes, rigging and lifting gear are conducted to schedule. |

| | | | |
|---|---|---|---|
| | purchase of cargo lifting gear (such as winches, jacks, hoists and rigging) used for routine cargo handling. | | |
| | **RSK03-CM02:**<br>All lifts are conducted in accordance with applicable work procedures per OIMS 6-1 to limit the potential for dropped objects. This involves implementing the:<br>• COMI procedures, which define procedures for lifts including diesel, glycol and for methanol bulk transfer from supply vessels<br>• the Lifting Equipment Manual, which includes guidelines for use, storage, maintenance, inspection and purchase of cargo lifting gear (such as winches, jacks, hoists and rigging) used for routine cargo handling. | **RSK03-EPS02:**<br>All platform lifts, bulk transfers and cargo loading are undertaken safely in accordance with COMI and Lifting Equipment Manual procedures. | The lift plan checklist is completed to verify that all lifts are undertaken in accordance with the procedures. |
| | **RSK03-CM03:**<br>The decision to recover or not recover a dropped object will be based on considerations regarding the safety and feasibility of the potential recovery in accordance with the *Object Overboard Procedure* (AUGO-EV-EMM-023) which includes documenting:<br>• risk to personnel<br>• whether the location of the object is in recoverable water depths<br>• the object's proximity to subsea infrastructure<br>• ability to recover the equipment (e.g. nature of equipment, lifting equipment, suitable weather, etc.). | **RSK03-EPS03:**<br>Dropped objects will be recovered where safe and technically feasible to do so in accordance with the *Object Overboard Procedure* (AUGO-EV-EMM-023) process. | Object overboard assessment records confirm that where safe and feasible, the dropped object has been recovered. |
| | **RSK03-CM04:**<br>The SMR is updated in accordance with the *SMR Management Process* (AUGO-SS-PCE-001). This includes: | **RSK03-CM04:**<br>Property that is left on the seabed is tracked via the SMR and maintained so that | The SMR is maintained and up to date per the *SMR Management Process* (AUGO-SS-PCE-001) and verifies that equipment or |

| | | | |
|---|---|---|---|
| | • roles, responsibilities<br>• data sources<br>• minimum data requirements<br>• storage locations to ensure the SMR is accurate and maintained consistently. | it can be readily located for future removal. | infrastructure is stored within the PSZs or 200m operational zone around pipelines. |

| **Risk assessment (residual)** | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| D | IV | 4 |

| **Demonstration of ALARP** |
|---|
| With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means that any additional or alternative control measures either fail to lower the residual impact consequence any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a residual risk category score ranking of 4 is considered to be ALARP. |

| **Demonstration of Acceptability** | | |
|---|---|---|
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | |
| **Legislative and other requirements** | No environmental legislation or other requirements are relevant to this risk. | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | • No guidance is provided regarding dropped object management. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | • No guidance is provided regarding dropped object management. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | The controls developed for this activity are in line with the following management measures:<br>• Dropped Objects and Material Handling Issues (123) - A dedicated dropped objects analysis should be prepared, assessing the risk of loads falling from handling devices and impacting critical areas of the facility or subsea pipelines in the vicinity of the facility. |

| | | |
|---|---|---|
| | | This analysis will identify the need for measures to prevent damage to critical items or structures and to risers and sealines. A material handling study, to identify handling devices and procedures to avoid impacts and stresses and injuries to personnel, should be developed **(RSK03-CM02)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls developed for this activity meet the code's following objectives for development and production:<br>• to reduce the risk of any unplanned release of material into the marine environment to ALARP and to an acceptable level **(RSK03-CM01, -CM02)**. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist".* |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 7-1 objective to evaluate change against an established set of criteria and establish endorsement/approval levels<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors. |
| **External context** | No specific stakeholder concerns have been raised concerning the risk of dropped objects. | |

## 7.4 Unplanned release – Loss of containment of hazardous substances

### *7.4.1 Source of risk*

The potential sources of unplanned releases of hazardous substances are summarised in Table 7-11.

**Table 7-9 Potential sources of unplanned releases of hazardous substances**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **Yes** | • Bulk transfers.<br>• Bulk storage.<br>• Incorrect storage or handling.<br>• Equipment failure.<br>• LOC from drains. |
| Subsea facility operations | **Yes** | • Equipment failure.<br>• Flange connection failure.<br>• Corrosion/erosion of production flowlines.<br>• LOC of hydraulic fluids. |
| Pipeline operations | **No** | N/A. |

| Activity | Applicable? | Hazard |
|---|---|---|
| Wellwork | **Yes** | • Bulk transfer.<br>• Bulk storage. |
| IMR | **Yes** | LOC of hydraulic fluids. |
| Support activities | **Yes** | • ROV loss of hydraulic fluids.<br>• Bulk transfer. |

The potential for the accidental release of hazardous substances into the environment exists. These substances include fuel, process chemicals, glycols, methanol, and bulk transfers of fluid originating from platform operations, wellwork, or associated support activities. Hydraulic fluids may be released from subsea IMR .and subsea facility operations.

#### 7.4.1.1 Platform operations

Oils and chemicals such as glycol, methanol and biocides are used as part of the daily operation of the platforms and are stored in bulk on the platforms (see Section 2.5.6). These materials are transferred from supply vessels to the platforms via crane and stored as either packaged goods, in drums or in IBCs (often referred to as bulkies, which typically hold 1250L). Where larger volumes are required (such as for diesel, glycol or methanol), they are transferred from the vessel to the platform via hose directly into holding tanks.

Certain firefighting foams may also contain hazardous chemicals and, if used, could enter the marine environment. Use of non-approved firefighting foams can present additional risk to the environment if released. Australia has introduced new restrictions on fluorochemicals:

- for platforms from 1 July 2025, PFOS, perfluorooctanoic acid and perfluoro hexane sulfonate are prohibited under the Industrial Chemicals Environmental Management Register (Schedule 7)

Esso no longer stocks firefighting foams that contain PFO, perfluorooctanoic acid and perfluoro hexane sulfonate.

All platforms have open and closed drain systems that route liquids to skimmer piles where separation occurs, with the water phase discharged through a subsea window. As outlined in Section 6.7, these systems are equipped with controls to prevent a release. Although a full release of hydrocarbons from a pile is highly unlikely, a conservative worst-case scenario assumes a 240m$^3$ release of 100% hydrocarbon content from the largest drain system (this represents the volume of the CDSP on SNA).

#### 7.4.1.2 Subsea facility operations and IMR

Flange connection failure or corrosion or erosion of the subsea production flowlines is estimated to result in a very small loss of hydraulic fluids (less than that released from a hole caused by corrosion discussed in Section 7.7). Equipment strategies include six-monthly valve testing and 36-month ROV inspections to assess for any leaks.

Table 7-10 outlines the potential scenarios for LOC of hazardous liquids and indicates the potential maximum credible volumes.

**Table 7-10 Potential scenarios leading to unplanned releases of hazardous substances and associated maximum credible volumes**

| Material | Source of potential LOC for hazardous liquids | Potential maximum volume |
|---|---|---|
| LOC chemicals/oils (fuels, process chemicals, glycols, methanol, and workover fluids). | • Equipment failure/breakdown.<br>• Incorrect storage.<br>• Incorrect handling. | Based on historical data of small spills average ranges from 100ml to 5L, up to ~80L. |

| Material | Source of potential LOC for hazardous liquids | Potential maximum volume |
|---|---|---|
| Bulk transfer (brines, glycol, cement, diesel). | • Cracked or damaged hoses or equipment.<br>• Overflow of storage tanks whilst refilling.<br>• Hose failure.<br>• Failure to align valves correctly during transfer to tanks. | Maximum accidental release from vessel to platform transfers can be <1000L from the volume contained within the hose. |
| Bulk storage/topsides.<br>(Glycol, methanol, biocides).<br>*Noting that some platforms store bulk liquids in jacket legs, but any credible release is limited to a pinhole leak, with the IBC scenario considered to be the worst case. | • Cracked or damaged IBCs. | IBC volumes are typically 1250L. |
| LOC from drain system (process chemicals, deck drainage, diesel). | • Pile failure (overflow, overpressure, loss of integrity, incorrect drain valve line up or operation). | Maximum hydrocarbon volumes contained within the drain systems range from 13 - 240m$^3$ (1300 – 24,000L) depending on the platform.<br>A release of hazardous liquids (predominantly diesel) from a drain poses the largest spill volume. The maximum release volume described as the worst-case scenario is similar to the discharge volumes modelled for an MDO release (assessed in Section 7.6). Note that the modelling scenarios are based on surface release, whereas hydrocarbons from the drain system would be released from the subsea window. Environmental impacts are expected to be similar to those described in Section 7.6. |
| Subsea release. | • Equipment failure. | Up to 50L hydraulic fluid release. |

### *7.4.2 Known and potential risks*

The known and potential risks of hazardous substances released overboard include:

- temporary and localised decrease in water quality
- acute toxicity to marine fauna through ingestion or absorption.

### *7.4.3 Environment That May Affected*

The extent of the EMBA depends on the spill source and volume:

- small spills (~80L) from handling or equipment failure are expected to remain very highly localised, dispersing within tens of metres from the spill location
- larger spills from transfer operations or IBC failures (up to 1250L) are expected to remain highly localised, dispersing within hundreds of metres of the spill location.

Receptors that may be within the EMBA are:

- plankton
- fish
- turtles
- pinnipeds
- cetaceans.

### *7.4.4 Evaluation of risks*

#### 7.4.4.1 Decrease in water quality

Due to the high-energy marine environment, the release of hazardous substances will disperse rapidly. For all scenarios outlined in Table 7-10, excluding the drain system failure, any water quality reduction is expected to be confined to the immediate discharge location, with the dynamic ocean conditions facilitating rapid dilution. Accordingly, this is assessed as a Consequence Level IV.

#### 7.4.4.2 Toxicity to marine fauna

This section assesses the impacts of unplanned hazardous substance release scenarios (outlined in Table 7-9 and Table 7-10) on marine fauna.

*PLANKTON*

Plankton are the most susceptible to toxic exposure from hazardous liquids due to ubiquitous presence in the upper water column and their limited mobility. Their wide distribution, abundance, and rapid replenishment capacity mean that any localised impacts are inconsequential at the population and ecosystem level.

Phytoplankton generally accumulate oil rapidly but are not highly sensitive to its effects, while zooplankton are more vulnerable to hydrocarbons (Hook S. , Batley, Holloway, Irving, & Ross, 2016). Water column organisms exposed to oil may suffer mortality or sub-lethal effects such as reduced egg production, hatching rates, and swimming speeds (NRDA, 2012); (Hook S. , Batley, Holloway, Irving, & Ross, 2016).

Despite potential exposure, plankton populations are expected to recover quickly due to high natural mortality rates and rapid reproduction (UNEP, 1985) (Volkman, Miller, Revill, & Connell, Oil spill, 1994).

Based on the low volumes of hazardous liquids that may be accidentally discharged and the wide distribution, abundance, and rapid replenishment capacity of plankton, impacts to plankton are expected to be inconsequential, resulting in a Consequence Level IV.

*FISH*

Fish may be exposed to hazardous liquids through dermal contact, ingestion and inhalation near the discharge location. They have high mobility and an ability to metabolise hydrocarbons that limits the effects of such contact.

Pelagic fish species are particularly mobile and unlikely to experience prolonged exposure (e.g. >96 hours) at concentrations that could lead to chronic effects. Many fish species can metabolise toxic hydrocarbons, reducing the risk of bioaccumulation (NRDA, 2012). Fish are most vulnerable in shallow nearshore environments, bays and estuaries, where toxicity concentration may be higher (such spills, should they occur, will not reach these sort of environments). In contrast, the open marine environment promotes rapid dilution, significantly reducing potential impacts.

Methanol, a potential contaminant, is considered to have low toxicity to aquatic organisms, especially higher trophic level species such as fish (Kaviraj, Bhunia, & Saha, 2004).

The BTA and BTW OAs, and parts of five pipelines, overlap a reproduction BIA for the great white shark. Impacts to this species are the same as for fish in general, and hazardous liquids are not identified as a key threat in the *Recovery Plan for the White Shark (Carcharodon carcharias)* (DSEWPAC, 2013).

Fish communities in the OAs are typical of those found throughout the ADE and the region more broadly. Impacts to water quality are expected to be localised and temporary, with rapid dissipation of hydrocarbons and chemicals in the high-energy marine environment, meaning that no effects to fish at the population-level are anticipated.

Any impacts to fish are anticipated to be inconsequential, resulting in a Consequence Level IV.

*PINNIPEDS*

Seals, particularly the Australian fur seal (*Arctocephalus pusillus*), frequent the OAs (frolicking around platform jackets and using the structures for rest or social interaction) and may be exposed to accidental releases of hazardous liquids. Their mobility and the rapid dispersion of contaminants in the high-energy marine environment limits the effects of such contact.

While there is no formal conservation advice or recovery plan for the Australian fur seal, fact sheets highlight commercial fishing, marine debris and natural predation as primary threats (Australian Geographic, 2025; Penguin Foundation, n.d.; DELWP, 2018). The Penguin Foundation (n.d.) does note toxic pollutants as a potential concern, but not as a primary threat.

The rapid dispersion of discharges and the low toxicity of substances used ensures that no population-level effects are anticipated for Australian fur seals.

Any impacts to pinnipeds are expected to be inconsequential, resulting in a Consequence Level IV.

*CETACEANS*

Cetaceans, including the SRW, PBW and humpback whale, may be exposed to hazardous liquids due to their presence in the OAs. However, due to their transitory nature (seasonal migration) and the rapid dispersion of contaminants in the high-energy marine environment, any impacts to cetaceans are expected to be minor.

The CMPBW does not identify hazardous liquids as a key threat and considers chronic chemical pollution (toxins) unlikely to occur, with minor consequences (i.e. individual-level effects only). Similarly, the *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024) identifies chemical pollution as a threat but with minor consequences.

Given the mobility of cetaceans and the dilution capacity of the open marine environment, exposure is expected to be brief and unlikely to result in population-level or ecosystem-level effects.

Any impacts to cetaceans from small volume hazardous liquid releases are anticipated to be minor, resulting in a Consequence Level III.

### *7.4.5 Risk assessment*

Table 7-11 presents the risk assessment for the LOC of hazardous substances.

**Table 7-11 Risk assessment for LOC of hazardous substances**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Factor** | A | | |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Risk assessment (inherent)** | | | |
| **Likelihood** | **Consequence** | **Risk Category** | |
| D | IV | 4 | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |

| | | | |
|---|---|---|---|
| *Note: controls for pile discharges are outlined in Section 6.7 and are not repeated here.* | | | |
| Bulk transfer hoses are maintained in accordance with bulk transfer hose equipment strategy and as scheduled in CMMS. | Reduces the likelihood of LOC to the marine environment and associated water quality impacts. | Transfer procedures are standard practice across the industry and within the company. Procedures will continue to be followed throughout the life of the facilities. | Adopted **(RSK04-EPS01)** |
| Hazardous liquids are safely stored on platforms to prevent release to the marine environment. | | Bunding is a standard industry control and the platforms have been designed to contain and prevent spills to the marine environment. | Adopted **(RSK04-EPS02)** |
| Follow bulk transfer procedures for transfers of fluids from supply vessels to the platform. | | Transfer procedures are standard practice across the industry and within the company. Procedures will continue to be followed throughout the life of the facilities. | Adopted **(RSK04-EPS03)** |
| Inspection and condition monitoring of subsea equipment is planned and executed in accordance with FIMS and the *Subsea Equipment Integrity Manual* (AUGO-PO-SIP-001). | | Ongoing inspections and monitoring of subsea equipment is routine practice to ensure the integrity and correct functioning of equipment. | Adopted (**RSK04-EPS04**) |
| Emergency response is in accordance with an approved OPEP | Reduces the impact of a spill on the marine environment. | Standard practice to take the appropriate action in the event of an unplanned LOC. | Adopted (**RSK04-EPS05**) |
| Vessel compliance with SMPEP (or equivalent, per MARPOL Annex I) | | | Adopted (**RSK04-EPS06**) |
| Spill kits stocked and accessible on platforms | | | Adopted (**RSK04-EPS07**) |

| **Environmental controls and performance measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK04-EPO01:**<br>No unplanned release of hazardous substances to the environment from platform operations. | **RSK04-CM01:**<br>Bulk transfer hoses:<br>• pressure rated hoses are tested and fitted with compliance tags before being put into service.<br>• are maintained in working condition.<br>• have dry-break couplings fitted. | **RSK04-EPS01:**<br>Bulk transfer hoses are maintained in accordance with bulk transfer hose equipment strategy and as scheduled in CMMS. | Environment inspections verify bulk transfer hoses are fitted with dry break couplings.<br>Hoses have tags fitted to confirm they were pressure rated and to show expiry dates that |

| | | | |
|---|---|---|---|
| | | | are checked prior to use. CMMS records verify bulk transfer hoses are maintained. |
| | **RSK04-CM02:**<br>Hazardous liquid storage areas for transportable containers on the platforms and vessels have adequate containment in place to contain an accidental spill (i.e. they are either double skinned IBCs or containers or stored in bunds). | **RSK04-EPS02:**<br>Hazardous liquids are safely stored to prevent release to the marine environment. | Internal inspection verifies hazardous liquids are stored in a manner that prevents release to the marine environment. |
| | **RSK04-CM03:**<br>Transfers of fluids from supply vessels will be undertaken in accordance with bulk transfer procedures, which entail:<br>• routine bulk transfer is only carried out when adequate lighting is available for spill detection unless following an activity-specific risk assessment approved by the Offshore Installation Manager (OIM).<br>• communications between the supply vessel and platform are maintained during transfer<br>• hoses and connections are visually checked during refuelling<br>• tank levels are monitored throughout transfers<br>• bunkering hose inventory is drained to the supply vessel before disconnection with the platform. | **RSK04-EPS03:**<br>Bulk transfers procedures are implemented for transfers of fluids from supply vessels to the platform. | Internal inspection verifies bulk transfer procedures are followed. |
| **RSK04-EPO02:**<br>No unplanned release of hazardous substances from subsea activities. | **RSK04-CM04:**<br>Inspection and condition monitoring of subsea equipment is carried out within the parameters defined in FIMS to prevent serious SHE risks (Consequence Category 1 or 2), including a process for managing plans that are in exception. Equipment strategies are developed in accordance with requirements of *Subsea Equipment Integrity Manual* (AUGO-PO-SIP-001) and are scheduled in CMMS. This includes six-monthly subsea valve testing and 36-month ROV inspections. | **RSK04-EPS04:**<br>Inspection and condition monitoring of subsea equipment is planned and executed in accordance with FIMS and the *Subsea Equipment Integrity Manual* (AUGO-PO-SIP-001). | CMMS records verifies that inspection, maintenance and monitoring is undertaken to schedule. |

| | | | |
|---|---|---|---|
| **RSK04-EPO03:**<br>Any unplanned release of hazardous substances to the marine environment from a platform, subsea facility or vessel is responded to promptly to minimise environmental harm. | **RSK04-CM05:**<br>Facility emergency response is undertaken in accordance with the approved OPEP. | **RSK04-EPS05:**<br>Emergency response activities are undertaken in accordance with the approved OPEP. | Incident records confirm response actions implemented in accordance with the OPEP. |
| | **RSK04-CM06:**<br>Vessel master authorises actions in accordance with the vessel SMPEP. | **RSK04-EPS06:**<br>Vessel spill response is undertaken in accordance with the vessel SMPEP (or equivalent, per MARPOL Annex I). | Incident report will outline any emergency response activities undertaken. |
| | **RSK04-CM07:**<br>Spill kits on the platforms are present near chemical and hydrocarbon inventories, accessible and maintained fully stock. | **RSK04-EPS07:**<br>Spill kits are used in to minimise LOC overboard from platforms and vessels. | Platform Safety Officer weekly checks (AUXX-209 PSO WEEKLY CHECKS) confirm spill kits are available and fully stocked.<br>Incident report verifies that spill kits were used, if required. |

| **Risk assessment (residual)** | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| D | IV | 4 |

**Demonstration of ALARP**

With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means that any additional or alternative control measures either fail to lower the residual impact consequence any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a residual risk category score ranking of 4 is considered to be ALARP.

**Demonstration of Acceptability**

| | |
|---|---|
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). |
| **Legislative and other requirements** | The control measures outlined in this table align with the requirements of:<br>• *Navigation Act 2012* (Cth)<br>- Marine Orders 93 – Marine Pollution Prevention – noxious liquid substances.<br>• *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth)<br>- Part III (Prevention of pollution by noxious substances).<br>• *Industrial Chemicals Environmental Management (Register) Act 2021* (Cth). |

| | | |
|---|---|---|
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls developed for this hazard are in line with the management measures listed in Sections 4.6.1 and 4.7.1 of the guidelines, which include:<br>• chemicals stored in secure, designated areas, with secondary containment (**RSK04-CM02**)<br>• chemical spill containment and recovery equipment will be available near chemical inventories (**RSK04-CM07**)<br>• chemical transfers are only undertaken in suitable weather conditions and comply with the facility/vessel lifting procedures **(RSK04-CM03)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | The controls developed for this hazard are in line with the management measures listed in Sections 19.2 of the guidelines, which include:<br>• ensure that chemical spill response and containment equipment is routinely inspected, maintained, and operationally exercised and tested, and is deployed or available as necessary for response (**RSK04-CM07**)<br>• ensure that discharges of hydraulic fluid and other chemicals used for the operation of subsea equipment are minimised, and that their magnitude and frequency of discharges is continually monitored (**RSK04-CM04**)<br>• document and report all spills, as well as near misses. Following a spill or near miss with potential for significant environmental impact, carry out a root cause investigation tailored to the specific incident, and undertake corrective actions to prevent recurrence **(RSK04-CM05, -CM06)**<br>• maintain transfer equipment and storage facilities in accordance with manufacturer guidance and regulatory requirements (e.g. on frequency of maintenance) and retain records of such maintenance (**RSK04-CM01, -CM04**)<br>• inspect transfer equipment and storage facilities in order to identify any potential structural flaws or leaks, as well as ensuring security of these facilities (**RSK04-CM02, -CM03**). |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Guidelines met with regard to spills (item 75) include:<br>• ensure that spill response and containment equipment, routinely inspected, maintained, and operationally exercised and tested, is deployed or available as necessary for response **(RSK04-CM05, -CM06, -CM07)**<br>• document and report all spills, as well as near misses. Following a spill or near miss, carry out a root cause investigation and undertake corrective actions to prevent recurrence **(RSK04-CM05, -CM06)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The following objectives in relation to development and production are met: |

| | | |
|---|---|---|
| | | • to reduce the risk of any unplanned release of material into the marine environment to ALARP and to an acceptable level (refer to all controls outlined in this table). |
| **Internal context** | Consistent with Esso's Environment Policy. | Proposed activities are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*". |
| | Meets OIMS Objectives. | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 7-1 objective to evaluate change against an established set of criteria and establish endorsement/approval levels<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors. |
| **External context** | No specific stakeholder concerns have been raised concerning the risk of LOC of hazardous liquids. | |

## 7.5 Unplanned release – Waste

### *7.5.1 Source of risk*

The potential sources of unplanned waste releases are summarised in Table 7-12.

**Table 7-12 Potential sources of unplanned waste releases**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **Yes** | • Incorrect disposal or accidental discharge. |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **Yes** | • Incorrect disposal or accidental discharge. |
| IMR | **Yes** | • Incorrect disposal or accidental discharge.<br>• LOC of NORM from pipeline cutting. |
| Support activities | **Yes** | • Incorrect disposal or accidental discharge. |

Normal operations on the platforms and support vessels generate a variety of hazardous and non-hazardous wastes. These materials could potentially impact the marine environment, if incorrectly disposed of, lost overboard or discharged in significant quantities.

The following non-hazardous materials and wastes will be disposed of to shore, but have the potential to be accidentally dropped or disposed overboard due to overfull bins or crane operator error:

- paper and cardboard
- wooden pallets
- scrap steel, metal and aluminium
- glass

- foam (e.g. ear plugs)
- plastics (e.g. hard hats)
- small personal belongings.

Equipment (small hand-held tools) and personal protective equipment may be accidentally lost overboard. Equipment that has been recorded as being lost on other similar facilities and vessels has primarily been windblown or dropped overboard and has included items such as hardhats, gloves, safety glasses and small tools or materials. Equipment (small hand-held tools) and personal protective equipment are not classified as waste as per the Waste Management Manual (WMM) and are not included any further in this risk assessment. Equipment (small hand-held tools) and personal protective equipment lost overboard are recorded, investigated and corrective actions tracked internally via incident records (per Section 8.16 of the Implementation Strategy).

Loss of wastes has occurred during backloading activities, periods of adverse weather and incorrect waste storage. All waste materials not suitable for discharge to the environment, are transported to shore for disposal or recycling by a licensed waste contractor.

#### 7.5.1.1 NORM and mercury

NORM can accumulate in the form of scale on the internal surfaces of equipment that is in contact with the production fluids. NORM only becomes an issue when the scale in which it is contained is released to the environment; the only feasible scenario for LOC of NORM is through pipeline cutting and temporary storage during IMR activities. Radioactivity derived from natural sources is normally present in the open ocean, particularly at the seabed. Dissolved radium isotopes could be present in NORM scale, potentially increasing the radioactivity levels in close proximity to the scale. If NORM scale is contained in the flowlines, it can emit radiation in the form of higher energy α and γ rays from radium-226 or low energy β rays from radium-228 (APPEA, 2002).

Sampling and analysis programmes of metal coupons from representative pipeline and pigging residues are being undertaken to identify the potential presence of NORM and mercury in pipelines across the Bass Strait network. The potential discharge of trace NORM and trace mercury in sections of pipelines that may be cut as part of the activities included in the scope of this EP is deemed negligible, because following the pipeline flushing and cleaning activities described in Section 2.9.2.2, these contaminants are likely to only be present as surface contamination in the form of scale attached to the internal walls of the pipelines. If there is the presence of trace contaminants such as NORM and mercury in scale, it is unlikely the scale will be released during cutting activities, as dislodgement would require extensive mechanical force or vibration. As a result, scale is likely to remain attached to the internal pipeline walls. The potential release of NORM and mercury from pipeline cutting activities covered under this EP is therefore considered negligible and is not assessed further.

### *7.5.2 Known and potential risks*

The potential risks of waste releases to the ocean are:

- localised smothering of benthic habitats
- localised change in sediment quality
- temporary and localised reduction of water quality
- toxicity or radiation impacts, injury to or mortality of marine fauna.

Receptors that may be at risk include:

- benthic habitat
- fish
- turtles
- pinnipeds
- cetaceans
- seabirds.

### *7.5.3 Environment That May Be Affected*

The EMBA for the accidental release of waste is localised for non-buoyant items that sink and settle on the seabed or may extend for kilometres from the release site (for buoyant waste that drifts with wind and currents).

The EMBA for NORM is restricted to the location of the pipeline undergoing IMR or cutting activities and up to several metres from the activity.

### *7.5.4 Evaluation of risks*

#### 7.5.4.1 Smothering of benthic habitats and communities

Some waste materials released may sink to the seabed in close proximity to the release site. These materials will rest on the seabed, resulting in smothering of benthic habitat and fauna and a localised change in habitat. If dropped objects are not retrievable, these items may permanently smother small areas of seabed (likely to be no greater than tens of square metres), resulting in the loss of benthic habitat. However, as with most subsea infrastructure, the items themselves are likely to become colonised by benthic fauna over time (e.g. sponges) and become a focal area for sea life, so the net environmental impact is likely to be neutral.

Benthic habitats and communities within the OAs show natural small-scale variation, however, are mostly homogenous, with no particular areas of value or sensitivity. In the context of the ubiquitous nature of the seabed in the ADE and broader region, no long-term changes to ecosystem function are expected. Any impacts will be inconsequential and have no adverse effects.

#### 7.5.4.2 Toxicity or radiation effects to fauna

*NORM*

Very small volumes of NORM may be released to the marine environment if mineral scale contained within pipelines is released during pipeline cutting. The pathways for exposure of NORM to marine species are through external γ radiation from radium-226, absorption (e.g. by phytoplankton) or through intake from water or food of either radium-226 or radium-228. Once absorbed, radium follows potassium in organisms and is primarily deposited in shell and bone tissue. Secretion from these is very slow and in general the deposited radium will remain there throughout the organism's lifetime (Norse Decom, 2003).

There is little knowledge about the effects of deposited NORM on marine organisms, however studies indicate that there is no increased accumulative of radium-226 or radium-228 in marine organisms due to exposure to NORM (Hylland & Eriksen, 2013), and there is little upward transport through bioaccumulation (Norse Decom, 2003).

Early life stages of fish (embryos, larvae) and other plankton would be most susceptible to NORM exposure, as they are less mobile and therefore can become exposed to the highest concentration of radiation. However, these are expected to rapidly recover, as they have high levels of natural mortality and a rapid replacement rate (UNEP, 1985).

As studies indicate that there is limited upward transport of radiation through the food chain, fauna that prey on plankton are not expected to be impacted. As such, exposure of planktonic communities is not considered to result in significant impacts on population level of organisms that would affect ecological diversity or productivity in the marine environment. As such, environmental impacts are inconsequential.

*HAZARDOUS SOLID WASTE*

The impact assessment for hazardous liquids is presented in Section 7.4.4

Solid hazardous materials, such as paint cans containing paint residue, batteries and so forth, would settle on the seabed if dropped overboard. Over time, this may result in the leaching of hazardous materials to the seabed, which is likely to result in a small area of substrate becoming toxic and unsuitable for colonisation by benthic fauna. The benthic habitats of the activity area are broadly similar to those elsewhere in the region (e.g., extensive sandy seabed), so impacts to very small areas of seabed will not result in the long-term loss of benthic habitat or species diversity or abundance.

#### 7.5.4.3 Injury to or mortality of fauna

Marine fauna including cetaceans, seals, turtles and seabirds can be severely injured or die from entanglement in marine debris, causing restricted mobility, starvation, infection, amputation, drowning and smothering (DoEE, 2018b).

In marine mammals and turtles, ingestion of or entanglement in marine debris has the potential to limit feeding and foraging behaviours and thus can result in starvation and mortality. Debris may lead to infection or the amputation of flippers, tails or flukes (DoEE, 2018b). Plastics have been implicated in the deaths of marine mammals and turtles due to ingestion. The TSSC (2015a) reports that there have been 104 records of cetaceans in Australian waters impacted by plastic debris through entanglement or ingestion since 1998 (humpback whales

being the main species). The OAs are overlapped by a number of whale and fish BIAs, where they may be seasonably present during migration and foraging. Non-hazardous pollution is not listed as a threat to any marine fauna and the likelihood of large number of marine mammals or turtles being present at the time of accidental waste discharge is very highly unlikely, meaning that few if any individuals would be affected, resulting in an inconsequential impact.

Seabirds entangled in plastic packing straps or other marine debris may lose their ability to move quickly through the water, reducing their ability to catch prey and avoid predators, or they may suffer constricted circulation, leading to asphyxiation and death (DoEE, 2018b).

The likelihood of large numbers of seabirds rafting on or foraging in the ocean around an accidental waste discharge is very highly unlikely, meaning that few if any individuals would be affected, resulting in an inconsequential impact.

The *Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans* (CoA, 2018) outlines management actions and objectives relevant to preventing and mitigating marine debris. An assessment of the management actions and objectives of the abatement plan against the activity is provided in Table 7-13.

**Table 7-13 Assessment of the objectives and management actions of the Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (CoA, 2018)**

| Objective and associated management actions | Assessment |
|---|---|
| **1. Contribute to long-term prevention of the incidence of marine debris** | |
| Establish a threat abatement plan team to coordinate actions for the life of the plan. | The activity will not have any impacts on this management action. |
| Limit the amount of single-use plastic material lost to the environment in Australia. | The controls listed in Table 7-14 will reduce the likelihood of accidental discharge of wastes to the ocean and ensure the activity is conducted in a manner that is not inconsistent with this management action. |
| Encourage development of a circular economy in Australia. | The activity will not have any impacts on this management action. |
| Encourage innovation in recovery and waste treatment technologies. | The activity will not have any impacts on this management action. |
| Improve management of abandoned, lost and discarded fishing gear. | The activity will not have any impacts on this management action. |
| Improve shipping waste management. | The controls listed in Table 7-14 will reduce the likelihood of accidental discharge of wastes to the ocean and ensure the activity is conducted in a manner that is not inconsistent with this management action. |
| **2. Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities and locations** | |
| Update the list of marine debris impacted EPBC Act-listed vertebrate species as scientific evidence is published. | The activity will not have any impacts on this management action. |

| Objective and associated management actions | Assessment |
|---|---|
| Monitor relevant ecological research to determine if further EPBC Act-listed ecological communities are threatened by marine debris. | The activity will not have any impacts on this management action. |
| Identify locations where aggregations of debris intersect with the temporal and spatial distribution of EPBC Act-listed species, especially during vulnerable life stages (e.g. whale and turtle migrations). | The activity will not have any impacts on this management action. |
| Build understanding related to plastic and microplastic pollution. | The activity will not have any impacts on this management action. |
| Survey marine plastic pollution in the Southern Ocean, sub-Antarctic islands and other high value offshore island environments. | The activity will not have any impacts on this management action. |
| Determine the relevance of microplastics to the Australian Government's Science and Research Priorities and corresponding Practical Research Challenges. | The activity will not have any impacts on this management action. |
| **3. Remove existing marine debris** | |
| Support beach-based clean-up efforts. | The activity will not have any impacts on this management action. |
| Improve the effectiveness of Australian Government grants in relation to marine debris outcomes. | The activity will not have any impacts on this management action. |
| Remove derelict fishing gear from Australia's oceans and coasts. | The activity will not have any impacts on this management action. |
| Develop understanding of the potential for biological breakdown of plastic to prevent it entering the marine environment or aid its removal. | The activity will not have any impacts on this management action. |
| **4. Monitor the quantities, origins, types and hazardous chemical contaminants of marine debris, and assess the effectiveness of management arrangements for reducing marine debris** | |
| Continue collection of data in long-term beach surveys. | The activity will not have any impacts on this management action. |
| Develop a nationally consistent monitoring system for land-based plastic pollution. | The activity will not have any impacts on this management action. |
| Maintain a national database for long-term marine debris beach survey data and promote standard methods for collecting and ongoing monitoring of beach clean-up debris. | The activity will not have any impacts on this management action. |

| Objective and associated management actions | Assessment |
|---|---|
| Assess the effectiveness of Australia's product stewardship and waste management in reducing the levels of plastics entering the marine environment. | The activity will not have any impacts on this management action. |
| Continue to monitor persistent organic pollutant contamination using plastic resin pellets from Australian beaches. | The activity will not have any impacts on this management action. |
| Regularly assess mean surface plastic loads and associated hazardous chemical contaminants across Australian jurisdictions and territories. | The activity will not have any impacts on this management action. |
| Enhance collection of data related to ghost net retrievals from Commonwealth waters across northern Australia. | The activity will not have any impacts on this management action. |
| Improve understanding of the impact and origins of ghost nets. | The activity will not have any impacts on this management action. |
| **5. Increase public understanding of the causes and impacts of harmful marine debris, including microplastic and hazardous chemical contaminants, to bring about behaviour change.** | |
| Raise the profile of marine debris impacts on marine vertebrate species, especially EPBC Act listed threatened species. | The activity will not have any impacts on this management action. |
| Improve public communication about consumer waste and litter. | The activity will not have any impacts on this management action. |

The CMPBW identifies marine debris as a key threat and assess it as 'possible' to occur (might occur at some time) , with a minor consequence (i.e. individual-level effects only). None of the actions in the plan relate to marine debris. Therefore, an assessment against the actions in the plan has not been undertaken.

Similarly, the *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024) identifies marine debris as a threat and assesses it as 'almost certain' to occur (expected to occur every year) with a 'minor' consequence (individuals are affected but no affect at population level). None of the recovery actions in the plan relate to marine debris. Therefore, an assessment against the recovery actions in the plan has not been undertaken.

The conservation advice for the sei whale (*Balaenoptera borealis*) (TSSC, 2015b) and the fin whale (*Balaenoptera physalus*) (TSSC, 2015c) both do not explicitly identify marine debris as a threat however, the advices identify 'pollution' as a 'minor' threat. None of the conservation and management actions in both advice documents relate to pollution, therefore an assessment against the conservation and management actions has not been undertaken.

The *Recovery Plan for the White Shark (Carcharodon carcharias)* (CoA, 2013) does not identify marine debris or pollution as a key threat. None of the objectives or associated actions relate to marine debris/pollution, therefore an assessment against the objectives and actions has not been undertaken.

### *7.5.5 Risk assessment*

Table 7-14 presents the risk assessment for the unplanned release of waste.

**Table 7-14 Risk assessment for the unplanned release of waste**

| ALARP decision context | |
|---|---|
| **Factor** | A |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. |

| Risk assessment (inherent) | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| D | IV | 4 |

| Assessment of proposed control measures (ALARP assessment) | | | |
|---|---|---|---|
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| Implement the WMM for platforms. | Reduces the likelihood of unplanned waste releases to sea, reducing potential impacts to marine fauna and water quality. | This is routine maritime practice that outlines the process in place to handle and manage waste. | Adopted **(RSK05-CM01)** |
| Vessels comply with the MARPOL Annex V requirements to store and manage garbage. | Reduces the likelihood of unplanned waste releases to sea, reducing potential impacts to marine fauna and water quality. | Vessels are required to comply with MARPOL as part of standard operational requirements. These requirements are continually verified and are normal operating practice. | Adopted **(RSK05-CM02)** |
| An EPMOC assessment is undertaken for any pipeline cutting where there is a risk of NORM entering the environment. | Reduces the likelihood of discharging NORM to the marine environment. | EPMOC is a standard process. | Adopted **(RSK05-CM03)** |

| Environmental controls and performance measurement | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK05-EPO01:** No unplanned release of solid | **RSK05-CM01:** The WMM for offshore facilities is implemented | **RSK05-EPS01:** Waste is managed (stored, handled and disposed of) in | Internal inspection verifies the WMM is implemented. |

| | | | |
|---|---|---|---|
| waste to the marine environment. | by all personnel and specifies the following:<br>• waste streams are appropriately handled, tested, monitored and managed according to their hazard and recyclability class<br>• waste segregation and storage<br>• records of all waste to be disposed, treated or recycled is maintained, and includes (though is not limited to) quantity of waste, waste type and disposal/recycle location. | accordance with the WMM for offshore facilities. | |
| | **RSK05-CM02:**<br>Esso-contracted vessels comply with the requirements of Marine Order 95 (as applicable to vessel size, type and class), including being in possession of:<br>• a Garbage Management Plan that specifies procedures for minimising, collecting, storing, processing, and disposing of garbage and designation of person(s) responsible<br>• a Garbage Record Book that details all discharges, incineration and offloading to reception facilities. | **RSK05-EPS02:**<br>Support vessels comply with MARPOL Annex V (Prevention of Pollution by Garbage from Ships) (enacted in Australia through Marine Order 95 (Pollution prevention – Garbage)). | Internal inspection verifies a current Garbage Management Plan and Garbage Record Book are in place. |
| **RSK05-EPO02:**<br>Prevent NORM-contaminated material entering the environment. | **RSK05-CM03:**<br>An EPMOC assessment is undertaken for any pipeline cutting where there is a risk of NORM release to ensure that | **RSK05-EPS03:**<br>The EPMOC process is implemented. | EPMOC records demonstrate consideration of NORM risk for cut pipelines, where NORM risk exists. |

| | | | |
|---|---|---|---|
| | actions are put in place to prevent NORM (in scale) discharge to the marine environment. | | |
| **Residual Risk** | | | |
| **Likelihood** | **Consequence** | **Risk Category** | |
| D | IV | 4 | |
| **Demonstration of ALARP** | | | |
| With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means that any additional or alternative control measures either fail to lower the residual impact consequence any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a residual risk category score ranking of 4 is considered to be ALARP. | | | |
| **Demonstration of acceptability** | | | |
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met (noting that principle (e) is not relevant). | | |
| **Legislative and other requirements** | The controls align with the requirements of the:<br>• *Navigation Act 2012* (Cth)<br>- Chapter 4 (Prevention of Pollution)<br>- Marine Orders Part 95 (Marine pollution prevention – garbage).<br>• *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth)<br>- Part IIIC (Prevention of pollution by garbage). | | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The control measures listed in this table meet the relevant mitigation measures listed for offshore activities with regards to:<br>• Non-hazardous waste – Manage in accordance with MARPOL Annex V requirements, no planned offshore disposal of solid waste, segregate into recyclable and non-recyclable waste **(RSK05-CM01, -CM02)**. | |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | The EPS listed in this table meet these guidelines for offshore activities with regard to:<br>• Risk management for handling and storage of chemicals. | |
| | *Environmental, Health and Safety Guidelines for* | Guidelines met with regards to: | |

| | | |
|---|---|---|
| | *Offshore Oil and Gas Development* (World Bank Group, 2015) | • Waste management (Item 46) - Materials should be segregated offshore and shipped to shore for reuse, recycling or disposal. A waste management plan should be developed and contain a mechanism allowing waste consignments to be tracked **(RSK05-CM01, -CM02)**.<br>Guidelines met with regard to NORM include:<br>• Item 68 - Where NORM is present, or NORM precipitation and/or accumulation conditions are known or expected to exist, a NORM management program should be developed to ensure worker safety and the use of appropriate handling and waste management procedures **(RSK05-CM03)**.<br>• Item 69 - If removal of NORM is required, disposal options may include canister disposal during well abandonment, injection into the annular space of a well, shipment to shore for disposal in an engineered and properly operated landfill within sealed containers, and, depending on the type of NORM and in cases where no other option is available, discharge to sea with the facility drainage (**RSK05-CM03**).<br>• Item 70 - NORM-containing sludge, scale, or equipment should be treated, processed, isolated, and/or disposed of according to good international industry practices, so that potential future human exposure to the treated waste will be within internationally accepted limits **(RSK05-CM03)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls listed in this table meet the following offshore development and production objectives:<br>• to reduce the risk of any unplanned release of material into the marine environment to ALARP and to an acceptable level. |
| | **Waste management specific** | |
| | Guidelines for the development of Garbage Management Plans (IMO, 2012) | The WMM for offshore platforms and support vessels' Garbage Management Plans are developed in accordance with these guidelines. |
| | International Dangerous Goods Maritime Code (IMO, 2024) | The storage and handling of dangerous goods on the platforms and support vessels is managed in accordance with this code. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist".* |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements |

| | | |
|---|---|---|
| | | • OIMS System 8-1 objectives to clearly define and communicate OI requirements to contractors and to qualify, evaluate and select contractors based on their ability to perform work in a safe, secure and environmentally sound manner. |
| **External context** | No specific stakeholder concerns have been raised concerning the unplanned release of waste. | |

## 7.6 Unplanned release – Loss of containment of marine diesel oil – Vessel collision

### *7.6.1 Source of risk*

The potential sources for a LOC of MDO are summarised in Table 7-15.

**Table 7-15 Potential sources of a LOC of MDO**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **No** | N/A |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **No** | N/A |
| IMR | **Yes** | • Vessel collision |
| Support activities | **Yes** | • Vessel Collision |

The following activities have the potential to result in a spill of MDO:

- collision between support vessels or with a third-party vessel
- vessel collision with platform

AMSA's annual reports for the last five years (2020/2021 to 2024/2025) indicate there has been one significant MDO pollution incident resulting from vessel collisions or groundings, but none relating to vessels supporting offshore petroleum production facilities. There was one spill of MDO in 2021/2022 reported by AMSA (AMSA, 2022):

- a cement carrier collided with two tugboats in Tasmania. Both tugs sank in the port, with an estimated volume of 69,000L of MDO on board and total loss assumed.

### *7.6.2 Known and potential risks*

The known and potential impacts of MDO spill are:

- a temporary and localised reduction in water quality
- injury or death of exposed marine fauna and seabirds
- habitat damage where the spill reaches shorelines
- changes to the functions, interests or activities of other users (e.g. commercial fisheries).

### *7.6.3 Spill modelling*

To understand the potential consequences of a MDO spill and the response preparedness required, Esso commissioned RPS to undertake stochastic and deterministic modelling (RPS, 2019).

#### 7.6.3.1 Modelling methodology

Esso commissioned RPS to carry out quantitative oil spill modelling to assess five potential hydrocarbon spill scenarios associated with support vessel activities in the Gippsland Basin (RPS, 2019). The five spill locations are used as representative indicators to assess potential impacts of spill risks across Esso's Bass Strait operations. The selection of worst-case discharge scenarios is in Table 7-16. The modelling inputs for the five spill locations are listed in Table 7-17, with the spill volumes in all cases based on rupture of the largest single fuel tank on the support vessel in line with AMSA spill modelling guidance (AMSA, 2015).

For the purposes of this EP, the BTA and KPA scenario locations for a vessel collision are representative of a potential MDO release as they are in the scope of the producing EP (the non-producing locations are evaluated in a separate EP). The KPA scenario (vessel to vessel collision) is representative of an MDO spill in deeper waters (94m) while the BTA scenario (vessel to vessel collision; vessel and platform collision) is representative of an MDO spill in shallow waters closer to the shoreline (46m water depth). Both scenarios model a spill volume of 280m$^3$.

**Table 7-16 Selection of worst-case discharge scenario - LOC from a vessel**

| Process | Description |
|---|---|
| Identify potential discharge scenarios. | During Bass Strait operations, potential unplanned incidents that could result in a spill include:<br>• collision with platform that results in tank rupture and a release of MDO<br>• vessel-to-vessel collisions that result in tank rupture and release of MDO.<br>Vessel drift or powered grounding is not considered credible given the distance from shore of the OAs and the lack of emergent features in the OAs. |
| Identification of potential pollutants. | Common fuel used in larger vessels servicing the oil and gas industry is marine diesel – MDO Group II. |
| Determine characteristics of the discharge scenario (including calculation of potential spill volumes). | Based on the type of support vessel that may be in service, the largest fuel tank volume considered is 280m$^3$. *<br>Largest tank sizes for other vessel types that may be used during operations (refer Section 2.10.1) are listed below, supporting that the considered volume is appropriate for the spill scenario:<br>• *Skandi Singapore*– largest capacity tank: 166.9m$^3$<br>• *Skandi Darwin*– largest capacity tank: 240m$^3$<br>• *Skandi Feistein*– largest capacity tank: 219.6m$^3$<br>The loss of a full tank of fuel is most likely an overestimate as hydrostatic pressure would limit the release and pumping of fuel oil in a ruptured tank to another tank could also restrict the amount lost. |
| Determine likelihood of the discharge scenario. | There have been no incidents of collision leading to tank rupture from OSVs in Bass Strait operations over the past 10 years. |
| Selection of worst-case scenario based on risk. | Given there have been no incidents of vessel collision with platforms leading to tank rupture and LOC, modelling of a spill of MDO has been completed at a selection of facilities. This selection gives a representation of spills:<br>• close to shore (BTA, PCA)<br>• northern-most facility (KPA)<br>• southern-most facility (WKF)<br>• a central fields facility (HLA). |

* Representative spill volumes are based on known vessel tank sizes that have been used for the activity. These are selected for modelling and are used to assess potential impacts to the environment from MDO spills. The volume does not represent a limitation on spill response capability and does not limit the size of vessels that may be used in the future. Subsea IMR works and market availability of vessels may potentially require vessels with larger individual tank sizes to be used.

**Table 7-17 Vessel collision MDO spill modelling inputs and parameters (RPS, 2019)**

| Parameter | Details | | | | |
|---|---|---|---|---|---|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| Release locations (surface release) | WKF | PCA | BTA | KPA | HLA |
| Coordinates (GDA94) | 38° 35′ 39" S 148° 06′ 15" E | 38° 34′ 15" S 147° 19′ 16″ E | 38° 17′ 53" S 147° 40′ 28" E | 38°10' 53" S 148° 35' 35″ E | 38°24′15″ S 148°19′13″ E |
| Water depth | 76m | 42m | 46m | 94m | 73m |
| Distance to shore | 72km | 24km | 23km | 41km | 67km |
| Hydrocarbon type | MDO Group II | | | | |
| Total spill volume ($m^3$) | 280$m^3$ | | | | 220$m^3$ |
| Volume basis | AMSA's guideline for indicative maximum credible spill volumes for other, nonoil tanker, vessel collision (AMSA, 2015)) is the volume of the largest fuel tank. The loss of a full tank is most likely an overestimate because hydrostatic pressure would limit the release and pumping of oil in a ruptured tank to another tank could also restrict the amount lost. Based on the type of support vessel usually in service, the largest fuel tank volume of 280$m^3$ has been used to undertake the impact assessment. The HLA scenario was based on a pipeline repair vessel with a slightly smaller tank (220$m^3$). | | | | |
| Release duration | Six hours | | | | |
| Modelled duration | 30 days | | | | |
| **MDO characteristics** | | | | | |
| Density | 829kg/$m^3$ @ 25°C | | | | |
| API | 37.6 | | | | |
| Dynamic viscosity | 4.0cP @ 25°C | | | | |
| Pour point | -14°C | | | | |
| Oil property category | Group II (light persistent oil) | | | | |
| **Boiling point (°C)** | | | | | |
| Volatile (<180°C) | 6.0% | | | | |
| Semi-volatile | 34.6% | | | | |

| Parameter | Details | | | | |
|---|---|---|---|---|---|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| (180 – 265°C) | | | | | |
| Low volatility (265 – 380°C) | 54.4% | | | | |
| Residual (>380°C) | 5.0% | | | | |

#### 7.6.3.2 Modelling outputs – Weathering and fate

Marine diesel contains 95% light hydrocarbons (or non-persistent constituents) that are likely to evaporate when available to the atmosphere. The remaining 5% is composed of heavy hydrocarbons (or persistent compounds) that may persist on the sea-surface for extended times.

It is important to note that the viscosity of MDO does not change significantly over time and hence has a strong tendency to physically entrain into the upper water column as oil droplets in the presence of waves, where it is subjected to microbial biodegradation (decay) but can refloat to the surface if wave energies abate.

Figure 7-3 and Figure 7-4 show the weathering graphs of MDO release for BTA and KPA, respectively.

Given the releases occur on the sea surface, the modelling shows the volatile and semi-volatile components of the oil are predicted to evaporate within first 24 hours, with the remaining oil tending to remain within the wave-mixed layer of the water column (3 - 10m deep, depending on the conditions). The graphs predict how much ($m^3$) and how long (days) it will take for the MDO to evaporate and decay, and how much will remain in the water column, on the surface, or come ashore. Both graphs show significant evaporation (nearly 90%) will occur over the 30 days.

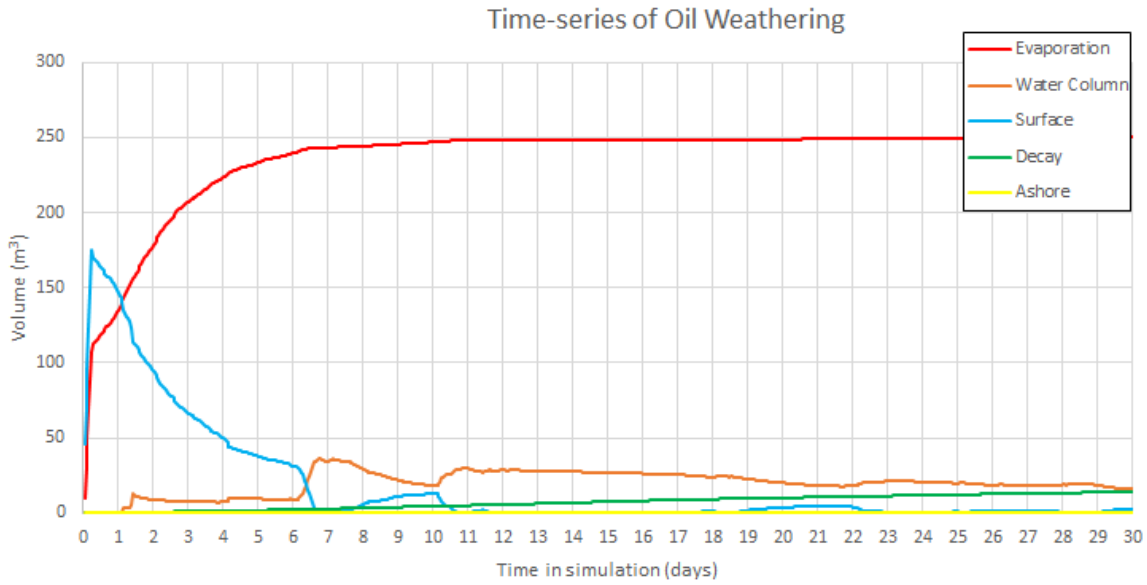



**Figure 7-3 Predicted weathering and fate for a 280m³ surface release of MDO at BTA over 30 days (RPS, 2019)**

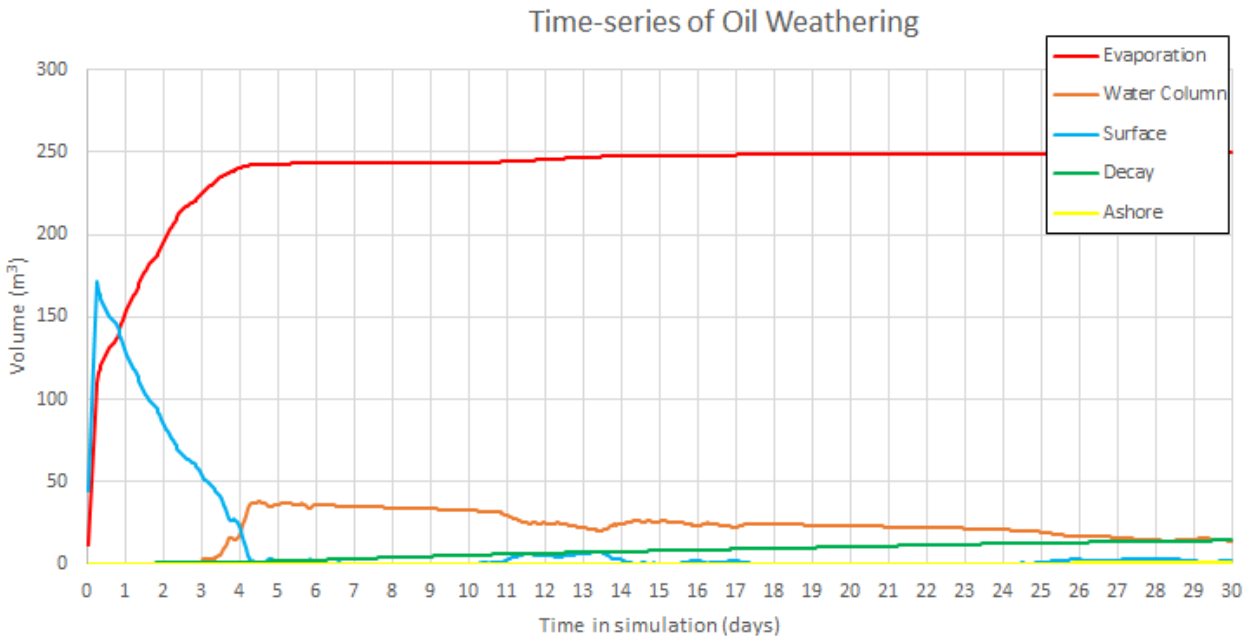



**Figure 7-4 Predicted weathering and fate for a 280m³ surface release of MDO at KPA over 30 days (RPS, 2019)**

#### 7.6.3.3 Modelling thresholds

An outline of the spill thresholds used for the Ocean Surface Topography Mission (OSTM), together with the justification for their use, is provided in Table 7-18.

RPS (2019) utilised the thresholds that were presented in NOPSEMA (2019) at the time the modelling was undertaken. However, RPS (2019) also aligns with the thresholds presented in NOPSEMA (2025d) as NOPSEMA's (2025d) recommended high threshold for dissolved (300ppb) is 100ppb less than what was modelled (400ppb) (i.e. the modelling is considered to be more conservative). NOPSEMA's (2025d) recommended moderate entrained threshold (100ppb) is captured in the RPS (2019) modelling and is represented as 'high' entrained exposure.

The only threshold that was not modelled in RPS (2019) is the new suggested value of 1000ppb ('high' threshold) for entrained oil. The extent of the area affected by this threshold will be encompassed (to a much smaller geographic extent) by the 100ppb modelling results. As such, the results of the RPS (2019) modelling remain valid despite the new threshold suggestions for dissolved and entrained oil in the revised guideline.

**Table 7-18 Spill concentration thresholds used in the OSTM study**

| Type of contact | Threshold (NOPSEMA, 2019) | Justification |
|---|---|---|
| Sea surface | **LOW exposure: 1g/m²**<br>(visual impact only equivalent to a rainbow to metallic sheen) | Oil that is 1g/m² (~1µm thick) is considered below levels that would cause environmental harm, however, consequences may occur depending on factors such as the sensitivity of specific features or management/conservation/protection objectives of the environment.<br>This threshold is more indicative of the areas perceived to be affected due to its visibility on the sea-surface and potential to trigger temporary closures of areas (i.e. fishing grounds) as a precautionary measure (i.e. socio-economic effects). It is also close to the practical limit of observing oil in the marine environment. |

| Type of contact | Threshold (NOPSEMA, 2019) | Justification |
|---|---|---|
| | | The 0.1 - 09µm thickness is likely to be observed in areas where the hydrocarbon is spread thinly, and as such has already undergone evaporation and weathering. The majority of the lighter, more toxic compounds will have been removed from the surface in that process. Ecological impacts at this thickness are unlikely. |
| | **MODERATE exposure: 10 g/m²**<br>(equivalent to a metallic sheen) | This threshold represents a lower concentration for identifying ecological features of the environment that may be affected by floating oil.<br>Approximate lower limit for harmful exposure to birds and marine mammals.<br>Research has shown that harm to seabirds through ingestion from preening of contaminated feathers, or the loss of thermal protection of their feathers occurs at 10µm. |
| | **HIGH exposure: 50g/m²**<br>(equivalent to a metallic sheen) | The concentration of floating oil which there is an increased likelihood of consequences on ecological, social, economic and cultural features of the environment.<br>The area containing the thickest floating oil with the greatest potential to harm wildlife.<br>A concentration of surface oil of 25g/m² or greater can be harmful for all marine birds that come in contact with the oil. Mortality would result from ingestion during preening, or from hypothermia from matted feathers. |
| Shoreline | **LOW exposure: 10 - 100g/m²**<br>Equivalent to an oil stain/film (~2tsp/m²) | Represents a lower concentration for identifying social, economic and cultural features of the environment that may be affected by shoreline oil.<br>Provides a good basis for the planning area for scientific monitoring.<br>A threshold of 10g/m² is a conservative threshold used to define regions of socio-economic impact, such as triggering temporary closures of adjoining fisheries or the need for shore clean-up on beaches or man-made features/amenities (breakwaters, jetties, and marinas).<br>Consequences on ecological features are generally not expected; however, consequence may occur depending on factors such as the sensitivity of specific features or management/conservation/protection objectives for the environment. |
| | **MODERATE exposure: 100 – 1000g/m²**<br>Equivalent to a thin oil coating (~½ cup/m²) | Represents a lower concentration for identifying ecological features of the environment that may be affected by shoreline oil, and for assessing the potential consequences on these features.<br>An oil exposure threshold of 100g/m² would potentially harm shorebirds and wildlife (furbearing aquatic mammals and marine reptiles on or along the shore) based on studies for sub-lethal and lethal impacts. |

| Type of contact | Threshold (NOPSEMA, 2019) | Justification |
|---|---|---|
| | | This threshold for shoreline contact is also the minimum limit that the oil can be effectively cleaned according to the AMSA (2023) guideline. |
| | **HIGH exposure: >1000g/m$^2$**<br>Equivalent to hydrocarbon cover (~1L/m$^2$) | Representative of an increased likelihood of consequences on ecological, social, economic and cultural features of the environment.<br>Loadings of 1000g/m$^2$ of oil or more have been observed impacting marsh plants during growing season. Similar thresholds have been found in studies assessing hydrocarbon impacts on mangroves.<br>Representative of higher-level ecological impacts and is likely to require intensive clean-up effort. |
| | The impacts to shoreline species include those species most at risk of oil exposure, being the small sedentary (non-mobile) invertebrates to large mobile species (birds, reptiles and mammals). Impacts to shoreline species are more pronounced for heavy oils (crudes) that are viscose and composed of persistent hydrocarbons, as opposed to condensates and MDO that weather quickly and do not form emulsions. Thus, the thresholds used to assess shoreline contact are conservative for MDO. | |
| Dissolved<br>(exert most of the toxic effects of oil on aquatic biota) | **LOW exposure: 10ppb** | Represents a lower concentration for identifying ecological, social, economic and cultural features of the environment that may be affected by dissolved oil.<br>Establishes planning area for scientific monitoring based on potential for exceedance of water quality triggers.<br>Can be used to define regions of potential socio-economic impact. It also provides a conservative lower limit at which impacts may occur to sensitive species or life stages. |
| | **MODERATE exposure: 50ppb** | Represents a concentration of dissolved oil which there is an increased likelihood of consequences on ecological, social, economic and cultural features of the environment.<br>Approximates toxic effects, including acute toxicity and potential for lethal effects, particularly for sensitive species or life stages. |
| | **HIGH exposure: 400ppb** | Represents a concentration of dissolved oil which there is an increased likelihood of consequences on ecological, social, economic and cultural features of the environment.<br>Approximates toxic effects including lethal effects to sensitive species.<br>Noting that NOPSEMA (2025d) recommends that 300ppb is considered high exposure. |
| | French-McCay (2002) reviewed available toxicity data, where marine biota was exposed to dissolved hydrocarbons prepared from oil mixtures, finding that 95% of species and life stages exhibited 50% population mortality (LC50) between 6 - 400ppb total PAH concentration after 96 hours exposure, with an average of 50ppb. Hence, concentrations lower than 6ppb total PAH value should be protective of 97.5% of species and life stages | |

| Type of contact | Threshold (NOPSEMA, 2019) | Justification |
|---|---|---|
| | even with exposure periods of days (at least 96 hours). Early life-history stages of fish appear to be more sensitive than older fish stages and invertebrates. | |
| Entrained (this exposure is not considered to be of significant biological impact and does not define the area of influence) | **LOW exposure: 10ppb** | The 10ppb threshold represents the lowest concentration and corresponds generally with the lowest trigger levels for chronic exposure for entrained hydrocarbons in the ANZECC and ARMCANZ (2000) water quality guidelines.<br>Establishes planning area for scientific monitoring based on potential for exceedance of water quality triggers.<br>At this concentration, consequences on ecological, social, economic and cultural features are generally not expected; however, consequences may occur depending on factors such as the sensitivity of specific features or management/conservation/protection objectives for the environment. |
| | **MODERATE exposure: N/A** | Noting that NOPSEMA (2025d) recommends that 100ppb is considered moderate exposure, this was modelled as 'high' in the RPS (2019) modelling.<br>Represents a lower concentration for identifying ecological, social, economic and cultural features of the environment that may be affected by entrained oil.<br>It is a conservative exposure value to account for the uncertainty in consequences on ecological, social, economic and cultural features of the environment. |
| | **HIGH exposure: 100ppb** | As appropriate given oil characteristics for informing risk evaluation.<br>It approximates toxic effects, including potential for sublethal effects to sensitive species or life stages.<br>NOPSEMA (2025d) recommends that 1000ppb is considered high exposure and represents a concentration of entrained oil which there is an increased likelihood of consequences on ecological, social, economic and cultural features of the environment. An area exposed to 1000ppb would be significantly smaller than that exposed to 100ppb, and although it was not modelled in 2019, would be captured by the 100ppb spill EMBA. |

Sources: (RPS, 2019); (RPS, 2025); (NOPSEMA, 2025e)

### *MODELLING RESULTS – STOCHASTIC*

Oil spill modelling predicts the total area that could be exposed to hydrocarbon, including trace concentrations of oil in the water column, as a result of any spill. This is known as the EMBA and is used for planning purposes to ensure that all social and environmental sensitivities are acknowledged, described and considered in the development of the EP.

Modelling is also used to inform specific impact assessments by understanding the location and extent of oil at concentrations likely to result in environmental consequences. There is no agreed exposure level below which environmental impacts will not occur, so outputs should not be interpreted as a boundary. However, mapping areas which could be moderately impacted by a spill is a useful tool for impact consequence assessment.

The results of the modelled KPA scenario and BTA scenario are summarised in Table 7-19 and Table 7-20 respectively.

**Table 7-19 KPA modelling output summary**

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| Sea surface exposure (Figure 7-5) | Low (1 - 10g/m$^2$) | Maximum distance from release site is approximately 161km in an east-northeast direction.<br>The zone of low exposure overlaps the Upwelling East of Eden KEF, several petrel and albatross foraging BIAs, the white shark reproduction BIA, the PBW foraging BIA and the SRW migration BIA.<br>This level of exposure does not extend into State waters or contact any marine parks. |
| | Moderate (10 - 50g/m$^2$) | Maximum distance from release site is approximately 17km in an east direction.<br>The zone of moderate exposure overlaps the Upwelling East of Eden KEF, several petrel and albatross foraging BIAs, the PBW foraging BIA and the SRW migration BIAs.<br>This level of exposure does not extend into State waters or contact any marine parks. |
| | High (>50g/m$^2$) | Maximum distance from release location is approximately 2km in a north-northeast direction.<br>There is a 13% probability that the zone of high exposure will overlap the Upwelling East of Eden KEF. Several petrel and albatross foraging BIAs, the PBW foraging BIA and SRW migration BIA are overlapped by this level of exposure.<br>This level of exposure does not extend into State waters or contact any marine parks. |
| Shoreline exposure | Low (10g/m$^2$) | N/A - no shoreline contact was predicted above the low threshold for this scenario. |
| | Moderate (100g/ m$^2$) | N/A – threshold not reached. |
| | High (> 1000g/m$^2$) | N/A - threshold not reached. |
| In-water dissolved exposure (Figure 7-6) | Low (10ppb) | Only the low threshold of dissolved in-water exposure was predicted, with a low probability (2%) of overlap with several petrel and albatross foraging BIAs, the PBW foraging BIA and the SRW migration BIAs as well as the Upwelling East of Eden KEF.<br>This level of exposure does not extend into State waters or contact any marine parks. |
| | Moderate (50ppb) | N/A - threshold not reached. |

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| | High (400ppb) | N/A - threshold not reached. |
| In-water entrained exposure<br>(Figure 7-7) | Low<br>(10ppb) | The zone of low exposure overlaps the following environmental receptors:<br>AMPs:<br>• Beagle<br>• East Gippsland<br>• Flinders<br>• Freycinet.<br>BIAs:<br>• several petrel and albatross – foraging<br>• grey nurse shark – foraging and migration<br>• white shark – foraging and reproduction<br>• humpback whale – migration<br>• PBW – foraging<br>• SRW – migration and reproduction.<br>KEFs:<br>• Big Horseshoe Canyon<br>• Canyons on the Eastern Continental Slope<br>• Seamounts South and east of Tasmania<br>• Shelf rocky reefs<br>• Upwelling East of Eden.<br>Marine parks and protected areas:<br>• Cape Howe Marine National Park<br>• Point Hicks Marine National Park<br>• Batemans MP<br>• Beware Reef Marine Sanctuary<br>• Kent Group National Park<br>• The Skerries Special Management Area. |
| | High<br>(100ppb) | The zone of high exposure overlaps the following environmental receptors:<br>AMPs:<br>• East Gippsland.<br>BIAs:<br>• several petrel and albatross – foraging<br>• grey nurse shark – foraging and migration<br>• white shark – foraging and reproduction<br>• humpback whale – migration<br>• PBW – foraging<br>• SRW – migration and reproduction.<br>KEFs:<br>• Big Horseshoe Canyon<br>• Canyons on the Eastern Continental Slope<br>• Upwelling East of Eden.<br>Marine parks and protected areas: |

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| | | • Point Hicks Marine National Park. |

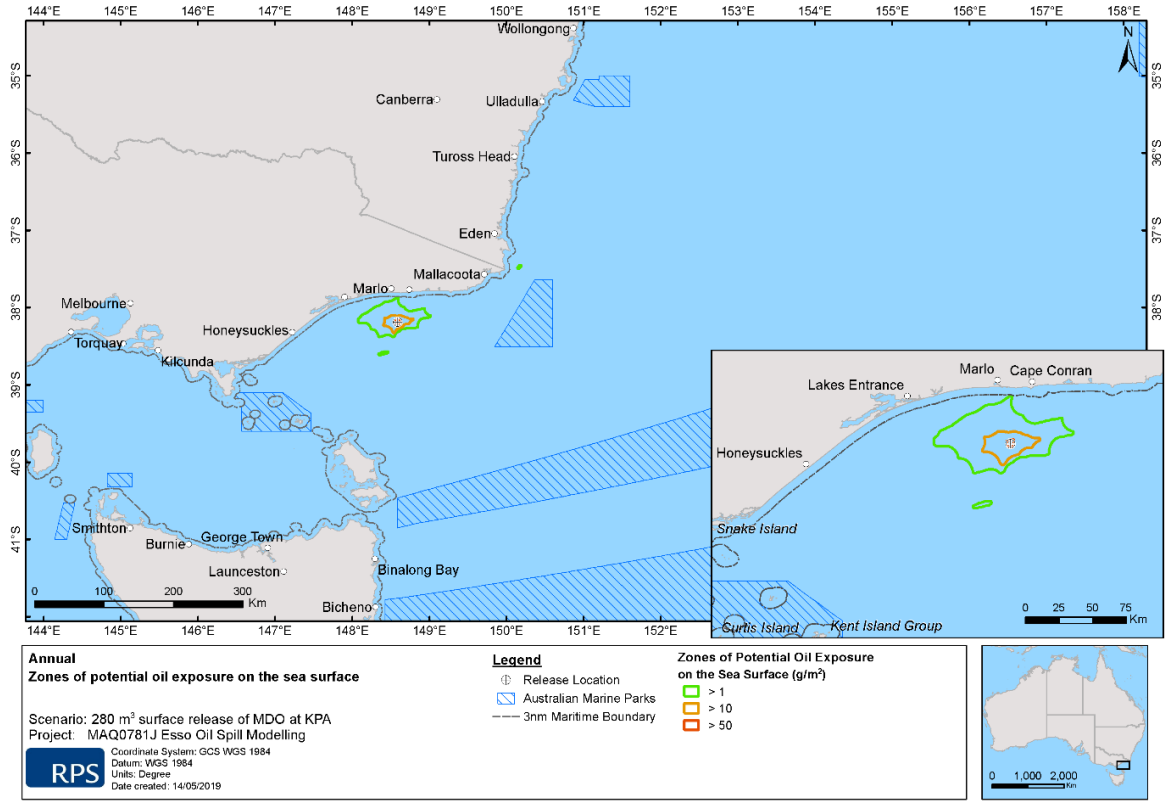



**Figure 7-5 Zones of potential oil exposure on the sea surface, in the event of a 280m³ surface release of MDO over six hours at KPA, tracked for 30 days**

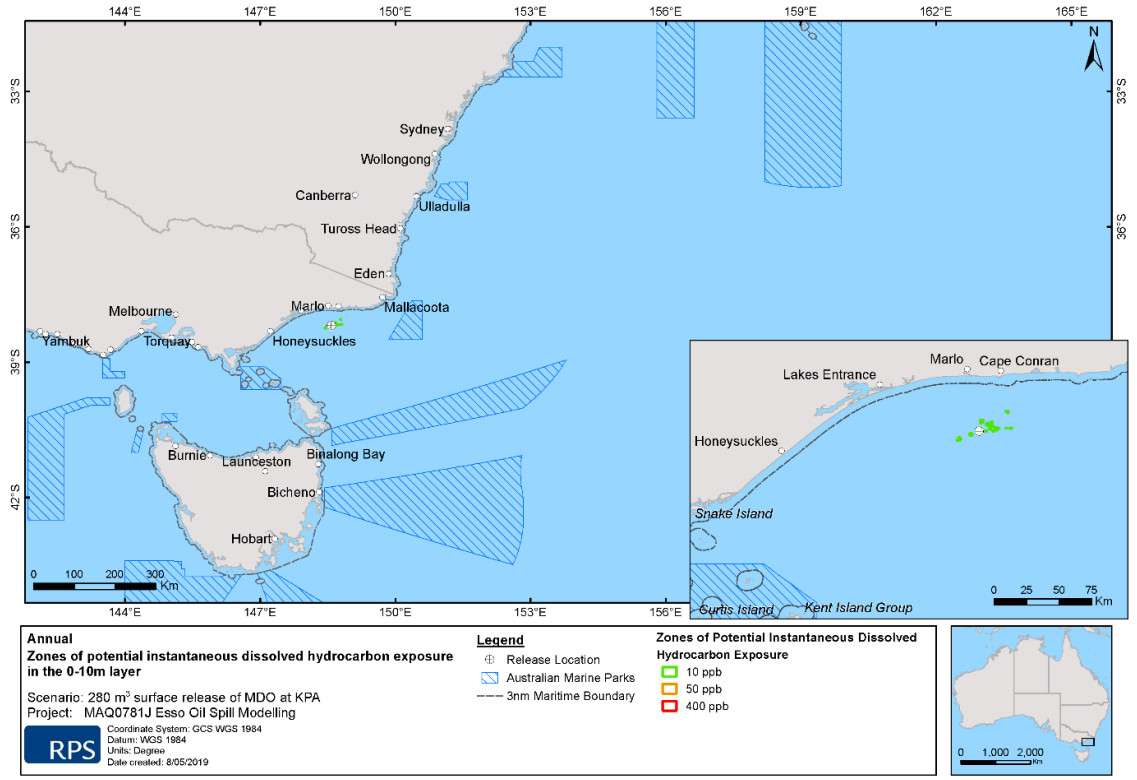


**Figure 7-6 Zones of potential instantaneous dissolved hydrocarbon exposure in the event of a 280m³ surface release of MDO over six hours at KPA, tracked for 30 days**

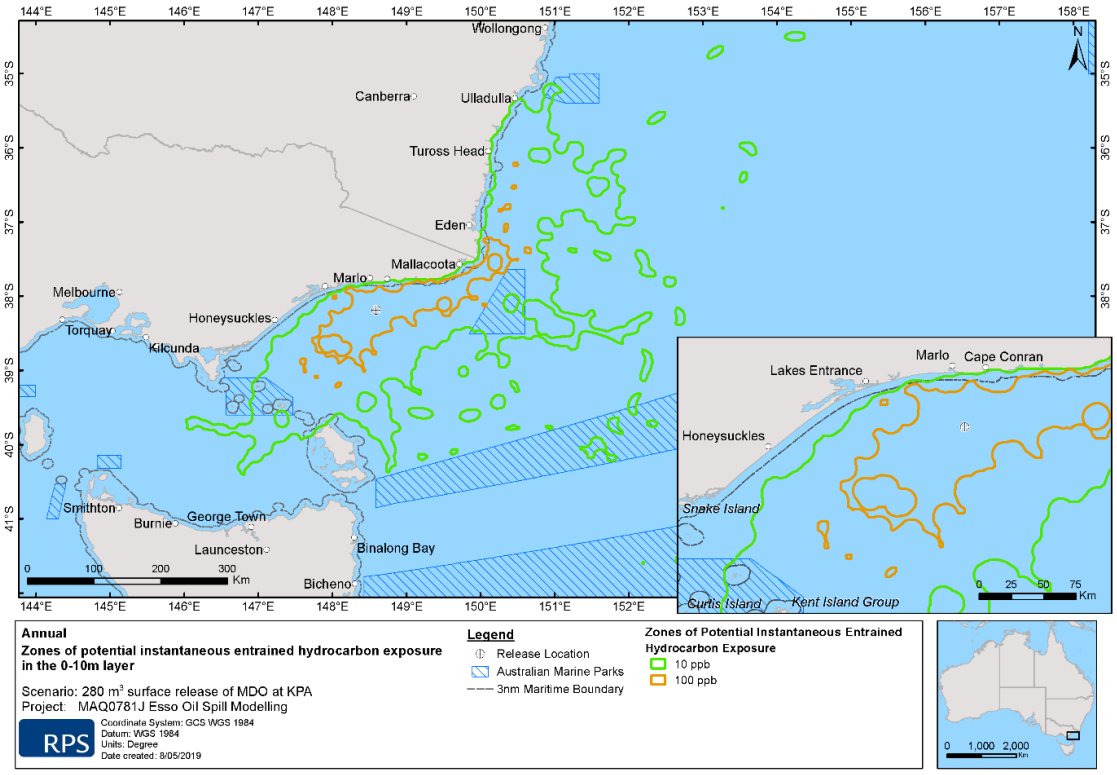



**Figure 7-7 Zone of potential instantaneous entrained hydrocarbon exposure in the event of a 280m³ surface release of MDO over six hours at KPA, tracked for 30 days**

**Table 7-20 BTA modelling output summary**

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| Sea surface exposure (Figure 7-8) | Low (1-10g/m²) | Maximum distance from release site is approximately 74 km in an east-northeast direction.<br>The zone of low exposure overlaps the Upwelling East of Eden KEF, several petrel and albatross foraging BIAs, the white shark reproduction BIA, the PBW foraging BIA and SRW migration BIA.<br>There is a 1% probability this level of exposure will reach the Ninety Mile Beach Marine National Park and a 6% probability it will reach into State waters. |
| | Moderate (10 - 50g/m²) | Maximum distance from release site is approximately 33km in a southwest direction.<br>The zone of moderate exposure overlaps several petrel and albatross foraging BIAs, the white shark reproduction BIA, the PBW foraging BIA and the SRW migration BIAs.<br>This level of exposure is not predicted to extend into State waters or contact any marine parks. |
| | High (>50g/m²) | Maximum distance from release location is approximately 10km in an east-northeast direction. |

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| | | The zone of high exposure overlaps several petrel and albatross foraging BIAs, the white shark reproduction BIA, the PBW foraging BIA and SRW migration BIA.<br>This level of exposure is not predicted to extend into State waters or contact any marine parks. |
| Shoreline exposure<br>(Figure 7-9) | The modelling indicates there is a 4% probability of contact to any shoreline with the minimum time being two hours for oil to reach the shore. 25.1$m^3$ is the maximum predicted volume of hydrocarbons to become ashore. The highest threshold is not anticipated to be reached. | |
| | Low<br>(10g/$m^2$) | The maximum length of shoreline anticipated to be exposed is 16km with the average predicted to be 5km. Table 7-21 provides a breakdown of the predicted oil contact to shoreline receptors. |
| | Moderate<br>(100g/$m^2$) | The maximum length of shoreline anticipated to be exposed is 9km with the average predicted to be 3.8km. Table 7-21 provides a breakdown of the predicted oil contact to shoreline receptors. |
| | High<br>(> 1000g/$m^2$) | N/A - threshold not reached. |
| In-water dissolved exposure<br>(Figure 7-10) | Low<br>(10ppb) | Only the low threshold of dissolved in-water exposure was predicted, with a low probability (1%) of overlap with several petrel and albatross foraging BIAs, the PBW foraging BIA and the SRW migration BIA.<br>This level of exposure is not predicted to extend into State waters or contact any marine parks. |
| | Moderate<br>(50ppb) | N/A - threshold not reached. |
| | High (400ppb) | N/A - threshold not reached. |
| In-water entrained exposure<br>(Figure 7-11) | Low<br>(10ppb) | The zone of low exposure overlaps the following environmental receptors:<br>AMPs:<br>• Beagle<br>• East Gippsland.<br>BIAs:<br>• Several petrel and albatross – Foraging<br>• Little penguin – Foraging<br>• Grey nurse shark – Foraging and migration<br>• White shark – Foraging and reproduction<br>• Humpback whale – Migration<br>• PBW – Foraging<br>• SRW – Migration and reproduction.<br>KEFs:<br>• Big Horseshoe Canyon<br>• Canyons on the Eastern Continental Slope<br>• Shelf rocky reefs |

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| | | • Upwelling East of Eden.<br>Marine parks and protected areas:<br>• Cape Howe Marine National Park<br>• Point Hicks Marine National Park<br>• Batemans MP<br>• Beware Reef Marine Sanctuary<br>• Kent Group National Park<br>• The Skerries Special Management Area.<br>This level of exposure is expected to reach State waters. |
| | High<br>(100ppb) | The zone of high exposure overlaps the following environmental receptors:<br>AMPs:<br>• East Gippsland.<br>BIAs:<br>• Several petrel and albatross – Foraging<br>• Grey nurse shark – Foraging and migration<br>• White shark – Foraging and reproduction<br>• Humpback whale – Migration<br>• PBW – Foraging<br>• SRW – Migration and reproduction.<br>KEFs:<br>• Upwelling East of Eden<br>Marine parks and protected areas:<br>• Cape Howe Marine National Park<br>• Point Hicks Marine National Park.<br>This level of exposure is expected to reach State waters. |

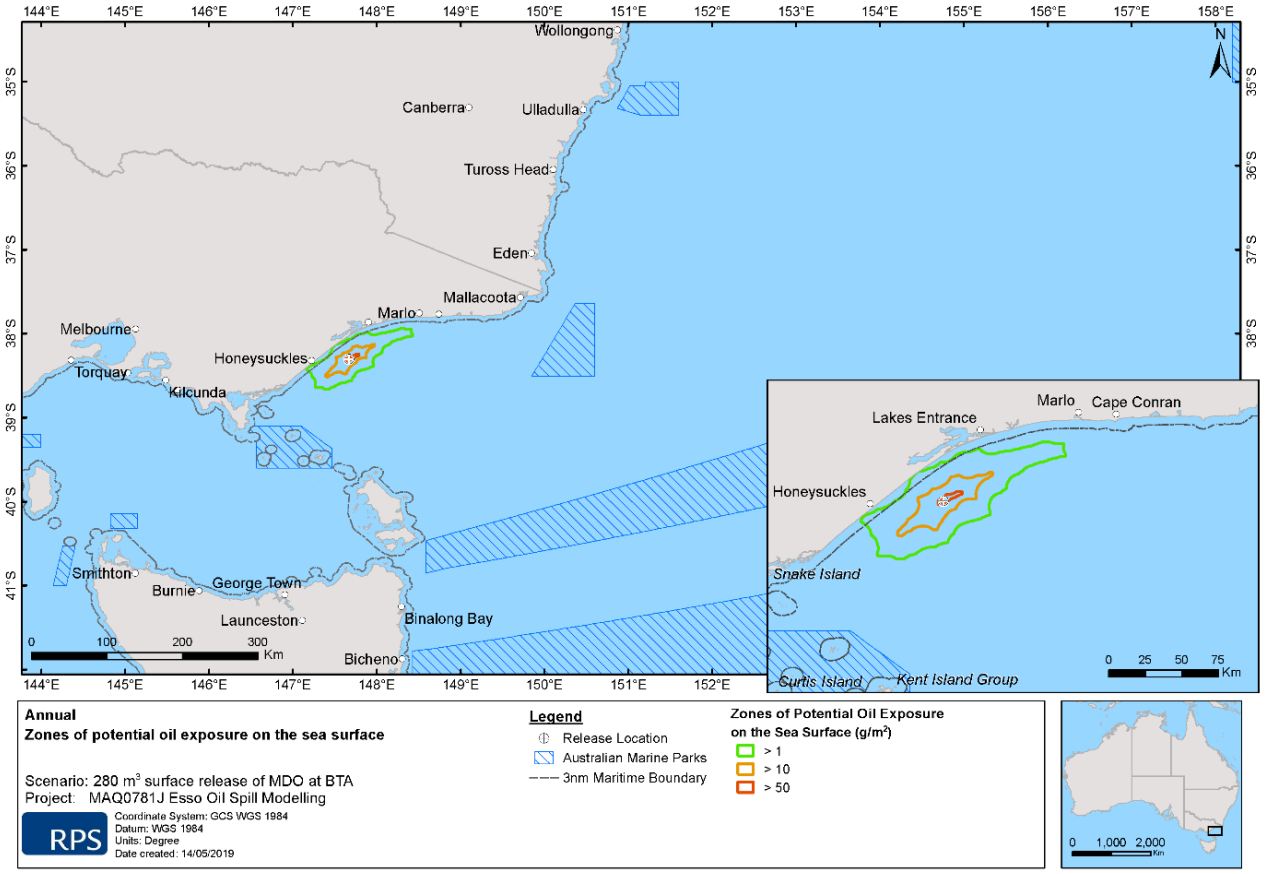



**Figure 7-8 Zones of potential oil exposure on the sea surface, in the event of a 280m³ surface release of MDO over six hours at BTA, tracked for 30 days**

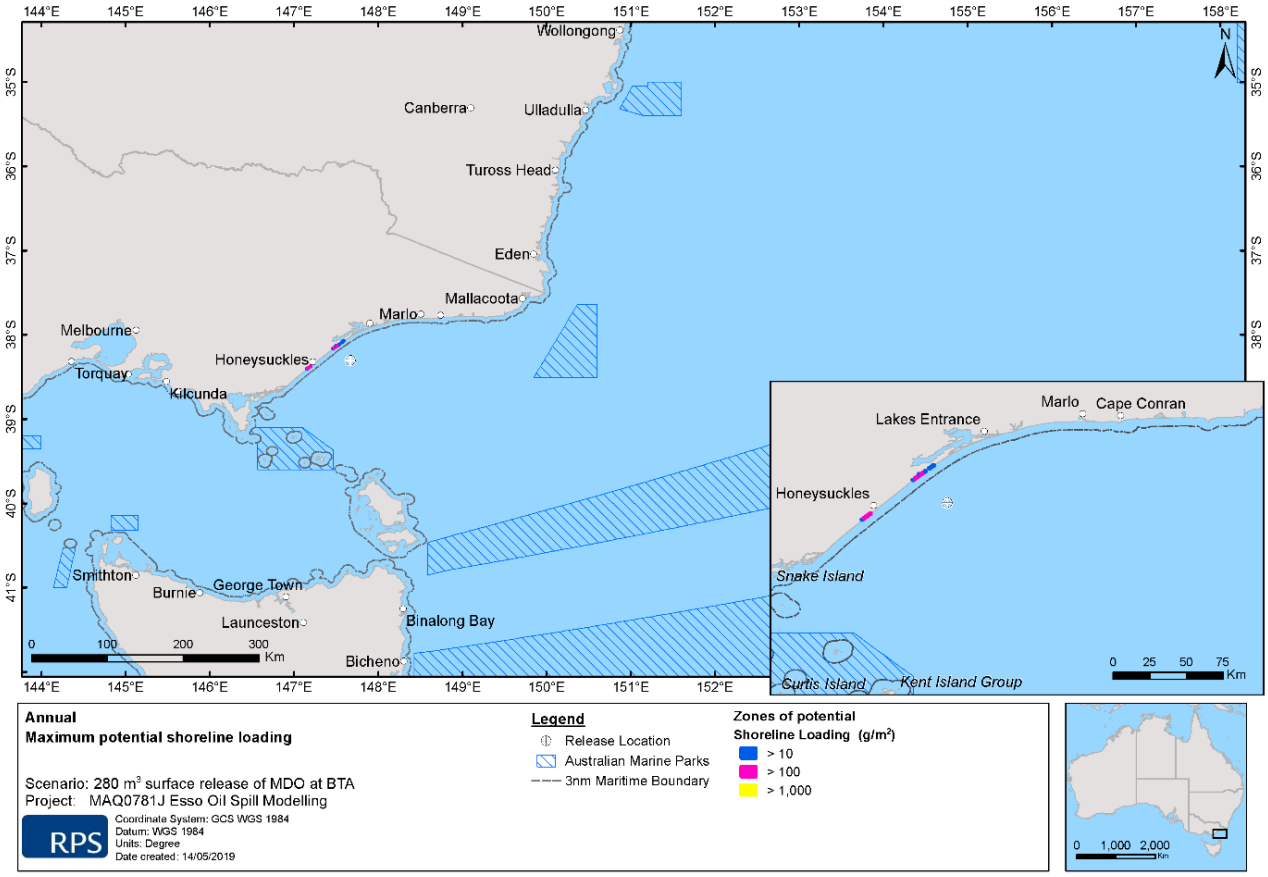



**Figure 7-9** **Maximum potential shoreline loading for the low (≥10g/m²), moderate (≥100g/m²) and high (≥1000g/m²) thresholds based on a 280m³ surface release of MDO over six hours at BTA,**

**Table 7-21** **Summary of oil contact to individual shoreline receptors**

| Shoreline sector | Probability of contact (%) | | | Minimum time before shoreline contact (hours) | | | Load on shoreline (g/m²) | | Maximum length of shoreline contacted (km) | | | Average length of shoreline contacted (km) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | M | H | L | M | H | Avg | Max | L | M | H | L | M | H |
| Wellington | 4 | 3 | - | 48 | 66 | - | 143 | 494 | 8 | 5 | - | 5 | 4 | - |
| Ocean Grange | 2 | 1 | - | 48 | 66 | - | 147 | 494 | 8 | 5 | - | 6 | 5 | - |
| Seaspray | 2 | 2 | - | 65 | 82 | - | 139 | 225 | 5 | 4 | - | 4 | 3 | - |

L = low, M= moderate, H = high, Avg = average, Max = maximum

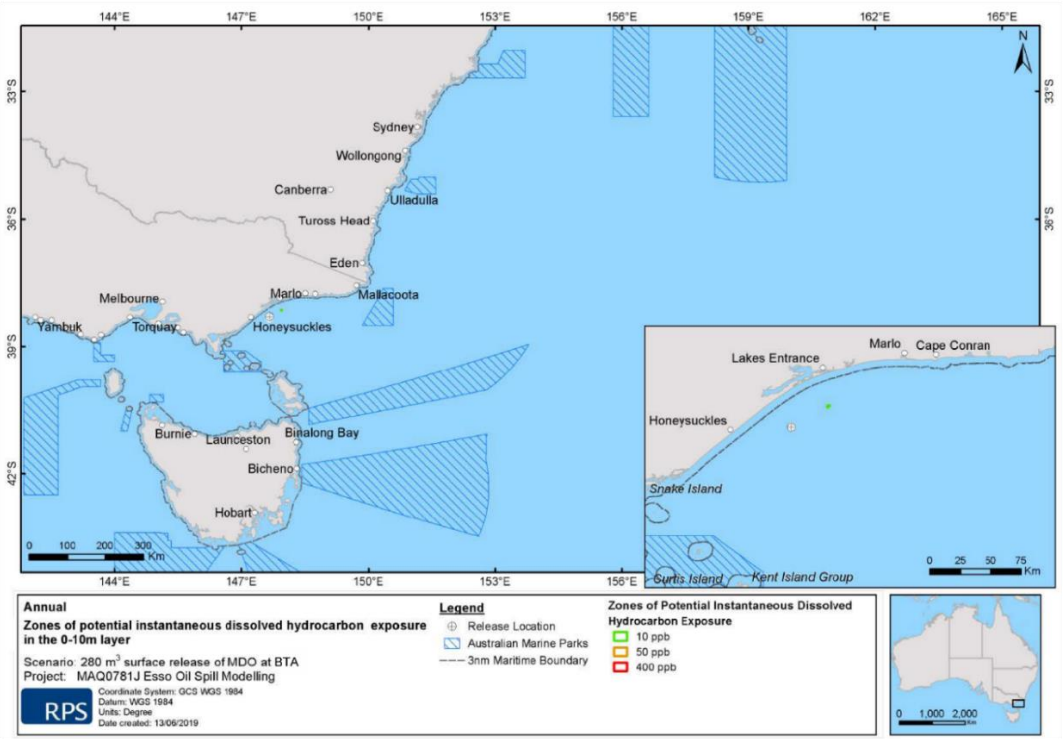



**Figure 7-10 Zones of potential instantaneous dissolved hydrocarbon exposure in the event of a 280m³ surface release of MDO over six hours at BTA, tracked for 30 days**

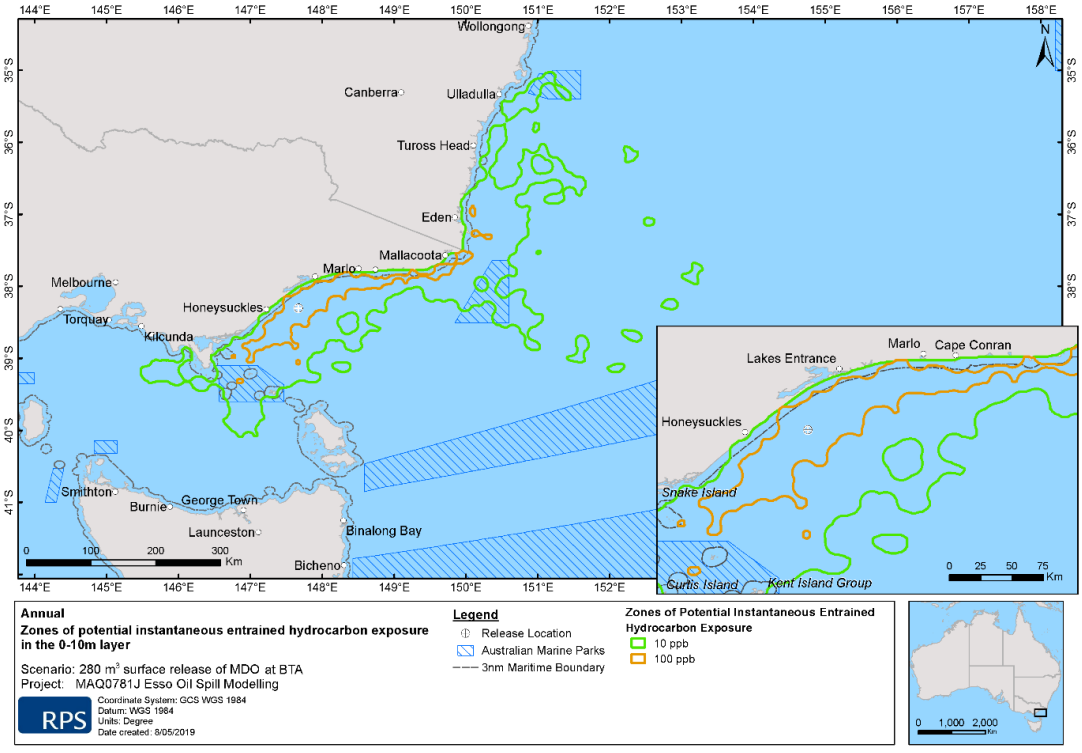



**Figure 7-11 Zone of potential instantaneous entrained hydrocarbon exposure in the event of a 280m³ surface release of MDO over six hours at BTA, tracked for 30 days**

### *7.6.4 Environment That May Be Affected*

The EMBA for a 280m$^3$ MDO spill is represented by the largest 'envelope' where the hydrocarbons can potentially spread. In this case, the low entrained exposure for both the KPA (Figure 7-7) and BTA (Figure 7-11) are representative of the potential EMBA which accounts for any dissolved, sea surface and shoreline exposure.

Receptors at risk within this EMBA, whether resident or migratory, are:

- benthic assemblages
- plankton
- fish
- seabirds and shorebirds
- turtles
- pinnipeds
- cetaceans
- sandy beaches
- commercial fisheries.

### *7.6.5 Evaluation of risks*

Table 7-22 provides an evaluation of potential risks to the different receptors. Though MDO is a refined product and crude oils are in a natural (non-refined) state, there is very little literature that separates the impacts to the marine environment from refined hydrocarbons and crude oil. As such, the tables in this section discuss the general impacts of MDO spills on individual receptors based on the literature available for hydrocarbons in general.

**Table 7-22 Potential risks of hydrocarbons on receptors**

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| Benthic assemblages | Benthic assemblages are expected to experience inconsequential impacts from an MDO release, as they are sheltered from the surface release and any impacts from in-water hydrocarbons will not be experienced on a population level.<br><br>Benthic invertebrates and higher forms may accumulate hydrocarbons from water, contaminated sediments and food, and in return affect species that feed on them (Saadoun, 2015).<br><br>Most marine crustaceans are able to metabolize and excrete accumulated hydrocarbons quite rapidly, whilst benthic amphipods are quite sensitive to spilled oil; being among the first marine animals killed and the slowest to recover (Saadoun, 2015).<br><br>Bivalve molluscs (e.g. clams, oysters, mussels, scallops) tend to accumulate hydrocarbons to higher concentrations and retain them longer than other species due to their inability to metabolize and excrete the compounds. Therefore, they are likely to transfer them to their predators (Saadoun, 2015).<br><br>Surface hydrocarbons<br><br>Benthic species are generally protected from exposure to surface hydrocarbons as they reside in benthic substrate during their lifetime and only travel to pelagic waters as larvae. Therefore, surface hydrocarbons are not considered to pose a high risk to marine invertebrates except at locations where surface oil reaches shorelines.<br><br>In the intertidal habitat, the biological recovery of the exposed shores is faster than the sheltered shores. This is because strong wave action promotes the removal of contamination, promoting re-colonisation. The recovery of subtidal communities impacted by oil spills usually takes a longer time (Saadoun, 2015).<br><br>In-water (dissolved and entrained) oil<br><br>In-water hydrocarbons can have negative impacts on marine invertebrates and associated larval forms. Species with an exoskeleton will reduce the impact of hydrocarbon absorption through the surface membrane. Other invertebrates with no exoskeleton and larval forms may be more prone to impacts from pelagic hydrocarbons. | The impact to benthic assemblages from an MDO spill is assessed as a Consequence Level IV.<br><br>Surface exposure<br><br>Not applicable.<br><br>In-water (dissolved and entrained) oil<br><br>Both the KPA and BTA scenarios predicted a very limited spatial extent of dissolved exposure at the low threshold only.<br><br>No exposure at or above the low entrained hydrocarbon exposure threshold was predicted in the waters below 10m for both scenarios. Therefore, where the seabed is deeper than 10m, there is no modelled exposure. It is unlikely that the localised and temporary effects of MDO on benthic species that occur in water depths of less than 10m will have a toxic effect because the exposed coast is subject to significant wave action that weathers and disperses the hydrocarbons. Any mortality that does occur in affected areas is likely to be temporary with recruitment from unaffected areas likely to occur.<br><br>Shoreline exposure<br><br>Shoreline loading was only predicted for the BTA scenario, where the maximum length of shoreline predicted to be exposed to moderate shoreline exposure (100g/m$^2$) is 9km. No high exposure was predicted.<br><br>Resident fauna such as worms, molluscs and crustaceans may suffer lethal impacts where moderate hydrocarbon loadings penetrate into the sediments and persist, especially in highly productive sheltered shorelines. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | Localised impacts to larval stages may occur which could impact on population recruitment that year. If invertebrates are contaminated by hydrocarbons, tissue taint can remain for several months, although taint may eventually be lost. For example, it has been demonstrated that it took two to five months for lobsters to lose their taint when exposed to a light hydrocarbon (NOAA, 2012).<br><br>Exposure to microscopic oil droplets may also impact aquatic biota either mechanically or act as a conduit for exposure to semi soluble hydrocarbons (French-McCay D. , 2009). Toxicity is primarily attributed to water soluble PAHs.<br><br>Other possible impacts from the presence of dispersed and non-dispersed oil include effects of oxygen depletion in bottom waters due to bacterial metabolism of oil (and/or dispersants), and light deprivation under surface oil (NRDA, 2012).<br><br>Surveys undertaken after the Montara well blowout in the Timor Sea in 2009 found no obvious visual signs of major disturbance at Barracouta and Vulcan shoals located approximately 40km and approximately 20km from the blowout location (Heyward et al., 2010). The shoals occur at about 20 - 30m below the water line. Later sampling indicated the presence of low-level severely degraded oil at some shoals, though in the absence of pre-impact data, this could not be directly linked to the Montara spill. Levels of hydrocarbons in the sediments were, in any case, several orders of magnitude lower than levels at which biological effects become possible (Heyward, Moore, Radford, & Colquhoun, 2010) (Gagnon & Rawson, 2011).<br><br>Studies undertaken since the Macondo well blowout in the Gulf of Mexico (GoM) in 2010 have shown that fewer than 2% of the more than 8,000 sediment samples collected exceeded the EPA sediment toxicity benchmark for aquatic life, and these were largely limited to the area close to the wellhead (BP, 2015).<br><br>Studies of offshore benthic seaweeds in the northwest GoM prior to and after the Macondo well blowout at Sackett and Ewing banks (in water depths of 55 - 75m) found a dramatic die-off of seaweeds after the spill (60 species pre-spill compared with 10 species post-spill) (Felder, et al., 2014). Benthic decapod assemblages (crabs, lobsters, prawns) associated with the seaweeds and benthic substrate also showed a strong decline in abundance at both banks post-spill, though it is noted that these banks are exposed to | As all of the shoreline predicted to potentially be exposed to hydrocarbon loading is sandy shoreline, these impacts are unlikely to occur except at very isolated sections of the shoreline. Long-term depletion of intertidal fauna could have an adverse effect on birds or fish that use this habitat as feeding grounds.<br><br>While MDO penetrates porous sediments (such as sand) quickly, it is also washed off quickly (and weathered within sediments) by waves (NOAA, 2012), thus minimising impacts to intertidal fauna. It is predicted that the consequence of an MDO spill on benthic assemblages will be minor. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | influences from Mississippi River discharges that vary year to year, so definitive links to the oil spill are not possible.<br><br>Water quality in benthic habitats exposed to entrained hydrocarbons would be expected to return to background conditions within weeks to months of contact. Several studies have indicated that rapid recovery rates of water quality in benthic habitats may occur even in cases of heavy oiling (Committee on Oil in the Sea, 2003). | |
| Plankton | Plankton, despite being sensitive to hydrocarbon exposure are expected to experience inconsequential impacts, due to their widespread distribution and abundance as well as their ability to rapidly replenish post-spill.<br><br>Plankton is found in nearshore and open waters beneath the surface in the water column. These organisms migrate vertically through the water column to feed in surface waters at night (NRDA, 2012). As they move close to the sea surface it is possible that they may be exposed to both surface hydrocarbons but to a greater extent, hydrocarbons dissolved or entrained in the water column.<br><br>Phytoplankton is typically not sensitive to the impacts of oil, though they do accumulate it rapidly due to their small size and high surface area to volume ratio (Hook S. , Batley, Holloway, Irving, & Ross, 2016). If phytoplankton is exposed to hydrocarbons at the sea surface, this may directly affect their ability to photosynthesize and would have implications for the next trophic level in the food chain (e.g. small fish) (Hook S. , Batley, Holloway, Irving, & Ross, 2016). Oil can affect the rate of photosynthesis and inhibit growth in phytoplankton, depending on the concentration range. For example, photosynthesis is stimulated by low concentrations of oil in the water column (10 - 30ppb) but become progressively inhibited above 50 ppb (Volkman, Miller, Revill, & Connell, Oil spill, 1994).<br><br>Zooplankton (microscopic animals such that feed on phytoplankton) are vulnerable to hydrocarbons due to their small size and high surface area to volume ratio, along with their high lipid content (that facilitates hydrocarbon uptake) (Hook S. , Batley, Holloway, Irving, & Ross, 2016) (Jiang, et al., 2010). The ingestion of oil by these organisms often causes mortality, while surviving organisms often show developmental and reproductive abnormalities (Saadoun, 2015). | The impact to plankton from an MDO spill is assessed as a Consequence Level IV.<br><br>Surface exposure<br><br>As per water column exposure.<br><br>In-water (dissolved and entrained) oil<br><br>Both the KPA and BTA scenarios predicted a very limited spatial extent of dissolved exposure at the low threshold only.<br><br>Plankton in the upper water column (less than 10m from the sea surface) is likely to be directly (e.g. through smothering and ingestion) and indirectly (e.g. toxicity from decrease in water quality and bioaccumulation) affected by dissolved and entrained hydrocarbons.<br><br>Once background water quality conditions are re-established, plankton populations are expected to recover rapidly due to the recruitment of plankton from surrounding waters and survivors. The overall impact of hydrocarbon spills on plankton is inconsequential in the long-term.<br><br>Shoreline exposure<br><br>Not applicable. |

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| | Plankton is generally abundant in the upper layers of the water column and acts as the basis for the marine food web, meaning that a MDO spill in any one location is unlikely to have long-lasting impacts on plankton populations at a regional level. Variations in the temporal scale of oceanographic processes typical of the ecosystem have a greater influence on plankton communities than the direct effect of spilt hydrocarbons. This is because reproduction by survivors or migration from unaffected areas would be likely to rapidly replenish any losses from permanent zooplankton (Volkman, Miller, Revill, & Connell, Oil spill, 1994).<br><br>Field observations from oil spills show minimal or transient effects on marine plankton (Volkman, Miller, Revill, & Connell, Oil spill, 1994). Once background water quality conditions have re-established, the plankton community will take weeks to months to recover (ITOPF, 2011), allowing for seasonal influences on the assemblage characteristics. | |
| Fish | Fish are expected to experience inconsequential impacts from an MDO release, due to their transient nature and their ability to not accumulate and retain high concentrations of hydrocarbons (Saadoun, 2015).<br><br>The behaviours and habitat preferences of fish species determine their potential for exposure to hydrocarbons and the resulting impacts. Demersal species may be susceptible to oiled sediments, particularly species that are site restricted. Pelagic species that occupy the water column are more susceptible to entrained and dissolved hydrocarbons, however generally these species are highly mobile and as such are not likely to suffer extended exposure due to their patterns of movement. The exception would be in areas such as reefs and other seabed features where species are less likely to move away into open waters (e.g. they area site-attached).<br><br>Fish are exposed to hydrocarbon droplets through a variety of pathways, including:<br>• direct dermal contact<br>• ingestion<br>• inhalation.<br><br>Exposure to hydrocarbons at the surface or in the water column can be toxic to fish. Studies have shown a range of impacts including changes in abundance, decreased size, inhibited swimming ability, changes to oxygen consumption and respiration, changes to | The impact to fish from an MDO spill is assessed as a Consequence Level IV.<br><br>Surface exposure<br><br>There is a small area in which moderate exposure and high exposure threshold MDO travels from the spill site on the sea surface. Fish species in the water column and syngnathid species associated with rafts of floating seaweed may come into contact with surface oil, however the maximum distance of moderate exposure threshold from the release site represents a relatively small area of the sea surface in comparison to the wider Bass Strait. Furthermore, the majority of fish species tend to remain in the mid-pelagic zone and are not likely to come into contact with floating hydrocarbons on the sea surface.<br><br>In-water (dissolved and entrained) oil<br><br>Both the KPA and BTA scenarios predicted a very limited spatial extent of dissolved exposure at the low threshold only. This in conjunction with the transient nature of fish, |

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| | reproduction, immune system responses, DNA damage, visible skin and organ lesions, and increased parasitism.<br><br>However, many fish species can metabolise toxic hydrocarbons, which reduces the risk of bioaccumulation of contaminants in the food web (and human exposure to contaminants through the consumption of seafood) (NRDA, 2012) (Saadoun, 2015).<br><br>No reports of oil spills in open waters have been reported to cause fish kills, which is likely to be because vertebrates can rapidly metabolise and excrete hydrocarbons (Hook S. , Batley, Holloway, Irving, & Ross, 2016) (Saadoun, 2015).<br><br>Sub-lethal impacts in adult fish include altered heart and respiratory rates, gill hyperplasia, enlarged liver, reduced growth, fin erosion, impaired endocrine systems, behavioural modifications and alterations in feeding, migration, reproduction, swimming, schooling and burrowing behaviour (Kennish, 1996.). However, fish are high mobile and unlikely to remain in the area of a spill for long enough to be exposed to sub-lethal doses of hydrocarbons.<br><br>Recovery of fish assemblages depends on the intensity and duration of an unplanned discharge, the composition of the discharge and whether dispersants are used, as each of these factors influences the level of exposure to potential toxicants. Recovery would also depend on the life cycle attributes of fish.<br><br>A study undertaken by Barron et al (2005) found that juvenile pink salmon (*Oncorhynchus gorbuscha*) responded adversely to chronic exposure of Alaska North slope crude oil. Responses included melanosis, erratic swimming, loss of equilibrium, reduced mobility and startled response. | indicates that they are unlikely to experience sub-lethal or lethal impacts on an individual or population level.<br><br>There is probability of high exposure to entrained hydrocarbons at East Gippsland. This threshold of exposure represents the possibility of sublethal impacts to chronically exposed fish species. However, NOAA (2013a) and ITOPF (2011) state that hydrocarbon spills in open water are so rapidly diluted that fish kills are rarely observed. Fish spend most of their time in the water column (rather than surface waters), meaning they are more likely to be exposed to entrained and dissolved hydrocarbons than surface hydrocarbons (though dissolved hydrocarbons are not predicted to reach the moderate or high thresholds that may cause sublethal impacts). As highly mobile species, they are unlikely to remain in one area for a long period of time, which minimises the risk that they would be exposed to toxic levels of hydrocarbons for a length of time necessary to impart a lethal impact.<br><br>Shoreline exposure<br><br>Not applicable. |
| Seabirds and shorebirds | Seabird and shorebirds are considered to be sensitive to hydrocarbon exposure, however, given their extensive range and mobility, impacts are not anticipated to be significant on a population level.<br><br>Seabird and shorebird vulnerability to hydrocarbons arises from the fact that they utilise air and water as well as the potential for their shoreline habitats to be oiled (Hook S. , Batley, Holloway, Irving, & Ross, 2016). Physical contact with oil usually being the most detrimental (Saadoun, 2015). | The impact to seabirds and shorebirds from an MDO spill is assessed as a Consequence Level III to account for potential adverse effects to individuals.<br><br>Surface exposure<br><br>Given the extensive ocean foraging habitat available to species such as albatross and petrels, the small area and temporary nature of MDO on the sea surface makes it unlikely that a spill will limit their ability to forage for |

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| | Saadoun (2015) discusses the inconsistencies in measuring impacts of oil on seabirds and shorebirds. The approximate numbers of seabird casualties involved in major spills have only been estimated, while impacts at the population level have been difficult to determine. Natural variation and the huge range of factors that influence bird population statistics make it difficult to assess the impact of oil spill on sea birds (Saadoun, 2015). For example, following the *Exxon Valdez* oil spill, over 35,000 seabird carcasses were recovered in the northern Gulf of Alaska. However, after the Braer accident, even though it was almost two and a half times as larger, only 1,500 dead birds were counted.<br><br>Saadoun (2015) reports that during the winter season of 2003, the *Prestige* heavy fuel oil spilled off Galacia, Spain. As a result, 10% of the cormorant population were killed. In turn, this resulted in a 50% reduction in the 2003 breeding success of oiled colonies, compared to the unoiled colonies (Velando, Munilla, Lopez-Alonso, Freire, & Perez, 2010. ).<br><br>Seabirds<br><br>As seabirds are top order predators, any impact on other marine life (e.g. pelagic fish) may disrupt and limit food supply.<br><br>In the case of seabirds, direct contact with hydrocarbons is likely to contaminate plumage, which may result in hypothermia due to a reduction in the ability of the bird to thermo-regulate and impair waterproofing (ITOPF, 2011). A bird suffering from cold, exhaustion and a loss of buoyancy (resulting from fouling of plumage) may dehydrate, drown or starve (ITOPF, 2011); (CoA, 2022); (AMSA, 2013). It may also result in impaired navigation and flight performance (Hook S. , Batley, Holloway, Irving, & Ross, 2016). Increased heat loss as a result of a loss of water-proofing results in an increased metabolism of food reserves in the body, which is not countered by a corresponding increase in food intake and may lead to emaciation (CoA, 2022). The greatest vulnerability in this case occurs when birds are feeding or resting at the sea surface (Peakall, Wells, & Mackay, 1987).<br><br>Breeding seabirds may be directly exposed to oil via a number of potential pathways. Given the extensive ocean foraging habitat available to species such as albatross and petrels, the small area and temporary nature of MDO on the sea surface makes it unlikely that a spill will limit their ability to forage for unaffected prey. The absence of breeding colonies or nesting areas in the EMBA for albatross and petrel further limits potential exposure to spilled MDO. | unaffected prey. When first released, the MDO has higher toxicity due to the presence of volatile components. Individual birds making contact close to the spill source at the time of the spill may suffer impacts however it is unlikely that a large number of birds will be affected. As such, acute or chronic toxicity impacts (death or long-term poor health) to small numbers of birds are possible, however this is not considered significant at a population level.<br><br>In-water (dissolved and entrained) oil<br><br>The seabirds known to forage in the EMBA would spend only seconds at a time diving for fish in the top 0 - 10m of the water column. Consequently, contact with MDO at any exposure level would be brief. The weathering of MDO and well-mixed waters of Bass Strait will aid in diluting and dispersing the hydrocarbons and thus reduce its concentration over time.<br><br>Shoreline exposure<br><br>Shoreline loading was only predicted for the BTA scenario, where the maximum length of shoreline predicted to be exposed to moderate shoreline exposure (100g/m$^2$) is 9km.<br><br>This section of coastline comprises mostly of sandy beaches that provides habitat for shorebird species such as Hooded plovers and terns. MDO is unlikely to persist on the surface of sandy beaches because it quickly penetrates porous sediments (NOAA, 2013b).<br><br>This behaviour limits the duration of exposure to fauna on the shoreline. Shorebirds foraging for food in intertidal areas or along the high tide mark and splash zone may encounter weathered hydrocarbons that may be brought back to nests. Hydrocarbon entering the sandy nests of |

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| | Shorebirds<br><br>Shorebirds are likely to be exposed to oil when it reaches the intertidal zone due in their feeding habitats. Shorebird species foraging for invertebrates on exposed sand and mud flats at lower tides will be at potential risk of both direct impacts through contamination (ingestion or soiling of feathers) and indirect impacts through the contamination of foraging areas that may result in a reduction in available prey items (Clarke, 2010.). Any direct impact of oil on terrestrial habitats has the potential to contaminate birds present at the breeding sites (Clarke, 2010.). Shorebirds foraging for food in intertidal areas or along the high tide mark and splash zone may encounter weathered hydrocarbons that may be brought back to nests. Hydrocarbon entering the sandy nests of hooded plovers, terns or other bird species is likely to percolate through the sand and not accumulate in the feathers of adults or young.<br><br>Penguins<br><br>Penguins may be especially vulnerable to oil because they spend a high portion of their time in the water and readily lose insulation and buoyancy if their feathers are oiled (Hook S. , Batley, Holloway, Irving, & Ross, 2016). The Iron Baron vessel spill (325 tonnes of bunker fuel in Tasmania in 1995) is estimated to have resulted in the death of up to 20,000 penguins (Hook S. , Batley, Holloway, Irving, & Ross, 2016). There are no known penguin BIAs within the area anticipated to impacted by floating oil. | Hooded plovers, terns or other bird species is likely to percolate through the sand and not accumulate in the feathers of adults or young. Toxicity effects from ingestion of contaminated prey caught in the intertidal zone or from direct exposure, or transport back to, are unlikely, as the volatile components are likely to have flashed off prior to stranding (minimum stranding times range from 2-69 hours).<br><br>The populations of seabird and shorebird species have a wide geographic range, meaning that impacts to individuals or a population at one location will not necessarily extend to populations at other un-impacted locations. |
| Turtles | Turtles are considered to be sensitive to hydrocarbon exposure, however, given their known distribution and preference for warmer waters, only a limited number of individuals (if any) have the potential to be impacted. Therefore, impacts are not anticipated to be significant on a population level.<br><br>Turtles can be exposed to hydrocarbons through ingestion of contaminated prey, inhalation or dermal exposure (Hook S. , Batley, Holloway, Irving, & Ross, 2016).<br><br>Sea turtles are vulnerable to the effects of oil at all life stages; eggs, post-hatchlings, juveniles, and adults in nearshore waters. Several aspects of sea turtle biology and behaviour place them at particular risk, including a lack of avoidance behaviour, indiscriminate feeding in convergence zones, and large pre-dive inhalations. | The impact to turtles from an MDO spill is assessed as a Consequence Level IV.<br><br>Surface exposure<br><br>Some individual transient marine reptiles may come into contact with localised areas of high MDO exposure on the sea surface. However, this high concentration is small in area and temporary before weathering and mixing disperses and dilutes the concentrations to non-harmful levels.<br><br>In-water (dissolved and entrained) oil |

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| | Effects of oil on turtles include increased egg mortality and developmental defects, direct mortality due to oiling in hatchlings, juveniles, and adults; and negative impacts to the skin, blood, digestive and immune systems, and salt glands. Oil exposure affects different turtle life stages in different ways. Each turtle life stage frequents a habitat with notable potential to be impacted during an oil spill. Thus, information on oil toxicity needs to be organized by life stage.<br><br>Turtles may be exposed to chemicals in oil internally and externally.<br><br>There is potential for contamination of turtle eggs to result in similar toxic impacts to developing embryos as has been observed in birds. Studies on freshwater snapping turtles showed uptake of PAHs from contaminated nest sediments, but no impacts on hatching success or juvenile health following exposure of eggs to dispersed weathered light crude (Rowe, Mitchelmore, & Baker, 2009). However, other studies found evidence that exposure of freshwater turtle embryos to PAHs results in deformities (Bell, Spotila, & Congdon, 2006); (Van Meter, Spotila, & Avery, 2006).<br><br>Turtles may experience oiling impacts on nesting beaches and eggs through chemical exposure, resulting in decreased survival to hatching and developmental defects in hatchlings. Turtle hatchlings may be more vulnerable to smothering as they emerge from the nests and make their way over the intertidal area to the open water (AMSA, 2015). Hatchlings that contact oil residues while crossing a beach can exhibit a range of effects including impaired movement and bodily functions (Brian, Bryan, & Shigenaka, 2021). Hatchlings sticky with oily residues may also have more difficulty crawling and swimming, rendering them more vulnerable to predation.<br><br>Ingested oil may cause harm to the internal organs of turtles. Oil covering their bodies may interfere with breathing because they inhale large volumes of air to dive. Oil can enter cavities such as the eyes, nostrils, or mouth. Turtles may experience oiling impacts on nesting beaches when they come ashore to lay their eggs, and their eggs may be exposed during incubation, potentially resulting in increased egg mortality and/or possibly developmental defects in hatchlings. | As per surface exposure.<br><br>Shoreline exposure<br><br>There are no turtle nesting beaches within or in proximity to the EMBA, so impacts to turtles from shoreline oiling will not occur. Additionally, due to the absence of turtle BIAs in Gippsland and the low chance of encountering turtles in Victorian waters in general, the potential impacts to marine reptiles (individuals or populations) are considered to be inconsequential. |
| Pinnipeds | Pinnipeds are considered to be highly sensitive to hydrocarbon exposure due to potential fur contamination impacting insulating ability that could result in death. However, due to | The impact to pinnipeds from an MDO spill is assessed as a Consequence Level III. |

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| | the lack of known breading areas and haul out sites within the EMBA, impacts as not anticipated to occur on a population level.<br><br>Pinnipeds are potentially impacted by hydrocarbons at the sea surface, water column and shoreline.<br><br>Aubin (1988) proclaims that pinnipeds are most at risk when they are trapped near the source or if oil or if oil circulates to important areas such as rookeries. Incidental ingestion during feeding, exposure to vapour concentrations and surface contamination with relatively fresh oil does not appear to cause a disaster (Aubin, 1988).<br><br>Sea surface oil<br><br>Pinnipeds are vulnerable to hydrocarbon exposure on the sea surface given they spend much of their time on or near the surface of the water, as they need to surface every few minutes to breathe and regularly haul out on to beaches. Pinnipeds are also sensitive as they will stay near established colonies and haul-out areas, meaning they are less likely to practice avoidance behaviours. Exposure to surface oil can result in skin and eye irritations and disruptions to thermal regulation. As a result of exposure to surface oils, pinnipeds, with their relatively large eyes are particularly vulnerable to effects such as irritation to mucous membranes that surround the eyes and line the oral cavity, respiratory surfaces, and anal and urogenital orifices. Hook et al. (2016) reports that seals appear not to be very sensitive to contact with oil, but instead to the toxic impacts from the inhalation of volatile components. The inhalation of these volatile hydrocarbon compounds is potentially harmful. The inhalation of concentrated petroleum vapours can cause the inflammation of and damage to the mucus membranes of airways, lung congestion or even pneumonia (Saadoun, 2015).<br><br>In-water (dissolved and entrained) oil<br><br>Ingested hydrocarbons can irritate or destroy epithelial cells that line the stomach and intestine, thereby affecting motility, digestion and absorption. However, pinnipeds have been found to have the enzyme systems necessary to convert absorbed hydrocarbons into polar metabolites, which can be excreted in urine (Engelhardt, 1983); (Addison & Brodie, 1984); (Addison, Brodie, Edwards, & Sadler, 1986). Geraci & St. Aubin (1988) suggest that a small phocid weighing 50 kg might have to ingest approximately 1 litre of oil to be at risk. Volkman et al. (1994) report that benzene and naphthalene ingested by seals is quickly | Surface exposure<br><br>Seals may occur within the area exposed to moderate-high surface threshold. However, these areas are not identified as critical habitat and there are no identified BIAs for seals in the region.<br><br>The foraging range for Australian fur-seals may be temporarily exposed to MDO at the sea surface (in concentrations ranging from low to high). As fur-seals forage for prey within the water column rather than at the sea surface, exposure to oil at the sea surface will only result when resting at surface or entering and exiting the water.<br><br>Depending on the duration of time spent at the sea surface, exposure may result in physical irritation. If seals inhale large volumes of volatile vapours within a fresh area of an MDO slick, acute or chronic toxicity impacts may eventuate. This would be unlikely to occur to more than several individuals at most.<br><br>In-water (dissolved and entrained) oil<br><br>There is probability of high exposure to entrained hydrocarbons in areas where seals may be present. These levels may have sub-lethal effects to sensitive species and are likely to overlap with fur-seal foraging ranges.<br><br>Given that fur-seals forage for prey within the water column, exposure to hydrocarbons may occur (either via ingestion of contaminated prey or direct contact with oil droplets) though at generally low concentrations and a smaller extent at high concentration.<br><br>Shoreline exposure |

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| | absorbed into the blood through the gut, causing acute stress, with damage to the liver considered likely. If ingested in large volumes, hydrocarbons may not be completely metabolised, which may result in death.<br><br>Shoreline oil<br><br>Breeding colonies and nursery areas are particularly sensitive to hydrocarbon spills (Higgins & Gass, 1993) (Saadoun, 2015). Pinnipeds are further at risk because of their tendency to stay near established colonies and haul-out areas and consequently are unlikely to practice oil avoidance behaviours. ITOPF (2011) report that species that rely on fur to regulate their body temperature (such as fur-seals) are the most vulnerable to oil as the animals may die from hypothermia or overheating, depending on the season, if the fur becomes matted with oil. It is reported that most pinnipeds scratch themselves vigorously with their flippers and do not lick or groom themselves, so are less likely to ingest oil from skin surfaces (Geraci & St. Aubin, 1988). However, mothers trying to clean an oiled pup may ingest oil. | There is no risk of oil stranding along shorelines known to be used by Australian or New Zealand fur-seals as breeding or haul-out sites. As such, it is unlikely that oiling of fur-seals will occur on shorelines.<br><br>Given the rocky nature of haul-out sites and their ability to self-clean, heavy oiling of pinnipeds at shorelines in general is not expected.<br><br>There is no predicted oil stranding along shorelines known to be used by Australian or New Zealand fur-seals as breeding or haul-out sites. As such, it is unlikely that oiling of seals will occur on shorelines. |
| Cetaceans | Cetaceans are considered to be sensitive to hydrocarbon exposure as they spend a significant amount of time on the sea surface, however, due to the highly mobile nature of cetacean species means that such exposure is not anticipated to result in long term population effects.<br><br>Cetaceans can be exposed to the chemicals in oil through:<br><br>• internal exposure by consuming oil or contaminated prey;<br>• inhaling volatile oil compounds when surfacing to breathe;<br>• external exposure, by swimming in oil and having oil directly on the skin and body; and<br>• maternal transfer of contaminants to embryos (NRDA, 2012).<br><br>Surface oil<br><br>Unlike with pinnipeds, oil would not be expected to adhere to the surface of cetacean skin due to the lack of hairs and the frequent sloughing of skin cells (Engelhardt, 1983) (Helm, et al., 2015). This is considered to be advantageous as oil does no accumulate (Saadoun, 2015). Nevertheless, cetaceans can be exposed to oil through direct contact with the eyes, mouth (ingestion), and airways (inhalation), potentially leading to inflammation and lung congestion (Geraci & St. Aubin, 1988). | The impact to cetaceans from an MDO spill is assessed as a Consequence Level III.<br><br>Surface exposure<br><br>Several threatened, migratory and/or listed cetacean species may traverse through the MDO spill plume. The foraging BIA for the PBW and the migration BIA for the SRW may be exposed to surface concentrations at moderate-high thresholds.<br><br>Biological effects of physical contact with areas of moderate concentrations of MDO at the sea surface are unlikely to lead to any long-term consequences. In the unlikely event of an MDO spill, the environmental impact would be limited to a relatively short period following the release and would need to coincide migration to result in exposure of a large number of individuals.<br><br>In-water (dissolved and entrained) oil |

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| | Helm *et al.* (2015) suggested that inhalation of toxic compounds associated with fresh oil was of greater concern than absorption through the skin and ingestion. The inhalation of oil droplets, vapours and fumes is a possibility if whales or dolphins surface in slicks to breathe. The inhalation of concentrated petroleum vapours can cause the inflammation of and damage to the mucus membranes of airways, lung congestion or even pneumonia (Saadoun, 2015). Cetaceans may incidentally draw seawater and floating oil, into their lungs by breathing in splashed droplets or liquid that has collected near the blowhole just prior to inhalation. Aspiration of liquid oil can cause physical injuries to the respiratory tract by irritating tissues/membranes and can also lead to absorption of toxicants into the blood, as in inhalation exposure (Takeshita R, Sullivan L, Smith C, & T, 2017). French-McCay (2016) proposed exposure to oil concentrations of 10 g/m$^2$ could result in mortality to marine mammals.<br><br>Evidence suggests that many cetacean species are unlikely to detect and avoid spilled oil (Matkin, Saulitis, Ellis, Olesiuk, & Rice, 2008) . There are numerous examples where cetaceans have appeared to incidentally come into contact with oil and/or not demonstrated any obvious avoidance behaviour. Following the Exxon Valdez oil spill, Matkin *et al*. (2008) reported killer whales in slicks of oil as early as 24 hours after the spill and evidence presented by  showed that following the Deep Water Horizon oil spill cetaceans in the GoM came into direct contact with both oil and sheen by swimming through them.<br><br>Although in the GoM it was observed that cetaceans were able to detect the thick and dark-coloured patches of oil, detection of the lighter substances may have been more difficult. Photographs of dolphins with oil on their bodies showed that oil can adhere to and persist on cetacean skin, and contrary to suggestions from previous studies, direct contact with oil and subsequent exposure to toxic compounds is of concern (Aichinger Dias, et al., 2017).<br><br><u>In-water (dissolved and entrained) oil</u><br><br>The physical impacts from ingested hydrocarbons with subsequent lethal or sub-lethal impacts are applicable to both dissolved and entrained oil. However, the susceptibility of cetaceans varies with feeding habits. Baleen whales (such as PBW, SRW and Humpback whales) are not particularly susceptible to ingestion of oil in the water column as they feed by skimming the surface. Toothed whales and dolphins may be susceptible to ingestion of | The OSTM shows a large area entrained phase hydrocarbons at low threshold would occur. At the low threshold for dissolved hydrocarbons (10 ppb), water quality triggers are exceeded, but there are no toxicity effects to cetaceans.<br><br>High threshold hydrocarbons entrained in the water column could potentially occur over eastern Bass Strait. Highly mobile and transient species such as cetaceans moving through an area of hydrocarbons at the high exposure may experience some of the impacts described in this table.<br><br>There is no area affected by dissolved hydrocarbons above the low threshold, which means the risk to cetaceans from dissolved hydrocarbons is low.<br><br>As highly mobile species, in general it is very unlikely that these animals will be constantly exposed to concentrations of hydrocarbons in the water column for continuous durations (e.g. >96 hours) that would lead to chronic effects.<br><br><u>Shoreline exposure</u><br><br>Not applicable. |

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| | dissolved and entrained oil as they gulp feed at depth. Noting also, many marine mammals appear to have the necessary liver enzymes to metabolise hydrocarbons and excrete them as polar derivatives (Ball & Truskewycz, 2013).<br><br>The ingestion of oil may result in acute nausea and vomiting and aspiration of oily vomitus into the lungs. Research conducted in the GoM linked aspiration pneumonia, lung abscesses, and pulmonary infections in dolphins to exposure to Deep Water Horizon oil (Takeshita R, Sullivan L, Smith C, & T, 2017).<br><br>Some whales, particularly those with coastal migration and reproduction (such as the SRW), display strong site fidelity to specific resting, breeding and feeding habitats, as well as to their migratory paths and this may override any tendency for cetaceans to avoid the noxious presence of hydrocarbons. The SRW exhibits varying degrees of site fidelity, with the majority of females and calves returning to the same birthing location, while some also travel long distances between breeding grounds within a season (DSEWPAC, 2012). If spilled oil reaches these biologically important habitats, the pollution may disrupt natural behaviours, displace animals, reduce foraging or reproductive success rates and increase mortality. Takeshita *et al.* (2017) concluded that the range of adverse health effects and increased mortality/reproductive failure observed in cetacean populations throughout the GoM since the Deep Water Horizon oil spill are consistent with the range of exposure scenarios.<br><br>If sufficiently high numbers of animals are impacted, the greater population may experience reduced recovery and survival rates. The restitution time for cetaceans affected at a population level is assumed to be long term, i.e. 40 years, based on consensus on recovery times for marine mammals following the Deep Water Horizon incident (Bock, et al., 2018). | |
| Sandy beaches | Sandy beaches are susceptible to oil penetration which can be lethal to species found on the shoreline or impact feeding grounds for intertidal species. However, because sandy beaches are regularly exposed to wave action and have low sediment TOC, they generally have a low abundance of marine life (Hook S. , Batley, Holloway, Irving, & Ross, 2016). Meaning impacts to marine life at the shoreline will be inconsequential. However, sandy beaches are important socio-economically, so an oil spill reaching this type of shoreline | The impact of MDO coming ashore on sandy beaches is considered to have a Consequence Level III.<br><br>Shoreline exposure<br><br>Shoreline loading was only predicted for the BTA scenario, where the maximum length of shoreline predicted to be |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
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| | may attract attention that is disproportionate to its environmental sensitivity (Hook S. , Batley, Holloway, Irving, & Ross, 2016).<br><br>Sandy beaches provide potential foraging and breeding habitat for numerous species. These activities primarily occur above the high tide line. Noting that most of the oil on a sandy shore will be concentrated at, or below, the high tide mark. Sandy beaches are also inhabited by a diverse assemblage of infauna (including nematodes, copepods and polychaetes); and macroinvertebrates (e.g. crustaceans). Because sand retains oil, such animals may experience mortality if oil penetrates into the sediments. Long-term depletion of sediment fauna could have an adverse effect on birds or fish that use tidal flats as feeding grounds (IPIECA, 1999).<br><br>Depth of oil penetration in sandy sediment is influenced by:<br><br>• particle size - finer sediments impede oil penetration more than coarser sediments.<br>• oil viscosity - viscous oils and mousse (water-in-oil emulsion) tend to penetrate less deeply than low-viscosity oils such as light crudes or diesel oil.<br>• drainage - if sediments are poorly drained (which is often the case with tidal flats, remote creeks or channels), the water content may prevent the oil from penetrating into the sediment. In contrast, oil may reach depths greater than one metre in coarse well-drained sediments.<br>• animal burrows and root pores - penetration into fine sediments increases if burrows of animals such as worms are present or pores are left where plant roots have decayed.<br><br>A moderate shoreline accumulation (100 g/m$^2$, equivalent to 0.1 mm thickness) is assumed to be the lethal threshold for invertebrates on hard substrates and sediments (mud, silt, sand, gravel) in intertidal habitats. As a threshold of 100 g/m$^2$ oil thickness would be enough to coat an animal and likely impact its survival and reproductive capacity (French-McCay D. , 2009).<br><br>Based on this, areas of heavy oiling would likely result in acute toxicity, and death, of many invertebrate communities, especially where oil penetrates into sediments through animal burrows (IPIECA, 1999). However, it is expected that these communities would rapidly recover via recruitment from unaffected individuals from nearby areas as oil is removed from the environment. | exposed to moderate shoreline exposure (100 g/m$^2$) is 9 km. No high exposure was predicted.<br><br>With the shortest time to shoreline accumulation at the moderate threshold being over two days the MDO will have partially weathered. The shoreline loadings may result in acute toxicity, and mortality, of invertebrate communities, especially as the MDO will easily penetrate into sandy sediments. However, tidal action is expected to lead to rapid weathering of any hydrocarbons in the intertidal area and the populations of these communities would be likely to rapidly recover.<br><br>Areas of low exposure to shoreline loading are not expected to exhibit environmental harm.<br><br>The consequence of short-term reductions in tourism and other human uses of the beach is moderate, and may occur as a result of temporary beach closures to protect human health or due to perceptions of a polluted environment, rather than a requirement to protect the public from persistent pollution. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | Following the spill from the *Sea Empress* vessel (in west Wales, 1996), many amphipods (sandhoppers), cockles and razor shells were killed. There were mass strandings on many beaches of both intertidal species and shallow sub-tidal species. Similar mass strandings occurred after the Amoco Cadiz spill (in Brittany, France, 1978) (IPIECA, 1999). Following the Sea Empress spill, populations of mud snails recovered within a few months but some amphipod populations had not returned to normal after one year. Opportunists such as some species of worm may show a dramatic short-term increase following an oil spill (IPIECA, 1999).<br><br>In March 2014, small volumes of crude oil in the form of small granular balls, from an unidentified source washed up along a 7km section of sandy beach on the Victorian Gippsland coast (Gippsland Times, 2014). AMSA (2014) reported that no impacts were observed over the course of two months following the incident.<br><br>As a result of the Macondo LOWC in the GoM in 2010, oil washed up on sandy beaches of the Alabama coastline. The natural movement of sand and water through the beach system continually transformed and re-distributed oil. Eighteen months after the event, mobile remnant oil remained in various states of weathering buried at different depths in the beaches (Hayworth, Clement, & Valentine, 2011). There is also evidence that submerged oil mats (SOM) exist just offshore of the Alabama beaches (ranging in thickness from a few millimetres to several centimetres), which has resulted in the regular washing up of tar balls onto sandy beaches. These SOMs may serve as long-term sources of remnant oil to the beach ecosystem (Hayworth, Clement, & Valentine, 2011). Long-term changes to the beach ecosystem as a result of stranded oil are unknown.<br><br>Other results from beach sampling undertaken at Dapuhin Island, Alabama, in May 2011 (pre-impact) and September 2011 (post-impact) found a large shift in the diversity and abundance of microbial species (e.g. nematodes, annelids, arthropods, polychaetes, protists, fungi, algae and bacteria). Post-spill, sampling indicated that species composition was almost exclusively dominated by a few species of fungi. DNA analyses revealed that the 'before' and 'after' communities at the same sites weren't closely related to each other (Bik, Halanych, Sharma, & Thomas, 2012). Similar studies found that oil deposited on the beaches caused a shift in the community structure toward a hydrocarbonoclastic consortium (petroleum hydrocarbon degrading microorganisms) (Lamendella, et al., 2014). | |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| Mangroves and salt marsh | Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (*pneumatophores*) that provide for gas exchange during low tide (DoEE, 2016). The effects of surface hydrocarbons on mangroves include damage by smothering of lenticels (mangrove breathing pores) on pneumatophores or aerial prop roots, or the lower trunk; or by the loss of leaves (defoliation) due to chemical burning. It is also known that mangroves take up hydrocarbons from contact with leaves, roots or sediments, and it is suspected that this uptake causes defoliation through leaf damage and tree death (Wardrop, Butler, & Johnson, 1987).<br><br>In-water entrained and dissolved hydrocarbons may affect mangrove communities directly through root uptake of toxic contaminants or indirectly due to effects on benthic infauna leading to reduced rates of bioturbation and subsequent oxygen stress on the plants root systems. Observed thresholds for effects are likely to vary depending on the health of the system, the hydrocarbon spilled and the environmental conditions; however, observations (Lin & Mendelssohn, 1996) demonstrated that more than 1kg/$m^2$ of oil during the growing season would be required to affect salt marsh or mangrove plants significantly.<br><br>Subtropical and temperate coastal salt marsh (otherwise referred to as coastal salt marsh) is listed as a TEC. This TEC is usually associated with sandy/muddy shores of estuaries and embayments along low wave energy coastlines. The physical environment for the TEC is coastal areas under regular or intermittent tidal influence, with salt marsh being the key vegetation type – that being salt-tolerant grasses, herbs, sedges, rushes and shrubs generally less than 50cm high (DSEWPC, 2013b). Salt marshes occur in sheltered conditions, commonly in the strandline zone, and the vegetation offers a large surface area for oil absorption and trapping. Additionally, many salt marsh grasses, which can be dominant over large areas, have corrugated leaf surfaces which increase their holding capacity.<br><br>Evidence from case histories and experiments shows that the damage resulting from oiling is very variable – as are recovery times. Lighter, more penetrating oils are more likely to cause acute toxic damage than heavy or weathered oils. In areas of light to moderate oiling where oil is mainly on perennial vegetation with little penetration of sediment, the shoots of the plants may be killed, but recovery can take place from the underground systems. Good recovery commonly occurs within one to two years. Where thick deposits of viscous | Shoreline loading was only predicted for the BTA scenario, where the maximum length of shoreline predicted to be exposed to moderate shoreline exposure (100 g/$m^2$) is 9 km. Howver, none of the loading is predicted in the Gippsland Lakes where there is known distribution of mangroves and saltmarsh.<br><br>Only the BTA scenario has a 2% chance of contacting the Gippland Lakes at the low entrained threshold. No dissolved exposure was predicted for both scenarios.<br><br>Furthermore, the subtropical and temperate coastal salt marsh TEC has a patchy distribution along the Victorian coastline, meaning, any indirect impacts from MDO contact will be highly localised and will not impact the overall survival of the TEC. Therefore, the impact of MDO on mangroves and salt marsh is considered to have a Consequence Level III. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | oil or mousse accumulate on the marsh surface, vegetation is likely to be killed by smothering and recovery delayed because persistent deposits inhibit recolonisation. | |
| Wetlands | Most Rasmar wetlands have minimal risk of receiving oil following a MDO spill because they have no, or very narrow and/or seasonal, connections to the sea. If surface oil was to enter a Ramsar site, the level of effect would be dependent on the type of receptors exposed to oil and the proportion of the site exposed to oil as well as the nature of the oil (fresh versus weathered). Sensitive receptors found in Ramsar sites connected to the sea could include mangroves, salt marshes, fish, shorebirds and seabirds. The consequences of oil exposure to these specific receptors have been described individually in the sections above. | Only the BTA scenario has a 2% chance of contacting the Gippland Lakes at the low entrained threshold. No shoreline or dissolved contact was predicted for both scenarios.<br>Taking into consideration the potential impacts to the receptors within wetlands, the overall consequence is considered to have a Consequence Level III. |
| National parks and reserves | Potential impacts to sensitive receptors related to the shorelines of the terrestrial parks, such as coastal habitats and birds, and the waters of the marine parks, such as benthic habitats, fish, cetaceans and pinnipeds, are discussed in the appropriate sections above. | As outlined in Table 7-19 and Table 7-20 the modelling indicates that several marine parks may be exposed to entrained hydrocarbons at the lowest threshold for the KPA scenario and only the Point Hicks Marine National Park is expected to be exposed to the highest entrained threshold. Less marine parks are anticipated to be exposed to the lowest entrained threshold for the BTA scenario. No dissolved or surface exposure was predicted at any marine parks.<br>Taking into consideration the potential impacts to the receptors within the terrestrial and marine parks and reserves the overall consequence is considered to have a Consequence Level II. |
| AMPs | AMPs vary in their conservation objectives and specific values, but all are designed to conserve fauna, habitats and water quality over the long term. AMPs support populations of threatened seabird, marine mammal and fish species. A temporary deterioration of water quality could have negative effects on organisms, such as plankton, seabirds, marine mammals and fisheries resources as described in this table which in turn affect the values of that park. | As outlined in Table 7-19 and Table 7-20 the modelling indicates that several AMPs may be exposed to entrained hydrocarbons at the lowest threshold for the KPA scenario and only the East Gippsland AMP is expected to be exposed to the highest entrained threshold. Less AMPs are anticipated to be exposed to the lowest entrained |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | threshold for the BTA scenario. No dissolved or surface exposure was predicted at any AMPs.<br><br>Taking into consideration the potential impacts to the receptors within the AMPs the overall consequence is considered to have a Consequence Level III. |
| Commercial fisheries | Commercial fisheries have the potential to be impacted through exclusion zones associated with the spill, the spill response and subsequent reduction in fishing effort. Additionally, nets and lines may become oiled.<br><br>However, due to the rapid weathering of the MDO in the high energy Bass Strait environment it is anticipated that exclusion zones will be short-term (if implemented at all) therefore, impacts are anticipated to be minor.<br><br>The impacts to commercial fishing from public perception, however, may be more significant and longer term than the spill itself.<br><br>Fishing areas may be closed for varying periods due to the risk of catch being tainted by oil. Concentrations of hydrocarbon contaminants in fish, crustacean and mollusc tissue could cause adverse impacts to human health if consumed. Until fish stocks have been cleared by the health authorities, they could be restricted for sale and human consumption. Indirectly, the fisheries may suffer a heavy loss if consumers stop or are unwilling to buy seafood from the region affected by the spill.<br><br>Impacts to fish stocks have the potential for reduction in profits for commercial fisheries, and exclusion zones exclude fishing effort. Davis *et al* (2002) report detectable tainting of fish flesh after a 24-hour exposure at crude concentrations of 0.1ppm, marine fuel oil concentrations of 0.33ppm and diesel concentrations of 0.25ppm.<br><br>The Montara spill occurred over an area fished by the Northern Demersal Scalefish Managed Fishery. With key species being goldband snapper, red emperor, saddletail snapper and yellow spotted rockcod fished (PTTEP, 2013). As a precautionary measure, the Western Australia Department of Fisheries advised the commercial fishing fleet to avoid fishing in oil-affected waters. Testing of fish caught in areas of visible oil slick found that there were no detectable petroleum hydrocarbons in fish muscle samples, suggesting fish were safe for human consumption. | OSTM predicts offshore waters in eastern Victoria and southern NSW may be exposed to entrained hydrocarbons at the moderate and high exposure thresholds.<br><br>A short- or long-term fishing closure may be implemented by AFMA and/or the VFA with the duration depending on the results of water quality testing and fish sample testing. Fishers may lose access to traditional fishing grounds with consequential income losses and possible supply shortages to their commercial customers.<br><br>In all instances, the OSTM results indicate that hydrocarbons in the water column would occur in areas that are commercially fished. Table 7-23 presents the risk assessment on a fishery-by-fishery basis based on the latest fishery data that is publicly available. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | Limited ill effects were detected in a small number of individual fish only (PTTEP, 2013). No consistent effects of exposure on fish health could be detected within two weeks following the end of the well release. Follow up sampling in areas affected by the spill during 2010 and 2011 found negligible ongoing environmental impacts from the spill (PTTEP, 2013).<br><br>Since testing began in the month after the deep water horizon blowout in the GoM (2010), levels of oil contamination residue in seafood consistently tested 100 to 1000 times lower than safety thresholds established by the USA Food and Drug Administration, and every sample tested was found to be far below the Food and Drug Administration's safety threshold for dispersant compounds (BP, 2015). Food and Drug Administration testing of oysters found oil contamination residues to be 10 to 100 times below safety thresholds (BP, 2014). Sampling data shows that post-spill fish populations in the GoM since 2011 were generally consistent with pre-spill ranges and for many shellfish species, commercial landings in the GoM in 2011 were comparable to pre-spill levels. In 2012, shrimp and blue crab landings were within 2.0% of 2007 - 2009 landings. Recreational fishing harvests in 2011, 2012 and 2013 exceeded landings from 2007-09 (BP, 2014).<br><br>In the event of an MDO spill, a temporary fisheries closure may be put in place by the VFA or AFMA (or voluntarily by the fishers themselves). Oil may foul the hulls of fishing vessels and associated equipment, such as gill nets. A temporary fisheries closure, combined with oil tainting of target species (actual or perceived), may lead to financial losses to fisheries and economic losses for individual licence holders. Fisheries closures and the flow on losses from the lack of income derived from these fisheries are likely to have short-term but widespread socio-economic consequences, such as reduced employment (in fisheries service industries, such as tackle and bait supplies, fuel, marine mechanical services, accommodation and so forth). | |

**Table 7-23 Spill risk on commercial fisheries**

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| **Commonwealth fisheries (those known to fish within the MDO EMBA)** | | | |
| SESSF - Shark gillnet sector | No impacts to fish species due to their demersal habitat.<br>Surface buoys marking gillnet locations may accumulate hydrocarbons if they are set at the time of a spill. Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap low-high levels of fishing intensity from 2019-2023.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Despite the fishery having low-high fishing intensity in areas where entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the demersal nature of the target species and the entrained hydrocarbons only penetrating waters depths between 0-10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| CTS - Otter board | No impacts to fish species due to their benthic/demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap some areas of low-high fishing intensity from 2019 - 2023 around the shelf.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Despite the fishery having low-high fishing intensity in areas where entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| CTS - Danish seine | No impacts to fish species due to their benthic/demersal habitat.<br><br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br><br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap low-high levels of fishing intensity from 2019 - 2023.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Despite the fishery having low-high fishing intensity in areas where entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| Southern Bluefin Tuna Fishery | Potential impacts due to target species transiting near the water surface.<br><br>However, no fishing intensity occurs within the BTA and KPA zones of predicted surface exposure (based on 2020 - 2024 data). | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a low-high level of fishing intensity in offshore waters in far eastern Victoria and southern NSW from 2020 - 2024.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Due to the fishing intensity and the entrained hydrocarbons penetrating the water column depth where target species could be present (0 - 10m), this this is expected to have a Consequence Level II on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| ETBF | Potential impacts due to target species transiting near the water surface.<br><br>However, no fishing intensity occurs within the BTA and KPA zones of predicted | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a low-moderate level of fishing intensity in offshore waters in far eastern Victoria and southern NSW from 2020 - 2024. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | surface exposure (based on 2020 - 2024 data). | This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the fishing intensity and the entrained hydrocarbons penetrating the water column depth where target species could be present (0 - 10m), this is expected to have a Consequence Level II on the overall function of the fishery or its catch species. | |
| Scallop fishery | No impacts due to their benthic habitat.<br>No impact to fishing equipment. | The OSTM indicates that entrained hydrocarbons for the KPA scenario overlaps a moderate-low level of fishing intensity from 2020 - 2024.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic nature of the target species, and the entrained hydrocarbons only penetrating waters depths between 0-10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| **Victorian fisheries (those known to fish within the MDO EMBA)** | | | |
| Rock lobster | No impacts due to their benthic habitat.<br>There is potential for lobster pot buoys to accumulate hydrocarbons if they are set at the time of a spill.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a low level of fishing intensity with less than 77 days fished from 2021 - 2025.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic nature of the target species, and the entrained hydrocarbons only penetrating waters | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | | depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | |
| Ocean trawl | No impacts to fish due to their benthic/demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a low level of fishing intensity with 192 days fished from 2021 - 2025. With some areas near Lakes Entrance, Wilsons Promontory and Mallacoota being fished for over 100 days.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic/demersal nature of the target species, and the entrained hydrocarbons only penetrating waters depths between 0 - 10m this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| Inshore trawl fishery | No impacts to fish due to their benthic/demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a moderate level of fishing intensity, with areas around Lakes Entrance being fished for over 1000 days between 2021 - 2025.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Despite the fishery having moderate fishing intensity in areas where entrained hydrocarbons are predicted, this is expected to this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| Octopus fishery | No impacts due to their benthic habitat.<br>There is potential for octopus pot buoys to accumulate hydrocarbons if they are set at the time of a spill.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a moderate level of fishing intensity, with areas in eastern Victoria being fished for 0 - 71 days between 2021 - 2025.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Despite the fishery having moderate fishing intensity in areas where entrained hydrocarbons are expected, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic nature of the target species and the entrained hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| Wrasse fishery | No impacts to fish due to their demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a low level of fishing intensity with up to 303 days being fished between 2021 - 2025.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the demersal nature of the target species, and the entrained hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| Scallop fishery | No impacts due to their benthic habitat and the absence of commercially exploitable beds within the EMBA.<br>No impact to fishing equipment. | The OSTM indicates that entrained hydrocarbons for both the BTA and KPA scenarios overlap a low level of fishing intensity with 0 - 88 days being fished between 2021 - 2025. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | | This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Due to the low fishing intensity, the benthic nature of the target species, and the entrained hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | |

### *7.6.6 Risk assessment*

Table 7-24 presents the risk assessment for an unplanned LOC of MDO.

**Table 7-24 Risk assessment for unplanned LOC of MDO**

| ALARP decision context | |
|---|---|
| **Factor** | A |
| **Type of activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. |

| Risk assessment (inherent) | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| E | III | 4 |

| Assessment of proposed Control Measures (ALARP assessment) | | | |
|---|---|---|---|
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| PSZ at platforms is in place and monitored to restrict the number of vessels in the OA and to reduce the likelihood of collisions. | Minimises collision risk through increased awareness. | Monitoring a PSZ is regulatory requirement and routine practice. | Adopted **(RSK06-CM01)** |
| Navigation equipment is in place to prevent vessel collisions. | Reduces the likelihood of collision and therefore reduces the likelihood of MDO spill. | Navigation equipment is fitted standard on vessels of the type contracted by Esso. It is also a legislative requirement. | Adopted **(RSK06-CM02)** |
| Continuous bridge watch is in place to prevent vessel collisions. | Reduces the likelihood of collisions with other marine users or their equipment and therefore reduces the likelihood of MDO spill. | It is routine maritime practice that the Vessel Master and mates maintain bridge watch at all times. | |
| Trained and certified personnel crew the support vessels. | Training and certification provides a minimum level of safety training and thereby reduces the risk of vessel collision and reduces the likelihood of MDO spill. | This is a standard maritime requirement. | |
| Vessel SMPEP is available to be implemented in the event of a spill resulting from vessel collision. | Ensures vessel crew are well prepared to quickly respond to a spill, thereby minimising the volume spilled. | This is a standard maritime practice as required under MARPOL. | Adopted **(RSK06-CM03)** |

| | | | |
|---|---|---|---|
| The OPEP is implemented in the event of a spill resulting from vessel collision. | Ensures Esso is well prepared to quickly respond to a spill, thereby minimising the extent of sea affected. | This control is required under the Environment Regulations and represents standard industry and Esso practice. Esso has well-maintained spill response equipment in place and has in place a spill response training program for personnel nominated to response to a spill. | Adopted **(RSK06-CM04)** |
| Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | | | Adopted **(RSK06-CM05)** |
| The *Bass Strait Operational and Scientific Monitoring Program* (AUGO-EV-EPL-001) (OSMP) is implemented in the event of a spill. | The OSMP ensures Esso is well prepared to quickly undertake operational and scientific monitoring studies, thereby supporting the future assessment of impacts resulting from the spill. | This control is required under the Environment Regulations and represents standard industry and Esso practice. Specialist consultants maintain availability and training to support Esso in the event the OSMP needs to be implemented. | Adopted **(RSK06-CM06)** |

| **Environmental Controls and Performance Measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK06-EPO01:**<br>No release of MDO to the marine environment due to a vessel collision in the OAs. | **RSK06-CM01:**<br>Control room operators use the collision avoidance radar system at the Longford control room to monitor PSZs to avoid unauthorised incursions. | **RSK06-EPS01:**<br>PSZs are actively monitored to reduce interaction with unauthorised vessels to meet the requirements of Sections 616 and 619 of the OPGGS Act. | Interactions in PSZs with other marine users are recorded. |
| | **RSK06-CM02:**<br>In order to minimise the risk of vessel-to-vessel collisions, vessels contracted by Esso:<br>• navigational systems and equipment required are those specified in Regulation 19 of Chapter V of International Convention for the Safety Of Life At Sea ()<br>• vessel navigational systems and equipment mentioned in Regulations 19 and 20 of Chapter V of SOLAS for the vessel are type approved and installed | **RSK06-EPS02:**<br>Vessel navigation systems meet the requirements of the Navigation Act 2012 (Cth) (Chapter 3, Part 3, Seaworthiness of vessels), SOLAS, COLREGS and the Load Lines Convention as they relate to the prevention of collisions and sea worthiness of vessels. | Class Survey Summary confirms ship certificates are current and Class endorsed. |

| | | | |
|---|---|---|---|
| | on board vessels navigational system and equipment required are those specified in Regulation 19 of Chapter V of SOLAS<br>• vessels are compliant with COLREGS. | | |
| **RSK06-EPO02:**<br>Respond to a hydrocarbon release in the event of an MDO spill. | **RSK06-CM03:**<br>Vessel master authorises actions in accordance with the vessel SMPEP. | **RSK06-EPS03:**<br>Vessel spill response is undertaken in accordance with the vessel SMPEP (or equivalent, per MARPOL Annex I). | Incident report will outline any emergency response activities undertaken. |
| | **RSK06-CM04:**<br>The OPEP is implemented in the event of a spill resulting from vessel collision. | **RSK06-EPS04:**<br>Emergency response activities are undertaken in accordance with the approved OPEP. | Incident and IMT logs confirm response was implemented in accordance with the OPEP. |
| | **RSK06-CM05:**<br>Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | **RSK06-EPS05:**<br>OPEP testing is conducted in alignment with the frequency identified in Section 8.18.4 of this EP. | Testing of arrangement records confirm that emergency response capability is maintained.<br>Records demonstrate minimum level of personnel trained for core OPEP roles are available. |
| **RSK06-EPO03:**<br>Characterise the environmental impacts resulting from a LOC of MDO. | **RSK06-CM06:**<br>The OSMP is implemented post-spill. | **RSK06-EPS06:**<br>Post-release monitoring is undertaken in accordance with the requirements of the OSMP. | Emergency response records confirm the OSMP was implemented post-spill. |

| **Risk Assessment (residual)** | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| E | IV | 4 |

| **Demonstration of ALARP** |
|---|
| With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means that any additional or alternative control |

| | | |
|---|---|---|
| measures either fail to lower the residual impact consequence any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a residual risk category 4 is considered to be ALARP. | | |
| **Demonstration of Acceptability** | | |
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met, noting that principle (e) is not relevant. | |
| **Legislative and other requirements** | The controls proposed to manage this risk meet the following legislative requirements:<br>• *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth)<br>- Section 11A (SOPEP)<br>• *Navigation Act 2012* (Cth)<br>- Chapter 4 (Prevention of Pollution)<br>- Chapter 6 (Safety of Navigation)<br>• OPGGS Act<br>- Section 572A-F (Polluter pays for escape of petroleum)<br>• Marine Order 91 (Marine pollution prevention – Oil). | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls developed for this activity are in line with the following management measures:<br>• implement safety exclusion zone for relevant vessels/facilities **(RSK06-CM01)**<br>• vessel specific controls align with MARPOL 73/78, which includes managing spills aboard, emergency drills, waste management requirements and having in place a SOPEP **(RSK06-CM03, -CM04)**<br>• vessels with radar on board fitted with a collision alarm, and notation for enhanced nautical safety, incorporating a grounding avoidance system **(RSK06-CM02)**<br>• ensure all vessels adhere to COLREGS, which set out the navigation rules to be followed to prevent collisions between two or more vessels **(RSK06-CM02)**<br>• vessels to maintain appropriate lighting, shapes, navigation, and communication at all times to inform other users of the position and intentions of the vessel **(RSK06-CM02)**. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | No guidance is provided regarding preventing or managing an offshore MDO spill, other than having a spill contingency plan in place. An OPEP is in place for the activity. |

| | | |
|---|---|---|
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Guidelines met with regard to:<br>• Section 75 (Spills): Conducting a spill risk assessment, implementing personnel training and field exercises, ensuring spill response equipment is available (OPEP) **(RSK06-CM04)**<br>• Sections 76-79 (Spill response planning): A spill response plan should be prepared (OPEP) **(RSK06-CM04)**. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls for this activity meet the code's following objectives for offshore development and production:<br>• To reduce the risk of any unplanned release of material into the marine environment to ALARP and an acceptable level. |
| **Internal context** | Consistent with Esso's Environment Policy. | Proposed activities are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*". |
| | Meets OIMS Objectives. | Proposed activities meet:<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors<br>• OIMS System 10-2 objectives to document, resource and communicate emergency response plans, and conduct training, exercises and/or drills to determine the adequacy of the plans. |
| **External context** | No specific stakeholder concerns have been raised concerning MDO release. | |

## 7.7 Unplanned release – Loss of containment of hydrocarbons – Pipeline rupture

### *7.7.1 Source of risk*

The sources of potential pipeline rupture are summarised in Table 7-25.

**Table 7-25 Potential sources of pipeline rupture**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **Yes** | • Dropped objects. |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **Yes** | • Corrosion.<br>• Failure of unsupported span. |
| Wellwork | **No** | N/A |
| IMR | **Yes** | • Anchor drag. |

| Activity | Applicable? | Hazard |
|---|---|---|
| Support activities | Yes | • Anchor drag. |

A LOC from a pipeline could occur due to a variety of mechanisms. Release scenarios from a pipeline are highly dependent on the size of the hole in the pipeline. Pipeline discharge scenarios could vary from a pinhole leak, to a minor hole to a full rupture.

Pinhole leaks could be caused through:

- corrosion.

Minor holes could be caused by:

- corrosion
- dropped objects
- anchor drag.

A full rupture could be caused by:

- failure of an unsupported span
- anchor drag on an unprotected section of pipeline.

### *7.7.2 Known and potential risks*

The known and potential risks associated with an unplanned release from a pipeline are:

- a temporary and localised reduction in water quality
- injury or death of exposed marine fauna and seabirds
- habitat damage where the spill reaches shorelines
- changes to the functions, interests or activities of other users (e.g. commercial fisheries).

Receptors at risk within this EMBA, whether resident or migratory, are:

- benthic assemblages
- plankton
- fish
- seabirds and shorebirds
- turtles
- pinnipeds
- cetaceans
- sandy beaches
- commercial fisheries.

### *7.7.3 Spill modelling*

#### 7.7.3.1 Modelling methodology

Esso commissioned RPS to carry out quantitative oil spill modelling to assess a potential pipeline release rupture scenario associated with a full pipeline rupture from the producing facilities (RPS, 2025). The discharge scenario modelling inputs are outlined in Table 7-26 and the modelling inputs are listed in Table 7-27.

**Table 7-26 Selection of worst-case discharge scenario for a pipeline LOC**

| Process | Description |
|---|---|
| Identification of potential pollutants. | Bass Strait operations include up to 600km of pipelines that contain a mixture of hydrocarbons, produced water and production chemicals. There are no longer any oil producing pipelines, only gas. As part of ongoing production, there are four pipelines that cross shore.<br><br>The MLA500 is the largest producing pipeline and the producing fields are currently producing from the Kipper, West Tuna and Turrum gas fields. The KPA gas condensate |

<table>
<tr><th>Process</th><th>Description</th></tr>
<tr><td></td><td>has been selected as the representative hydrocarbon for modelling purposes, as it poses the highest environmental risk due to being the heaviest condensate among the remaining gas fields.
<table>
<tr><th>License</th><th>Name</th><th>DN (mm)</th><th>From</th><th>Contents</th><th>Status</th></tr>
<tr><td>VIC/PL4</td><td>BTA-Shore</td><td>150</td><td>BTA</td><td>LPG from Longford</td><td>In service</td></tr>
<tr><td>VIC/PL1</td><td>BTA-Shore</td><td>450</td><td>BTA</td><td>Gas/condensate from BTA and BTW</td><td>In service</td></tr>
<tr><td>VIC/PL2</td><td>MLA-Shore</td><td>500</td><td>MLA</td><td>Gas/condensate from TNA, WTN, KPA and TRA</td><td>In service</td></tr>
<tr><td>VIC/PL13</td><td>SNA-Shore</td><td>600</td><td>SNA</td><td>Gas/condensate from SNA, TRA and TNA</td><td>In service</td></tr>
</table></td></tr>
<tr><td>Determine characteristics of the discharge scenario (including calculation of potential spill volumes).</td><td>A spill from a pipeline could happen at any location. In order to understand potential impacts to sensitive shoreline receptors, for the purposes of this worst-case discharge scenario, it is assumed that the discharge occurs close to shore (at 3nm). LOC at a pipeline riser on a platform would be further from shore than 3nm (as the closest platform is 23km (approximately 12nm) from shore.<br><br>A pipeline discharge scenario could happen subsea but could also happen at surface where the pipeline reaches the platform (via a riser).<br><br>A LOC from a pipeline could occur due to a variety of mechanisms, with volumes released highly dependent on the size of the hole. The following release volumes were applied to the modelling scenarios:<br><br>• Pinhole leak - Generally pinhole leaks release at a low rate. Release time can vary dependent on when the leak is identified and how it is repaired. Volumes of pinhole leaks have been estimated at up to 10kL<br>• Minor hole (1 - 3mm) - Leaks from a minor hole are highly dependent on the size of the hole. The volume of release from a minor leak with a hole up to 3mm is approximately 400kL<br>• Full rupture - Full rupture of a pipeline assumes a large hole and partial loss of contents from the pipeline up to a point of isolation. Taking into account distance between isolation points and diameter of the pipeline, the largest volume of pipeline is MLA – Shore at 10,426kL. With the pipeline only transporting gas/condensate, the percentage of condensate that would be released is calculated to be 1123kL.</td></tr>
<tr><td>Determine likelihood of the discharge scenario</td><td>A release due to a pipeline pinhole leak has occurred within Esso Bass Strait operations in the past 10 years. This scenario is considered likely (classified as likelihood A).<br><br>A release from a minor hole has not occurred within Esso Bass Strait operations in the past 10 years but has occurred within the industry. This scenario is considered very unlikely (classified as likelihood D).</td></tr>
</table>

| Process | Description |
|---|---|
| | A rupture of a pipeline has never occurred within Esso Bass Strait operations and is not a common occurrence in the industry. It is considered very highly unlikely (classified as likelihood E). |
| Selection of worst-case scenario | Although the likelihood of a pipeline leak is high, a preliminary assessment of impacts from a spill of this volume suggests it would have minor environmental impacts.<br>Despite the very highly unlikely likelihood of occurrence, the impacts from a rupture would be considerably greater.<br>Hence, the worst-case pipeline scenario has been determined to be a rupture of the pipeline with the largest volume of hydrocarbons, at a location close to shore. |

The worst-case scenario for the loss of hydrocarbon is a pipeline rupture resulting in the partial loss of inventory of the pipeline based on the following:

- a release duration of one hour based on the maximum volume of condensate produced in one hour and production coming to a complete stop
- a release location at the MLA to shore pipeline (MLA500), at a distance 3nm from the shore
- a subsea release in 25m water depth
- 1123kL of a representative Kipper condensate released
- the MLA500 pipeline is fed by predominantly three producing fields with KPA condensate, posing the highest environmental risk.

**Table 7-27 LOC from a pipeline modelling inputs and parameters**

| Parameter | Details | |
|---|---|---|
| Number of spill simulations | 100 | |
| Period of the year (season) | Annual | |
| Release location | MLA500 pipeline, 3nm from shore | |
| Coordinates (GDA94) | Latitude: 38° 1' 47.1" S<br>Longitude: 38° 1' 29.4" S | |
| Water depth | 25m | |
| Hydrocarbon type | Kipper condensate | |
| Total spill volume | 1123m$^3$ | |
| Volume basis | Release volume calculated based on gas condensate volume in the pipeline at the time of release and assumes 100% is hydrocarbons | |
| Release duration | 100% of volume released in one hour | |
| Duration basis | Modelling a starting pressure of 10,000kPag and an atmospheric pressure of 400kpa resulted in 100% of the pipeline released in approximately one hour | |
| Modelled duration | Seven days | |
| Hydrocarbon characteristics | Density (@ 15°C) | 760kg/m$^3$ @ 15°C |

| Parameter | Details | | | |
|---|---|---|---|---|
| | API | | 54.5 | |
| | Dynamic Viscosity | | 0.64cP @ 15°C | |
| | Pour Point | | -39°C | |
| | Oil Property Category | | Group I (non-persistent oil) | |
| Boiling Point (BP) °C (RPS, 2020) | Volatile<br><180°C<br>43.2% | Semi-volatile<br>180 – 265°C<br>30.8% | Low volatility<br>265 – 380°C<br>23.8% | Residual<br>>380°C<br>2.2% |
| Hydrocarbon proxy justification | KPA condensate poses the highest environmental risk due to being the heaviest condensate among the remaining gas fields. | | | |

#### 7.7.3.2 Modelling outputs – Weathering and fate

Kipper condensate is a light, low-viscosity oil with a density of 760.0kg/m$^3$ at 15°C, classifying it as a Group I oil under ITOPF (2025) guidelines and as a non-persistent oil under AMSA (2023) classifications. This composition indicates that the majority of the oil is likely to evaporate relatively quickly when exposed on the water surface, while the small proportion of persistent components may remain for longer durations and degrade more slowly in the marine environment.

Figure 7-12, Figure 7-13, Figure 7-14 and Figure 7-15 show the worst-case weathering graphs of MLA500 Kipper condensate, respectively.

Once released, the volatile and semi-volatile components of the oil are predicted to evaporate within 24 hours once exposed to the water surface, with the remaining oil tending to remain within the wave-mixed layer of the water column (3 - 10m deep, depending on the conditions). The graphs predict how much (m$^3$) and how long (days) it will take for the Kipper condensate to evaporate and decay, and how much will remain in the water column, on the surface, or come ashore. All graphs show significant evaporation will occur over the 30 days.

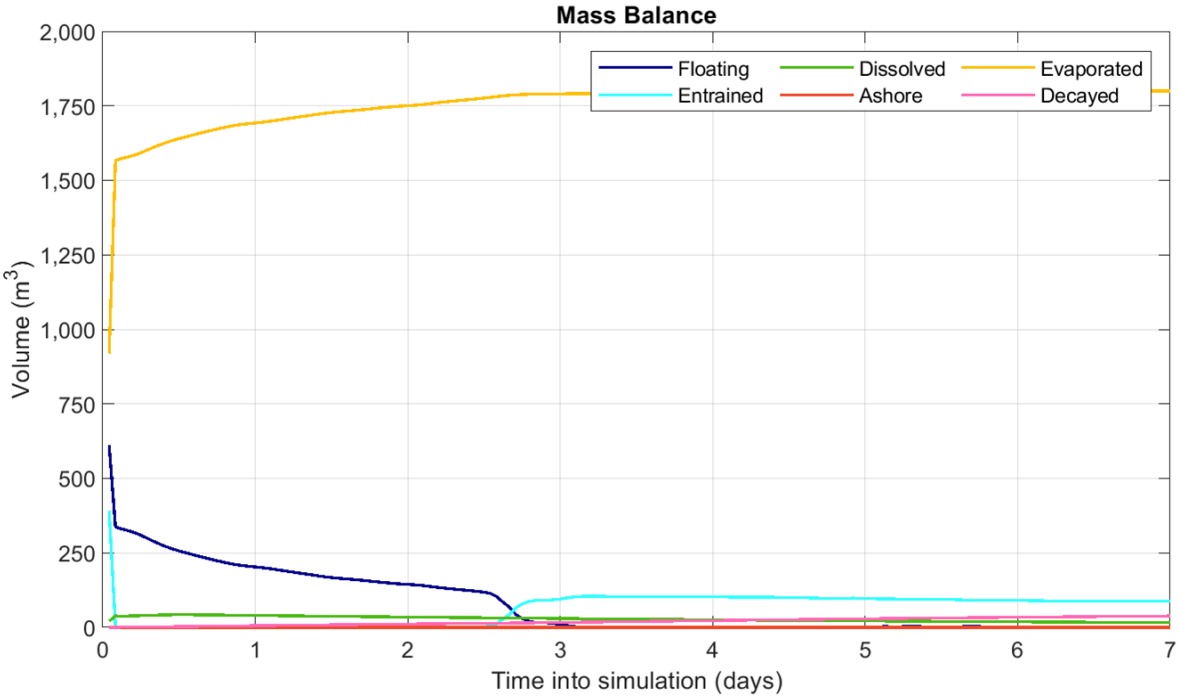



**Figure 7-12 Predicted weathering and fates for the simulation with the largest swept area of floating oil above 10g/m²**

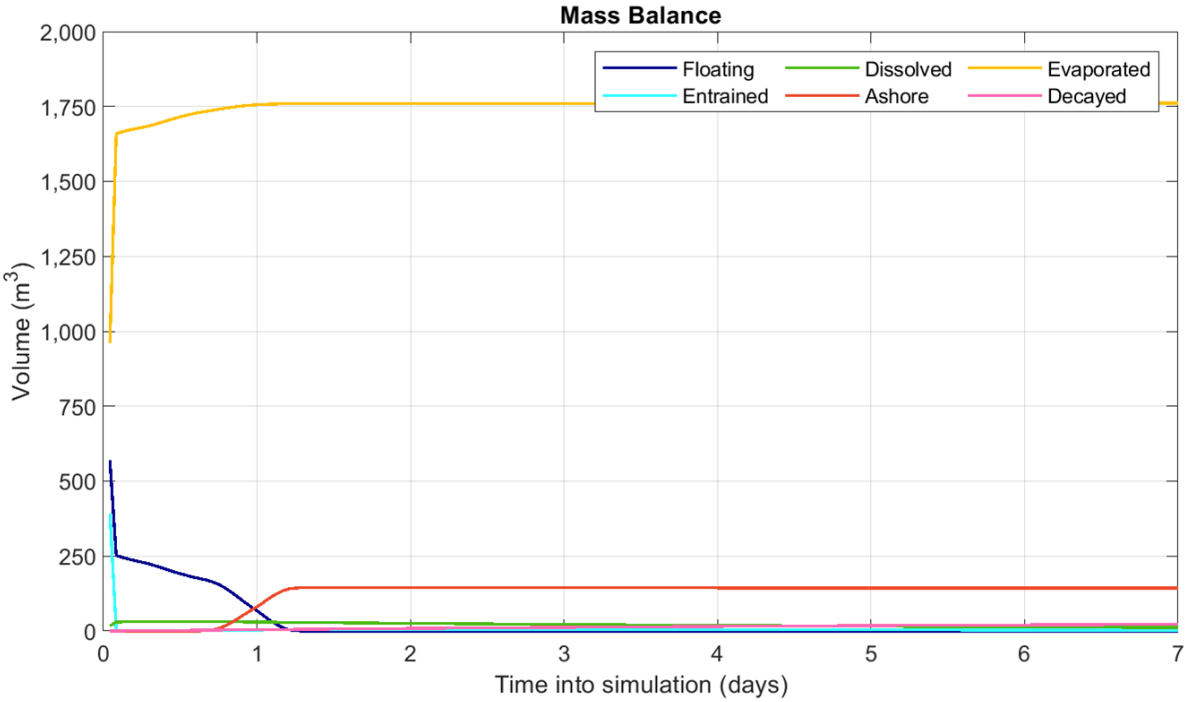



**Figure 7-13 Predicted weathering and fates for the simulation with the largest volume of oil ashore and the largest area of dissolved hydrocarbons above 50ppb**

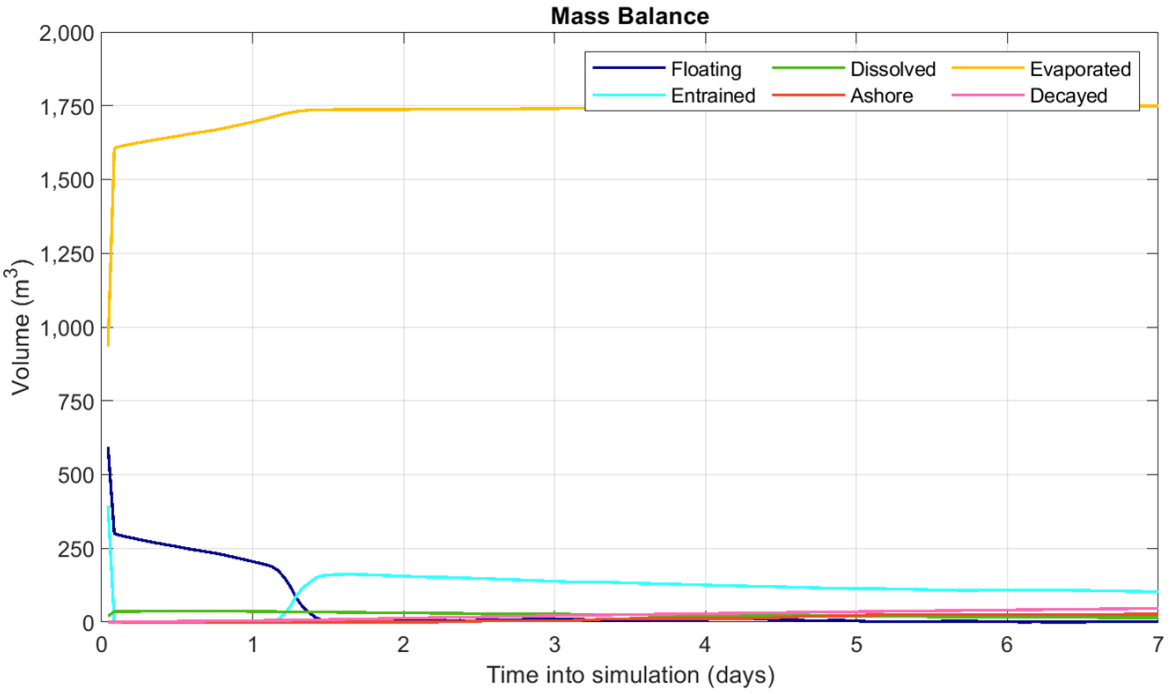



**Figure 7-14 Predicted weathering and fates for the simulation with the longest length of shoreline with accumulation above 100g/m²**

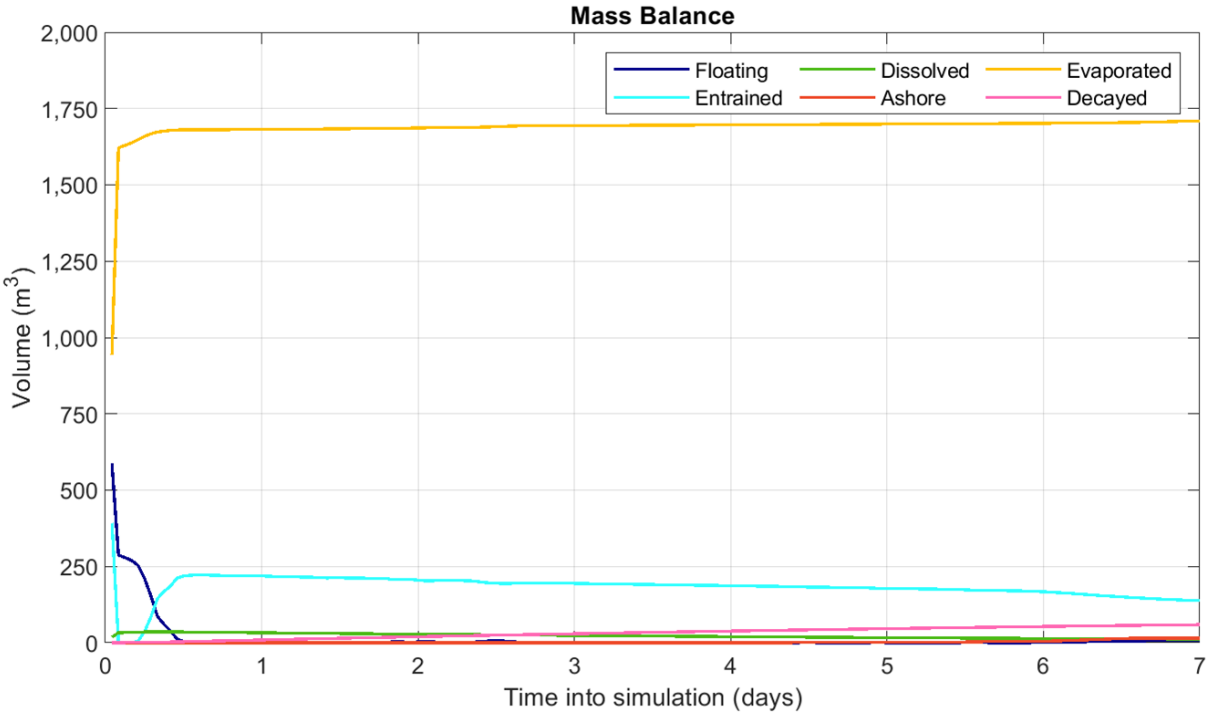



**Figure 7-15 Predicted weathering and fates graph for the simulation with the largest area of entrained hydrocarbons above 100ppb**

#### 7.7.3.3 Modelling thresholds

An outline of the spill thresholds used for the OSTM, together with the justification for their use, is provided in Table 7-18. Additionally, results for NOPSEMA's (2025f) suggested 'high' entrained threshold (1000ppb) were provided by RPS (2025) and are summarised in Section 7.7.3.4.

#### 7.7.3.4 Modelling outputs – Stochastic

Hydrocarbon spill modelling predicts the total area that could be exposed, including trace concentrations in the water column, as a result of any spill. This is known as the EMBA and is used for planning purposes to ensure that all social and environmental sensitivities are acknowledged, described and considered in the development of the EP.

Modelling is also used to inform specific impact assessments by understanding the location and extent of hydrocarbon at concentrations likely to result in environmental consequences. There is no agreed exposure level below which environmental impacts will not occur, so outputs should not be interpreted as a boundary. However, mapping areas that could be moderately impacted by a spill is a useful tool for impact consequence assessment.

The results of the modelled MLA500 scenario is summarised in Table 7-28 and Table 7-29, respectively.

**Table 7-28 MLA500 rupture modelling output summary**

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| Floating oil exposure<br>(Figure 7-16) | Low<br>(1 - 10g/m$^2$) | Maximum distance from release site is approximately 133km in an east direction.<br>There is a 13% probability that the zone of low exposure will overlap the Upwelling East of Eden KEF, several petrel and albatross foraging BIAs, the white shark reproduction BIA, the PBW foraging BIA and the SRW migration BIA.<br>This level of exposure extends into Victorian state waters and has a 2% probability of coming in contact with the Point Hicks Marine Park. |

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| | Moderate (10 - 50g/m$^2$) | Maximum distance from release site is approximately 22.5km in a south-southwest direction.<br>The zone of moderate exposure overlaps several petrel and albatross foraging BIAs, the PBW foraging BIA and the SRW migration BIAs.<br>This level of exposure extends into Victorian state waters but does not contact any marine parks. |
| | High (>50g/m$^2$) | Maximum distance from release location is approximately 9km in a west-southwest direction.<br>The zone of high exposure overlaps several petrel and albatross foraging BIAs, the PBW foraging BIA and the SRW migration BIAs.<br>There is a 61% probability that the zone of high exposure will extend into State waters but does not contact any marine parks. |
| Shoreline exposure (Figure 7-17) | Low (10g/m$^2$) | The maximum length of shoreline contact is 44km with a maximum volume approximately 155m$^3$ arriving ashore at east Gippsland.<br>This level of exposure has a 54% probability of shoreline loading at East Gippsland and 25% at Wellington. |
| | Moderate (100g/m$^2$) | The maximum length of shoreline contact is 8km with a maximum volume approximately 154m$^3$ arriving ashore at east Gippsland.<br>This level of exposure has a 26% probability of shoreline loading at East Gippsland and 7% at Wellington. |
| | High (>1000g/m$^2$) | The maximum length of shoreline contact is 3.6km with a maximum volume approximately 132m$^3$ arriving ashore at east Gippsland.<br>This level of exposure has a 2% probability of shoreline loading at East Gippsland and 1% at Wellington. |
| In-water dissolved exposure (Figure 7-18) | Low (10ppb) | The low threshold has a high probability of exposure (90%) with several petrel and albatross foraging BIAs, the PBW foraging BIA (93%), the SRW migration (93%) and reproduction (85%) BIA as well as 60% for the Upwelling East of Eden KEF.<br>There is a 93% probability that the zone of low exposure will extend into Victorian state waters with 4% probability of coming in contact with Point Hicks MNP. |
| | Moderate (50ppb) | The moderate threshold has a 32% probability of overlap with several petrel and albatross foraging BIAs, the PBW foraging BIA (93%) and the SRW migration (33%) and reproduction (1%) BIA as well as a 19% probability for the Upwelling East of Eden KEF.<br>There is a 29% probability that the zone of low exposure will extend into State waters but will not come in contact with any marine parks. |
| | High (400ppb) | N/A - threshold not reached. |

| Exposure type | Exposure value | Stochastic modelling (based on 100 annualised spill trajectories) |
|---|---|---|
| In-water entrained exposure | Low (10ppb) | The low threshold has a 100% probability of entrained exposure with several albatross, the common diving-petrel, white shark reproduction BIA and the SRW migration BIA.<br>The SRW reproduction BIA has a 91% exposure probability with the maximum exposure being approximately 1840ppb and a 78% probability of low threshold contacting the Upwelling East of Eden KEF with 964ppb being the maximum exposure.<br>There is 100% probability that the zone of low exposure will extend into Victorian state waters and a low probability (17%) of coming in contact with Point Hicks Marine Park. |
| | High (100 ppb) (Figure 7-19) and 1000ppb (Figure 7-20) | The 100ppb threshold has a 100% probability of entrained exposure with the BIAs for several albatross species and the common diving-petrel, as well as the white shark reproduction BIA and the SRW migration BIA.<br>The SRW reproduction BIA has a 44% exposure probability and a 52% probability of high threshold contacting the Upwelling East of Eden KEF.<br>There is 100% probability that the zone of low exposure will extend into State waters and a low probability (6%) of coming in contact with Point Hicks Marine Park. |
| | | The 1000ppb threshold has a 60% probability of overlapping several albatross, the common diving-petrel, white shark reproduction BIA and the SRW migration BIA. There is 3% change that the SRW reproduction BIA will be overlapped.<br>There is a 49% probability that 1000ppb exposure will extend into Victorian state waters but will not come into contact with any marine parks or KEFs. |

**Table 7-29 Summary of hydrocarbon contact to individual shoreline receptors**

| Shoreline sector | Probability of contact (%) | | | Minimum time before shoreline contact (days) | | | Load on shoreline (g/m²) | | Maximum length of shoreline contacted (km) | | | Average length of shoreline contacted (km) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | M | H | L | M | H | Avg. | Max. | L | M | H | L | M | H |
| East Gippsland | 54 | 36 | 2 | 0.61 | 0.67 | 0.82 | 149 | 5317.70 | 43.6 | 8 | 3.6 | 5.7 | 0.8 | - |
| Wellington | 25 | 7 | 1 | 0.96 | 1.11 | 2.4 | 48.1 | 2643.30 | 20.4 | 7.1 | 2.7 | 1.5 | 0.2 | - |
| Cape Conran | 18 | 9 | - | 1.96 | 3.04 | - | 30.5 | 834.9 | 3.6 | 1.8 | - | 0.3 | 0.1 | - |
| Corringle | 11 | 1 | - | 1.56 | 5.96 | - | 5.5 | 147.9 | 21.4 | 0.9 | - | 0.8 | - | - |
| Croajingolong - West | 1 | - | - | 6.32 | - | - | 0.4 | 11.6 | 0.9 | - | - | - | - | - |
| Golden Beach | 7 | 3 | - | 2.46 | 4.18 | - | 5.6 | 200.3 | 9.8 | 1.8 | - | 0.2 | - | - |

| Shoreline sector | Probability of contact (%) | | | Minimum time before shoreline contact (days) | | | Load on shoreline (g/m²) | | Maximum length of shoreline contacted (km) | | | Average length of shoreline contacted (km) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | M | H | L | M | H | Avg. | Max. | L | M | H | L | M | H |
| Lake Tyers Beach | 14 | 4 | - | 1.58 | 2.86 | - | 12 | 381.1 | 24 | 6.2 | - | 1.3 | 0.1 | - |
| Lakes Entrance | 15 | 5 | - | 1.91 | 3.27 | - | 11.8 | 215.4 | 16 | 2.7 | - | 1 | 0.1 | - |
| Lakes Entrance - West | 26 | 12 | 2 | 0.61 | 0.67 | 0.82 | 112.5 | 5,317.70 | 17.8 | 8 | 3.6 | 1.8 | 0.4 | 0.1 |
| Marlo | 22 | 9 | - | 1.96 | 3.04 | - | 31.8 | 834.9 | 22.3 | 2.7 | - | 1.1 | 0.1 | - |
| Ocean Grange | 16 | 6 | 1 | 1.28 | 1.39 | 2.4 | 42.4 | 2643.30 | 12.4 | 6.2 | 2.7 | 0.9 | 0.2 | - |
| Point Hicks | 12 | 9 | 1 | 3.01 | 4.7 | 6.8 | 28.8 | 1105.90 | 13.4 | 4.5 | 0.9 | 0.5 | 0.2 | - |
| Sydenham Inlet | 3 | - | - | 3.55 | - | - | 1 | 25.9 | 13.4 | - | - | 0.2 | - | - |

L = low, M= moderate, H = high, Avg = average, Max = maximum

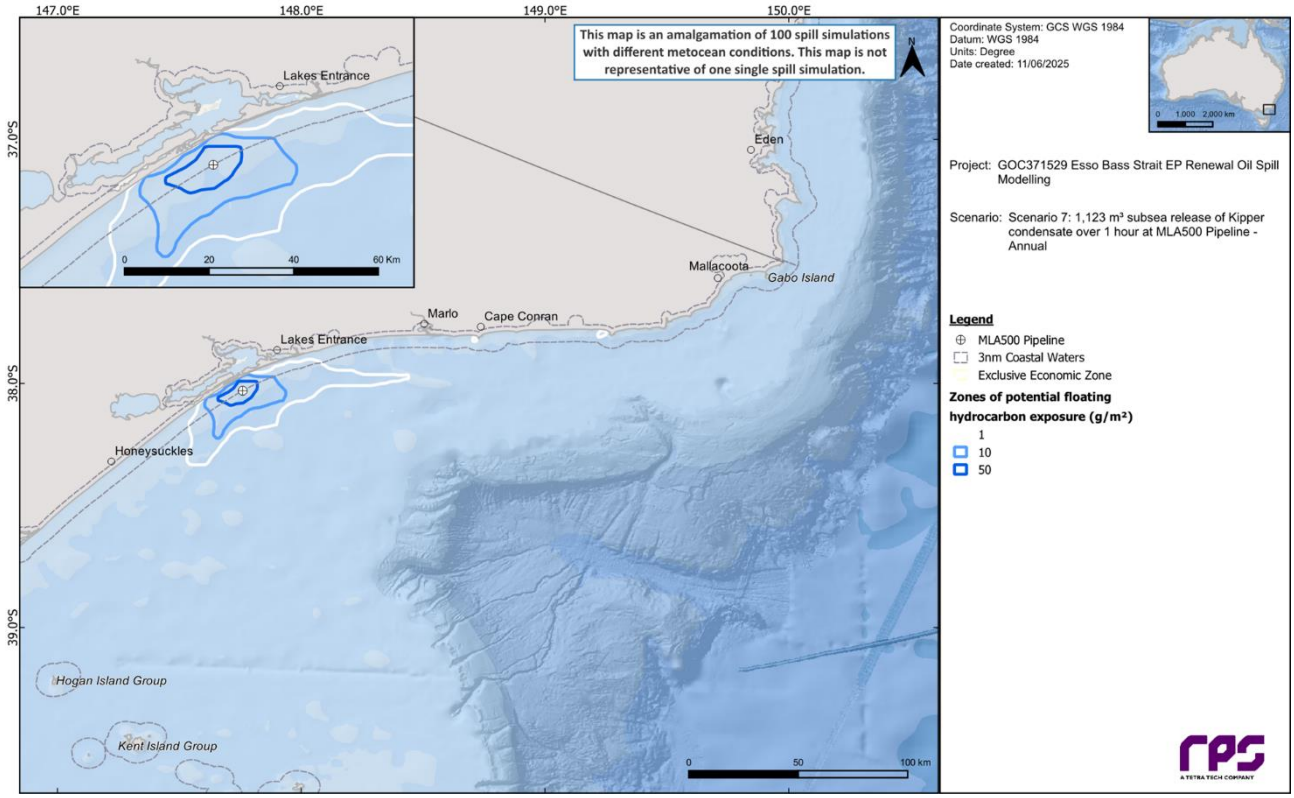



**Figure 7-16 Zones of potential floating oil exposure in the event of a 1123m³ subsea release of condensate over one hour following a rupture of the MLA500 pipeline**

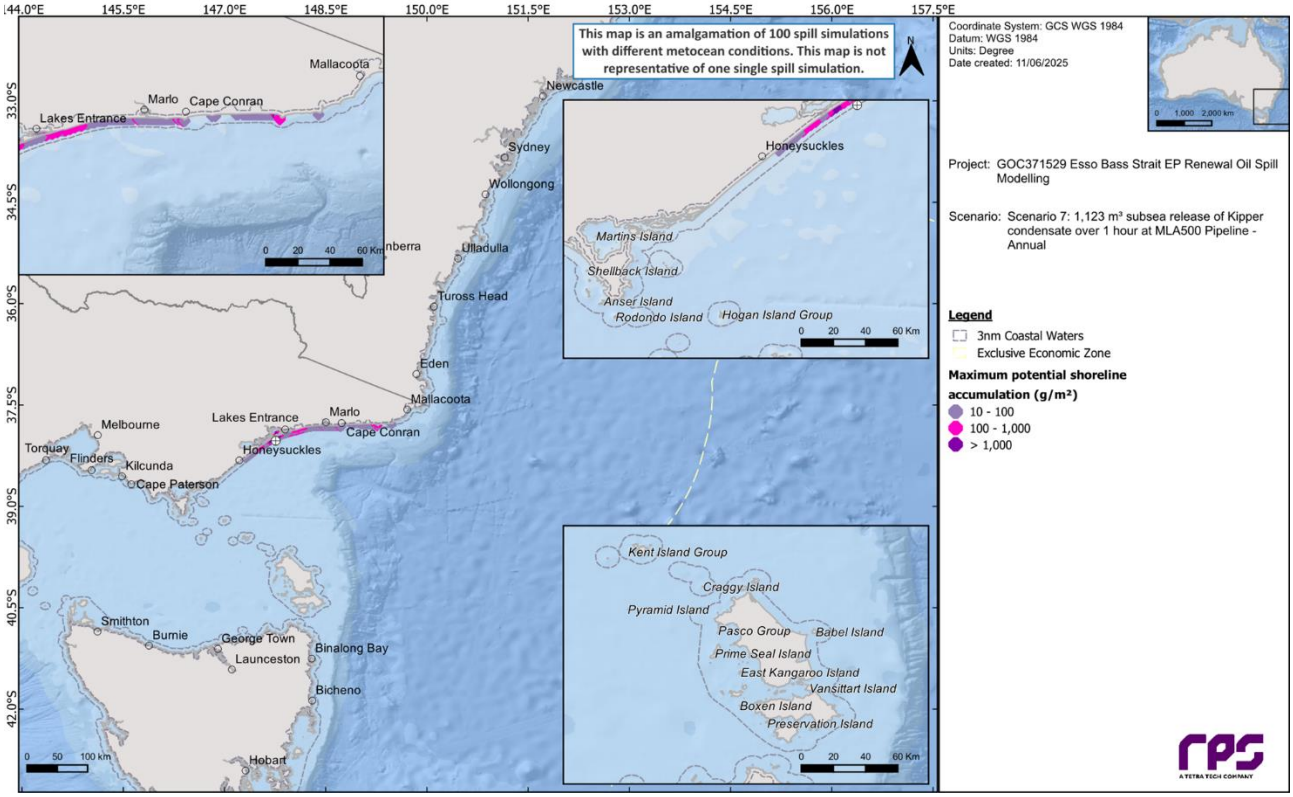



**Figure 7-17 Maximum potential shoreline loading in the event of a 1123 m³ subsea release of condensate over one hour following a rupture of the MLA500 pipeline**

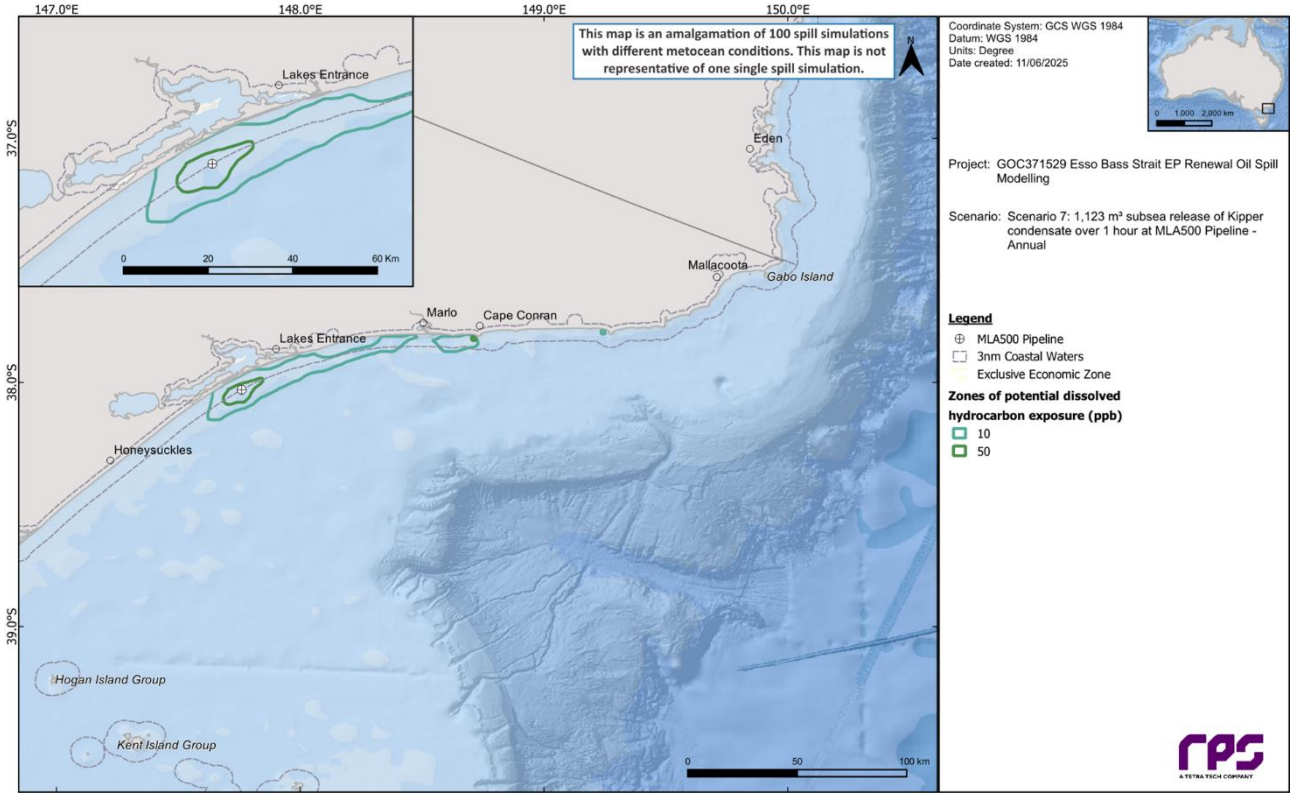



**Figure 7-18 Zones of potential dissolved hydrocarbon exposure at 0 - 10m in the event of a 1123m³ subsea release of condensate over one hour following a rupture of the MLA500 pipeline**

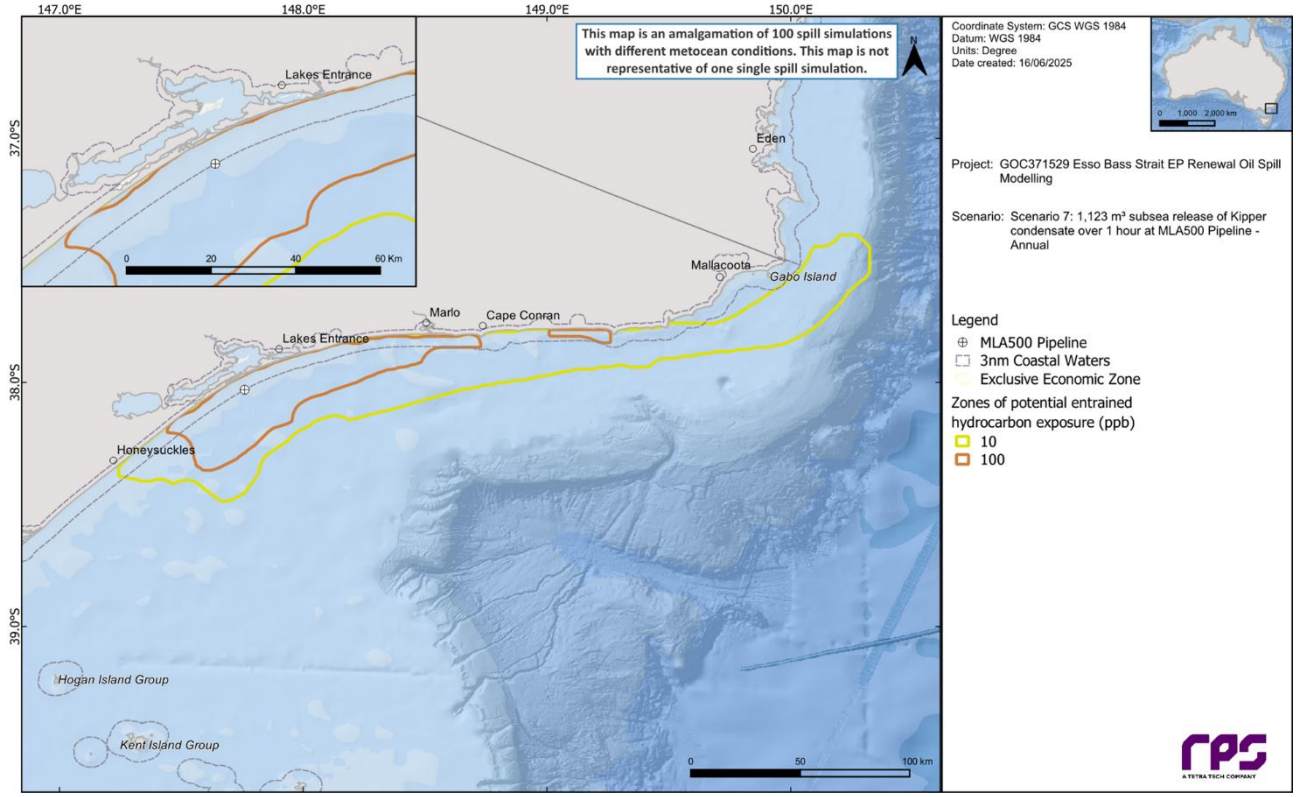



**Figure 7-19 Zones of potential entrained hydrocarbon exposure (10 and 100ppb) at 0 - 10m in the event of a 1123m³ subsea release of condensate over one hour following a rupture of the MLA500 pipeline**

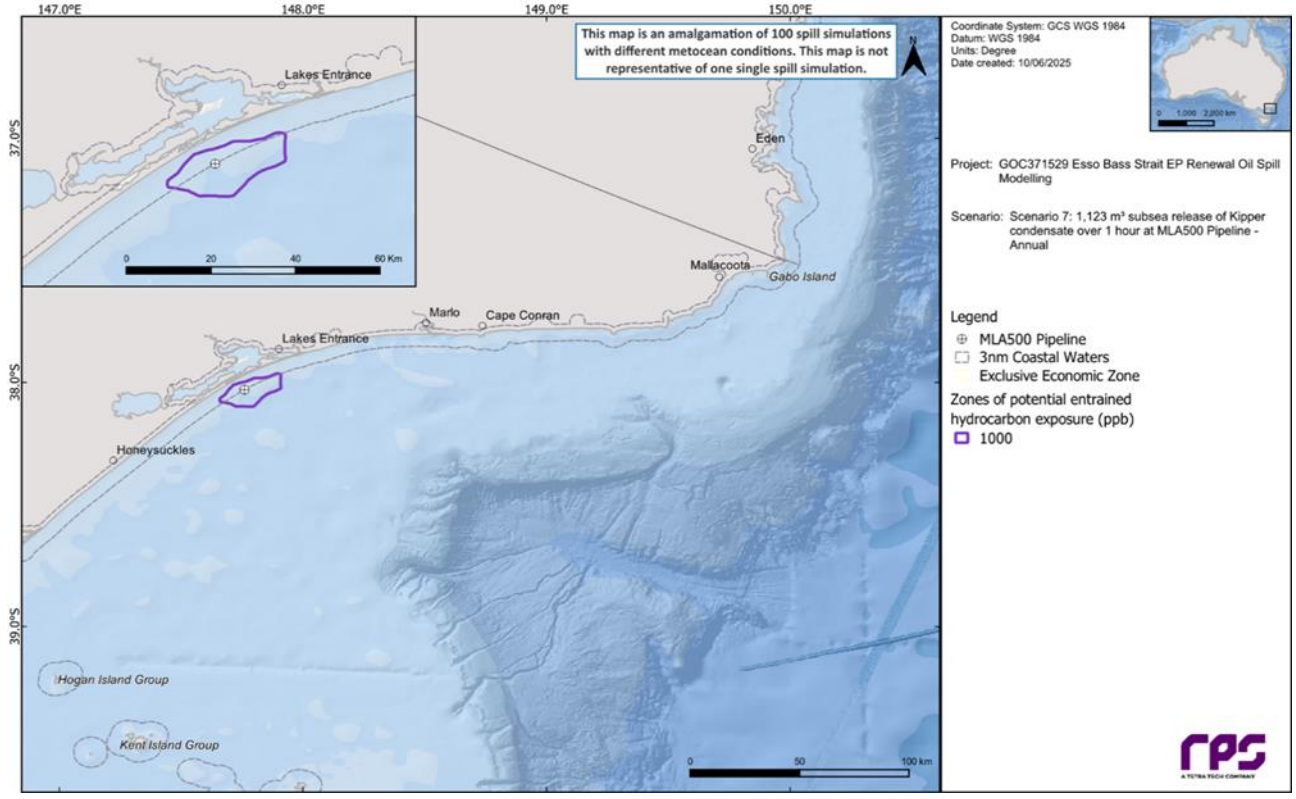



**Figure 7-20 Zones of potential entrained hydrocarbon (1000ppb) exposure 0 - 10m in the event of a 1123m³ subsea release of condensate over one hour following a rupture of the MLA500 pipeline**

### *7.7.4 Environment That May Be Affected*

The EMBA for a 1123m$^3$ Kipper condensate pipeline LOC is represented by the largest 'envelope' where the hydrocarbons can potentially spread. In this case, the low entrained exposure for the MLA500 pipeline release (Figure 7-19) is representative of the potential EMBA which accounts for any dissolved, entrained, sea surface and shoreline exposure.

### *7.7.5 Evaluation of risks*

Table 7-30 provides an evaluation of potential risks from a LOC from a pipeline to receptors in the EMBA. Though Kipper condensate is a light weight, low viscosity oil and crude oils are in a natural (non-refined) state, there is very little literature that separates the impacts to the marine environment from refined hydrocarbons and crude oil. As such, the tables in this section discuss the general impacts of hydrocarbon spills on individual receptors based on the literature available for hydrocarbons in general.

**Table 7-30 Risk of surface, shoreline and in-water hydrocarbon exposure from LOC from a pipeline**

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| Benthic assemblages | See Table 7-22 for impact of hydrocarbon exposure on benthic assemblages. | The impact to benthic assemblages from a hydrocarbon spill is assessed as a Consequence Level III to account for potential effects to individuals.<br><br>Surface exposure<br><br>Not applicable.<br><br>In-water (dissolved and entrained) oil<br><br>There is probability of low and moderate exposure to dissolved hydrocarbons and high exposure to entrained hydrocarbons in areas of benthic assemblages.<br><br>Exposure to in-water hydrocarbons is restricted to 10m below the surface and therefore any potential impact to benthic habitats from in-water hydrocarbons will only occur in shallower nearshore waters. The zone of moderate exposure to dissolved and high exposure to entrained hydrocarbons is predicted to extend into Victorian waters and the coastline of the Gippsland coast.<br><br>The predominant benthic habitat in the Gippsland Basin is sandy substrate, and it is unlikely that localised and temporary effects of hydrocarbon will have a toxic effect on benthic species that occur in water depths of less than 10m. This is due to the exposed coast being subject to significant wave action that weathers and disperses the hydrocarbons. Any mortality that does occur in affected areas is likely to be temporary with recruitment from unaffected areas likely to occur.<br><br>Shoreline exposure<br><br>The maximum length of shoreline predicted to be exposed to moderate shoreline exposure (100g/$m^2$) is 3.6km and 1km for high shoreline exposure (1000g/$m^2$).<br><br>Resident fauna such as worms, molluscs and crustaceans may suffer lethal impacts where moderate hydrocarbon loadings penetrate into the sediments and persist, especially in highly productive sheltered shorelines.<br><br>As all of the shoreline predicted to potentially be exposed to hydrocarbon loading is sandy shoreline, these impacts are unlikely to occur except for a small section of the shoreline. Long-term depletion of intertidal fauna could have an adverse effect on birds or fish that use this habitat as feeding grounds. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | While hydrocarbon penetrates porous sediments (such as sand) quickly, it is also washed off quickly (and weathered within sediments) by waves (NOAA, 2012), thus minimising impacts to intertidal fauna. It is predicted that the consequence of a hydrocarbon spill on benthic assemblages will be minor. |
| Plankton | See Table 7-22 for impact of hydrocarbon exposure on plankton. | The impact to plankton from a hydrocarbon spill is assessed as a Consequence Level III to account for potential adverse effects to individuals.<br><br>Surface exposure<br><br>As per water column exposure.<br><br>In-water (dissolved and entrained) oil<br><br>There is probability of low and moderate exposure to dissolved hydrocarbons and low, moderate and high exposure to entrained hydrocarbons in areas where plankton may be present.<br><br>Plankton in the upper water column (less than 10m from the sea surface) is likely to be directly (e.g. through smothering and ingestion) and indirectly (e.g. toxicity from decrease in water quality and bioaccumulation) affected by dissolved and entrained hydrocarbons.<br><br>Once background water quality conditions are re-established, plankton populations are expected to recover rapidly due to the recruitment of plankton from surrounding waters and survivors. The overall impact of hydrocarbon spills on plankton is inconsequential in the long-term.<br><br>Shoreline exposure<br><br>Not applicable. |
| Fish | See Table 7-22 for impact of hydrocarbon exposure on fish. | The impact to fish from a hydrocarbon spill is assessed as a Consequence Level III.<br><br>Surface exposure<br><br>There is a small area in which moderate exposure (22.5km) and high exposure (9km) threshold oil travels from the spill site on the sea surface. Fish species in the water column and syngnathid species associated with rafts of floating seaweed may come into contact with surface oil, however the maximum distance of moderate exposure threshold from the release site represents a relatively small area of the sea surface in comparison to the wider Bass Strait. Furthermore, the majority of fish species tend to remain in the mid-pelagic zone and are not likely to come into contact with floating hydrocarbons on the sea surface. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | Although pelagic fish species may be exposed to moderate levels of dissolved oil their mobile, transitory characteristics reduce the risk of prolonged exposure. Large-scale population level effects following a LOC on fish species, abundances or assemblage composition would be unlikely due to the wide geographical distribution of many fish in Bass Strait<br><br>In-water (dissolved and entrained) oil<br><br>There is probability of low and moderate exposure to dissolved hydrocarbons in areas where fish may be present. This in conjunction with the transient nature of fish, indicates that they are unlikely to experience lethal impacts on an individual or population level.<br><br>There is probability of high exposure to entrained hydrocarbons at East Gippsland. This threshold of exposure represents the possibility of sublethal impacts to chronically exposed fish species. However, NOAA (2013a) and ITOPF (2011) state that hydrocarbon spills in open water are so rapidly diluted that fish kills are rarely observed. Fish spend most of their time in the water column (rather than surface waters), meaning they are more likely to be exposed to entrained and dissolved hydrocarbons than surface hydrocarbons (though dissolved hydrocarbons are not predicted to reach the high thresholds that may cause sublethal impacts).<br><br>The zone of moderate exposure to dissolved hydrocarbons may contact the great white shark reproduction BIA. Pelagic species of shark are at greatest risk of being exposed to oil following a LOC given their wide foraging areas and risks of consuming contaminated prey. Although the foraging BIA does not overlap the moderate threshold, Great white sharks are known to aggregate near Ninety Mile Beach and philopatric characteristics means they may return to the place of birth to breed even if habitats are contaminated. This species is widely distributed and thus unlikely to suffer ecologically important declines in abundance.<br><br>As highly mobile species, they are unlikely to remain in one area for a long period of time, which minimises the risk that they would be exposed to toxic levels of hydrocarbons for a length of time necessary to impart a lethal impact.<br><br>Shoreline exposure<br><br>Not applicable. |
| Seabirds and shorebirds | See Table 7-22 for for impact of hydrocarbon exposure on | The impact to seabirds and shorebirds from a hydrocarbon spill is assessed as a Consequence Level III to account for potential adverse effects to individuals.<br><br>Surface exposure |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | seabirds and shorebirds. | Given the extensive ocean foraging habitat available to species such as albatross and petrels, the area and temporary nature of hydrocarbon on the sea surface makes it unlikely that a spill will limit their ability to forage for unaffected prey. When first released, the hydrocarbon has higher toxicity due to the presence of volatile components. Individual birds making contact close to the spill source at the time of the spill may suffer impacts however it is unlikely that a large number of birds will be affected. As such, acute or chronic toxicity impacts (death or long-term poor health) to small numbers of birds are possible, however this is not considered significant at a population level.<br><br>In-water (dissolved and entrained) oil<br><br>The seabirds known to forage in the EMBA would spend only seconds at a time diving for fish in the top 0 - 10m of the water column. Consequently, contact with hydrocarbon at any exposure level would be brief. The weathering of hydrocarbon and well-mixed waters of Bass Strait will aid in diluting and dispersing the hydrocarbons and thus reduce its concentration over time.<br><br>Shoreline exposure<br><br>Shoreline loading was predicted where the maximum length of shoreline predicted to be exposed to moderate shoreline exposure (100g/$m^2$) is 3.6km and 1km for high shoreline exposure (1,000g/$m^2$).<br><br>This section of coastline comprises mostly of sandy beaches that provides habitat for shorebird species such as Hooded plovers and terns. Hydrocarbon is unlikely to persist on the surface of sandy beaches because it quickly penetrates porous sediments (NOAA, 2013b).<br><br>This behaviour limits the duration of exposure to fauna on the shoreline. Shorebirds foraging for food in intertidal areas or along the high tide mark and splash zone may encounter weathered hydrocarbons that may be brought back to nests. Hydrocarbon entering the sandy nests of Hooded plovers, terns or other bird species is likely to percolate through the sand and not accumulate in the feathers of adults or young. Toxicity effects from ingestion of contaminated prey caught in the intertidal zone or from direct exposure, or transport back to, are unlikely, as the volatile components are likely to have flashed off prior to stranding (minimum stranding times range from 2 - 69 hours).<br><br>The populations of seabird and shorebird species have a wide geographic range, meaning that impacts to individuals or a population at one location will not necessarily extend to populations at other un-impacted locations. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| Turtles | See Table 7-22 for impact of hydrocarbon exposure on turtles. | The impact to turtles from a hydrocarbon spill is assessed as a Consequence Level IV.<br>Surface exposure<br>Some individual transient marine reptiles may come into contact with localised areas of high hydrocarbon exposure on the sea surface. However, this high concentration is small in area and temporary before weathering and mixing disperses and dilutes the concentrations to non-harmful levels.<br>In-water (dissolved and entrained) oil<br>As per surface exposure.<br>Shoreline exposure<br>There are no turtle nesting beaches within or in proximity to the EMBA, so impacts to turtles from shoreline oiling will not occur. Additionally, due to the absence of turtle BIAs in Gippsland and the low chance of encountering turtles in Victorian waters in general, the potential impacts to marine reptiles (individuals or populations) are considered to be inconsequential. |
| Pinnipeds | See Table 7-22 for impact of hydrocarbon exposure on pinnipeds. | The impact to pinnipeds from a hydrocarbon spill is assessed as a Consequence Level III to account for potential adverse effects to individuals.<br>Surface exposure<br>Seals may occur within the area exposed to moderate-high surface threshold. However, these areas are not identified as critical habitat and there are no identified BIAs for seals in the region.<br>The foraging range for Australian fur-seals may be temporarily exposed to hydrocarbon at the sea surface (in concentrations ranging from low to high). As fur-seals forage for prey within the water column rather than at the sea surface, exposure to oil at the sea surface will only result when resting at surface or entering and exiting the water.<br>Depending on the duration of time spent at the sea surface, exposure may result in physical irritation. If seals inhale large volumes of volatile vapours within a fresh area of a hydrocarbon slick, acute or chronic toxicity impacts may eventuate. This would be unlikely to occur to more than several individuals at most.<br>In-water (dissolved and entrained) oil |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | There is a probability of high exposure to entrained hydrocarbons in areas where seals may be present. These levels may have sub-lethal effects to sensitive species and are likely to overlap with fur-seal foraging ranges.<br><br>Given that fur-seals forage for prey within the water column, exposure to hydrocarbons may occur (either via ingestion of contaminated prey or direct contact with oil droplets) though at generally low concentrations and a smaller extent at high concentration.<br><br>Shoreline exposure<br><br>There is no risk of oil stranding along shorelines known to be used by Australian or New Zealand fur-seals as breeding or haul-out sites. As such, it is unlikely that oiling of fur-seals will occur on shorelines.<br><br>Given the rocky nature of haul-out sites and their ability to self-clean, heavy oiling of pinnipeds at shorelines in general is not expected.<br><br>There is no predicted oil stranding along shorelines known to be used by Australian or New Zealand fur-seals as breeding or haul-out sites. As such, it is unlikely that oiling of seals will occur on shorelines. |
| Cetaceans | See Table 7-22 for impact of hydrocarbon exposure on cetaceans. | The impact to cetaceans from a hydrocarbon spill is assessed as a Consequence Level III.<br><br>Surface exposure<br><br>Several threatened, migratory and/or listed cetacean species may traverse through the hydrocarbon spill plume. The foraging BIA for the PBW and the migration BIA for the SRW may be exposed to surface concentrations at moderate-high thresholds.<br><br>Biological effects of physical contact with areas of moderate concentrations of hydrocarbon at the sea surface are unlikely to lead to any long-term consequences. In the unlikely event of a hydrocarbon spill, the environmental impact would be limited to a relatively short period following the release and would need to coincide migration to result in exposure of a large number of individuals.<br><br>In-water (dissolved and entrained) oil<br><br>The OSTM shows a large area entrained phase hydrocarbons at low threshold would occur. At the low threshold for dissolved hydrocarbons (10ppb), water quality triggers are exceeded, but there are no toxicity effects to cetaceans. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | High threshold hydrocarbons entrained in the water column could potentially occur in a small area located off the coastline of Victoria. Highly mobile and transient species such as cetaceans moving through an area of hydrocarbons at the high exposure may experience some of the impacts described in this Table.<br><br>A small area extending into state water has the potential to impacted by moderate threshold dissolved hydrocarbons. Due to the small area and high mobility species, it is unlikely to lead to any long-term consequences.<br><br>As highly mobile species, in general it is very unlikely that these animals will be constantly exposed to concentrations of hydrocarbons in the water column for continuous durations (e.g. >96 hours) that would lead to chronic effects.<br><br>Shoreline exposure<br><br>Not applicable. |
| Sandy beaches | See Table 7-22 for impact of hydrocarbon exposure on sandy beaches. | The impact of hydrocarbon coming ashore on sandy beaches is considered to have a Consequence Level III.<br><br>Shoreline exposure<br><br>Shoreline loading was predicted where the maximum length of shoreline predicted to be exposed to moderate shoreline exposure (100g/$m^2$) is 3.6km and 1km for high shoreline exposure (1000g/$m^2$).<br><br>With the shortest time to shoreline accumulation above the low threshold was 0.61 days (East Gippsland and Lakes Entrance). The shoreline loadings may result in acute toxicity, and mortality, of invertebrate communities, especially as the hydrocarbon will easily penetrate into sandy sediments. However, tidal action is expected to lead to rapid weathering of any hydrocarbons in the intertidal area and the populations of these communities would be likely to rapidly recover.<br><br>Areas of low exposure to shoreline loading are not expected to exhibit environmental harm.<br><br>The consequence of short-term reductions in tourism and other human uses of the beach is moderate and may occur as a result of temporary beach closures to protect human health or due to perceptions of a polluted environment, rather than a requirement to protect the public from persistent pollution. |
| Mangroves and salt marsh | See Table 7-22 for impact of hydrocarbon exposure on | Despite the modelling predicting shoreline loading at the low, moderate and high thresholds, none of the loading is predicted in the Gippsland Lakes where there is a known distribution of mangroves and saltmarsh. No dissolved or entrained exposure is predicted to occur within the Gippsland Lakes. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | mangroves and salt marsh. | Furthermore, the subtropical and temperate coastal salt marsh TEC has a patchy distribution along the Victorian coastline, meaning, any indirect impacts from hydrocarbon exposure will be highly localised and will not impact the overall survival of the TEC. Therefore, the impact of hydrocarbons on mangroves and salt marsh is considered to have a Consequence Level III. |
| Wetlands | See Table 7-22 for impact of hydrocarbon exposure on wetlands. | The modelling indicates that no shoreline, surface, dissolved or entrained hydrocarbons are predicted to reach any Ramsar sites. Therefore, no consequences are predicted. |
| National parks and reserves | See Table 7-22 for impact of hydrocarbon exposure on national parks and reserves. | The modelling indicates that the Point Hicks MNP may be exposed to dissolved hydrocarbons at the lowest threshold (4% chance) and entrained hydrocarbons at the low and high (100ppb) thresholds.<br>Taking into consideration the potential impacts to the receptors within the terrestrial and marine parks and reserves the overall consequence is considered to have a Consequence Level II. |
| AMPs | See Table 7-22 for impact of hydrocarbon exposure on AMPs. | The modelling indicates that no shoreline, surface, dissolved or entrained hydrocarbons are predicted to reach any AMPs. Therefore, no consequences are predicted. |
| Commercial fisheries | See Table 7-22 for impact of hydrocarbon exposure on commercial fisheries. | OSTM predicts offshore waters in eastern Victoria and southern NSW may be exposed to entrained hydrocarbons at the moderate and high exposure thresholds.<br>A short- or long-term fishing closure may be implemented by AFMA and/or the VFA with the duration depending on the results of water quality testing and fish sample testing. Fishers may lose access to traditional fishing grounds with consequential income losses and possible supply shortages to their commercial customers. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | In all instances, the OSTM results indicate that hydrocarbons in the water column would occupy areas of fishing intensity Table 7-31 outlines the spill risk on a fishery-by-fishery basis based on the latest fishery data that is publicly available. |

**Table 7-31 Pipeline rupture risk to commercial fisheries**

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| **Commonwealth fisheries (those known to fish within the pipeline rupture EMBA)** | | | |
| SESSF - Shark gillnet sector | No impacts to fish species due to their demersal habitat<br>Surface buoys marking gillnet locations may accumulate hydrocarbons if they are set at the time of a spill. Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons overlap low-high levels of fishing intensity from 2019 - 2023. Dissolved exposure is also predicted on a much smaller scale.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Despite the fishery having low-high fishing intensity in areas where entrained (and dissolved to a lesser extent) hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0-10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| CTS - Otter board | No impacts to fish species due to their benthic/demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. | The OSTM indicates that entrained hydrocarbons overlap some areas of low fishing intensity from 2019 - 2023 around the shelf. Dissolved exposure is also predicted on a much smaller scale.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Despite the fishery having low fishing intensity in areas where entrained (and dissolved to a lesser extent) hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | due to the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | |
| CTS – Danish seine | No impacts to fish species due to their benthic/demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons overlap low-high levels of fishing intensity from 2019 - 2023. Dissolved exposure is also predicted on a much smaller scale.<br>This fishery may be subject to a temporary (e.g., days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Despite the fishery having low-high fishing intensity in areas where entrained (and dissolved to a lesser extent) hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| **Victorian fisheries (those known to fish within the pipeline rupture EMBA)** | | | |
| Rock lobster | No impacts due to their benthic habitat.<br>There is potential for lobster pot buoys to accumulate hydrocarbons if they are set at the time of a spill.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons overlap a low level of fishing intensity with less than 77 days fished from 2021 - 2025. Dissolved exposure is also predicted on a much smaller scale.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic nature of the target species, and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| Ocean trawl | No impacts to fish due to their benthic/demersal habitat.<br><br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons overlap a low-high level of fishing intensity with up to 192 days fished from 2021 - 2025. Dissolved exposure is also predicted on a much smaller scale.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Due to the low fishing intensity, the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| Inshore trawl fishery | No impacts to fish due to their benthic/demersal habitat.<br><br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons overlap a moderate level of fishing intensity, with areas around Lakes Entrance being fished for over 1000 days between 2021 - 2025. Dissolved exposure is also predicted on a much smaller scale.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Despite the fishery having moderate fishing intensity in areas where entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| Octopus fishery | No impacts due to their benthic habitat.<br><br>There is potential for octopus pot buoys to accumulate hydrocarbons if they are set at the time of a spill. | The OSTM indicates that entrained hydrocarbons overlap a moderate level of fishing intensity, with areas in eastern Victoria being fished for 0 - 71 days between 2021 - 2025. Dissolved exposure is also predicted on a much smaller scale.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | Despite the fishery having moderate fishing intensity in areas where entrained hydrocarbons are expected, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | |
| Wrasse fishery | No impacts to fish due to their demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that entrained hydrocarbons overlap a low level of fishing intensity with up to 303 days being fished between 2021 -2 025. Dissolved exposure is also predicted on a much smaller scale.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |
| Scallop fishery | No impacts due to their benthic habitat and the absence of commercially exploitable beds within the EMBA.<br>No impact to fishing equipment. | The OSTM indicates that entrained hydrocarbons overlap a low level of fishing intensity with 0 - 88 days being fished between 2021 - 2025. Dissolved exposure is also predicted on a much smaller scale.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts - Ports used for this fishery are not within the area of predicted shoreline exposure. |

### *7.7.6 Risk assessment*

Table 7-32 presents the risk assessment for a LOC from a pipeline.

**Table 7-32 Risk assessment for the LOC from a pipeline**

| **ALARP decision context** | | | |
|---|---|---|---|
| **Decision type** | A | | |
| **Activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Risk assessment (inherent)** | | | |
| **Likelihood** | **Consequence** | **Risk Category** | |
| E | III | 4 | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Control** | **Benefit** | **Feasibility** | **Adopt?** |
| NOPSEMA-accepted Bass Strait Pipeline Network Safety Case contains controls for the safe operations and maintenance of the pipelines to ensure integrity and prevent LOC. | The NOPSEMA-accepted Bass Strait Pipeline Network Safety Case demonstrates how the risks to the integrity of the pipelines will be reduced to ALARP. This includes:<br>• safe design and operation of pipelines<br>• high pressure trips<br>• inspection, maintenance and monitoring of pipelines. | This is a required regulatory process and standard industry practice. | Adopted<br>**(RSK07-CM01)** |
| Maritime navigation charts include pipelines to ensure their locations are known to other marine users. | Reduces the likelihood of rupture by anchor drag through increased awareness. | This control is standard industry and Esso company practice and reflects the existing controls in place to prevent a LOC from the pipelines. | Adopted<br>**(RSK07-CM02)** |
| Pipeline inspection and monitoring program developed and actioned per FIMS process. | Reduces the likelihood of pipeline corrosion or rupture that can result in a LOC. | This control is standard industry and Esso company practice and reflects the existing controls in | Adopted<br>**(RSK07-CM03)** |

| | | | |
|---|---|---|---|
| | | place to prevent a LOC from the pipelines. | |
| A *Corrosion Integrity Program Manual* (AUGO-PO-CIP-001) (CIPM) is in place to guide the monitoring, reporting and control of pipeline corrosion.<br>It covers sampling, corrosion monitoring, corrosion control (including cathodic protection), and chemical management. | Reduces the likelihood of pipeline corrosion that can result in a LOC. | This control is standard industry and Esso company practice and reflects the existing controls in place to prevent a LOC from the pipelines. | Adopted<br>**(RSK07-CM04)** |
| A *Pipeline Integrity Program Manual* (AUGO-PO-PIP-001) (PIPM) is in place that defines strategies, programs and execution, roles and responsibilities, results management, performance monitoring and feedback mechanisms and regulatory interfaces. | Pipeline isolation mechanisms testing conducted within the parameters defined in FIMS reduces the likelihood of pipeline rupture that can result in a LOC. | This control is standard industry and Esso company practice and reflects the existing controls in place to prevent a LOC from the pipelines. | Adopted<br>**(RSK07-CM05)** |
| The OPEP is implemented in the event of LOC from a pipeline rupture. | Ensures Esso is well prepared to quickly respond to a spill, thereby minimising the extent of sea affected. | This control is required under the Environment Regulations and represents standard industry and Esso practice. Esso has well-maintained spill response equipment in place and has in place a spill response training program for relevant personnel. | Adopted<br>**(RSK07-CM06)** |
| Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | | | **(RSK07-CM07)** |
| The OSMP is implemented in the event of pipeline rupture. | An OSMP ensures Esso is well prepared to quickly undertake operational and scientific studies, thereby supporting the future assessment of impacts resulting from the spill. | This control is required under the Environment Regulations and represents standard industry and Esso practice. Specialist consultants maintain availability and training to support Esso in the event the | Adopted<br>**(RSK07-CM08)** |

| | | | |
|---|---|---|---|
| | | OSMP needs to be implemented. | |
| Trenching/ burial of pipelines for protection from external damage. | Retrospective burial of pipelines may reduce the likelihood of external damage outside the PSZ and therefore reduce the likelihood of a LOC. | Visual inspections of the pipeline are completed regularly as part of pipeline maintenance programs.<br>Other controls in place are considered to reduce risks to ALARP (location of pipelines published on marine charts and ATBA to eliminate large ships from the area). | Not adopted |

| **Environmental controls and performance measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK07-EPO01:**<br>No release of hydrocarbons to the marine environment due to a pipeline LOC. | **RSK07-CM01:**<br>The accepted Bass Strait Pipeline Network Safety Case is in place to reduce the likelihood of a pipeline LOC. The Safety Case:<br>• identifies hazards that have the potential to cause a Major Accident Event<br>• details assessment of Major Accident Event risks<br>• describes the physical barriers, safety critical elements and the safety management systems required to reduce the risk to personnel associated with a Major Accident Event to ALARP. | **RSK07-EPS01:**<br>An accepted Safety Case is implemented to meet the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2024 (Cth) (Safety Regulations). | Acceptance letter from NOPSEMA demonstrates acceptance of the Bass Strait Pipeline Network Safety Case.<br>Records demonstrate applicable NOPSEMA notification and reporting. |
| | **RSK07-CM02:**<br>Esso pipelines are marked on maritime navigation charts to ensure pipeline locations are known to other marine users. | **RSK07-EPS02:**<br>There is no vessel anchoring directly over Esso pipelines. | Maritime navigation charts verify pipelines are marked. |
| | **RSK07-CM03:**<br>Pipeline inspection and monitoring plans occur within the parameters defined in FIMS to | **RSK07-EPS03:**<br>All pipeline inspection and maintenance meets | CMMS records verify that the Pipeline Safety Management |

| | | | |
|---|---|---|---|
| | prevent serious SHE risks (Consequence Category 1 or 2), including a process for managing plans that are in exception. Plans are developed in accordance with the Pipeline Safety Management Plan and PIPM and are scheduled in CMMS.<br><br>Pipeline equipment includes:<br>• pipelines<br>• risers<br>• pipeline launchers and receivers.<br><br>Inspection and monitoring includes:<br>• underwater pipeline inspection<br>• leak detection<br>• in-line metal loss surveys.<br><br>The Pipeline Management Plan and PIPM ensure:<br>• integrity program compliance is monitored and approved through the CMMS Exception Reporting process<br>• pipeline production parameters, including flows, pressures, temperatures and erosion are monitored (at the Longford control room) on a 24-hour basis<br>• strategies, programs and execution, roles and responsibilities, results management, performance monitoring and feedback mechanisms and regulatory interfaces are defined and updated as required. | the requirements of the PIPM, thereby complying with the Safety Regulations and Environment Regulations with regard to avoiding major accidents.<br><br>. | Plan and PIPM are implemented. |
| | **RSK07-CM04:**<br><br>Corrosion monitoring and control plans occur within the parameters defined in FIMS to prevent serious SHE risks (Consequence Category 1 or 2), including a process for managing plans that are in exception. Maintenance and inspection plans are developed for pipelines per the CIPM and are scheduled in CMMS. | **RSK07-EPS04:**<br><br>Corrosion monitoring and control is undertaken in accordance with the CIPM, thereby complying with the Safety Regulations and Environment Regulations with | CMMS records verify the CIPM is implemented. |

| | | | |
|---|---|---|---|
| | Corrosion monitoring may be done via:<br>• fluid sampling<br>• corrosion probes<br>• inspection.<br>Corrosion control plans include:<br>• sand management<br>• cathodic protection<br>• corrosion inhibition.<br>The CIPM ensures:<br>• integrity program compliance is monitored and approved through the CMMS Exception Reporting process<br>• sampling, corrosion control (including cathodic protection) and chemical management are undertaken. | regard to avoiding major accidents. | |
| | **RSK07-CM05:**<br>PIPM defines strategies, programs and execution, roles and responsibilities, results management, performance monitoring and feedback mechanisms and regulatory interfaces. | **RSK07-EPS05:**<br>Pipeline isolation and depressuring processes are maintained to keep pipelines in a safe condition (e.g. through appropriate isolation of hazardous inventories) so as to prevent or mitigate the effects of a pipeline rupture. | Completed isolation test reports.<br>Completed CMMS records of safety valves checks verifies ability to isolate the pipeline if required. |
| **RSK07-EPO02:**<br>Respond to a hydrocarbon release in the event of a pipeline rupture. | **RSK07-CM06:**<br>The OPEP is implemented in the event of a spill resulting from pipeline rupture. | **RSK07-EPS06:**<br>The OPEP is implemented in response to a hydrocarbon release from the pipeline. | Incident and IMT logs confirm response was implemented in accordance with the OPEP. |
| | **RSK07-CM07:**<br>Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | **RSK07-EPS07:**<br>OPEP testing is conducted in alignment with the frequency identified in | Testing of arrangement records confirm that emergency response capability is maintained. |

| | | | |
|---|---|---|---|
| | | Section 8.18.4 of this EP. | Records demonstrate minimum level of personnel trained for core OPEP roles are available. |
| **RSK07-EPO03:**<br>Characterise the environmental impacts resulting from a pipeline LOC. | **RSK07-CM08:**<br>The OSMP is implemented post-spill. | **RSK07-EPS08:**<br>Post-release monitoring is undertaken in accordance with the requirements of the OSMP. | Emergency response records confirm the OSMP was implemented post-spill. |

| **Risk assessment (residual)** | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| E | IV | 4 |

| **Demonstration of ALARP** |
|---|
| With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means that any additional or alternative control measures either fail to lower the residual impact consequence any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a residual risk category score ranking of 4 is considered to be ALARP. |

| **Demonstration of acceptability** | |
|---|---|
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met, noting that principle (e) is not relevant. |
| **Legislative and other requirements** | The proposed controls align with the requirements of the OPGGS Act:<br>• Schedule 3 Occupational health and safety and Safety Regulations. The Safety Regulations require the operator of each offshore facility to prepare a Safety Case for submission to NOPSEMA. Activities at a facility must be conducted in accordance with a Safety Case that has been accepted by NOPSEMA.<br>The following other requirements were identified as relevant to impacts from a LOC from a pipeline. Oil spills are a recognised threat to these species and proposed activity is consistent with conservation/management actions where specified:<br>• *Approved Conservation Advice for Thinornis rubricollis (Hooded Plover, Eastern* (TSSC, 2014)<br>• *Approved Conservation Advice for Sternula nereis nereis (Fairy Tern)* (CoA, 2020). |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. |

| | | |
|---|---|---|
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls listed in this table meet the relevant mitigation measures listed for offshore activities with regard to:<br>• Pipeline rupture – Pipelines are stabilised and protected, periodic monitoring takes place by pigging, corrosion is monitored, SSS and ROV are used for periodic inspections, inspections and maintenance take place, spill preparedness and emergency response measures are in place. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | No guidance is provided regarding preventing or managing an offshore LOC, other than having a spill contingency plan and OPEP in place. |
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Guidelines met with regard to:<br>• Section 75 (Spills): Conducting a spill risk assessment, implementing personnel training and field exercises, ensuring spill response equipment is available<br>• Sections 76-79 (Spill response planning): A spill response plan should be prepared. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls listed in this table meet the following offshore development and production objectives:<br>• To reduce the risk of any unplanned release of material into the marine environment to ALARP and an acceptable level. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*". |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-2 objectives ensure equipment is maintained over the operating life of the equipment preventing or mitigating a significant event that could result in significant and environment consequences<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed |

| | | |
|---|---|---|
| | | and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors<br>• OIMS System 10-1 objective to anticipate community concerns and develop response plans, as appropriate<br>• OIMS System 10-2 objectives to document, resource and communicate emergency response plans, and conduct training, exercises and/or drills to determine the adequacy of the plans. |
| **External context** | No specific stakeholder concerns have been raised concerning a LOC from a pipeline. | |

## 7.8 Unplanned release – Loss of containment of hydrocarbons – Loss of well control

### *7.8.1 Source of risk*

The sources of risk for a LOWC are summarised in Table 7-33.

**Table 7-33 Sources of risk for a LOWC**

| Activity | Applicable? | Hazard |
|---|---|---|
| Platform operations | **Yes** | • Primary and secondary well control measures fail. |
| Subsea facility operations | **No** | N/A |
| Pipeline operations | **No** | N/A |
| Wellwork | **Yes** | • LOWC from workover operations. |
| IMR | **No** | N/A |
| Support activities | **No** | N/A |

A LOWC can occur when both primary and secondary well control measures fail, potentially resulting in the uncontrolled release of reservoir hydrocarbons into the marine environment. During routine production operations, the probability of such an event is considered very unlikely. However, workover operations, particularly those involving intervention in the wellbore, pose a remote but credible risk of losing well control.

The Assessment of the Risk of Pollution from Marine Oil Spills in Australian Ports and Waters (DNV, 2011) estimated the frequency of blowouts from oil production wells, including external causes, as $3.9 \times 10^{-5}$ per well year. Based on the number of oil and condensate wells in Australia at the time (410), this equates to an approximate 3% chance of a production well blowout occurring somewhere in Australian waters each year. The same report estimated the frequency of oil spills greater than 1 tonne due to production blowouts as $2.0 \times 10^{-5}$ per well year.

More recent data from the IOGP Risk Assessment Data Directory - Blowout Frequencies Report 434-02 (2019) provides updated blowout frequencies for gas production wells:

- North Sea standard operations: $7.2 \times 10^{-5}$ per well year (excluding eternal causes), and $2.7 \times 10^{-5}$ per well year (external causes such as storms or vessel collision)
- Gulf of Mexico operations: $1.6 \times 10^{-4}$ per well year (excluding eternal causes), and $3.4 \times 10^{-5}$ per well year (external causes)

- Non-North Sea standard or unknown operations: 3.3 x $10^{-5}$ (surface flow), and 4.0 x $10^{-6}$ (underground flow).

Historical data from Volkman et al (1994) and AMSA (2019) indicates that while there have been at least six blowouts during offshore drilling in Australia, including the Montara incident in 2009, only one LOWC event has occurred during offshore production operations. This was during wireline activities at Marlin A4 in 1971. This data supports the conclusion that the likelihood of a LOWC during routine production operations is remote, particularly when robust well integrity and control systems are in place.

A comprehensive review of all current, future and historically producing wells across Bass Strait was completed to identify credible LOWC scenarios. These included:

- production wells (active or shut-in)
- minor workovers (e.g. wireline operations with tubing in place)
- major workovers (e.g. tubing pull operations with potential flow via tubing and annulus).

### *7.8.2 Known and potential risks*

The known and potential risks associated with a LOWC are:

- GHG emissions from methane release
- temporary and localised reduction in water quality
- injury or death of exposed marine fauna and seabirds
- habitat damage where the spill reaches shorelines
- changes to the functions, interests or activities of other users (e.g. commercial fisheries).

Receptors most at risk within this EMBA are:

- benthic assemblages
- plankton
- fish
- seabirds and shorebirds
- turtles
- pinnipeds
- cetaceans
- sandy beaches
- commercial fisheries.

### *7.8.3 Spill modelling*

#### 7.8.3.1 Discharge scenarios and modelling Inputs

A comprehensive review of all current, future and historically producing wells across Bass Strait wells was completed to identify potential worst case discharge scenarios (see Table 7-34).

The potential discharge scenario developed was based on a failure of all preventative and mitigating barriers resulting in a LOWC and a release of reservoir hydrocarbons.

The assessment considered all producing wells across Bass Strait.

**Table 7-34 Selection of worst-case discharge scenario – LOWC**

| Process | Description |
|---|---|
| Identify potential discharge scenarios | In consultation with Reservoir, Wellwork and Facilities Engineers, it was identified that discharge of reservoir fluids could occur due to LOC during:<br>• 'minor' workover:<br>- workovers (including P&As) where tubing remains in the well<br>- all wireline activities are considered 'minor' workovers because tubing is not removed<br>- flow during a LOWC could be via tubing |

| Process | Description |
|---|---|
| | - could be caused by:<br>  - loss of barriers during wellwork.<br>• 'major' workover:<br>  - workovers (including P&As) where tubing is removed from the well (also known as 'tubing pull workovers')<br>  - flow during a LOWC could be via tubing and annulus<br>  - could be caused by:<br>  - loss of barriers during wellwork.<br>• LOC outside of wellwork scenarios (e.g. during production, while the well is shut in):<br>  - an incident occurs resulting in a LOC from the well or associated equipment<br>  - this could occur:<br>  - during production<br>  - while the well is shut-in, suspended or temporarily abandoned.<br>  - could be caused by:<br>  - loss of barriers in the well<br>  - LOC from well head equipment and flowlines. |
| Identification of potential pollutants | Oil types for different reservoirs were classified and grouped based on ITOPF Classifications (ITOPF, 2015). Hydrocarbon liquid types across the Bass Strait vary from Group I (light oils/condensate) to Group IV (heavy crude). Details of fluid properties for each reservoir can be found in Section2.4.<br>As there are no longer any oil producing facilities, hydrocarbon types selected for modelling were:<br>• KPA and BTA condensates were considered to determine the volume of a worst-case discharge from a gas/condensate well and were modelled for the highest producing gas/condensate wells. As shown, the volume of the release during production operations (from a completed well with production tubing in place) is considerably lower than the worst-case discharge scenario for a LOWC during drilling (7.8kbbl/day)<br>• Moonfish crude – Based on possibility of intersecting sands when undertaking a P&A from TNA, WTN and SNA only. |
| Determine characteristics of the discharge scenario (including the location and calculation of potential spill volumes) | <u>Location</u><br>Bass Strait producing facilities include:<br>• close to shore (BTA, BTW, SNA)<br>• northern (KPA, MLA, MLB, TNA, WTN).<br>All other facilities are addressed in the Non-Producing EP.<br>Following the abandonment of BKA, SHA, and TWA subsea facilities, there are no subsea producing oil wells in the Gippsland region. Remaining subsea facilities (KPA and BTW) produce gas and condensate (as discussed above). Therefore, all crude spill scenarios are assumed to occur at surface.<br><u>Volume</u><br>The flow rate of discharge scenarios was established based on the most recent well test data for all wells, to identify the highest producing wells. |

<table>
<tr><th>Process</th><th>Description</th></tr>
<tr><td></td><td>Spills from abandoned wells, during wireline activities and during production would be expected to result in a significantly lower rate of release compared to releases due to workover activities. There are a number of restrictions at surface which would restrict flow rate should an incident occur. For the purposes of this worst-case scenario assessment, a spill from a workover activity have been considered as it presents a spill of the highest volume and the highest likelihood of occurrence.<br><br>Wells which do not free flow were excluded from the assessment as they would not be able to flow to atmosphere for an extended period should an incident occur.<br><br>The volume of the discharge scenarios was determined based on modelling a discharge scenario from the most productive well for each crude type at each location.<br><br>It was assumed that the discharge scenario requires a relief well drilled by a MODU that has a response time of 98 days, as described in Section 7.8.6.1.</td></tr>
<tr><td>Determine likelihood of the discharge scenario</td><td>The highest risk activities which could lead to a LOC from wells is during well workover activities. This is reflected in the IOGP Risk Assessment Data Directory – Blowout Frequency (2019) as outlined below.
<table>
<tr><th>Well type</th><th>Definition</th><th>Frequency of well release</th><th>Unit</th></tr>
<tr><td>Abandoned wells</td><td>Permanently abandoned, temporarily abandoned and long-time plugged wells.<br><br>Categorised as Suspended, Temporarily abandoned, Abandoned in the WOMP.</td><td>$2.3x10^{-5}$</td><td>Per well year</td></tr>
<tr><td>Wireline</td><td>Wireline operations in production or injection wells (i.e. not wireline operations carried out as part of drilling and completion operations).</td><td>$2.5x10^{-5}$</td><td>Per operation</td></tr>
<tr><td>Production</td><td>Wells that are used for production and injection purposes. This includes closed in production wells.<br><br>Categorised as Shut in, Active in the WOMP.</td><td>$4.5x10^{-5}$</td><td>Per well year</td></tr>
<tr><td>Workover</td><td>Workover activities (not including wireline, snubbing or coiled tubing operations). Often referred to as “heavy workover”.</td><td>$5.7x10^{-4}$</td><td>Per operation</td></tr>
</table></td></tr>
</table>

| Process | Description |
|---|---|
| | According to the IOGP Risk Assessment Data Directory, the likelihood of a LOWC from a production or an abandoned well is less than during a workover activity. |
| Selection of worst-case scenario | To support the assessment of environmental risks associated with hydrocarbon LOC scenarios, RPS undertook oil spill trajectory modelling (OSTM) using the SIMAP model (RPS, 2025). The modelling evaluated five credible worst-case scenarios. Scenarios were selected based on representative oil types, production rates, and well configurations across the producing facilities. These scenarios are:<br>• **Scenario 1:** 35,839m³ surface release of Kipper condensate over 98 days following a LOWC (with production from current production tubing against zero wellhead pressure) at MLA<br>• **Scenario 2:** 144,054m³ surface release of Kipper condensate over 98 days following a LOWC (during a plug and abandonment on the well with all perforations open to flow against zero wellhead pressure) at MLA<br>• **Scenario 3:** 1,324m³ surface release of Moonfish crude over 98 days following a LOWC (during a plug and abandonment on the well with all perforations open to flow against zero wellhead pressure) at TNA<br>• **Scenario 4:** 41,448m³ surface release of Barracouta condensate over 98 days following a LOWC (with production from current production tubing against zero wellhead pressure) at WTN<br>• **Scenario 5:** 23,373m³ surface release of Barracouta condensate over 98 days following a LOWC (with production from current production tubing against zero wellhead pressure) at SNA.<br><br>These scenarios represent the conservative 'outer envelope' of potential hydrocarbon exposure and were modelled without accounting for spill prevention, mitigation or response measures. The outputs inform consequence assessments, sensitive receptor overlays, and OPEP, ensuring the EP demonstrates preparedness.<br><br>Moonfish reservoir<br><br>Sampling was completed of crude oil from the Moonfish reservoir which indicated high wax content and high pour point. Modelling was completed on the M31 well which previously produced from the Moonfish oil reservoir.<br><br>Currently there are no wellbores available that can produce Moonfish crude to surface from the producing platforms.<br><br>The risk of a LOWC from production and 'minor' workovers from wells that have a connection to the reservoirs such as Moonfish oil, WTN R and S reservoir sands that contain crude that is similar to Moonfish crude. (i.e. wellwork activities where the worst-case discharge scenario is flow through tubing only, such as wellwork where tubing remains in the well) have been assessed and are within the scope of this EP.<br><br>The risk of LOWC from 'major' workovers from wells that have access to reservoirs that contain crude that is similar to the Moonfish crude (i.e. wellwork activities where the worst-case discharge scenario is flow through tubing and annulus such as wellwork where tubing is removed from the well) have been assessed in this EP. |

#### 7.8.3.2 Modelling approach

The modelling approach included:

- model - SIMAP

- simulations - 100 stochastic simulations per scenario using 10 years of hindcast wind and current data (2010-2019)
- hydrodynamic inputs:
    - currents - combined HYCOM ocean model and RPS HYDROMAP tidal model
    - winds - NCEP CFSR dataset (¼° resolution, hourly)
    - temperature and salinity - World Ocean Atlas 2018 data.
- oil weathering - modelled evaporation, entrainment, dispersion, biodegradation and shoreline accumulation based on oil-specific physical and chemical properties.

The properties of the hydrocarbons used in the modelling and the modelling inputs are summarised in Table 7-35.

**Table 7-35 Properties of modelled hydrocarbons**

| Characteristic | Barracouta condensate | Kipper condensate | Moonfish crude |
|---|---|---|---|
| Density (kg/m$^3$) | 772.3 (at 15°C) | 760.0 (at 15°C) | 887.0 (at 15°C) |
| API | 51.6 | 54.5 | 27.8 |
| Dynamic viscosity (cP) | 0.99 (at 15°C) | 0.64 (at 15°C) | 4.5 (at 40°C) |
| Pour point (°C) | -39 | -39.0 | 27 |
| Aromatic content (%) | 16.6 | 13.4 | 17.3 |
| Wax content (%) | 1.8 | 2.3 | 38.5 |
| Hydrocarbon property category | Group I | Group I | Group IV |
| Hydrocarbon property classification | Non-persistent | Non-persistent | Persistent |

The key scenarios and parameters modelled in the OSTM are outlined in Table 7-36.

Deterministic runs were selected from stochastic outputs to inform response planning, based on:

- maximum surface oil extent (>10g/m$^2$)
- longest shoreline length with >100g/m$^2$ accumulation
- largest area of entrained or dissolved hydrocarbon exposure.

**Table 7-36 Key modelled scenarios**

| Scenario | Location | Oil type | Spill volume (m$^3$) | Release type | Release duration | Simulation duration |
|---|---|---|---|---|---|---|
| 1 | MLA/MLB | Kipper condensate | 35,839 | Surface | 98 days | 112 days |
| 2 | MLA/MLB | Kipper condensate | 144,054 | Surface | 98 days | 112 days |

| Scenario | Location | Oil type | Spill volume ($m^3$) | Release type | Release duration | Simulation duration |
|---|---|---|---|---|---|---|
| 3 | TNA | Moonfish crude | 1324 | Surface | 98 days | 119 days |
| 4 | WTN | Barracouta condensate | 41,448 | Surface | 98 days | 112 days |
| 5 | SNA | Barracouta condensate | 23,373 | Surface | 98 days | 112 days |

An outline of the spill thresholds used for the OSTM, together with the justification for their use, is provided in Table 7-18. Additionally results for NOPSEMA's (2025) suggested high entrained threshold (1000ppb) were provided by RPS (2025) and are summarised in Section 7.8.3.4.

#### 7.8.3.3 Modelling outputs – Weathering and fate

Barracouta condensate is a light, low-viscosity oil with an API gravity of 51.6 and a density of 772.3 $kg/m^3$ at 15°C. Its dynamic viscosity is 0.99cP at 15°C, placing it in the Group I category according to ITOPF (2025), and it is classified as a non-persistent oil by AMSA (2023). This composition indicates that the majority of hydrocarbons will evaporate relatively quickly when the oil is on the water surface, with minimal long-term persistence due to the low proportion of high-boiling-point components.

Kipper condensate is a light, low-viscosity oil with an API gravity of 54.5 and a density of 760.0$kg/m^3$ at 15°C. Its dynamic viscosity is 0.64cP at 15°C, classifying it as a Group I oil under ITOPF ( (2025) guidelines and as a non-persistent oil under AMSA (2023) classifications. This composition indicates that the majority of the oil is likely to evaporate relatively quickly when exposed on the water surface, while the small proportion of persistent components may remain for longer durations and degrade more slowly in the marine environment.

Moonfish crude is a heavier oil with an API gravity of 27.8 and a density of 887.0$kg/m^3$ at 15°C. It has a viscosity of 4.5cP at 40°C and is classified as a Group IV oil under ITOPF (2025) guidelines. According to AMSA (2023), it is considered a persistent oil. Unlike the condensates, Moonfish crude contains a lower proportion of volatile components (7.15%), with a substantial portion made up of semi-volatile (28.7%) and low-volatility (46.9%) hydrocarbons. This composition suggests that while some evaporation will occur, particularly for the lighter fractions, a significant portion of the oil is likely to persist on the water surface over extended periods, contributing to greater environmental persistence and requiring more intensive response and cleanup efforts.

*KIPPER CONDENSATE*

Across both volumes of Kipper condensate modelled (Scenario 1 and 2), the weathering graphs indicate that the volatile and semi-volatile fractions evaporate rapidly once exposed at the sea surface. A substantial proportion of the mass is predicted to evaporate within the first 24 hours, with the remaining material tending to mix into the upper wave-mixed layer (typically the top 3-10m depending on sea state). The predicted fates show how the condensate transitions over time between evaporation, entrainment, dissolution, and limited shoreline accumulation. All simulations demonstrate that significant evaporation continues throughout the 30-day modelling period, with only a relatively small persistent fraction remaining on the surface or reaching the shoreline. The entrained and dissolved fractions increase under higher wind conditions, reflecting the light, highly degradable nature of the condensate. Figure 7-21, Figure 7-22, Figure 7-23, Figure 7-24, Figure 7-25, Figure 7-26, Figure 7-27 and Figure 7-28 show the worst case weathering graphs of Kipper condensate.

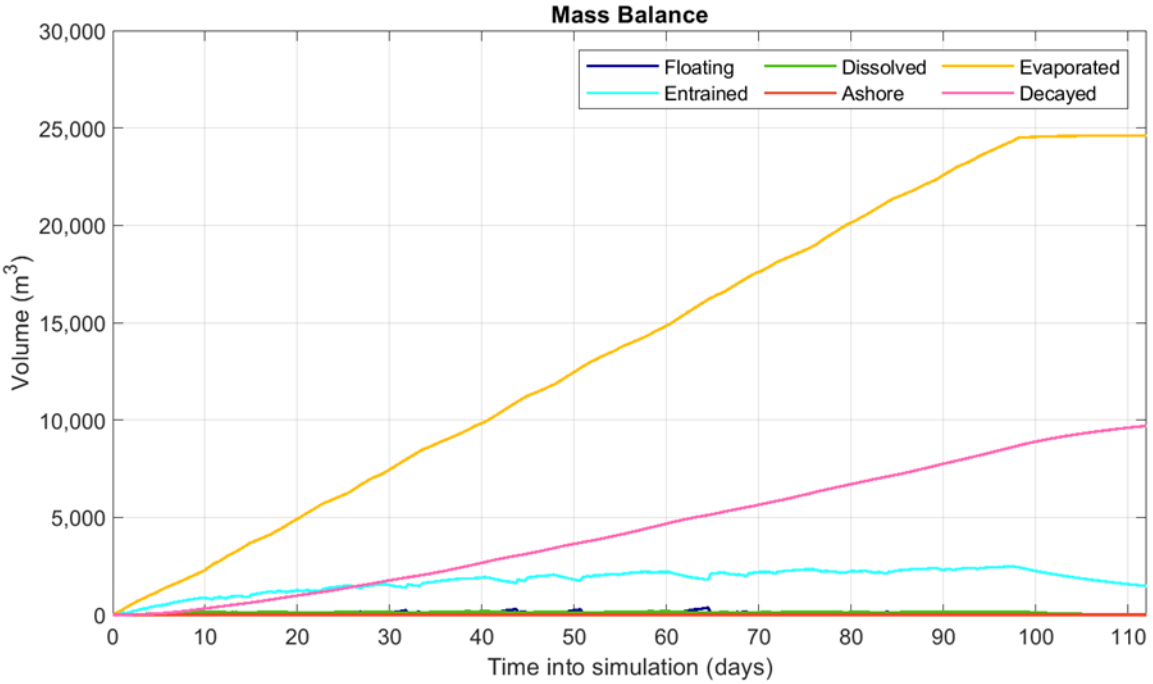



**Figure 7-21 Predicted weathering and fates for the Scenario 1 simulation with the largest swept area of floating oil above 10g/m²**

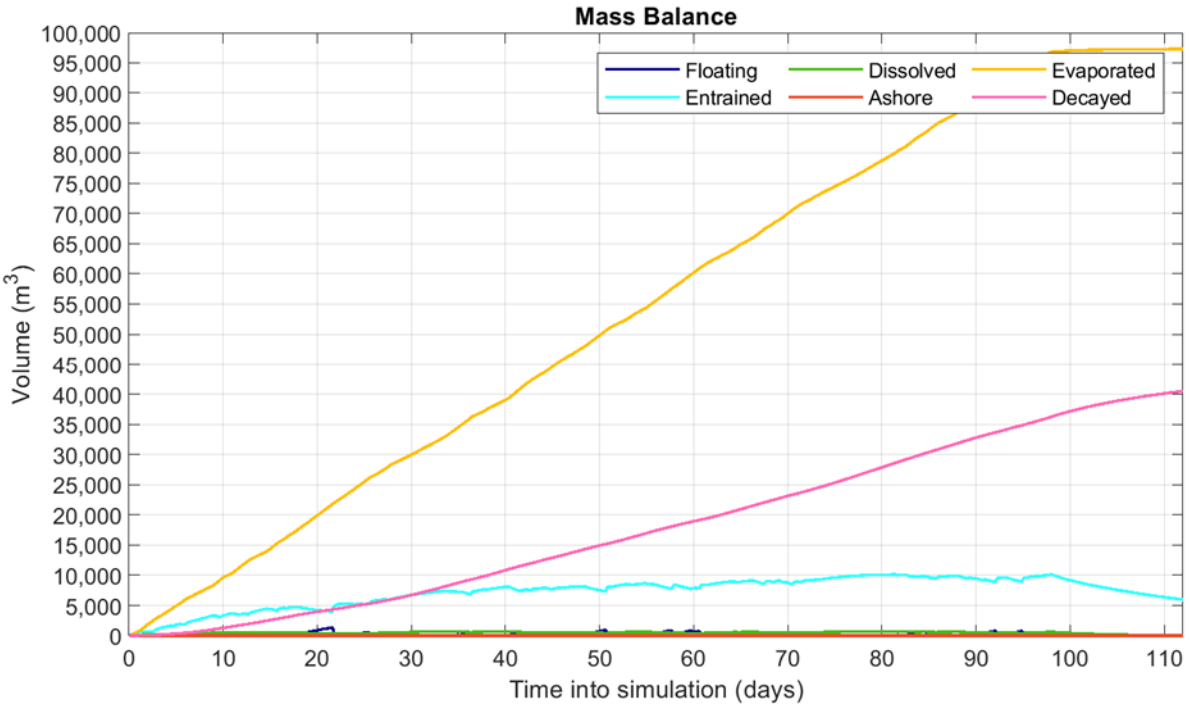



**Figure 7-22 Predicted weathering and fates for the Scenario 2 simulation with the largest swept area of floating oil above 10g/m²**

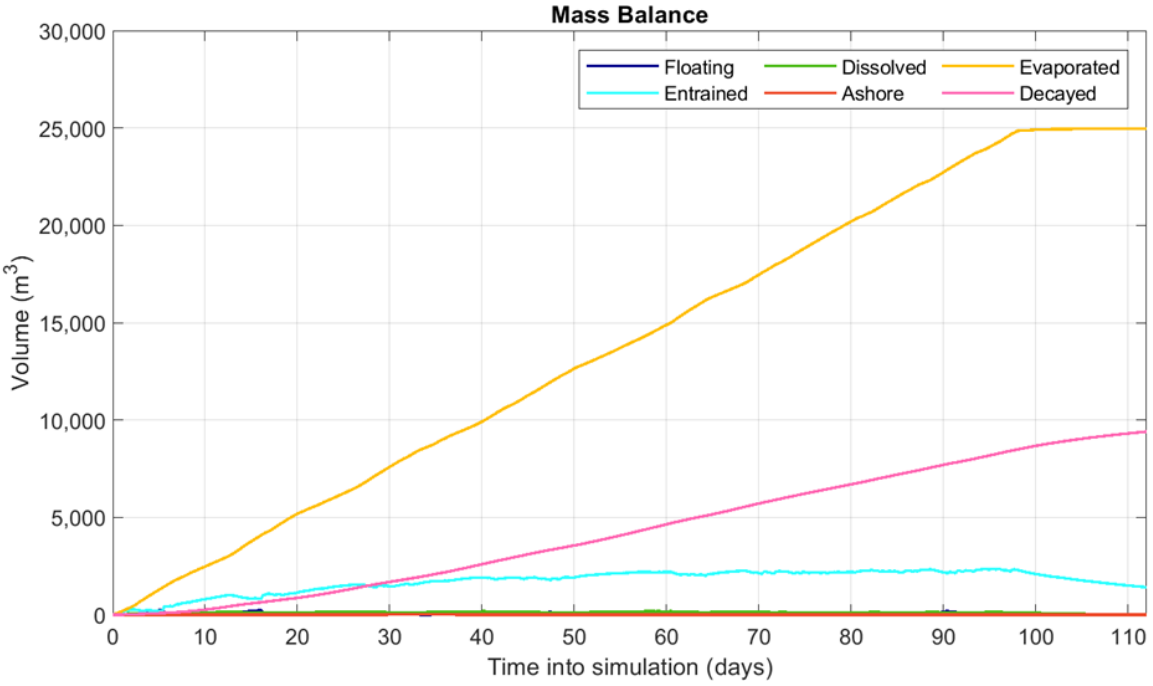



**Figure 7-23 Predicted weathering and fates for the Scenario 1 simulation with the largest volume of oil ashore**

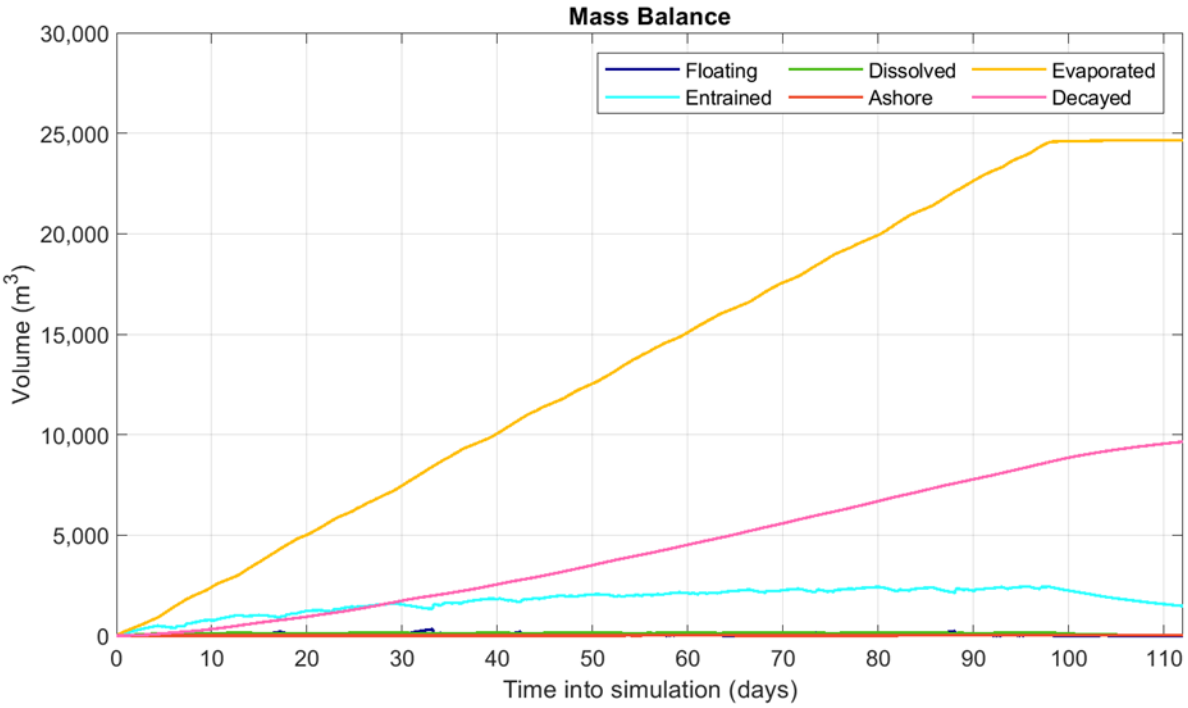



**Figure 7-24 Predicted weathering and fates for the Scenario 1 simulation with the longest length of shoreline accumulation above 100g/m$^2$**

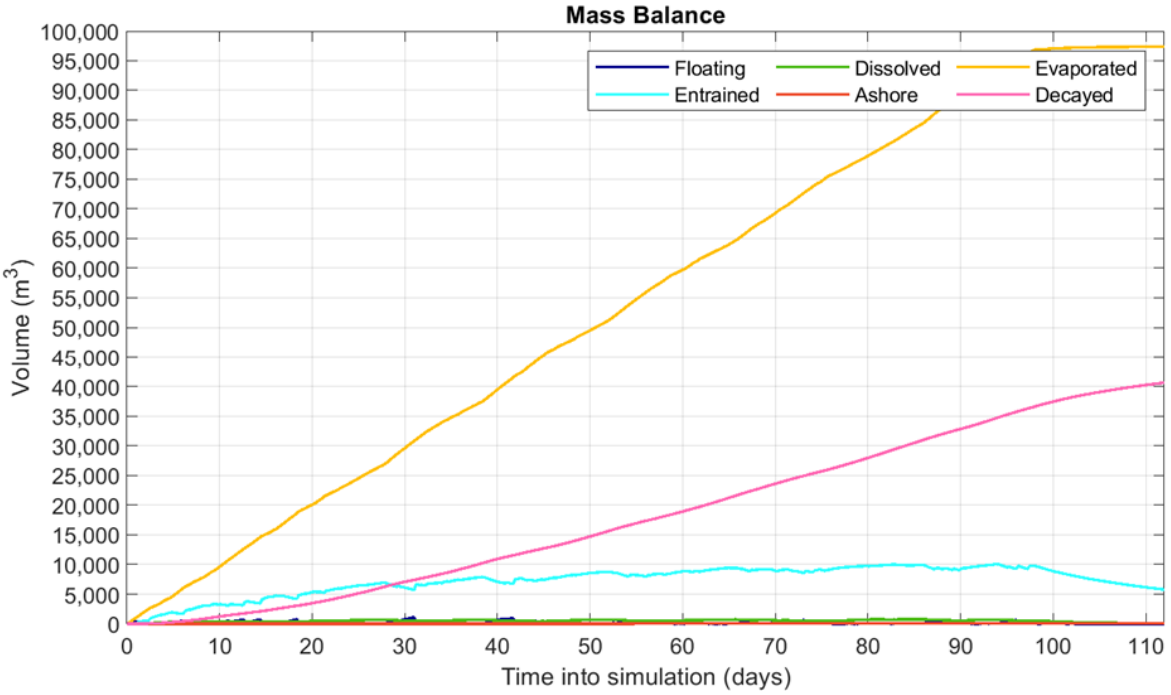



**Figure 7-25 Predicted weathering and fates for the Scenario 2 simulation with the longest length of shoreline accumulation above 100g/m²**

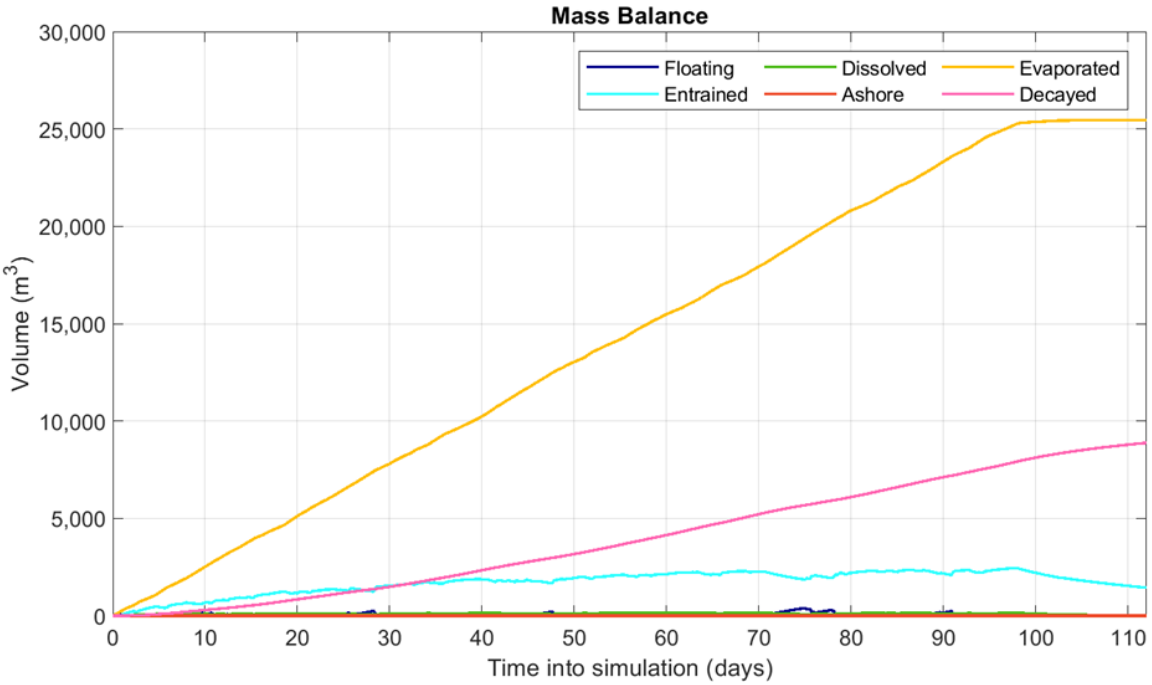



**Figure 7-26 Predicted weathering and fates for the Scenario 1 simulation with the largest area of entrained hydrocarbons above 100ppb**

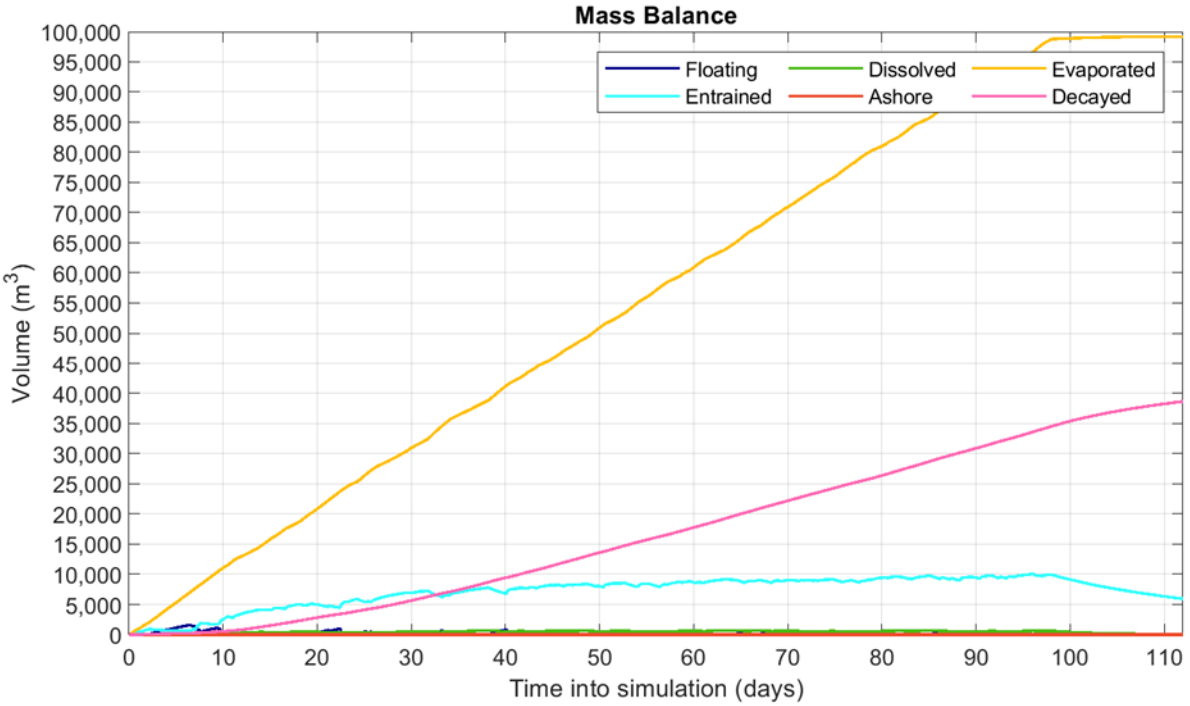



**Figure 7-27 Predicted weathering and fates for the Scenario 2 simulation with the largest area of entrained hydrocarbons above 100ppb**

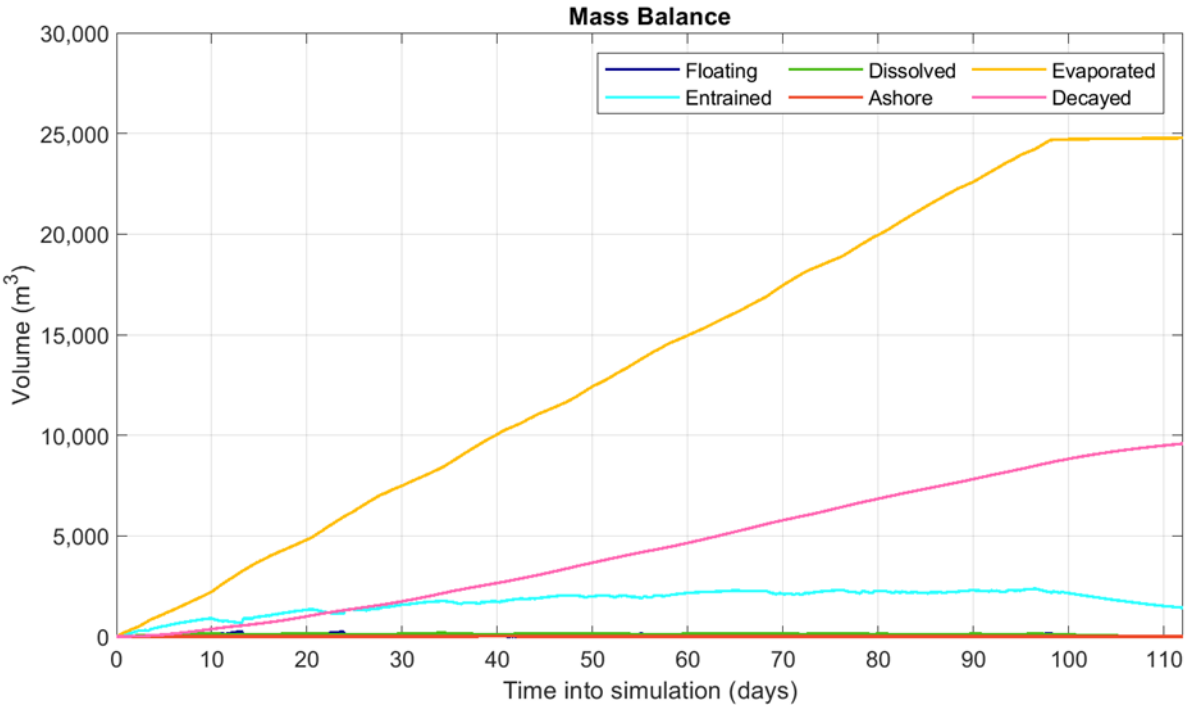



**Figure 7-28 Predicted weathering and fates for the Scenario 1 simulation with the largest area of dissolved hydrocarbons above 50ppb**

*MOONFISH CRUDE*

The weathering graphs show that Moonfish crude displays a more persistent weathering profile due to its heavier composition. Under constant 5kn wind conditions, 32.6% of the crude is expected to evaporate within the first 24 hours, with the remaining surface oil, comprising less volatile, longer-chain hydrocarbons, weathering slowly once the lighter fractions have evaporated. In the variable-wind scenario, entrainment becomes the dominant fate. After 24 hours, approximately 51.2% of the oil mass is entrained into the water column and 26.8% has evaporated, leaving around 14% on the water surface. This increased entrainment results in a subsurface decay rate of approximately 2.0% per day, reaching 13.9% after seven days. By comparison, the constant-wind scenario shows a much lower decay rate of 0.2% per day (1.2% after seven days). The combination of limited evaporation and strong entrainment means that a substantial portion of the crude remains suspended in the water column, degrading gradually over several weeks.

Figure 7-29, Figure 7-30, Figure 7-31 and Figure 7-32 show the worst case weathering graphs of Moonfish crude.

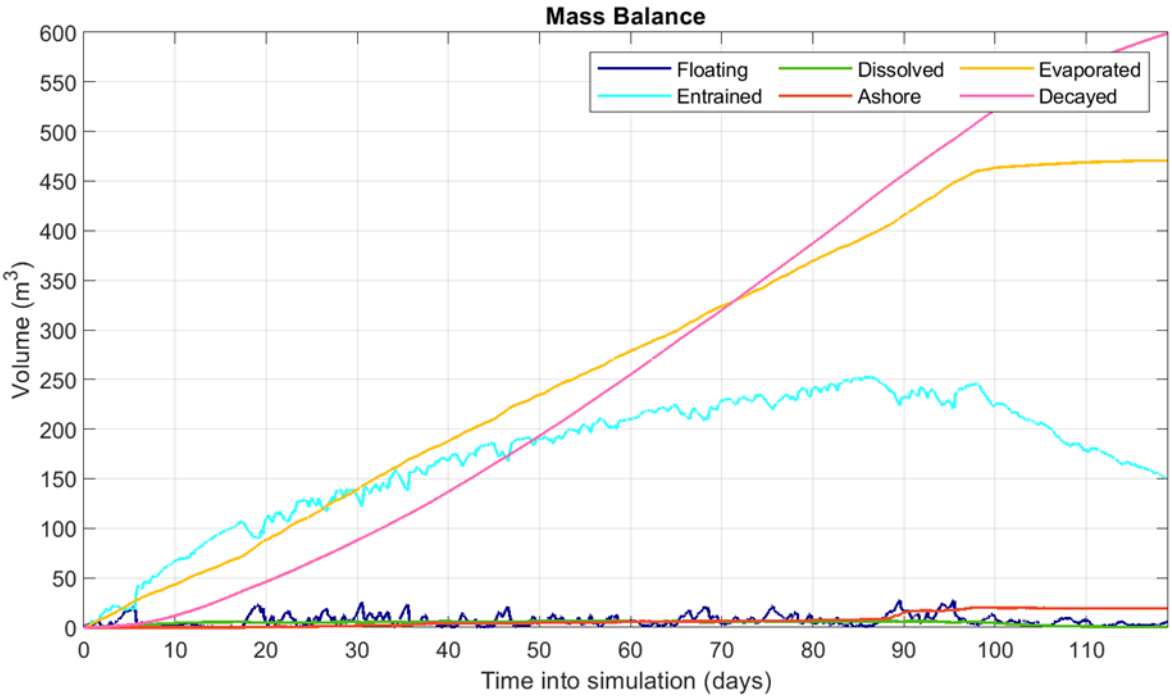



**Figure 7-29 Predicted weathering and fates for the Scenario 3 simulation with the largest volume of oil ashore**

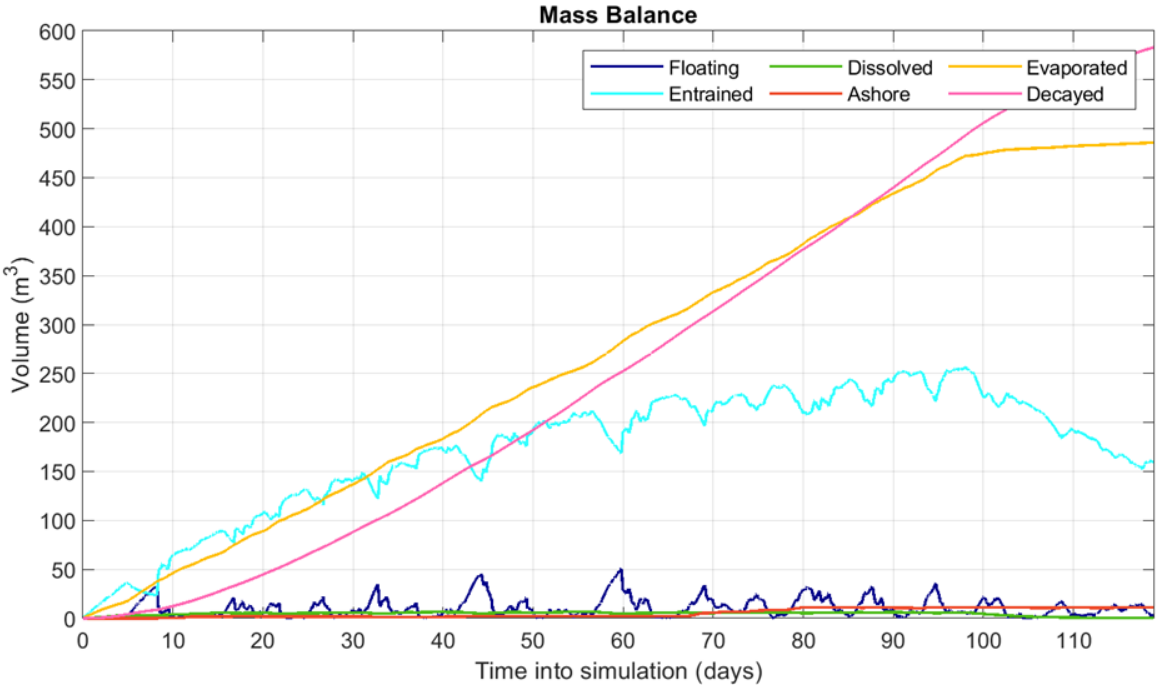



**Figure 7-30 Predicted weathering and fates for the Scenario 3 simulation with the longest length of shoreline with accumulation above 100g/m²**

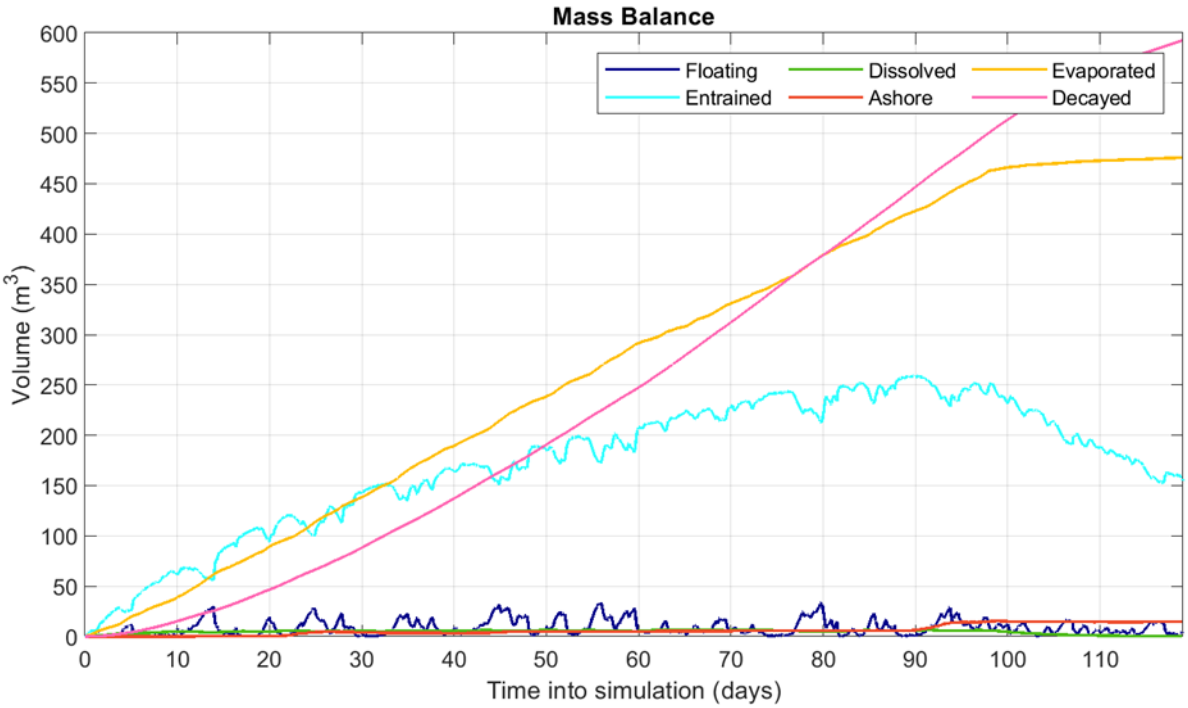



**Figure 7-31 Predicted weathering and fates for the Scenario 3 simulation with the largest area of entrained hydrocarbons above 100ppb**

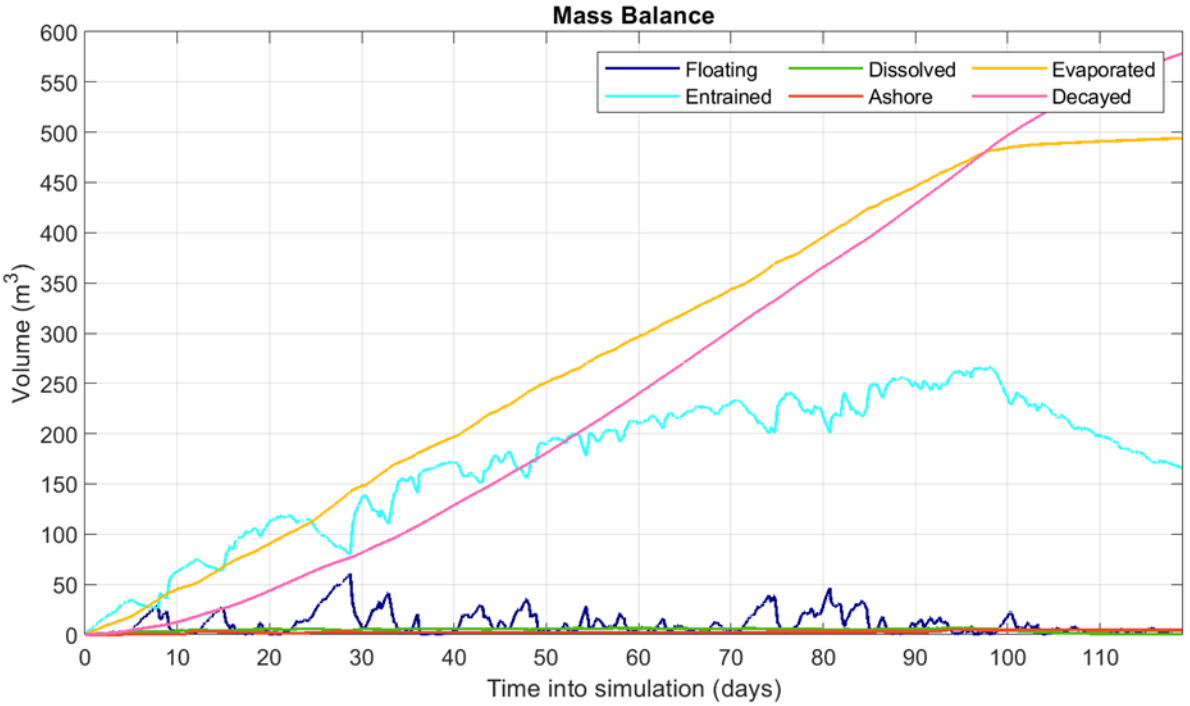



**Figure 7-32 Predicted weathering and fates for the Scenario 3 simulation with the largest area of dissolved hydrocarbons above 50ppb**

*BARRACOUTA CONDENSATE*

Barracouta condensate exhibits the most rapid evaporation of the three products. Under constant 5kn wind conditions, 89.7% of the condensate is predicted to evaporate within the first 24 hours. The remaining surface residue consists of less volatile, longer-chain hydrocarbons that weather slowly once the volatile fraction has been lost. Under variable-wind conditions, entrainment increases but remains lower than for Kipper condensate or Moonfish crude due to the product's high volatility. After 24 hours, 9.6% of the oil mass is entrained and 83.9% has evaporated, leaving less than 1% on the surface. The increased entrainment results in a subsurface decay rate of approximately 0.8% per day (5.6% after seven days), compared with only 0.01% per day (0.6% after seven days) under constant winds. Although the remaining hydrocarbons are relatively persistent once entrained, the overall mass is expected to degrade over several weeks.

Figure 7-33, Figure 7-34, Figure 7-35, Figure 7-36, Figure 7-37, Figure 7-38, Figure 7-39 and Figure 7-40 show the worst case weathering graphs of Barracouta condensate.

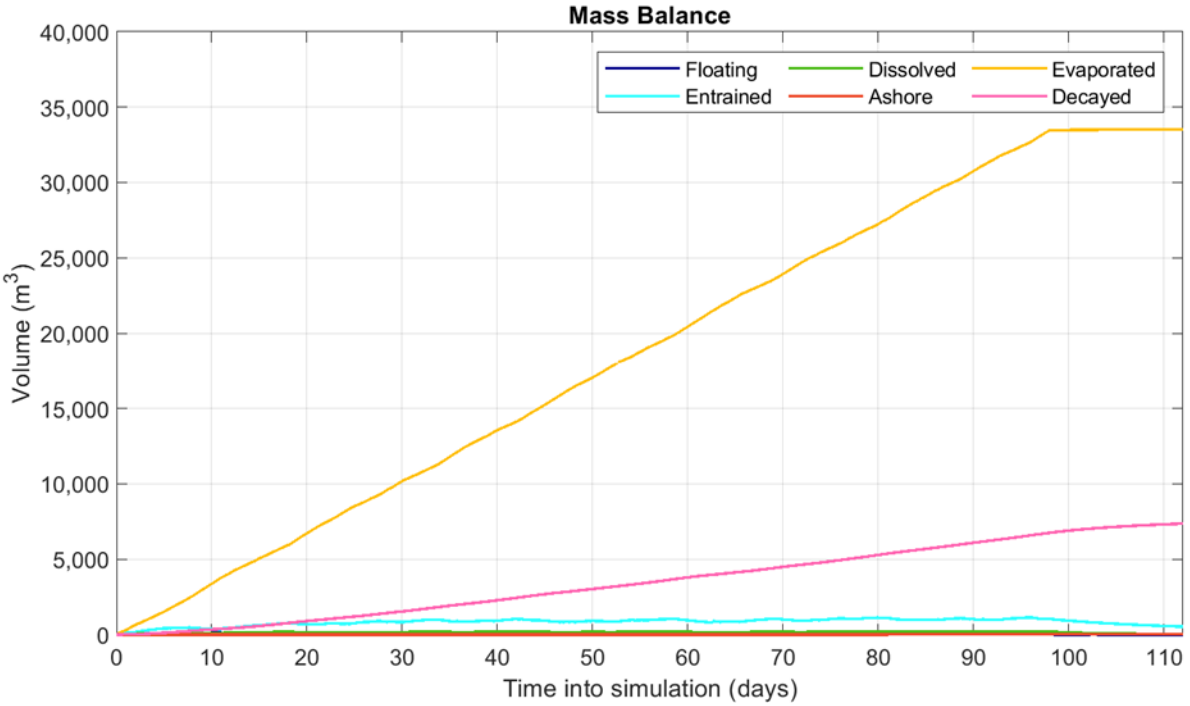



**Figure 7-33 Predicted weathering and fates for the Scenario 4 simulation with the largest swept area of floating oil above 10g/m²**

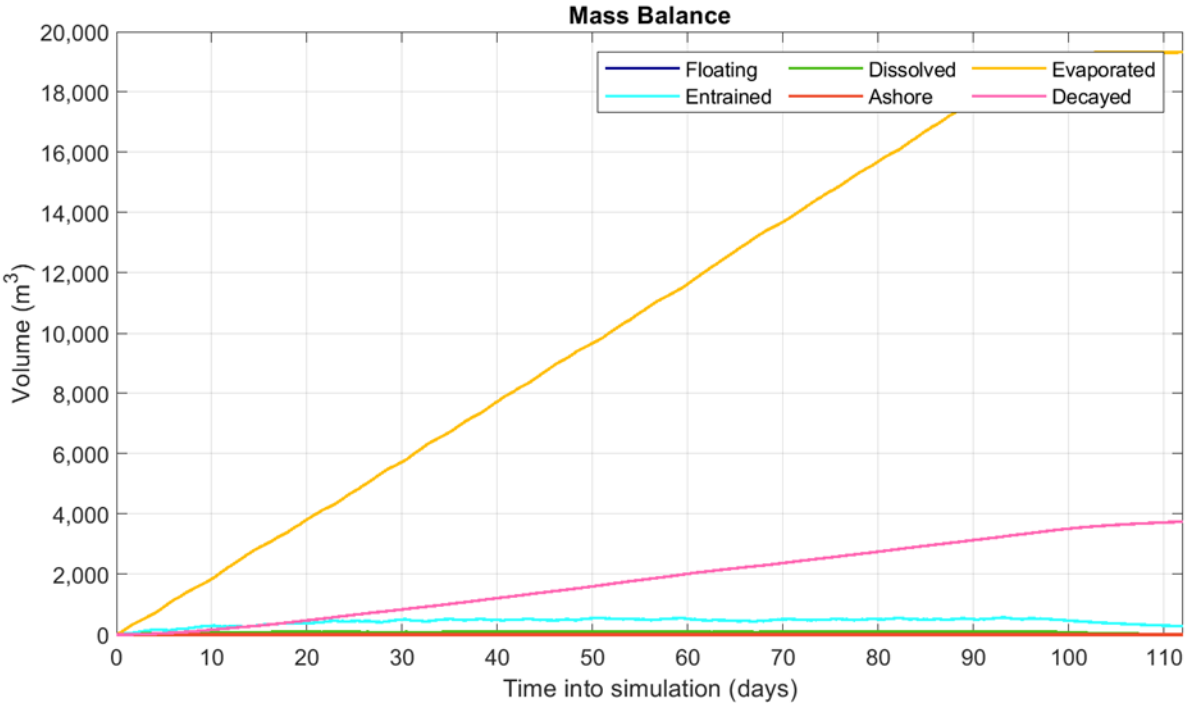



**Figure 7-34 Predicted weathering and fates for the Scenario 5 simulation with the largest swept area of floating oil above 10g/m²**

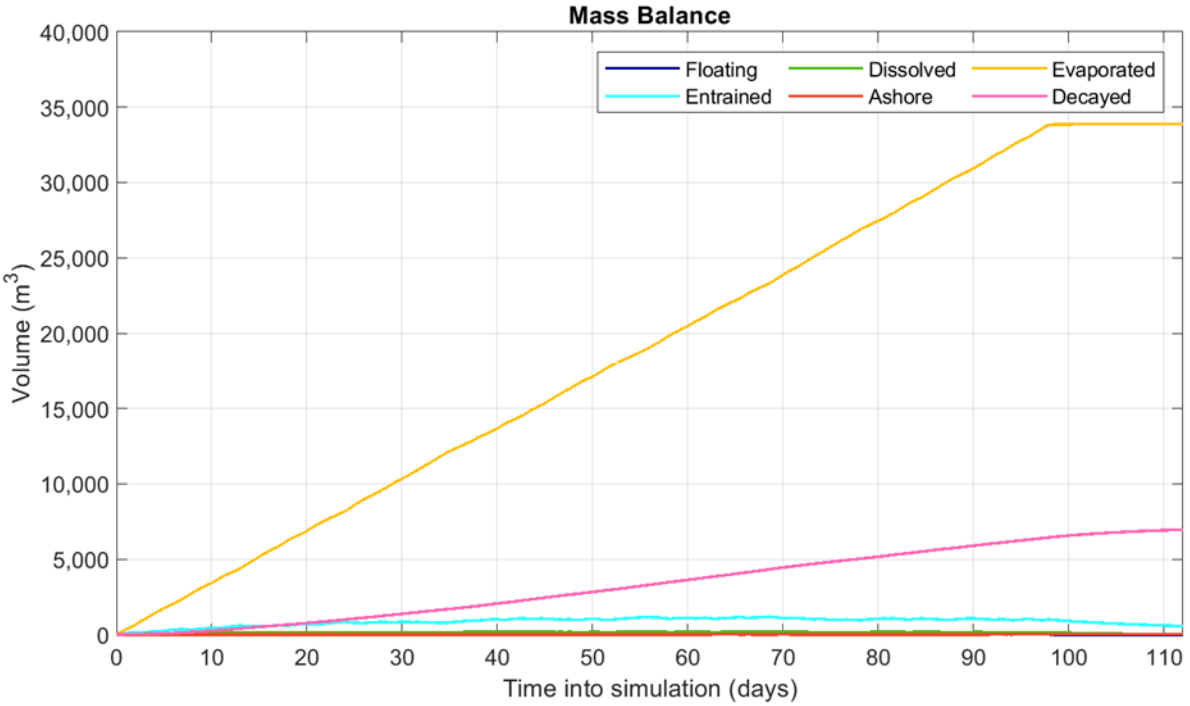



**Figure 7-35 Predicted weathering and fates for the Scenario 4 simulation with the largest volume of oil ashore**

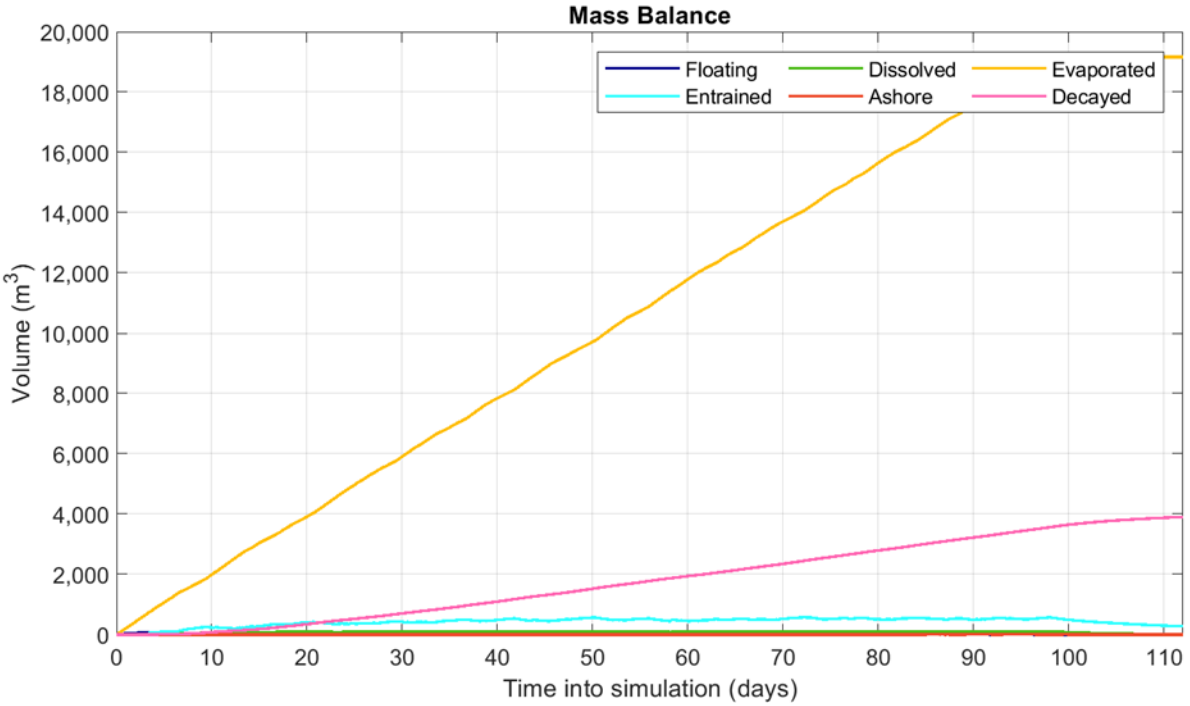



**Figure 7-36 Predicted weathering and fates for the Scenario 5 simulation with the largest volume of oil ashore**

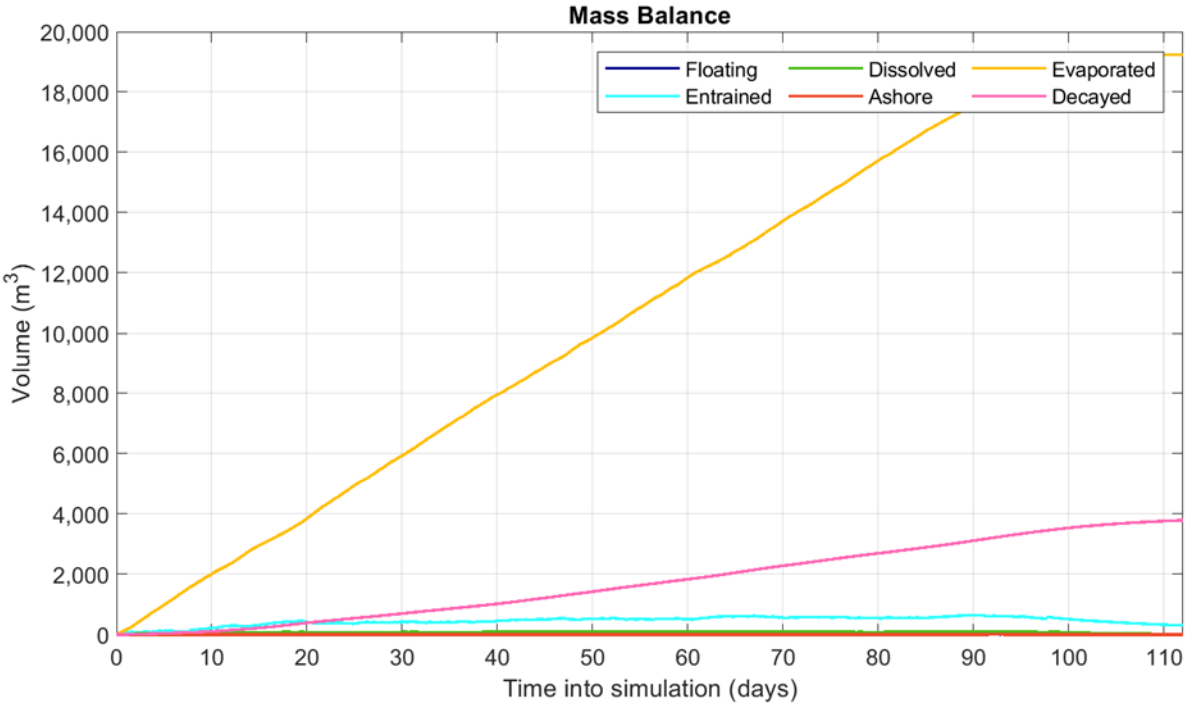



**Figure 7-37 Predicted weathering and fates for the Scenario 5 simulation with the longest length of shoreline with accumulation above 100g/m²**

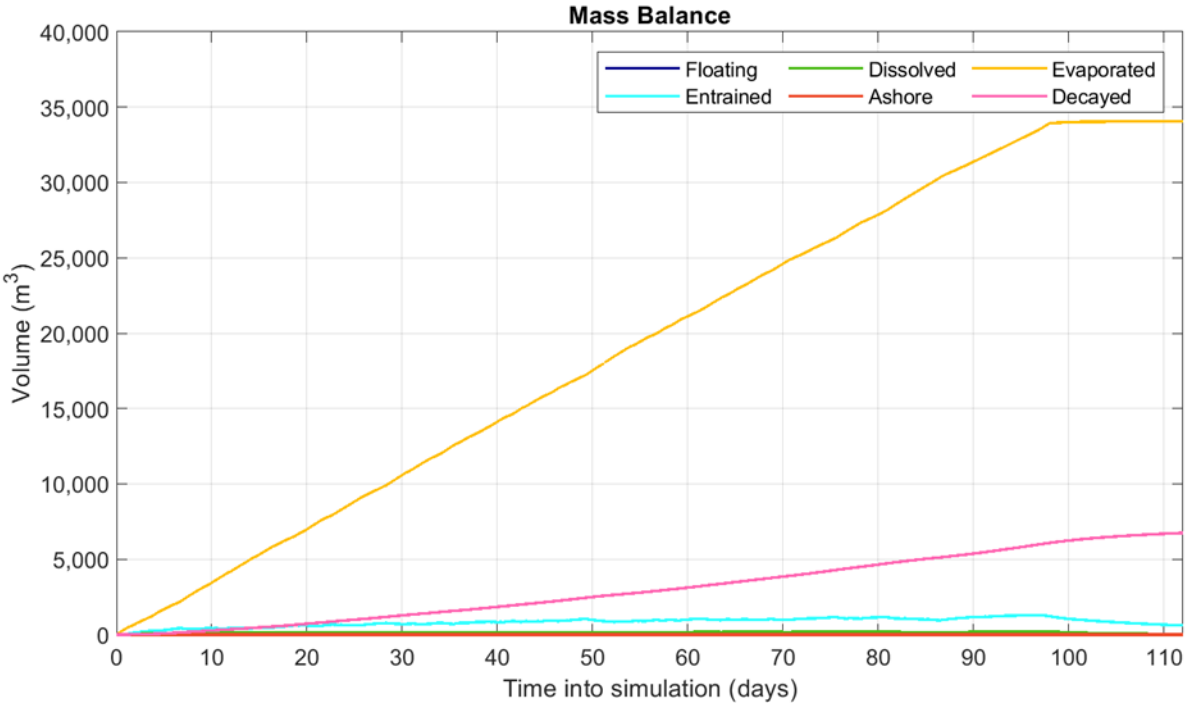



**Figure 7-38 Predicted weathering and fates for the Scenario 4 simulation with the largest area of entrained hydrocarbons above 100ppb**

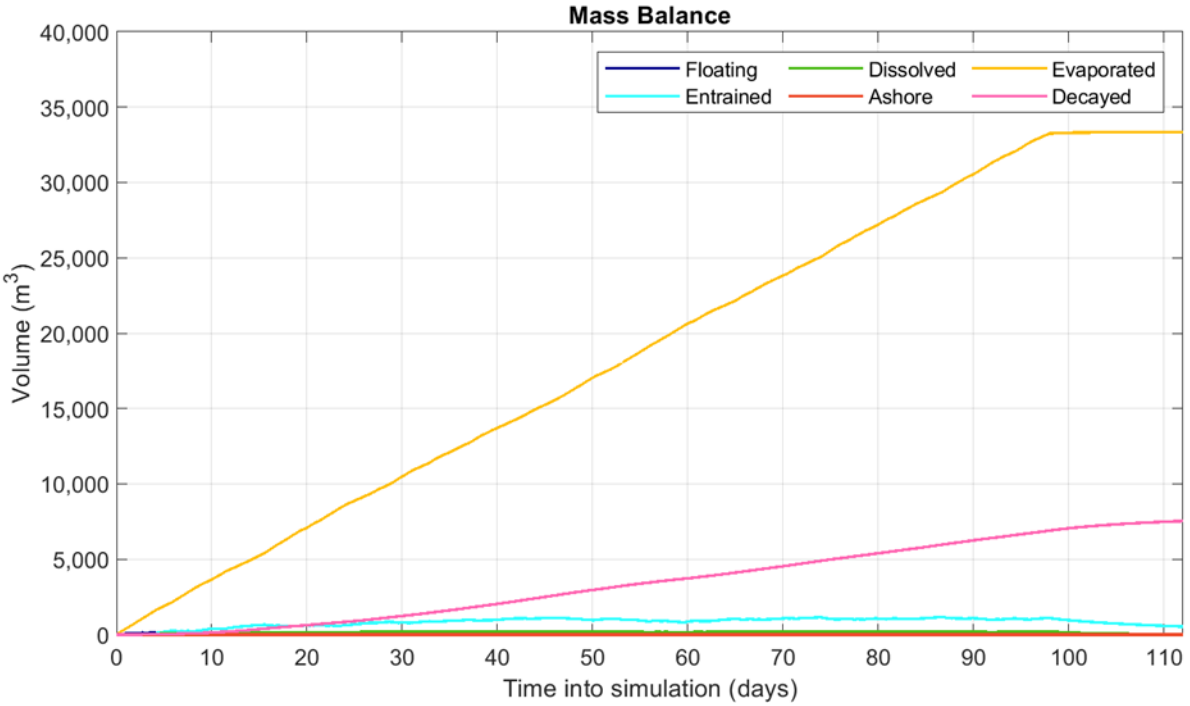



**Figure 7-39 Predicted weathering and fates for the Scenario 4 simulation with the largest area of entrained hydrocarbons above 50ppb**

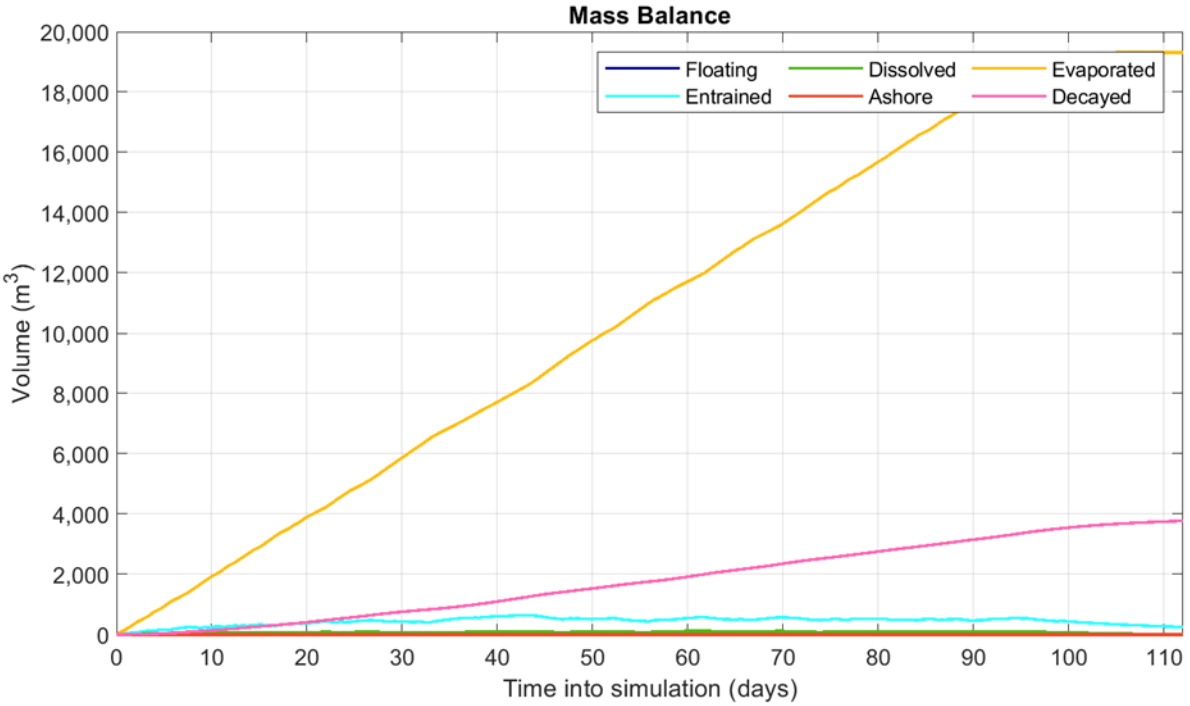



**Figure 7-40 Predicted weathering and fates for the Scenario 5 simulation with the largest area of entrained hydrocarbons above 100ppb**

#### 7.8.3.4 Modelling outputs – stochastic

Hydrocarbon spill modelling predicts the total area that could be exposed, including trace concentrations in the water column, as a result of any spill. This is known as the EMBA and is used for planning purposes to ensure that all social and environmental sensitivities are acknowledged, described and considered in the development of the EP.

Modelling is also used to inform specific impact assessments by understanding the location and extent of hydrocarbon at concentrations likely to result in environmental consequences. There is no agreed exposure level below which environmental impacts will not occur, so outputs should not be interpreted as a boundary. However, mapping areas which could be moderately impacted by a spill is a useful tool for impact consequence assessment.

The spill modelling output informed consequence assessments across a range of receptors, including marine fauna, fisheries, and shoreline habitats. Key modelling parameters included:

- **Surface oil thresholds -** 1g/m$^2$ (visual), 10g/m$^2$ (ecological harm), 50g/m$^2$ (slick formation)
- **Shoreline thresholds -** 10g/m$^2$ (socio-economic), 100g/m$^2$ (ecological harm), >1000g/m$^2$ (intensive clean-up)
- **Dissolved and entrained hydrocarbon thresholds -** 10 - 400ppb, aligned with ANZECC (2000) water quality guidelines.

A summary of the OSTM results for each scenario is presented in Table 7-37.

Figure 7-41, Figure 7-45, Figure 7-49, Figure 7-53 and Figure 7-57 present the annualised zones of floating oil exposure for Scenarios 1 to 5 respectively.

The maximum potential shoreline loading above the given shoreline thresholds for Scenarios 1 to 5 are presented in Figure 7-42, Figure 7-46, Figure 7-50, Figure 7-54 and Figure 7-58 respectively.

Figure 7-43, Figure 7-47, Figure 7-51, Figure 7-55 and Figure 7-59 present the extent of the predicted dissolved hydrocarbon exposure in the 0 - 10 m depth layer for Scenarios 1 to 5 respectively.

Figure 7-44, Figure 7-48, Figure 7-52, Figure 7-56 and Figure 7-60 present the extent of the predicted entrained hydrocarbon exposure for the low and high thresholds in the 0 - 10 m depth layer for Scenarios 1 to 5 respectively.

**Table 7-37 Summary of key modelling results**

| Scenario description | | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---|---|---|---|---|---|---|
| Spill volume | | 35,839 $m^3$ | 144,054 $m^3$ | 1324 $m^3$ | 41,448 $m^3$ | 23,373 $m^3$ |
| Release location | | MLA | MLA | TNA | WTN | SNA |
| Oil type | | Kipper condensate | Kipper condensate | Moonfish crude | Barracouta condensate | Barracouta condensate |
| Release depth | | Surface | Surface | Surface | Surface | Surface |
| Release duration | | 98 days | 98 days | 98 days | 98 days | 98 days |
| Simulation length | | 112 days | 112 days | 119 days | 112 days | 112 days |
| Floating oil exposure | Maximum distances from the release location to floating oil exposure thresholds | The maximum distance from the release location to the low (1g/$m^2$) threshold was 115.6km. For the moderate (10g/$m^2$) threshold the maximum distances from the release location reduced to 16.7km. No floating exposure at the high (≥ 50g/$m^2$) threshold was predicted. | The maximum distance from the release location to the low (1g/$m^2$) threshold was 280.9km. For the moderate (10g/$m^2$) high (≥ 50g/$m^2$) thresholds the maximum distances from the release location reduced to 52.4km and 8.7km, respectively. | The maximum distance from the release location to the low (1g/$m^2$) threshold was 31.4km. No floating exposure at the moderate (10g/$m^2$) or high (≥ 50g/$m^2$) threshold was predicted. | The maximum distance from the release location to the low (1g/$m^2$) threshold was 51.6km. For the moderate (10g/$m^2$) threshold the maximum distances from the release location reduced to 2.4km. No floating exposure at the high (≥ 50g/$m^2$) threshold was predicted. | The maximum distance from the release location to the low (1g/$m^2$) threshold was 43.3km. For the moderate (10g/$m^2$) threshold the maximum distances from the release location reduced to 0.6km. No floating exposure at the high (≥ 50g/$m^2$) threshold was predicted. |
| | Highest probability of floating oil | Short-tailed shearwater - Foraging BIA | Short-tailed shearwater - Foraging BIA. | Twofold Shelf IMCRA-MESO | Antipodean albatross - Foraging BIA. | Upwelling East of Eden KEF |

| Scenario description | | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---|---|---|---|---|---|---|
| | exposure to a receptor at, or above, 1g/m$^2$ | 34% | White-faced storm-petrel - Foraging BIA. 71%. | 100% | 18% | 100% |
| | Quickest time before exposure to a receptor at, or above, 1g/m$^2$ | Antipodean albatross - Foraging BIA.<br>White-faced storm-petrel - Foraging BIA.<br>1.62 days | Short-tailed shearwater - Foraging BIA.<br>0.9 days | Twofold Shelf IMCRA-MESO<br>0.08 days | Antipodean albatross - Foraging BIA.<br>10.82 days | Upwelling East of Eden KEF<br>0.3 days |
| Shoreline oil accumulation | Probability of oil accumulation on any shoreline at, or above, 10g/m$^2$ | 86% | 99% | 100% | 63% | 87% |
| | Absolute minimum time for oil to accumulate on shoreline cells at, or above, 10g/m$^2$ | 4.93 days | 5.43 days | 5.36 days | 6.26 days | 7.16 days |
| | Maximum volume of oil ashore from a single spill simulation at, or above, 10g/m$^2$ | 13.9m$^3$ | 49.4m$^3$ | 27.5m$^3$ | 6.6m$^3$ | 10.4m$^3$ |

| Scenario description | | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---|---|---|---|---|---|---|
| | Highest probability of oil accumulation for a specific shoreline cell at, or above, 10g/$m^2$ | Bega Valley and Bega Valley Shire Council (NSW)<br>65% | East Gippsland (Victoria)<br>88% | East Gippsland (Victoria)<br>95% | Bega Valley and the Bega Valley Shire Council (NSW)<br>46% | East Gippsland (Victoria)<br>76% |
| | Maximum volume of oil ashore from a single spill simulation for a specific shoreline cell at, or above, 10g/$m^2$ | Bega Valley and Bega Valley Shire Council (NSW)<br>5$m^3$ | East Gippsland (Victoria)<br>19.1$m^3$ | Bega Valley and Bega Valley Shire Council (NSW)<br>12.4$m^3$ | Montague Island (NSW)<br>2.1$m^3$ | East Gippsland (Victoria)<br>4.2$m^3$ |
| Dissolved hydrocarbons | Highest probability of dissolved hydrocarbon exposure to a receptor at, or above, 10ppb | 100%<br>• Antipodean albatross – Foraging.<br>• Short-tailed shearwater – Foraging.<br>• White shark – Foraging.<br>• White-faced storm-petrel - Foraging BIAs. | 100%<br>• Antipodean albatross – Foraging.<br>• Short-tailed shearwater – Foraging.<br>• White shark – Foraging.<br>• White-faced storm-petrel - Foraging BIAs.<br>• Victorian State waters. | • 57%<br>• Antipodean albatross – Foraging BIA. | 100%<br>• Antipodean albatross – Foraging.<br>• Short-tailed shearwater – Foraging.<br>• White shark – Foraging.<br>• White-faced storm-petrel - Foraging BIAs. | 100%<br>• Antipodean albatross – Foraging.<br>• Short-tailed shearwater – Foraging.<br>• White-faced storm-petrel – Foraging BIAs.<br>• Upwelling East of Eden KEF. |

| Scenario description | | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---|---|---|---|---|---|---|
| | Quickest time before exposure to a receptor at, or above, 10ppb | White-faced storm-petrel - Foraging BIA.<br>0.52 days | Antipodean albatross – Foraging BIA.<br>0.47 days. | Antipodean albatross – Foraging BIA.<br>White-faced storm-petrel - Foraging BIA.<br>6.44 days. | Antipodean albatross – Foraging BIA.<br>0.32 days. | Upwelling East of Eden KEF.<br>0.11 days. |
| Entrained Hydrocarbons | Highest probability of entrained hydrocarbon exposure to a receptor at, or above, 10ppb | 100%<br>• Antipodean albatross – Foraging BIA.<br>• Little penguin – Foraging BIA.<br>• Short-tailed shearwater – Foraging BIA.<br>• Wedge-tailed shearwater – Foraging BIA.<br>• White shark – Foraging BIA.<br>• White-faced storm-petrel – Foraging BIA.<br>• in addition to:<br>- Point Hicks Marine National Park<br>- New Zealand Star Bank RSB | 100%<br>• Antipodean Albatross – Foraging BIA.<br>• Little penguin – Breeding BIA.<br>• Little penguin – Foraging BIA.<br>• Short-tailed shearwater – Foraging BIA.<br>• Wedge-tailed shearwater – Foraging BIA.<br>• White shark – Foraging BIA.<br>• White-faced storm-petrel – Foraging BIA.<br>• SRW - reproduction BIA.<br>• Point Hicks Marine National Park.<br>• East Gippsland shore. | 100%<br>• Antipodean albatross – Foraging BIA.<br>• Short-tailed shearwater – Foraging BIA.<br>• White shark – Foraging BIA.<br>• White-faced storm-petrel - Foraging BIA. | 100%<br>• Antipodean albatross – Foraging BIA.<br>• Little penguin – Foraging BIA.<br>• Short-tailed shearwater – Foraging BIA.<br>• White shark – Foraging BIA.<br>• White-faced storm-petrel – Foraging BIA.<br>• SRW - reproduction BIA.<br>• *SS Federal* (1901) SPZ.<br>• Victorian State waters. | 100%<br>• Antipodean albatross – Foraging BIA.<br>• Little penguin – Foraging BIA.<br>• Short-tailed shearwater – Foraging BIA.<br>• Wedge-tailed shearwater – Foraging BIA.<br>• White shark - breeding (nursery area) BIA.<br>• White shark – Foraging BIA.<br>• White-faced storm-petrel – Foraging BIA.<br>• SRW - reproduction BIA.<br>• Upwelling East of Eden KEF. |

| Scenario description | | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
|---|---|---|---|---|---|---|
| | | - *SS Federal* (1901) SPZ.<br>- Victorian State waters | • Croajingolong – West.<br>• Point Hicks Shore-VIC.<br>• *SS Federal* (1901) SPZ.<br>• Victorian State waters. | | | • Point Hicks Marine National Park.<br>• East Gippsland shore.<br>• Victorian State waters. |
| | Quickest time before exposure to a receptor at, or above, 10 ppb | White-faced storm-petrel - Foraging BIA.<br>0.42 days. | Antipodean Albatross - Foraging BIA.<br>0.44 days. | Antipodean Albatross - Foraging BIA.<br>0.44 days. | Antipodean Albatross - Foraging BIA.<br>0.25 days. | Upwelling East of Eden KEF.<br>0.06 days. |
| | Probability of entrained hydrocarbon exposure (%) at 1000ppb | There is a 96% probability that the following receptors will be exposed to the 1000ppb threshold:<br>• Several albatross - Foraging BIAs<br>• Common diving petrel<br>• PBW - Foraging BIA<br>• SRW - migration BIA | The following receptors have a greater than 50% probability of being exposed to the 1000ppb threshold:<br>• several albatross - Foraging BIAs<br>• Common diving petrel<br>• PBW - Foraging BIA<br>• SRW migration BIA<br>• Upwelling East of Eden KEF. | No entrained hydrocarbon exposure above 1000ppb was recorded. | The following receptors have a greater than 88% probability of being exposed to the 1000ppb threshold:<br>• several albatross - Foraging BIAs<br>• common diving petrel<br>• PBW - Foraging BIA<br>• SRW - migration BIA<br>• Upwelling East of Eden KEF. | No entrained hydrocarbon exposure above 1000ppb was recorded. |

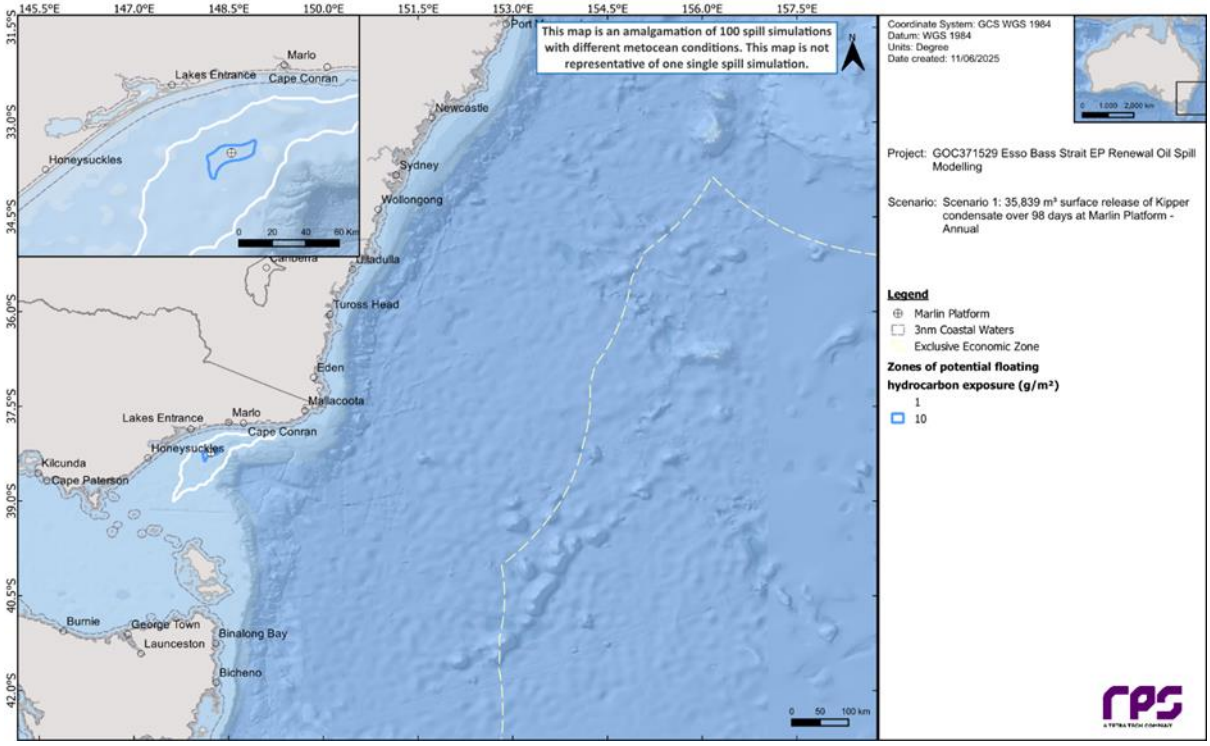



**Figure 7-41 Zones of potential floating oil exposure in the event of a 35,839m³ surface release of condensate over 98 days at MLA**

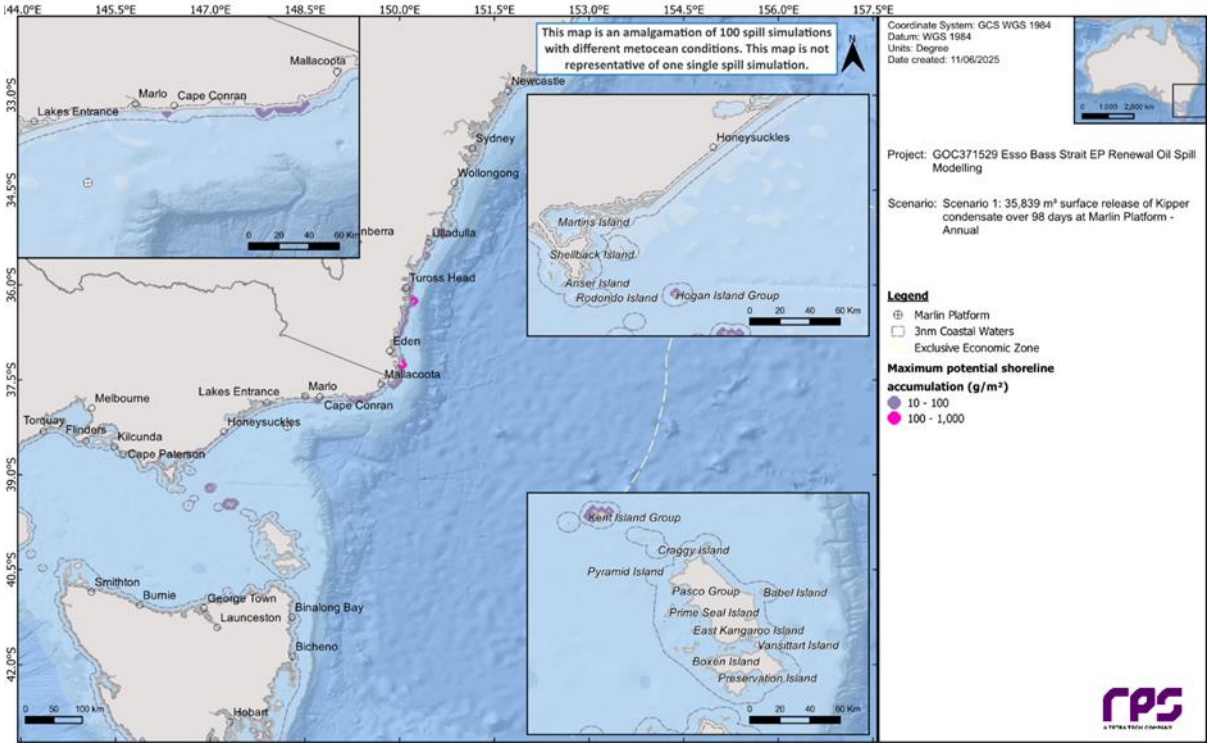



**Figure 7-42 Maximum potential shoreline loading in the event of a 35,839m³ surface release of condensate over 98 days at MLA**

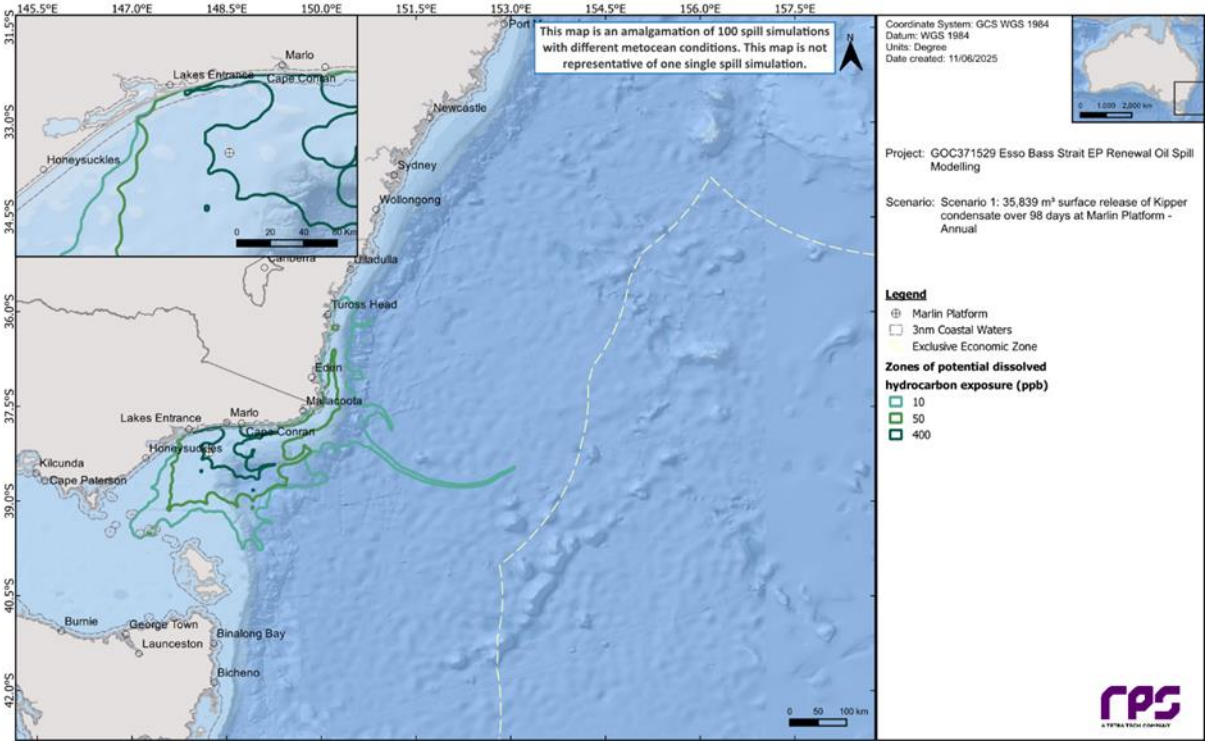



**Figure 7-43 Zones of potential dissolved hydrocarbon exposure at 0 - 10m, in the event of a 35,839m³ surface release of condensate over 98 days at MLA**

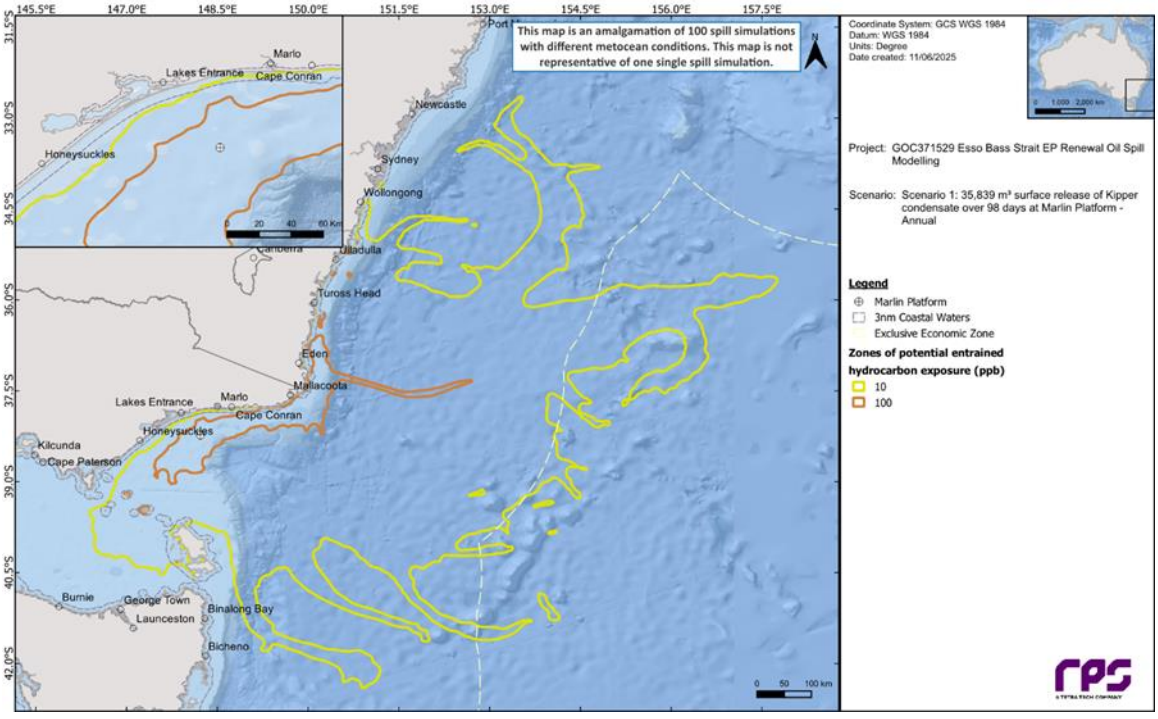



**Figure 7-44 Zones of potential entrained hydrocarbon exposure at 0 - 10m in the event of a 35,839m³ surface release of condensate over 98 at MLA**

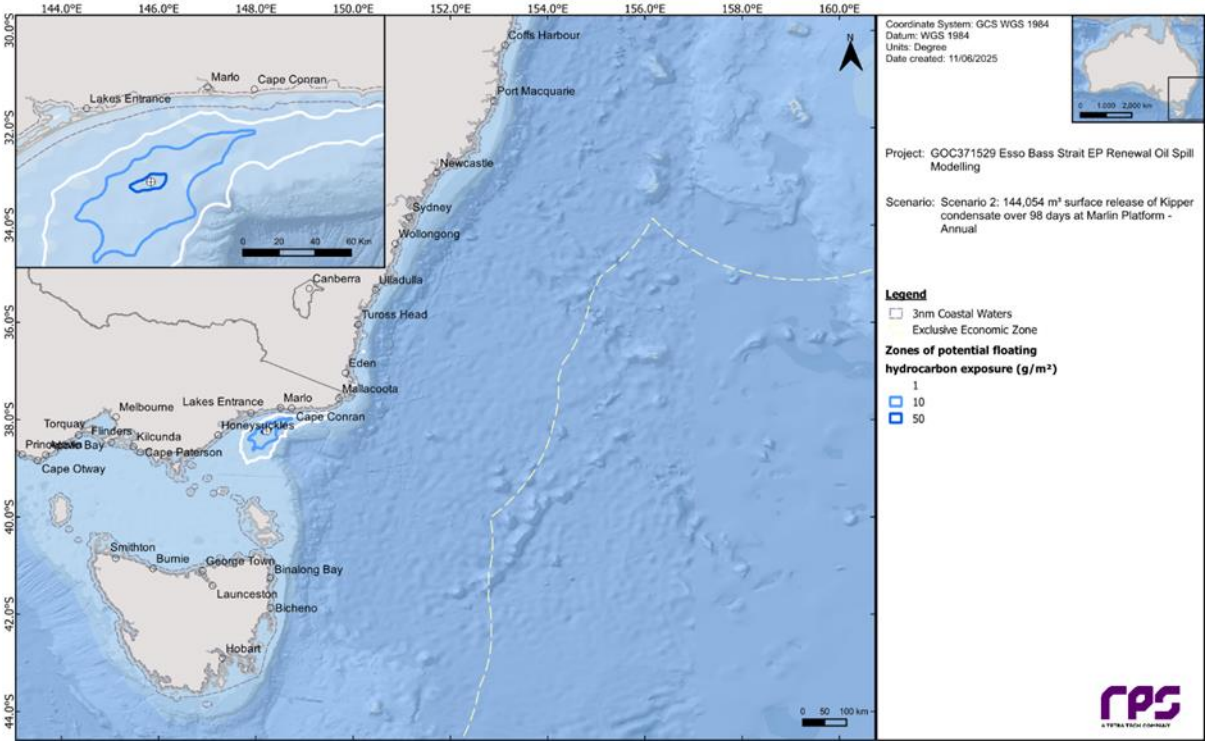



**Figure 7-45 Zones of potential floating oil exposure in the event of a 144,054m³ surface release of condensate over 98 days at MLA**

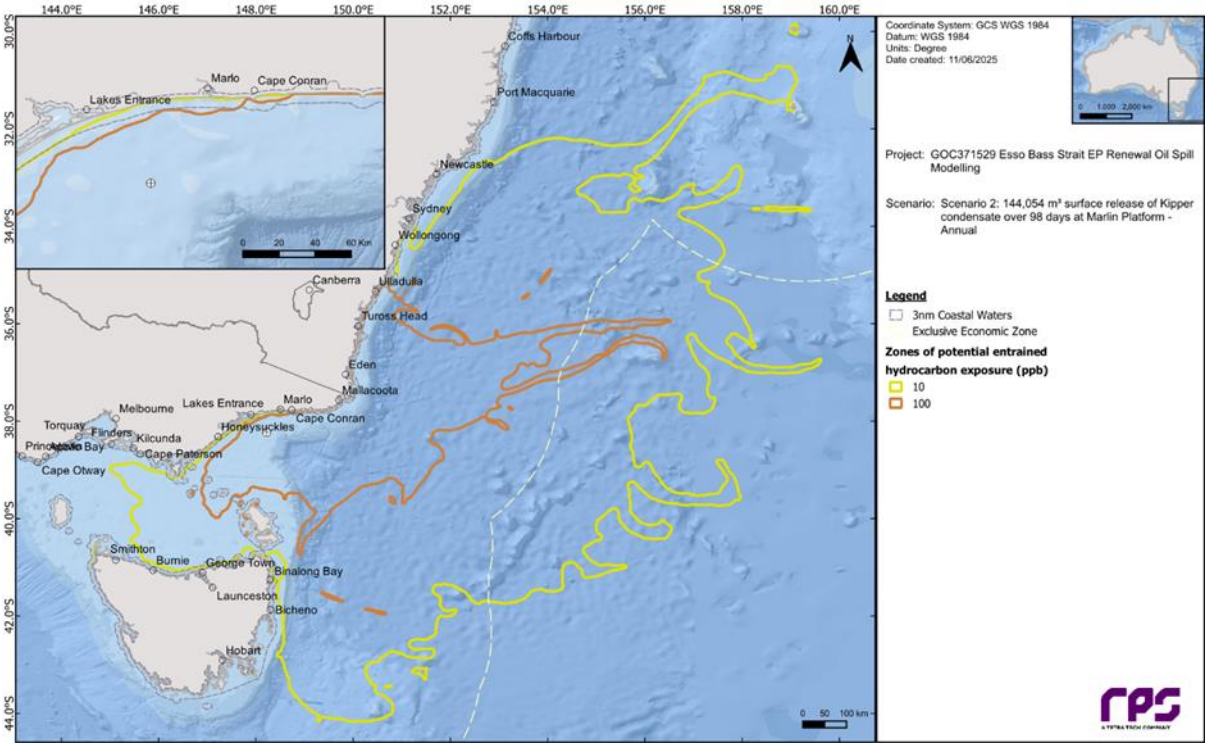



**Figure 7-46 Maximum potential shoreline loading in the event of a 144,054m³ surface release of condensate over 98 days at MLA**

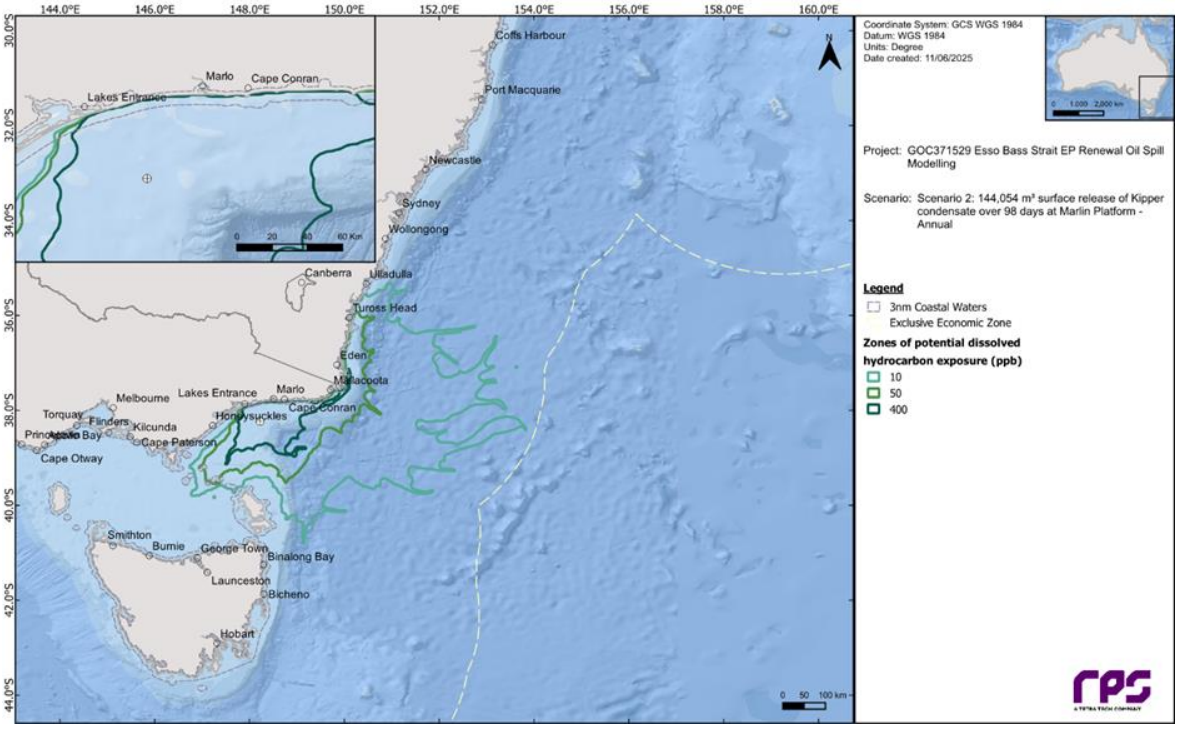



**Figure 7-47 Zones of potential dissolved hydrocarbon exposure at 0 - 10m, in the event of a 144,054m³ surface release of condensate over 98 days at MLA**

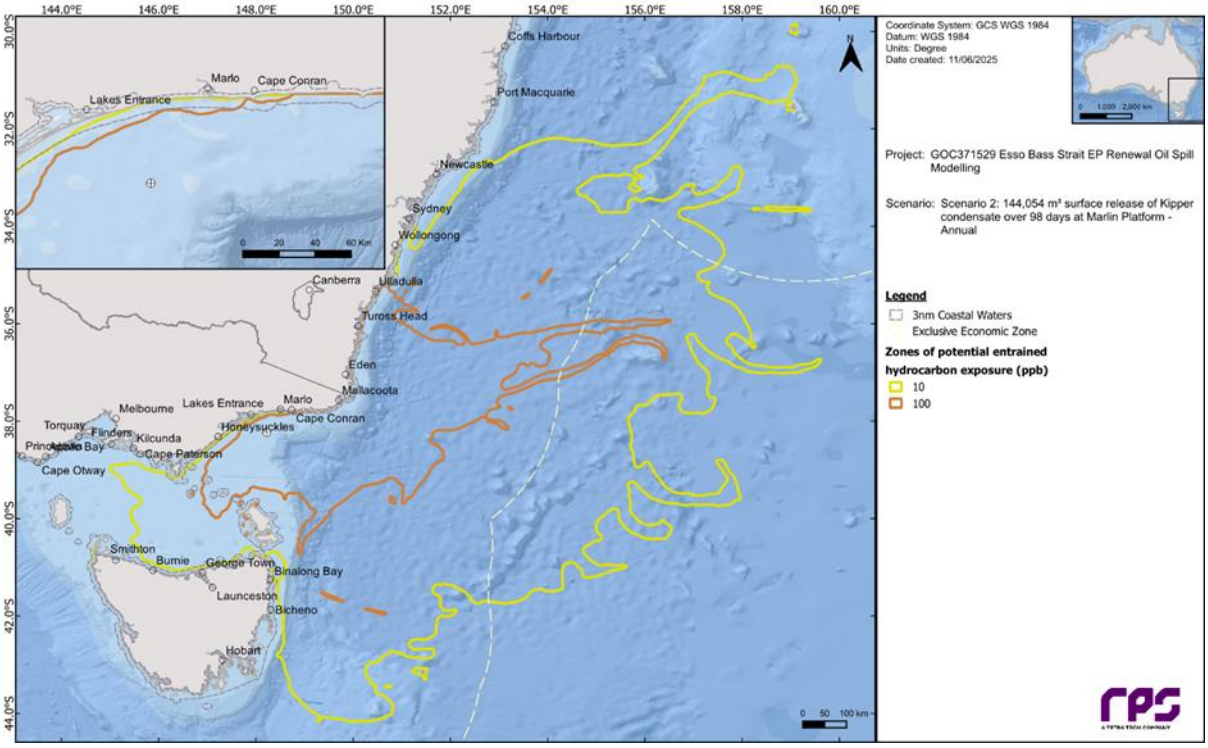



**Figure 7-48 Zones of potential entrained hydrocarbon exposure at 0 - 10 m in the event of a 144,054m³ surface release of condensate over 98 days at MLA**

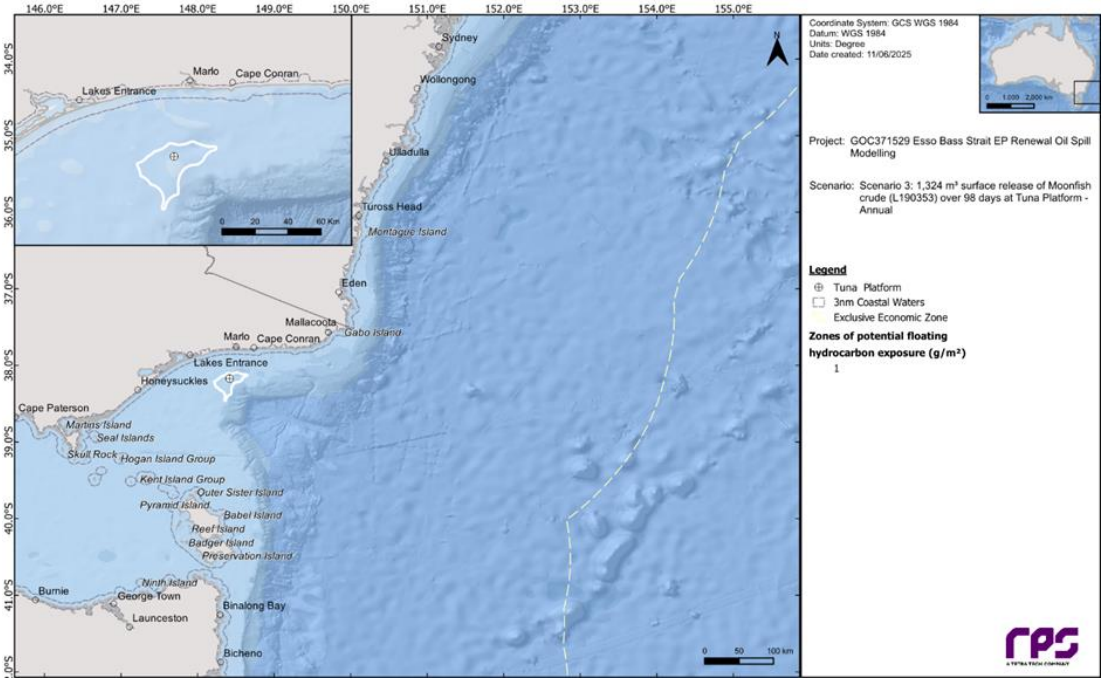



**Figure 7-49 Zones of potential floating oil exposure in the event of a 1324m³ surface release of crude over 98 days at TNA**

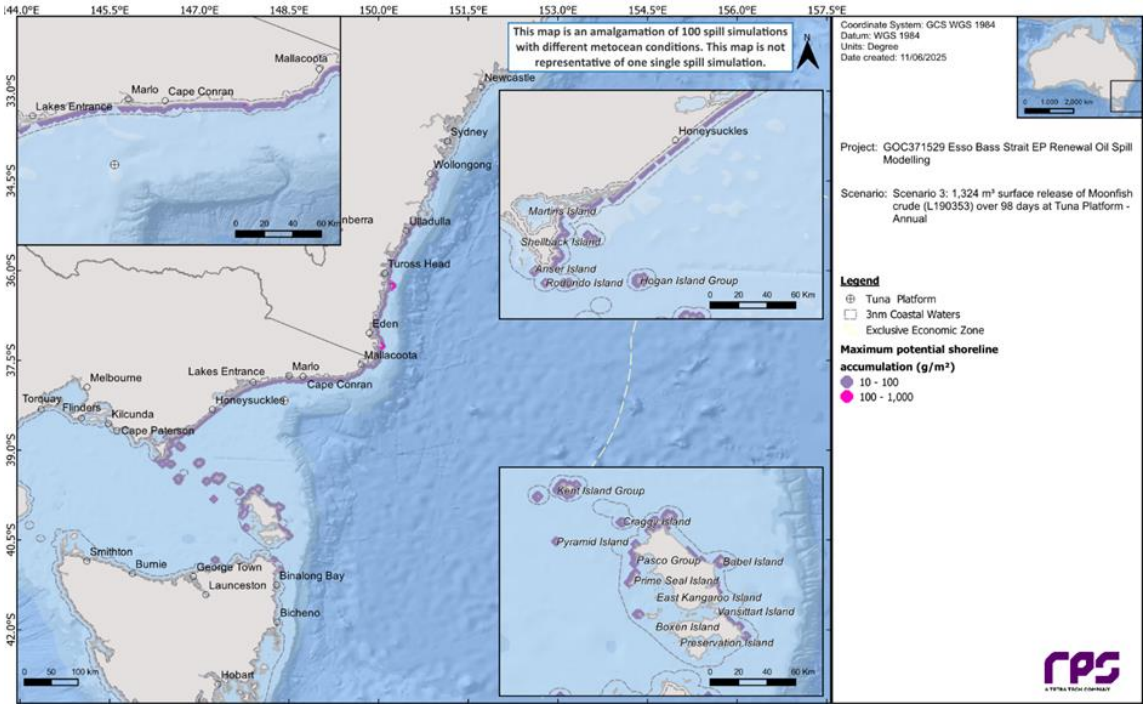



**Figure 7-50 Maximum potential shoreline loading in the event of a 1324m³ surface release of crude over 98 days at TNA**

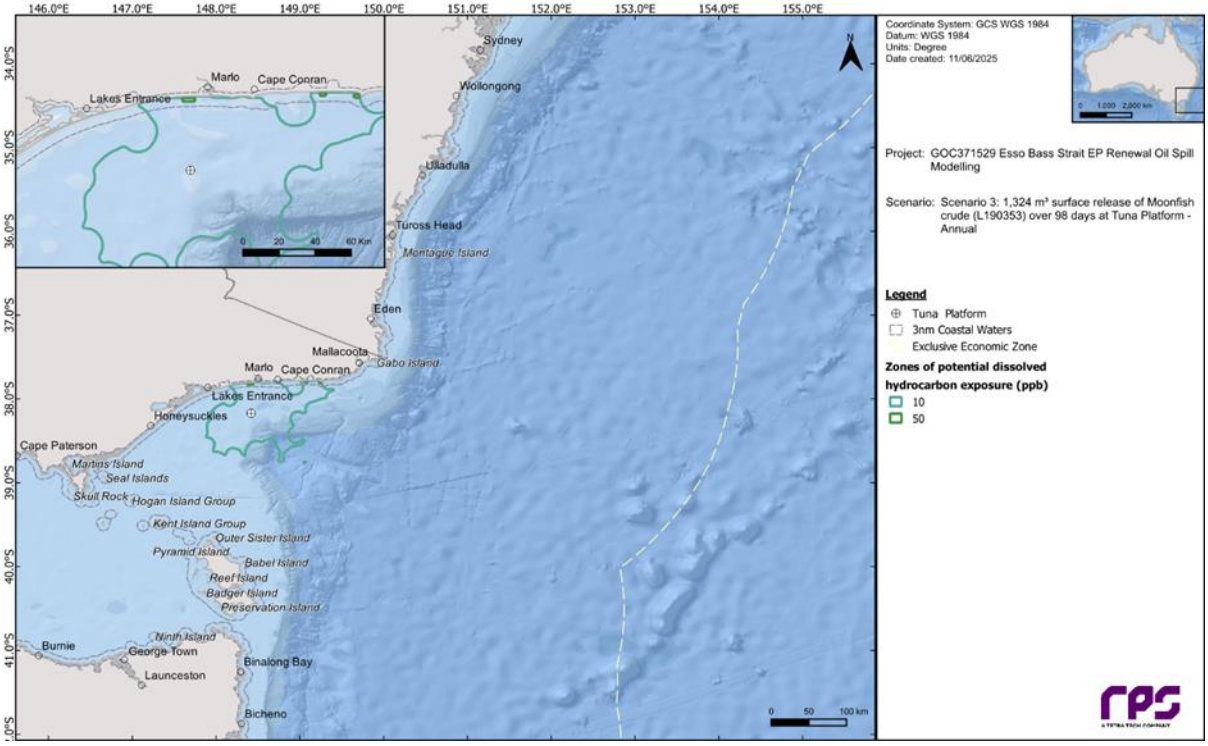



**Figure 7-51 Zones of potential dissolved hydrocarbon exposure at 0 - 10 m, in the event of a 1324 $^{3}$ surface release of crude over 98 days at TNA**

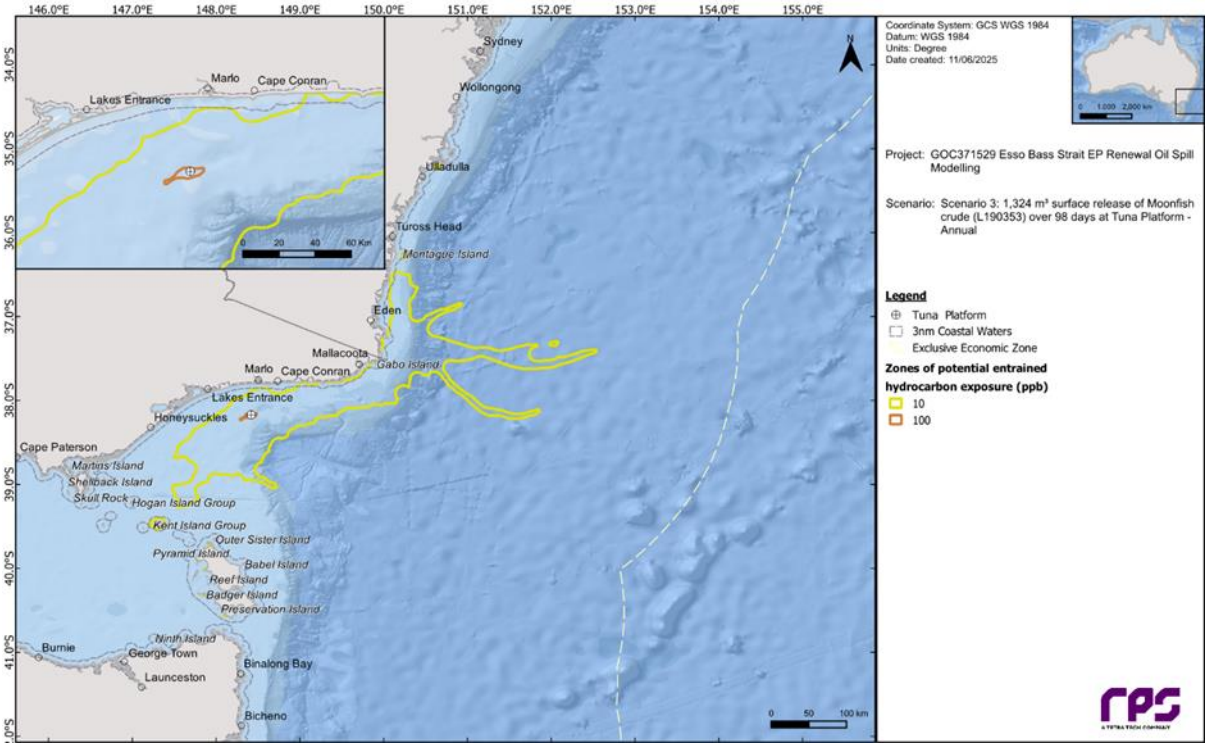



**Figure 7-52 Zones of potential entrained hydrocarbon exposure at 0 - 10m in the event of a 1324 $^{3}$ surface release of crude over 98 days at TNA**

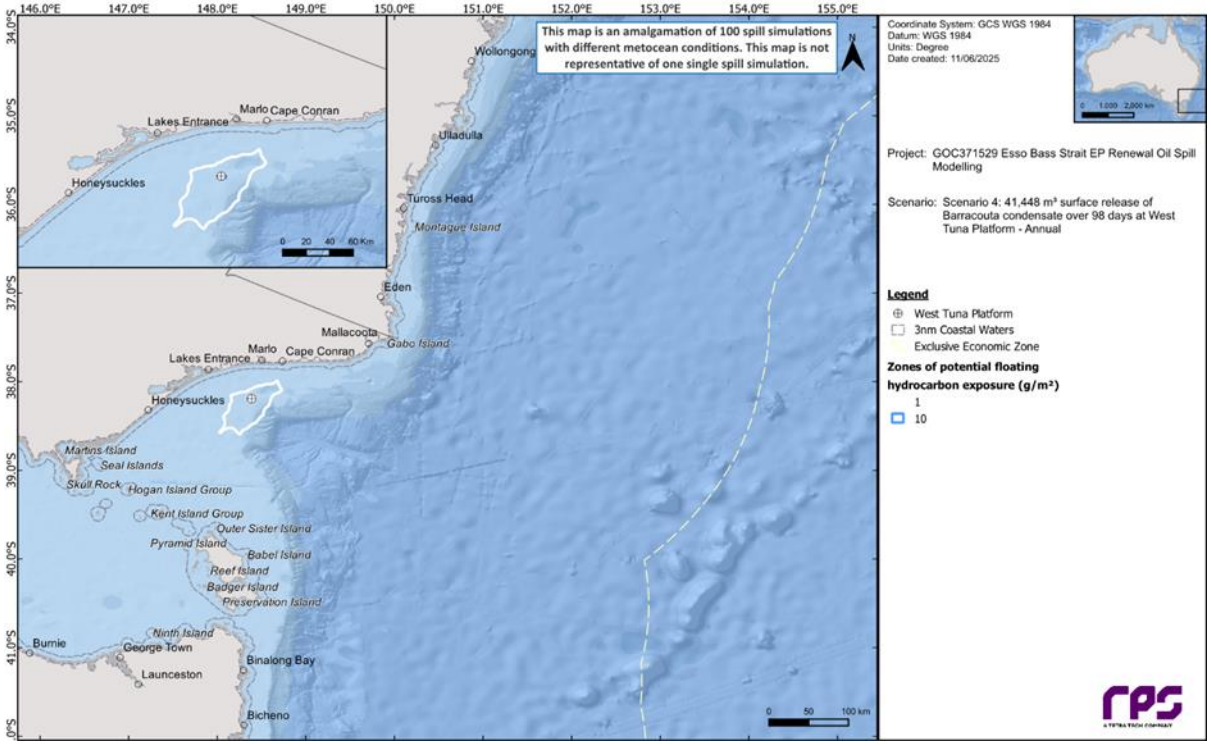



**Figure 7-53 Zones of potential floating oil exposure in the event of a 41,448m³ surface release of condensate over 98 days at TNA**

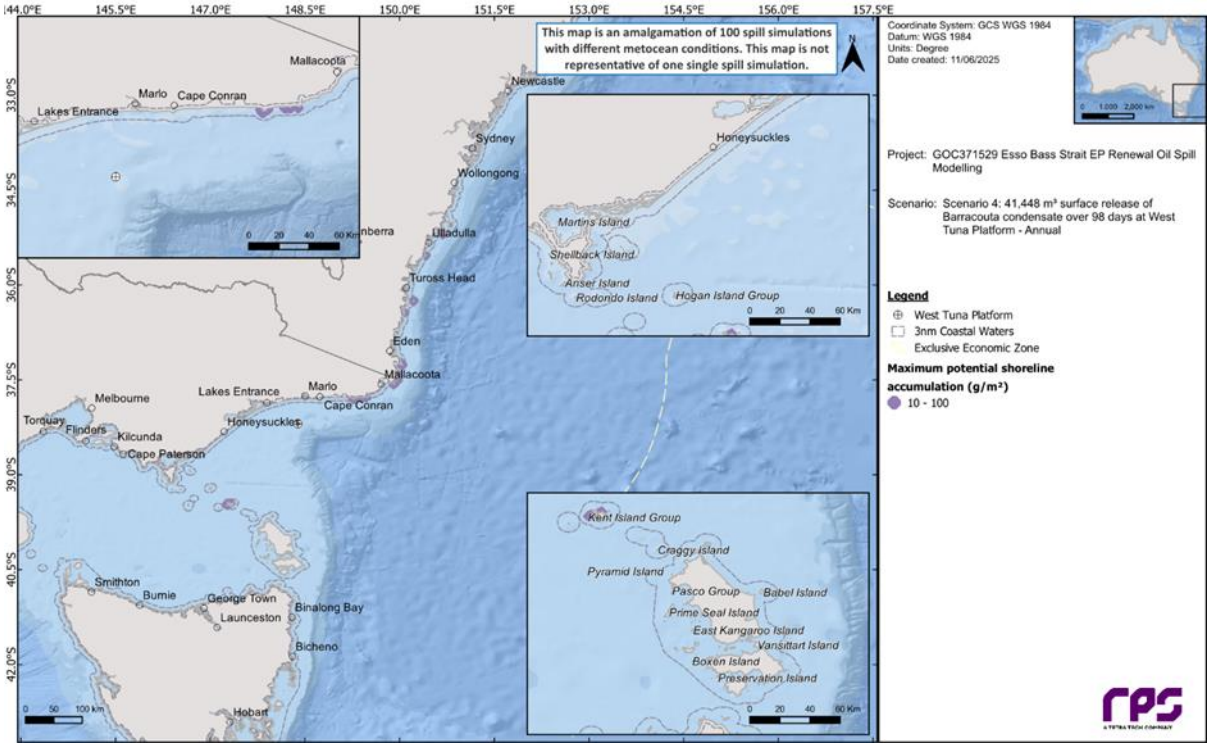



**Figure 7-54 Maximum potential shoreline loading in the event of a 41,448m³ surface release of condensate over 98 days at TNA**

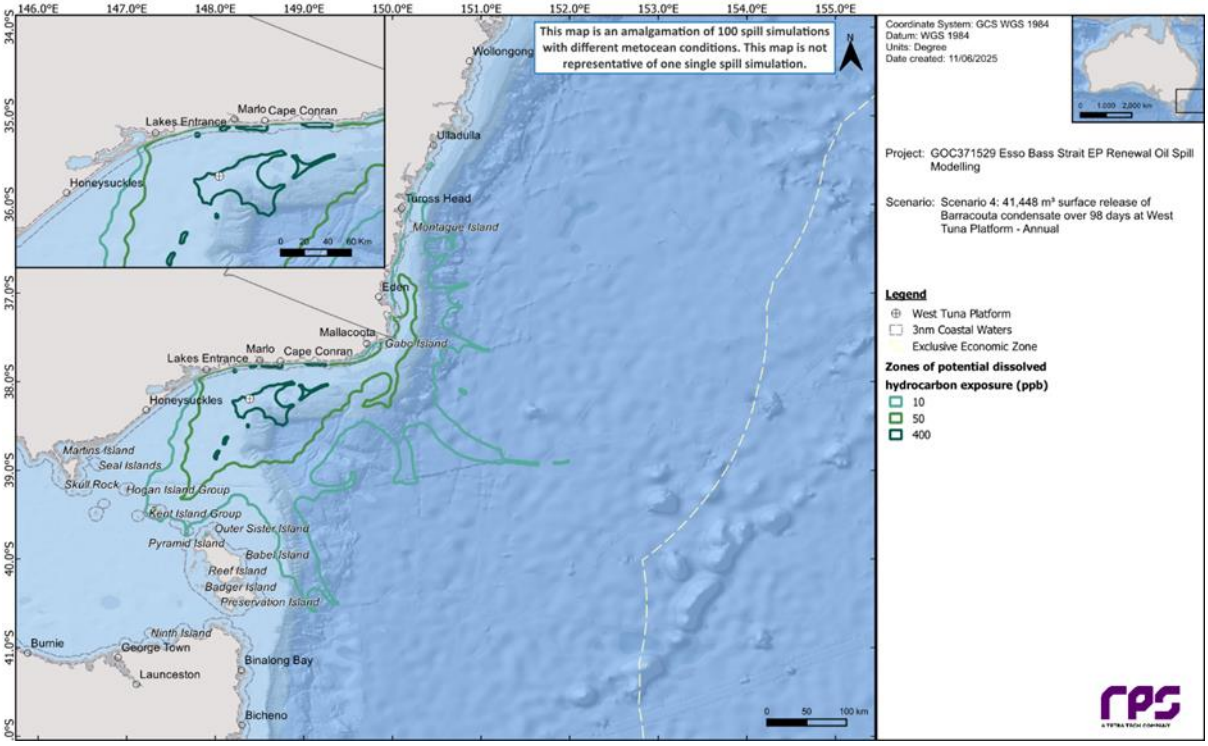



**Figure 7-55 Zones of potential dissolved hydrocarbon exposure at 0 - 10 m, in the event of a 41,448m³ surface release of condensate over 98 days at WTN**

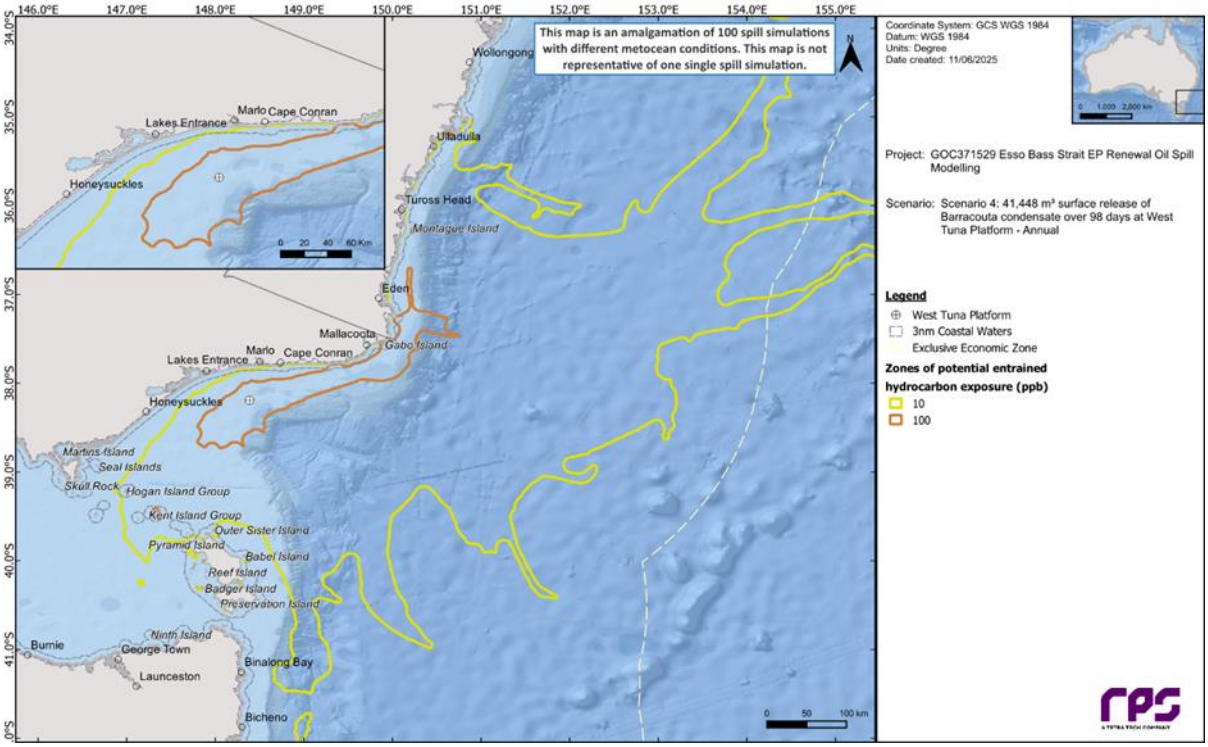



**Figure 7-56 Zones of potential entrained hydrocarbon exposure at 0 - 10 m in the event of a 41,448m³ surface release of condensate over 98 days at WTN**

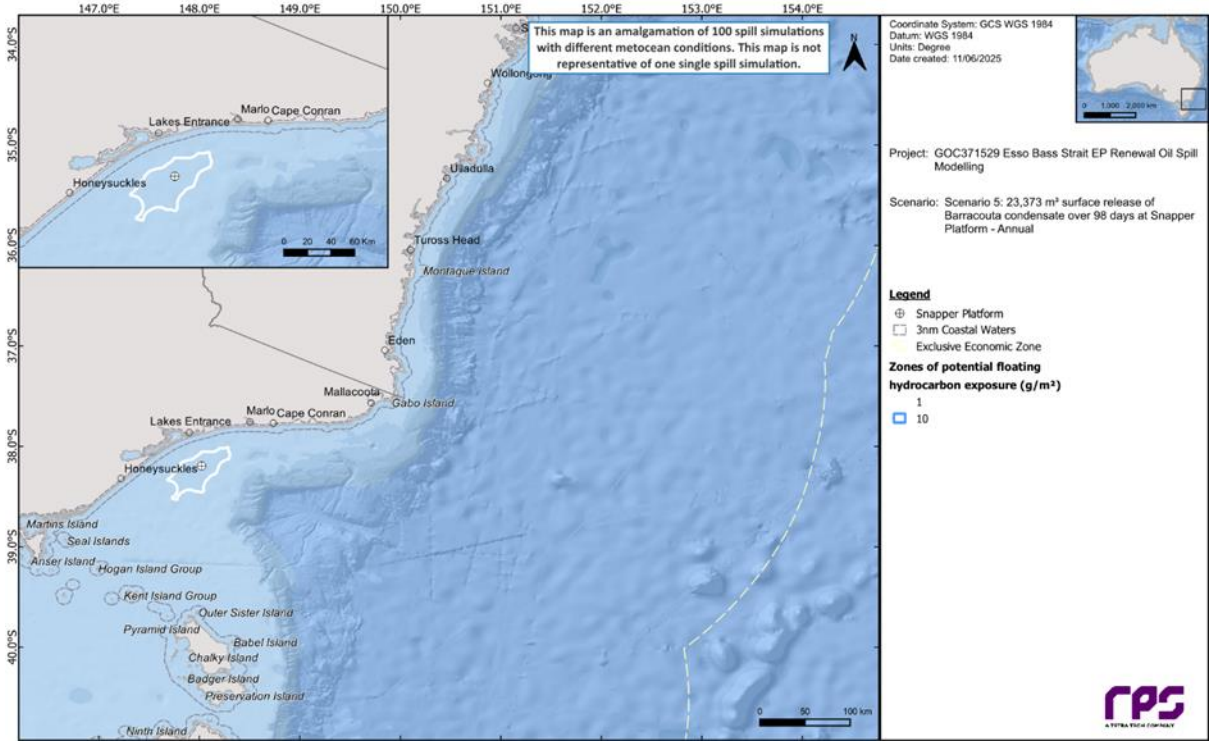



**Figure 7-57 Zones of potential floating oil exposure in the event of a 23,373m³ surface release of condensate over 98 days at WTN**

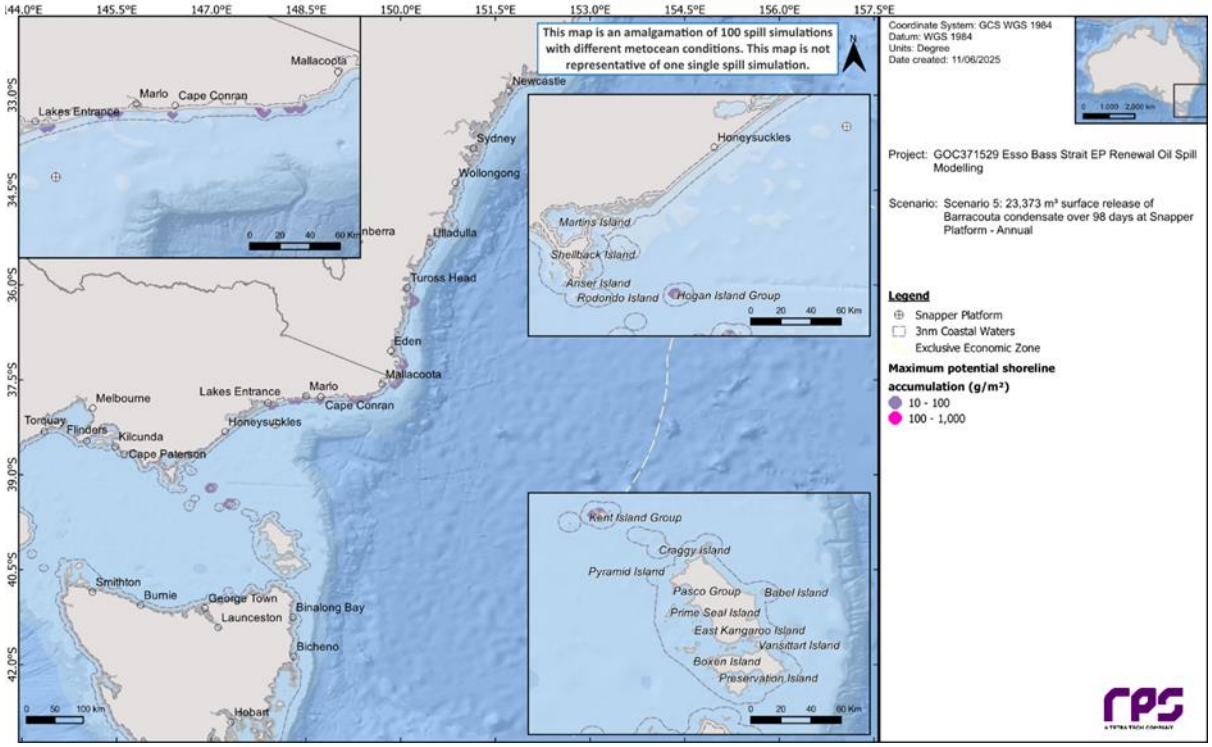



**Figure 7-58 Maximum potential shoreline loading in the event of a 23,373m³ surface release of condensate over 98 days at SNA**

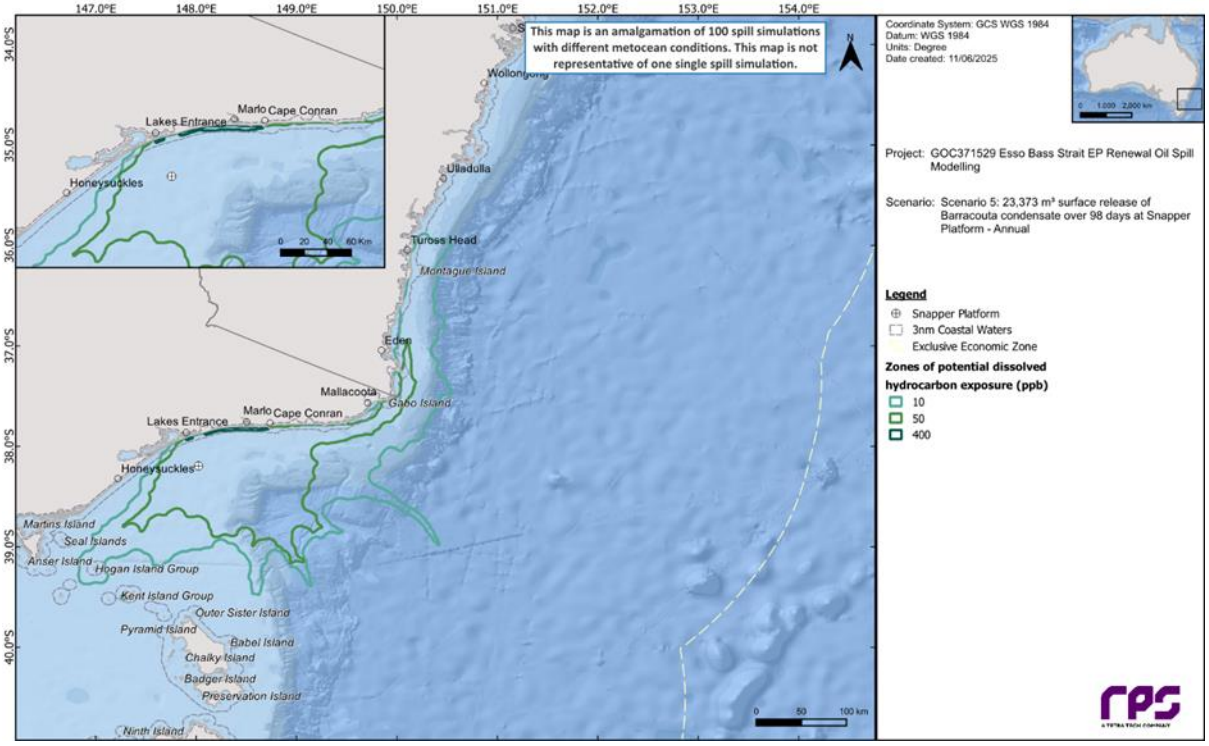



**Figure 7-59 Zones of potential dissolved hydrocarbon exposure at 0 - 10 m, in the event of a 23,373m³ surface release of condensate over 98 days at SNA**

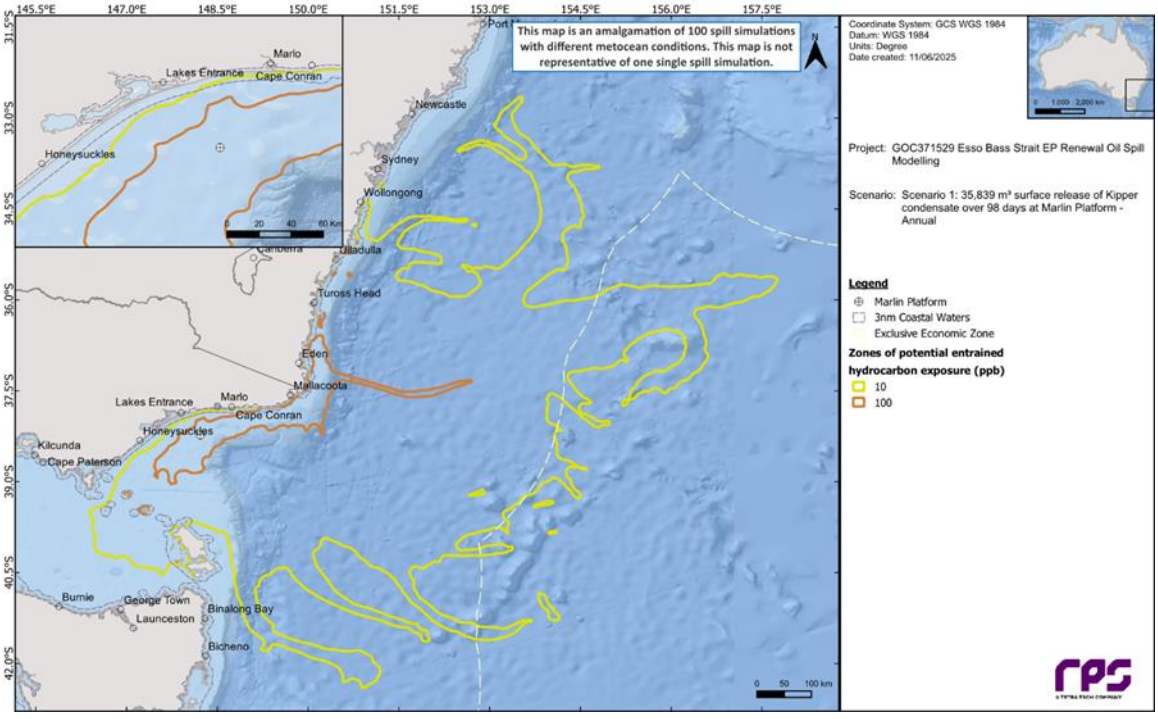



**Figure 7-60 Zones of potential entrained hydrocarbon exposure at 0 - 10 m in the event of a 23,373m³ surface release of condensate over 98 at SNA**

### *7.8.4 Environment That May Be Affected*

Using the results of the hydrocarbon spill modelling report (RPS, 2025), the boundary of the EMBA is defined as:

> *The combined extent of hydrocarbon exposure to the sea surface (≥1g/m2), accumulated on shorelines (≥10g/m2), entrained in the water column (≥10ppb) and dissolved in the water column (≥10ppb, as a result of the combined modelling results from the following hydrocarbon release scenarios: a loss of well control at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each), the Marlin-B platform (two scenarios) and a subsea rupture of the Marin A to shore (MLA500) pipeline.*

Note the LOC from a pipeline is covered in Section 7.7.

### *7.8.5 Evaluation of risks*

Table 7-38 provides an evaluation of potential risks to the different receptors. Though Kipper condensate is a light weight, low viscosity oil and crude oils are in a natural (non-refined) state, there is very little literature that separates the impacts to the marine environment from refined hydrocarbons and crude oil. As such, the tables in this section discuss the general impacts of hydrocarbon spills on individual receptors based on the literature available for hydrocarbons in general.

**Table 7-38 Risk of surface, shoreline and in-water hydrocarbon exposure from LOWC**

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| Benthic assemblages | See Table 7-22 for impact of hydrocarbon exposure on benthic assemblages. | The impact to benthic assemblages from LOWC is assessed as a Consequence Level III to account for potential effects to individuals.<br><br>Surface exposure<br><br>Not applicable.<br><br>In water (dissolved and entrained) oil<br><br>Contact with dissolved and entrained hydrocarbons was predicted only at the low threshold (≥10ppb) across all scenarios. Exposure probabilities for receptors were consistently high, with several scenarios predicting 100% probability of contact for sensitive BIAs, marine parks, and State waters. However, these exposures were generally limited to surface and near-surface waters (upper 10m of the water column), with no indication of elevated concentrations in deeper benthic zones.<br><br>The quickest time to exposure for entrained hydrocarbons ranged from 0.06 (Scenario 5) to 0.44 days (Scenario 2 and 3), and for dissolved hydrocarbons from 0.11 (Scenario 5) to 6.44 days (Scenario 3), depending on the scenario and receptor proximity. Given the low threshold and absence of elevated exposure predictions in benthic-interactive zones, the risk of toxic or sublethal impacts to benthic fauna or habitats remains low.<br><br>Shoreline exposure<br><br>Shoreline exposure modelling predicts a high probability of oil accumulation (≥10g/$m^2$) along the Victorian coastline, particularly in East Gippsland and Bega Valley, across multiple scenarios. The probability of shoreline oiling in these areas ranged from 63% (Scenario 4) to 100% (Scenario 3) with maximum volumes ranging from 2.1$m^3$ (Montague Island, Scenario 4) to 19.1$m^3$ (East Gippsland, Scenario 2). The earliest predicted shoreline contact occurred within 4.93 days of release (Scenario 1) to 7.16 days (Scenario 5), indicating the potential for rapid shoreline exposure under certain conditions.<br><br>These areas of predicted shoreline contact coincide with shallow nearshore waters (<10m depth), where interaction with benthic habitats is possible. While there is potential for low to moderate exposure to dissolved hydrocarbons and high exposure to entrained hydrocarbons in these zones, the predominant benthic habitat along the Gippsland coast is bare substrate. This habitat type, combined with the high-energy wave environment typical of the exposed coastline, supports rapid weathering and dispersion of hydrocarbons. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | As a result, the likelihood of toxic or sublethal effects to benthic species in these shallow waters is considered low. Any localised mortality that may occur is expected to be temporary, with natural recruitment from unaffected areas facilitating recovery. |
| Plankton | See Table 7-22 for impact of hydrocarbon exposure on plankton. | The impact to plankton from LOWC is assessed as a Consequence Level III to account for potential adverse effects to individuals.<br><br>Surface exposure<br><br>Surface oil exposure was limited in extent and intensity. No high threshold surface oiling (≥50g/m$^2$) was predicted in any scenario, and moderate threshold exposure (≥10g/m$^2$) was spatially constrained, typically within 0.6 (Scenario 5) to 52.4km (Scenario 2) of the release point. While low threshold exposure (≥1 g/m$^2$) extended further offshore in some scenarios, up to 280.9km (Scenario 2), no surface oil contact with shoreline habitats was predicted.<br><br>Given this limited spatial extent and the absence of shoreline contact, the potential for surface oil to impact intertidal or shallow subtidal communities, such as macroalgae or planktonic assemblages, is low. In high-energy coastal environments like the Gippsland coast, wave action facilitates rapid weathering and dispersion of surface hydrocarbon, further reducing persistence and bioavailability.<br><br>As a result, the risk of toxic or sub-lethal effects to macroalga; communities from surface oil exposure is considered low. Any transient surface slicks that may approach nearshore waters are unlikely to result in sustained impacts, and natural recovery processes would support resilience in the event of localised exposure.<br><br>In water (dissolved and entrained) oil<br><br>Plankton communities found in the open waters of the EMBA are expected to be widely distributed throughout the Bass Starita region. Across all five modelled scenarios, exposure to dissolved and entrained hydrocarbons at the low threshold (≥10ppb) was consistently predicted in the upper 10m of the water column, where planktonic organisms are most concentrated. Several scenarios indicated high probabilities (up to 100%) of contact with dissolved and entrained hydrocarbons in Victorian State waters, East Gippsland NRMR and adjacent marine parks (Scenario 1, 2, 4 and 5).<br><br>The quickest time to exposure for entrained hydrocarbons ranged from 0.06 (Scenario 5) to 0.44 days (Scenario 2 and 3), and for dissolved hydrocarbons from 0.11 (Scenario 5) to 6.44 days (Scenario 3), depending on the scenario and receptor proximity. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | Plankton in these zones may be directly affected through smothering or ingestion of hydrocarbons, and indirectly through reduced water quality and potential bioaccumulation. However, these exposures are transient and subject to rapid attenuation due to natural weathering and dispersion processes, particularly in the dynamic, high-energy conditions of Bass Strait.<br><br>Once background water quality conditions are re-established, plankton populations are expected to recover quickly through recruitment from unaffected surrounding waters. Given the low threshold concentrations, short exposure duration, and high ecological turnover of planktonic communities, the overall risk of hydrocarbon spills to plankton populations is considered low.<br><br>Shoreline exposure<br><br>Not applicable. |
| Fish | See Table 7-22 for impact of hydrocarbon exposure on fish. | The impact to fish from LOWC is assessed as a Consequence Level III.<br><br>Surface exposure<br><br>Floating oil exposure was limited in extent and concentration. No high threshold surface oiling (≥50g/m$^2$) was predicted, and moderate threshold exposure (≥10g/m$^2$) was spatially constrained, typically within 0.6 (Scenario 5) to 52.4km (Scenario 2) of the release point. While low threshold exposure (≥1g/m$^2$) extended further offshore in some scenarios, up to 280.9km (Scenario 2), no surface oil contact with shoreline habitats was predicted.<br><br>Given that most fish species in the EMBA occupy the mid-pelagic zone, they are unlikely to encounter surface oil at the concentrations modelled. Some syngathid species, which associate with floating seaweed rafts, may come into contact with surface oil. However, the low concentrations predicted are not considered sufficient to cause long-term harm to these populations.<br><br>The sea surface area affected by floating oil represents a small fraction of the broader Bass Strait region. Consistent with NOAA (2013b) and ITOPF (2011) guidance, hydrocarbon spills in open water are typically diluted to levels where fish kills are rarely observed. As such, the risk of population-level impacts to fish species from floating oil exposure is considered low.<br><br>In water (dissolved and entrained) oil<br><br>Exposure to dissolved and entrained hydrocarbons at the low threshold (≥10ppb) was consistently predicted in the upper 10 meters of the water column, where many pelagic fish species are known to occur. Several scenarios indicated high probabilities (up to 100%) of exposure in Victorian State waters, East Gippsland NRMR, and adjacent marine parks (Scenario 1, 2, 4 and 5). |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | The spatial extent of low-threshold dissolved hydrocarbon exposure reached up to 223km (Scenario 2) from the release location.<br><br>The quickest time to exposure for entrained hydrocarbons ranged from 0.06 (Scenario 5) to 0.44 days (Scenario 2 and 3), and for dissolved hydrocarbons from 0.11 (Scenario 5) to 6.44 days (Scenario 3), depending on the scenario and receptor proximity.<br><br>Despite the broad spatial footprint, the concentrations remained within low to moderate thresholds, and exposure durations were generally short due to the dynamic, well-mixed nature of Bass Strait waters. These conditions, combined with the light, volatile nature of the hydrocarbons modelled, support rapid weathering and dispersion, limiting the persistence and bioavailability of hydrocarbons in the water column.<br><br>Fish may be affected by in-water hydrocarbons through direct contact, ingestion, or bioaccumulation, particularly if exposed to moderate concentrations over extended periods. However, the modelled scenarios did not predict moderate or high concentrations reaching sensitive areas such as coastal marine parks, AMPs, or State waters. Furthermore, the fish species likely to occur within the EMBA are predominantly pelagic and highly mobile, reducing the likelihood of prolonged exposure.<br><br>Given these factors, and consistent with international guidance (NOAA, 2013b; ITOPF, 2011), the risk of population-level impacts to fish from dissolved and entrained hydrocarbon exposure is considered low.<br><br>Shoreline exposure<br><br>Not applicable. |
| Seabirds & shorebirds | See Table 7-22 for impact of hydrocarbon exposure on seabirds & shorebirds. | The impact to seabirds and shorebirds from LOWC is assessed as a Consequence Level III to account for potential adverse effects to individuals.<br><br>Surface exposure<br><br>Floating oil exposure was limited in extent and concentration. No high-threshold surface oiling (≥50g/m$^2$) was predicted, and moderate threshold exposure (≥10g/m$^2$) was spatially constrained, typically within 0.6 (Scenario 5) to 52.4km (Scenario 2) of the release point. Low threshold exposure (≥1g/m$^2$) extended further offshore in some scenarios, with maximum distances up to 280.9km (Scenario 2), no surface oil contact with shoreline habitats was predicted. The highest probabilities of floating oil exposure to seabird foraging BIAs occurred in Scenario 1 and 2, with up to 71% probability for species such as the short-tailed shearwater and white-faced storm-petrel.<br><br>Seabirds that raft, rest, dive, or feed at sea, particularly those that plunge dive through the surface, may encounter floating oil at low concentrations. However, the predicted exposure levels are not expected to result in lethal impacts such as feather matting |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | or hypothermia. The spatial footprint of surface oiling remains small relative to the extensive oceanic foraging ranges of species like albatross and petrel, and the temporary nature of surface slicks further reduces the likelihood of sustained exposure.<br><br>Importantly, no breeding colonies or nesting areas for these species are located within the EMBA, further limiting the potential for population level impacts. Given the mobility of seabirds, the availability of unaffected foraging habitat, and the low concentrations of surface oil predicted, the overall risk to seabirds from floating hydrocarbon exposure is considered low.<br><br>In water (dissolved and entrained) oil<br><br>Exposure to dissolved hydrocarbons at the moderate threshold (≥10ppb) and entrained hydrocarbons at the high threshold was spatially limited. These zones were typically small and localised, with the highest concentrations occurring within 65km of the release location and not extending into key sensitive areas such as coastal marine parks or seabird breeding habitats. Several scenarios indicated high probabilities (up to 100%) of exposure in Victorian State waters, East Gippsland NRMR, and adjacent marine parks (Scenario 1, 2, 4 and 5).<br><br>The quickest time to exposure for entrained hydrocarbons ranged from 0.06 (Scenario 5) to 0.44 days (Scenario 2 and 3), and for dissolved hydrocarbons from 0.11 (Scenario 5) to 6.44 days (Scenario 3), depending on the scenario and receptor proximity.<br><br>While seabirds may consume fish or forage in areas where hydrocarbons are present in the water column, the probability of them feeding exclusively or predominantly within these small, higher exposure zones is low. Most seabird species likely to occur in the EMBA, such as albatrosses, petrels, and shearwaters, have broad foraging ranges and are highly mobile, reducing the likelihood of sustained exposure to hydrocarbon tainted prey.<br><br>Given the limited spatial extent of elevated in-water hydrocarbon concentrations, the transient nature of exposure, and the absence of breeding colonies within the EMBA, the potential for sub-lethal or toxic impacts to seabirds via trophic transfer is considered low. Therefore, the overall risk to seabirds from dissolved and entrained hydrocarbon exposure is assessed as low.<br><br>Shoreline exposure<br><br>Across all five modelled scenarios, no shoreline contact from floating oil was predicted at the high (≥50g/m$^2$) threshold, and moderate threshold exposure (≥10g/m$^2$) was spatially limited. While low threshold shoreline accumulation (≥1g/m$^2$) was predicted in some scenarios, particularly along the Gippsland coast and East Gippsland (Victoria), these areas are distinctly marine in character and do not overlap with the preferred habitats of shorebird species. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | Shorebirds such as plovers, godwits, and curlews typically inhabit tidal flats, open saltmarsh, freshwater wetlands, open grasslands, and sandy beaches. These environment s were not predicted to be affected under any of the modelled spill scenarios.<br><br>Given the habitat preference of shorebirds and the offshore nature of the hydrocarbon release, the potential for contact with oil residues is minimal. As such, the overall risk to shorebird populations from shoreline exposure is considered low. |
| Turtles | See Table 7-22 for impact of hydrocarbon exposure on turtles. | The impact to turtles from LOWC is assessed as a Consequence Level III.<br><br>Surface exposure<br><br>Given the absence of turtle BIAs in Bass Strait and the low likelihood of marine turtles occurring in the EMBA, the probability of exposure is low. Some transient individuals may encounter low concentrations of floating hydrocarbons or very localised areas of moderate exposure. Such contact may result in temporary irritation to skin or mucous membranes, but the concentrations predicted are not considered sufficient to cause long term harm.<br><br>The limited spatial footprint of surface oiling combined with the dynamic oceanographic conditions of Bass Strait, supports rapid dispersion and weathering. As such, the overall risk to marine turtles, both individuals and populations, from surface hydrocarbon exposure is considered low.<br><br>In water (dissolved and entrained) oil<br><br>As per surface exposure.<br><br>Shoreline exposure<br><br>There are no turtle nesting beaches within or in proximity to the EMBA, so impacts to turtles from shoreline oiling will not occur. Additionally, due to the absence of turtle BIAs in Gippsland and the low chance of encountering turtles in Victorian waters in general, the potential impacts to marine reptiles (individuals or populations) are considered to be inconsequential. |
| Pinnipeds | See Table 7-22 for impact of hydrocarbon exposure on pinnipeds. | The impact to pinnipeds from LOWC is assessed as a Consequence Level III to account for potential adverse effects to individuals.<br><br>Surface exposure<br><br>Floating oil exposure was limited in both spatial extent and concentration. No high threshold surface oiling (≥50g/$m^2$) was predicted in any scenario. Moderate threshold exposure (≥10g/$m^2$) was spatially constrained, typically within 0.6 (Scenario 5) to |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | 52.4km (Scenario 2) of the release location. Low threshold exposure (≥1g/m$^2$) extended further offshore in some scenarios with maximum distances reaching up to 280.9km (Scenario 2).<br><br>Pinnipeds such as Australian fur seals and other marine mammals may occasionally haul out or forage within the EMBA, but no breeding colonies or major haul out sites are located within the predicted zones of surface oiling. Given their mobility and the limited overlap between floating oil and known pinniped habitats, the likelihood of direct contact is low.<br><br>Even if individual pinnipeds were to encounter low concentrations of surface oil, the predicted levels are not considered sufficient to result in acute toxicity or long-term harm, the light nature of the hydrocarbons, primarily condensates and light crude, combined with the dynamic, well-mixed oceanographic conditions of Bass Strait, supports rapid dispersion and weathering of surface oil.<br><br>Therefore, based on the modelled scenarios, the overall risk to pinniped populations from floating oil exposure is considered low.<br><br><u>In water (dissolved and entrained) oil</u><br><br>Dissolved and entrained hydrocarbon exposure at the low threshold (≥10ppb) was consistently predicted in the upper 10m of the water column, where fur seals typically forage. While exposure through ingestion of contaminated prey or direct contact with oil droplets is possible, the concentrations modelled are below levels expected to cause permanent injury or mortality to pinniped populations in Bass Strait.<br><br>The zones where dissolved hydrocarbons reached the moderate threshold and entrained hydrocarbons reached the high threshold were spatially limited, extending up to 65km and 43km from the release location, respectively. These areas represent a small fraction of the broader foraging range available to pinnipeds and do not overlap with known breeding colonies or haul out sites.<br><br>The quickest time to exposure for entrained hydrocarbons ranged from 0.06 (Scenario 5) to 0.44 days (Scenario 2 and 3), and for dissolved hydrocarbons from 0.11 (Scenario 5) to 6.44 days (Scenario 3), depending on the scenario and receptor proximity.<br><br>Given the mobility of fur seals and the dynamic nature of their foraging behaviour, it is unlikely that individuals would feed exclusively or persistently within these higher exposure zones. Furthermore, oceanographic conditions in Bass Strait, characterised by well-mixed waters and high energy, support rapid dispersion and weathering of hydrocarbons, reducing persistence and bioavailability. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | The modelled exposure zones do not intersect habitat considered critical to pinniped survival, and the overall spatial footprint of elevated hydrocarbon concentrations is minor relative to the available foraging habitat, therefore, the risk to fur seals for dissolved and entrained hydrocarbons in eth water column is considered low.<br><br>Shoreline exposure<br><br>Based on the results of the OSTM, shoreline accumulation was predicted in several locations, particularly along the East Gippsland and southern NSW coasts, with probabilities of shoreline oiling (≥10g/$m^2$) ranging from 63 (Scenario 4) to 100% (Scenario 3). However, none of the modelled shoreline contact zones intersect with known breeding colonies or haul-out sites used by New Zealand or Australian fur seals.<br><br>The highest predicted shoreline oiling ranged from 2.1$m^3$ (Montague Island, Scenario 4) to 19.1$m^3$ (East Gippsland, Scenario 2). These areas are not recognised as critical pinniped habitats, and no seal haul out, or breeding sites are located within the predicted impact zones,<br><br>Given the spatial separation between modelled shoreline contact areas and known pinniped aggregation sites, there is no risk of hydrocarbon stranding affecting these sensitive locations. Consequently, the potential for direct exposure to fur seals to stranded oil is negligible, and the overall risk to pinnipeds from shoreline oil exposure is considered low. |
| Cetaceans | See Table 7-22 for impact of hydrocarbon exposure on cetaceans. | The impact to cetaceans from LOWC is assessed as a Consequence Level III.<br><br>Surface exposure<br><br>Floating oil exposure was limited in both spatial extent and concentration. No high threshold surface oiling (≥50g/$m^2$) was predicted in any scenario, and moderate threshold exposure (≥10g/$m^2$) was spatially constrained, typically within 0.6 (Scenario 5) to 52.4km (Scenario 2) of the release location. Low threshold exposure (≥1g/$m^2$) extended further offshore in some scenarios with maximum distances reaching up to 280.9km (Scenario 2).<br><br>Cetaceans such as whales and dolphins are highly mobile and typically occupy deeper offshore waters or migrate through the EMBA. Given their transient nature and broad-ranging movement, the likelihood of sustained contact with surface oil is low. While individuals may encounter low concentrations of floating hydrocarbons, the predicted levels are not considered sufficient to result in acute toxicity or long-term harm.<br><br>Additionally, no breeding, calving, or resting BIAs for cetaceans are located within the floating oil EMBA, further reducing the potential for population-level impacts. The dynamic oceanographic conditions of Bass Strait support the rapid dispersion and weathering of surface oil, limiting its persistence and bioavailability. |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | Therefore, based on the modelled scenarios, the overall risk to cetaceans from floating oil exposure is considered low.<br><br>In water (dissolved and entrained) oil<br><br>The OSTM predicts widespread dispersion of dissolved and entrained hydrocarbons at the low threshold (≥10ppb) throughout central Bass Strait. Several scenarios indicated high probabilities (up to 100%) of entrained hydrocarbons intersecting sensitive BIAs, including the SRW reproduction BIA (Scenario 2). Dissolved hydrocarbons did not reach this BIA.<br><br>The quickest time to exposure for entrained hydrocarbons ranged from 0.06 (Scenario 5) to 0.44 days (Scenario 2 and 3), and for dissolved hydrocarbons from 0.11 (Scenario 5) to 6.44 days (Scenario 3), depending on the scenario and receptor proximity.<br><br>Despite these exposure probabilities, the concentrations remain at low thresholds, which exceed water quality triggers but are not expected to result in toxicity effects for cetaceans. The spatial extent of moderate threshold dissolved hydrocarbon exposure reached up to 65km from the release location, while high threshold entrained hydrocarbon exposure extended up to 43km. These zones represent a small fraction of the SRW BIA and are unlikely to result in sustained exposure for individuals. SRWs are highly mobile and transient, and their movement patterns through the EMBA reduce the likelihood of prolonged contact with hydrocarbons.<br><br>Oceanographic conditions in central Bass Strait are well mixed and support rapid weathering and dispersion. Given the limited spatial overlap, low concentrations, and transient nature of cetacean presence, the overall risk to SRW populations, and cetaceans generally, from dissolved and entrained hydrocarbons is considered low.<br><br>Shoreline exposure<br><br>Not applicable. |
| Sandy beaches | See Table 7-22 for impact of hydrocarbon exposure on sandy beaches. | The impact of hydrocarbon coming ashore on sandy beaches is considered to have a Consequence Level III.<br><br>Shoreline oil accumulation at or above the low threshold (≥10g/$m^2$) was predicted in several locations, particularly along the Gippsland coast. East Gippsland (Vic) consistently showed high probabilities of shoreline contact, ranging from 76 (Scenario 5) to 95% (Scenario 3). Maximum volumes of oil ashore range from 2.1 $m^3$ (Montague Island, Scenario 4) to 19.1 $m^3$ (East Gippsland, Scenario 2). The earliest shoreline contact occurred within 4.93 (Scenario 1) to 7.16 days (Scenario 4) of release, indicating potential for rapid accumulation in some scenarios.<br><br>Sandy beaches within the EMBA, including those in East Gippsland and Bega Valley, were among the areas predicted to receive shoreline oiling. However, these beaches are located at considerable distances from the spill sources, and hydrocarbons |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| | | reaching them would be significantly weathered. This weathering, combined with the high-energy wave conditions typical of exposed sandy coastlines, supports rapid dispersion and degradation of hydrocarbons.<br><br>Asa result, the likelihood of toxic impacts to shoreline invertebrate communities or to shorebirds feeding on these invertebrates is considered low. Additionally, while entrained hydrocarbons at the low thresholds (≥10ppb), may intersect sandy shoreline, concentrations are not predicted to exceed levels associated with ecological harm. Therefore, based on the modelled scenarios, the overall risk to sandy beach environments and associated biota from shoreline exposure is considered low. |
| Mangroves and salt marsh | See Table 7-22 for impact of hydrocarbon exposure on mangroves and salt marsh. | The impact of hydrocarbons on mangroves and salt marsh is considered to have a Consequence Level III.<br><br>Despite the modelling predicting shoreline loading at the low, moderate and high threshold for all five scenarios, none of the loading is predicted in the Gippsland Lakes where there is a known distribution of mangroves and saltmarsh. No dissolved or entrained exposure is predicted to occur within the Gippsland Lakes.<br><br>Furthermore, the subtropical and temperate coastal salt marsh TEC has a patchy distribution along the Victorian coastline, meaning, any indirect impacts from hydrocarbon exposure will be highly localised and will not impact the overall survival of the TEC. |
| Wetlands | See Table 7-22 for impact of hydrocarbon exposure on wetlands. | Out of all five scenarios, only scenario two predicts that the low entrained threshold will reach the following Ramsar wetlands:<br><br>• East Coast Cape Barren Islands Lagoons (4% probability)<br>• Elizabeth and Middleton Reefs (4% probability)<br>• Logan Lagoon (1% probability)<br><br>Taking into consideration the potential impacts to the receptors (described in this table) within the wetlands the overall consequence is considered to have a have a Consequence Level III. |
| National parks and reserves | See Table 7-22 for impact of hydrocarbon exposure on national parks and reserves. | The modelling indicates that several MNP may be exposed to dissolved and entrained hydrocarbons.<br><br>Taking into consideration the potential impacts to the receptors within the terrestrial and marine parks and reserves the overall consequence is considered to have a Consequence Level II**.** |

| Receptor | Impact of hydrocarbon exposure | Exposure risk assessment |
|---|---|---|
| AMPs | See Table 7-22 for impact of hydrocarbon exposure on AMPs. | The modelling predicts that the LOWC EMBA will encroach on the following AMPs (predominantly through dissolved and entrained exposure):<br>• East Gippsland<br>• Beagle<br>• Flinders<br>• Jervis<br>• Freycinet<br>• Central Eastern<br>• Lorde Howe<br>• Hunter<br>Taking into consideration the potential impacts to the receptors (described in this table) within the AMPs the overall consequence is considered to have a Consequence Level III.<br>In accordance with the petroleum activities and Australian Marine Parks guidance note N-04750-GN1785 (NOPSEMA, 2025g) Appendix J provides as assessment against the management actions of the AMPs that could be exposed to the LOWC EMBA. |
| Commercial fisheries | See Table 7-22 for impact of hydrocarbon exposure on commercial fisheries. | The potential impacts to commercial fisheries from LOWC are considered to be Consequence Level III.<br>OSTM predicts offshore waters in eastern Victoria and southern NSW may be exposed to entrained hydrocarbons at the moderate and high exposure thresholds.<br>A short- or long-term fishing closure may be implemented by AFMA and/or the VFA with the duration depending on the results of water quality testing and fish sample testing. Fishers may lose access to traditional fishing grounds with consequential income losses and possible supply shortages to their commercial customers.<br>In all instances, the OSTM results indicate that hydrocarbons in the water column would occupy areas of fishing intensity Table 7-39 outlines the spill risk on a fishery-by-fishery basis based on the latest fishery data that is publicly available. |

**Table 7-39 LOWC risk on commercial fisheries**

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| **Commonwealth fisheries (those known to fish within the LOWC EMBA)** | | | |
| SESSF - Shark gillnet sector | No impacts to fish species due to their demersal habitat<br><br>Surface buoys marking gillnet locations may accumulate hydrocarbons if they are set at the time of a spill. Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap low-high levels of fishing intensity from 2019 - 2023.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Despite the fishery having low-high fishing intensity in areas where dissolved and entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts to the fishery as Ports used are not within the predicted shoreline exposure. |
| CTS - Otter board | No impacts to fish species due to their benthic/demersal habitat.<br><br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br><br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap some areas of low fishing intensity from 2019 - 2023 around the shelf.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Despite the fishery having low fishing intensity in areas where dissolved and entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| CTS – Danish seine | No impacts to fish species due to their benthic/demersal habitat.<br><br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br><br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap low-high levels of fishing intensity from 2019 - 2023.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Despite the fishery having low-high fishing intensity in areas where dissolved and entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |
| BSCSZF | No impacts due to their benthic habitat and the absence of commercially exploitable beds within the EMBA.<br><br>No impact to fishing equipment | The OSTM indicates that dissolved and entrained hydrocarbons overlap with low-medium levels of fishing intensity from 2020 - 2024.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion zone from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbon.<br><br>Due to the low fishing intensity, the benthic nature of the target species and the entrained and dissolved hydrocarbons only penetrating water depths between 0 - 10m this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | |
| ETBF | Potential impacts as target species utilise the epipelagic zone (0 - 200m) for feeding, warming and hunting. However, the OSTM indicates that surface oiling is not predicted | The OSTM indicates that dissolved and entrained hydrocarbons overlap with low-high fishing intensity from 2020 - 2024.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until | No impacts to the fishery as ports used are not within the |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | to overlap with recent and historic fishing intensity (2020 - 2024).<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br><br>Long lines may accumulate hydrocarbons if they are set at the time of a spill<br><br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Due to the known fishing intensity, the entrained and dissolved hydrocarbons penetrating waters depths between 0 - 10m, and the epipelagic nature of the species, this is expected to have a Consequence Level II on the overall function of the fishery or its catch species. | predicted shoreline exposure. |
| Southern Bluefin Tuna Fishery | Potential impacts as target species utilise the epipelagic zone (0 - 200m) for feeding, warming and hunting. However, the OSTM indicates that surface oiling is not predicted to overlap with recent and historic fishing intensity (2020 - 2024).<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br><br>Long lines may accumulate hydrocarbons if they are set at the time of a spill.<br><br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap with low-high fishing intensity from 2020 - 2024.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Due to the known fishing intensity, the entrained and dissolved hydrocarbons penetrating waters depths between 0 - 10m, and the epipelagic nature of the species, this is expected to have a Consequence Level II on the overall function of the fishery or its catch species. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |
| SESSF – scalefish hook sector | No impacts to target fish species due to their benthic/demersal habitat.<br><br>Long lines and drop lines may accumulate hydrocarbons if they are set at the time of a spill. | The OSTM indicates that dissolved and entrained hydrocarbons overlap with low-medium levels of fishing intensity from 2019 - 2021.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | |
| Southern Squid Jig Fishery | No impacts to target fish species due to their pelagic habitat (60 - 120m water depth).<br>Jigging equipment may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap with low-medium levels of fishing intensity from 2020 - 2024.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the pelagic nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |
| ETBF | Potential impacts as target species utilise the epipelagic zone (0 - 200m) for feeding, warming and hunting. However, the OSTM indicates that surface oiling is not predicted to overlap with recent and historic fishing intensity (2020 - 2024).<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick.<br>Long lines may accumulate hydrocarbons if they are set at the time of a spill. | The OSTM indicates that dissolved and entrained hydrocarbons overlap with low-high fishing intensity from 2020 - 2024.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the known fishing intensity, the entrained and dissolved hydrocarbons penetrating waters depths between 0 - 10m, and the epipelagic nature of the species, this is expected to | No impacts to the fishery as Ports used are not within the predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| | The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | have a Consequence Level II on the overall function of the fishery or its catch species. | |
| **Victorian fisheries (those known to fish within the LOWC EMBA)** | | | |
| Rock lobster | No impacts due to their benthic habitat.<br>There is potential for lobster pot buoys to accumulate hydrocarbons if they are set at the time of a spill.<br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap a low level of fishing intensity with less than 77 days fished from 2021 - 2025.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic nature of the target species, and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts to the fishery as Ports used are not within the predicted shoreline exposure. |
| Ocean trawl | No impacts to fish due to their benthic/demersal habitat.<br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap a low-high level of fishing intensity with up to 192 days fished along the eastern coast of Victoria from 2021 - 2025.<br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br>Due to the low fishing intensity, the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| Inshore trawl fishery | No impacts to fish due to their benthic/demersal habitat.<br><br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap a low-high level of fishing intensity along the eastern coast of Victoria, with over 1000 days fished in some areas in 2021 - 2025.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Despite the fishery having moderate fishing intensity in areas where entrained hydrocarbons are predicted, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic/demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |
| Octopus fishery | No impacts due to their benthic habitat.<br><br>There is potential for octopus pot buoys to accumulate hydrocarbons if they are set at the time of a spill.<br><br>The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap a moderate -high level of fishing intensity, with areas in eastern Victoria being fished for 0 - 79 days between 2021 - 2025.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Despite the fishery having moderate fishing intensity in areas where entrained hydrocarbons are expected, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species due to the benthic nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |

| Fishery | Surface oiling | Water column exposure | Shoreline |
|---|---|---|---|
| Wrasse fishery | No impacts to fish due to their demersal habitat.<br><br>Warp wires may accumulate hydrocarbons if they are set at the time of a spill.<br><br>Vessel hulls may accumulate hydrocarbons if they travel through a slick. The oiled surfaces may themselves be a source of secondary contamination until they are cleaned. | The OSTM indicates that dissolved and entrained hydrocarbons overlap a low level of fishing intensity with up to 303 days being fished between 2021 - 2025 along eastern Victoria.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Due to the low fishing intensity, the demersal nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m, this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts to the fishery as ports used are not within the predicted shoreline exposure. |
| Scallop fishery | No impacts due to their benthic habitat and the absence of commercially exploitable beds within the EMBA.<br><br>No impact to fishing equipment. | The OSTM indicates that dissolved and entrained hydrocarbons overlap a low level of fishing intensity with 0 - 88 days being fished between 2021 - 2025.<br><br>This fishery may be subject to a temporary (e.g. days to a few weeks) and precautionary exclusion from fishing grounds until water quality monitoring verifies the absence of residual hydrocarbons.<br><br>Due to the low fishing intensity, the benthic nature of the target species and the entrained and dissolved hydrocarbons only penetrating waters depths between 0 - 10m this is expected to have a Consequence Level III on the overall function of the fishery or its catch species. | No impacts to the fishery as ports used are not within the predicted shoreline exposure |

### *7.8.6 Risk assessment*

Table 7-40 presents the risk assessment for a hydrocarbon release from a LOWC.

**Table 7-40 Risk assessment for unplanned release - LOWC**

| ALARP decision context | | | |
|---|---|---|---|
| **Decision type** | A | | |
| **Activity** | Nothing new or unusual, represents business as usual, well understood activity, good practice is well defined. | | |
| **Risk and uncertainty** | Risks are well understood, uncertainty is minimal. | | |
| **Stakeholder influence** | No conflict with company values, no partner interest, no significant media interest. | | |
| **Risk assessment (inherent)** | | | |
| **Likelihood** | **Consequence** | **Risk Category** | |
| E | III | 4 | |
| **Assessment of proposed control measures (ALARP assessment)** | | | |
| **Controls** | **Benefits** | **Feasibility** | **Adopt?** |
| NOPSEMA-accepted WOMP is in place to demonstrate how well integrity is managed to prevent a LOWC event. | An accepted WOMP provides a structured and regulator-endorsed framework for planning and executing well operations that reduces the likelihood of a LOWC. | Preparation and maintenance of a WOMP is a regulatory requirement and standard industry practice. The plan is routinely updated to reflect current operational procedures, equipment standards, and emergency response arrangements. Implementation is feasible within existing management systems. | Adopted **(RSK08-CM01)** |
| NOPSEMA-accepted Safety Case in place to demonstrate how the platforms and wells are operated to ensure no LOWC. | An accepted Safety Case ensures the facility is being operated and maintained in a manner that reduces the likelihood of a LOWC event occurring. | Preparation and maintenance of a Safety Case is a regulatory requirement and standard industry practice. The plan is routinely updated to reflect current operational procedures, equipment standards, and emergency response arrangements. Implementation is feasible within existing management systems. | Adopted **(RSK08-CM02)** |

| | | | |
|---|---|---|---|
| The workover program outlines the well control equipment to be used. | Prevents a LOWC through proven mechanical barriers such as blowout preventers. | Testing and certification of well control equipment is mandated under regulatory frameworks. | Adopted **(RSK08-CM03)** |
| Well Integrity Management System (WIMS) is implemented and outlines the processes in place to prevent a LOWC. | Ensures ongoing well integrity across the lifecycle, reducing the likelihood of an uncontrolled release. | The system is widely adopted across the industry and readily integrated into operational processes. Its feasibility is demonstrated through established practice and proven effectiveness in maintaining well integrity. | Adopted **(RSK08-CM04)** |
| Isolation test plan for platform shutdowns and subsurface isolation valves developed and actioned per FIMS process. | Confirms isolation mechanisms function effectively, designed to contain hydrocarbons during shutdowns. | Testing requirements are embedded within the FIMS framework, making implementation operationally feasible. Routine execution ensures isolation mechanisms are verified and maintained in line with procedural standards | Adopted **(RSK08-CM05)** |
| OPEP is implemented in the event of LOWC. | An OPEP ensures Esso is well prepared to quickly respond to a LOWC, thereby minimising the extent of sea affected. | This control is a regulatory requirement, standard industry and Esso company practice to respond to a LOWC. | Adopted **(RSK08-CM06)** |
| Arrangements supporting the activities in the OPEP will be tested to ensure it can be implemented as planned. | An OPEP ensures Esso is well prepared to quickly respond to a LOWC, thereby minimising the extent of sea affected. | This control is a regulatory requirement, standard industry and Esso company practice to respond to a LOWC. | Adopted **(RSK08-CM07)** |
| Australia wells tier II/III ERP is implemented in the event of a LOWC. | Provides structured preparedness and response framework for well control incidents, aimed at minimising environmental impact. | Emergency response planning is a regulatory requirement, standard industry and Esso requirement. Plans are maintained, tested, and updated regularly, and embedded into company operations. | Adopted **(RSK08-CM08)** |
| Industry certified well control training for key personnel. | Ensures personnel are trained to respond to well control events, with the aim that the LOWC is | Emergency response planning is a regulatory requirement, standard industry and Esso requirement. Personnel are trained to response | Adopted **(RSK08-CM09)** |

| | | | |
|---|---|---|---|
| | stopped earlier than it may otherwise be. | specifically to well control events. | |
| Monitoring relief well rig availability for relief well drilling in the event of a LOWC event. | Ensures contingency capability to regain well control in the event of a blowout. | Monitoring of relief well rig availability is an established contingency measure. | Adopted<br>**(RSK08-CM10)** |
| An OSMP is implemented in the event of a LOWC. | An OSMP ensures Esso is well prepared to quickly undertake operational and scientific studies, thereby supporting the future assessment of impacts resulting from the spill. | This control is a regulatory requirement, standard industry and Esso company practice and reflects the existing controls in place to respond to a LOWC. | Adopted<br>**(RSK08-CM11)** |
| Use of a capping stack (vertical or offset). | Capping stacks can be used on subsea wells in the event of a LOWC to reduce flow from a well and reduce the volume of reservoir fluid released. | Capping stacks cannot be used on platform-based wells.<br>Capping stacks have limited applicability on subsea facilities.<br>Oil Spill Response Limited's (OSRLs) offset capping stack system is limited due to minimum depth requirements (>75m) and long mobilisation times.<br>Use of capping stacks is not feasible due to water depth at BTW (at 46m depth)<br>Use of a capping stack at the KPA location (95m) is not technically feasible for the following reasons:<br>• modelling of a LOC at the KPA location indicates a ~66m radius 'bubble zone' at the water line due to the shallow gas release. This eliminates the potential for vertical access capping stacks<br>• use of the OSRL offset installation system is notionally rated to 75 - 600m water depth and deployment is particularly challenging in shallow waters, under high discharge rates and/or high gas/oil ratio | Not adopted |

| | | | |
|---|---|---|---|
| | | • the KPA wells have a high gas/oil ratio (0.15sKL/SKm$^3$), further reducing the safety and likelihood of effective use of a capping stack<br>• while in production, well heads are covered with trawl protection frames, which reduces the likelihood that a capping stack can be deployed. | |
| Third level of well barriers. | Increased level of protection from uncontrolled flow from a well beyond the 'two barrier' requirement. | The two-barrier philosophy is considered industry best practice, and the blowout preventer also has multiple barriers with redundancy, specifically designed to reduce the risk to ALARP as per the WOMP. | Not adopted |
| Relief well drilling rig available locally to reduce mobilisation time. | Having a MODU on standby may allow the relief well to be drilled 34 days earlier, thus reducing the volume of release. | Esso Bass Strait operations are a continuous production operation with production and wellwork activities occurring on an ongoing basis.<br>It is not feasible to have a standby MODU available throughout the lifetime of the operation.<br>This control measure is considered disproportionate given that a LOWC during production operations has a low likelihood of occurrence. | Not adopted |
| Relief well materials staged locally. | There is little benefit because the response time for relief well drilling is dependent on the availability of necessary well construction equipment (i.e. wellhead, casing). | There would be no meaningful reduction in time for relief well drilling because sufficient materials are available as spares or can be procured within short timeframes.<br>Wellhead and casing requirements will be identified during the planning phase, which is undertaken concurrently with MODU mobilisation.<br>Any additional equipment would be mobilised from | Not Adopted |

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|---|---|---|---|
| | | available global inventory and/or inventories of AEP MOU signatories/Joint Venture partners. | |
| Prepare a detailed Relief Well Plan (RWP) in advance. | A detailed RWP needs to be developed on a case-by-case basis.<br>A detailed RWP can be developed immediately after the LOWC scenario is fully understood, and while a relief well rig is being mobilised.<br>There is no benefit in preparing a detailed RWP without knowing the specifics of the LOWC. | Sufficient time would be available to prepare a detailed RWP when the specific blowout parameters for a relief well can be determined, immediately following the incident, and while the relief rig is being mobilised.<br>Given the requirements for specific details and the number of different types of well locations and well designs in Bass Strait operations, this control measure is considered disproportionate, given that the LOWC event has a low likelihood of occurrence. | Not adopted |

| **Environmental controls and performance measurement** | | | |
|---|---|---|---|
| **EPO** | **Control** | **EPS** | **Measurement criteria** |
| **RSK08-EPO01:**<br>No release of hydrocarbons to the marine environment due to a LOWC. | **RSK08-CM01:**<br>The wells are operated in accordance with a NOPSEMA-accepted WOMP that:<br>• identifies hazards that have the potential to cause a LOWC<br>• describes the barriers to prevent uncontrolled flow<br>• describes the response arrangements to detect and correct deviations early. | **RSK08-EPS01:**<br>The management of the wells meets the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 (Cth), such that there is no LOWC. | Acceptance letter from NOPSEMA demonstrates acceptance of the WOMP. Records demonstrate applicable NOPSEMA notification and reporting. |
| | **RSK08-CM02:**<br>The wells are operated in accordance with a NOPSEMA-accepted Safety Case that<br>• identifies hazards that have the potential to cause a Major Accident Event<br>• details assessment of Major Accident Event risks<br>• describes the physical barriers, safety critical elements and the safety | **RSK08-EPS02:**<br>The management of the wells meets the requirements of the Safety Regulations, such that there is no LOWC. | Acceptance letter from NOPSEMA demonstrates acceptance of the Safety Case.<br>Records demonstrate applicable NOPSEMA notification and reporting. |

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|---|---|---|---|
| | management systems identified as being required to reduce the risk to personnel associated with a Major Accident Event to ALARP. | | |
| | **RSK08-CM03:**<br>Identified well control equipment is on board and is tested for correct operation prior to workover programs beginning as well as regular testing during a campaign. | **RSK08-EPS03:**<br>Workover operations are conducted in accordance with a workover program that outlines the well control equipment to be used and avoids a LOWC. | Records demonstrate that well control equipment was tested prior to wellwork operations and during the campaign. |
| | **RSK08-CM04:**<br>Well and hydrocarbon-containing infrastructure integrity is maintained in accordance with the WIMS to contain reservoir fluids within the well envelope to avoid a LOWC. | **RSK08-EPS04:**<br>Wellbore and well equipment integrity is managed in accordance with the WIMS to prevent a LOWC. | The Wellbore Integrity Testing Exception Report shows any overdue testing and potentially increased wellbore integrity risks, is prepared and signed off by the appropriate level of management. |
| | **RSK08-CM05:**<br>Integrity is managed in accordance with OIMS 6-2 FIMS.<br>Subsurface isolation mechanisms tests are conducted in accordance with the parameters defined in FIMS to prevent serious SHE risks (Consequence Category 1 or 2), including a process for managing plans that are in exception. Isolation test plans are developed in accordance with the Critical Function Testing Management Manual and are scheduled in CMMS.<br>Integrity program compliance is monitored and approved through the CMMS Exception Reporting process | **RSK08-EPS05:**<br>Platform shutdown and subsurface isolation capability is maintained in accordance with OIMS 6-2 FIMS to prevent a LOWC. | CMMS records confirm integrity tests are conducted. |
| **RSK08-EPO02:** | **RSK08-CM06:**<br>In the event of a release of hydrocarbons to the environment, emergency | **RSK08-EPS06:**<br>The OPEP is implemented in response to a | Incident and IMT logs confirm response was implemented in |

| | | | |
|---|---|---|---|
| Respond to a hydrocarbon release in the event of a LOWC. | response activities are implemented in accordance with the OPEP. | hydrocarbon release from a LOWC. | accordance with the OPEP. |
| | **RSK08-CM07:**<br>Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | **RSK08-EPS07:**<br>OPEP testing is conducted in alignment with the frequency identified in Section 8.18.4 of this EP. | Testing of arrangement records confirm that emergency response capability is maintained.<br>Records demonstrate minimum level of personnel trained for core OPEP roles are available. |
| | **RSK08-CM08:**<br>Emergency response activities will be implemented in accordance with the Australia Wells Tier II/III ERP. | **RSK08-EPS08:**<br>Emergency response in undertaken in accordance with the Australia Wells Tier II/III ERP. | Incident and IMT logs confirm response was implemented in accordance with the Australia Wells Tier II/III ERP. |
| | **RSK08-CM09:**<br>Industry certified well control training is completed by all relevant personnel in Engineering and Operations teams. | **RSK08-EPS09:**<br>Well control response is managed by trained personnel and in line with industry practice. | Training records verify personnel responding to the LOWC are trained in well control. |
| | **RSK08-CM10:**<br>A register of the status and location of suitable rigs to drill relief wells is maintained and updated monthly or escalated in accordance with the Australian Wells Tier II/III ERP to ensure relief well drilling timeframes can be met. | **RSK08-EPS10:**<br>A rig suitable for drilling a relief well is quickly identified and able to commence drilling in line with the Australian Wells Tier II/III ERP. | A register of suitable rigs to drill relief wells is available and updated monthly or escalated in accordance with the Australian Wells Tier II/III ERP. |
| **RSK08-EPO03:**<br>Characterise the environmental impacts resulting from a LOWC. | **RSK08-CM11:**<br>The OSMP is implemented post-spill. | **RSK08-CM11:**<br>Post-release monitoring is undertaken in accordance with the requirements of the OSMP. | Emergency response records confirm the OSMP was implemented post-spill. |

| Risk assessment (residual) | | |
|---|---|---|
| **Likelihood** | **Consequence** | **Risk Category** |
| E | III | 4 |

| Demonstration of ALARP |
|---|
| With the controls outlined in this table in place, this risk has been assessed as a Category 4 (lower risk) and is considered to be good practice (decision Context A). This means that any additional or alternative control measures either fail to lower the residual impact consequence any further or are grossly disproportionate to the residual impact consequence rating. Therefore, a residual risk category score ranking of 4 is considered to be ALARP. |

| Demonstration of acceptability | | |
|---|---|---|
| **Principles of ESD** | The EIA presented throughout this EP demonstrates that ESD principles (a), (b), (c) and (d) are met, noting that principle (e) is not relevant. | |
| **Legislative and other requirements** | The proposed controls align with the requirements of the OPGGS Act:<br>• Schedule 3 Occupational health and safety and Safety Regulations. The Safety Regulations require the operator of each offshore facility to prepare a Safety Case for submission to NOPSEMA. Activities at a facility must be conducted in accordance with a Safety Case that has been accepted by NOPSEMA<br>• Part 5, Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 (Cth) which require NOPSEMA to accept a WOMP to enable well activities to be undertaken. | |
| **Industry practice** | The consideration and alignment of controls with those outlined in the below-listed guidelines and codes of practice relevant to this hazard (in descending order of date of publication) demonstrate that best practice environmental management is being implemented for this activity. | |
| | *Environmental management in the upstream oil and gas industry* (IPIECA-IOGP, 2020) | The controls listed in this table meet the relevant mitigation measures listed for offshore activities with regard to:<br>• Major spills from production facilities – OSTM to be undertaken to determine potential environmental impacts, wellbore hydrostatic pressure to be maintained, well integrity testing to be performed, WOMP to be in place, well control contingency plan to be in place, spill preparedness and emergency response measures are in place, ongoing inspections and maintenance take place. |
| | *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production* (European Commission, 2019) | No guidance is provided regarding preventing or managing offshore LOWC, other than having a spill contingency plan in place. An OPEP is in place for Bass Strait operations. |

| | | |
|---|---|---|
| | *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development* (World Bank Group, 2015) | Guidelines met with regard to:<br>• Section 75 (Spills): Conducting a spill risk assessment, implementing personnel training and field exercises, ensuring spill response equipment is available.<br>• Sections 76-79 (Spill response planning): A spill response plan should be prepared. |
| | *Code of Environmental Practice* (APPEA, 2008) | The controls listed in this table meet the following offshore development and production objectives:<br>• to reduce the risk of any unplanned release of material into the marine environment to ALARP and an acceptable level. |
| **Internal context** | Consistent with Esso's Environment Policy | Proposed activities are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist"*. |
| | Meets OIMS Objectives | Proposed activities meet:<br>• OIMS System 6-3 Well Management, detailing Wellwork Execution Manual (WEM)<br>• OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements<br>• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors<br>• OIMS System 10-1 objective to anticipate community concerns and develop response plans, as appropriate<br>• OIMS System 10-2 objectives to document, resource and communicate emergency response plans, and conduct training, exercises and/or drills to determine the adequacy of the plans. |
| **External context** | No specific stakeholder concerns have been raised concerning a release from a LOWC. | |

#### 7.8.6.1 Relief well drilling

Should implementation of relief well drilling be required to mitigate the impacts from LOWC, it is expected to take up to 98 days. The response time for a relief well is based on rig mobilisation from Dampier, assuming a semi-submersible MODU being wet-towed. The time to drill a relief well was chosen as the basis for spill volume calculations.

A detailed breakdown for response times based on the 98 day planning scenario is provided in Table 7-41. The IOGP Response Time Model Toolkit would also be utilised to plan response time for a relief well (IOGP, 2019a).

**Table 7-41 Response time breakdown (Wet tow scenario)**

| Operation | Duration (days) | Cumulative (days) |
|---|---|---|
| Notifications; Mobilise specialist personnel; Initiate source control emergency response plan; Source MODU; Contract; Source AHTS. | 7 | 7 |
| MODU suspend well, de-moor, transit to Dampier | 14 | 21 |
| Tow to incident location (4kn) | 30 | 51 |
| Load materials | 2 | 53 |
| Moor the MODU and drill relief well | 35 | 88 |
| Weather allowance | 5 | 93 |
| Kill well | 5 | 98 |

The 98-day drilling scenario is a conservative estimate. Mobilisation may be able to be accelerated through the use of a HLV for MODU/jack up rig transport which could occur, as an example from Singapore, in approximately 85 days. An example of the breakdown of the 85-day response scenario is provided in Table 7-42.

**Table 7-42 Response Time Breakdown (HLV Scenario)**

| Operation | Duration (days) | Cumulative (days) |
|---|---|---|
| Notifications; Mobilise specialist personnel; Initiate source control emergency response plan; Source MODU; Contract; Prepare for transport<br>Source Heavy Transport Vessel; Prepare for transport operation | 10 | 10 |
| Load MODU | 3 | 13 |
| Transit Singapore to Westernport Bay | 15 | 28 |
| Offload MODU; Load materials | 2 | 30 |
| Tow to incident site; Load materials | 4 | 34 |
| Conduct jack-up foundation geotechnical survey; Preload | 4 | 38 |
| Drill relief well | 35 | 73 |
| Weather allowance | 7 | 80 |
| Kill well | 5 | 85 |

A critical part of the response will be to secure a suitable MODU capable of drilling a relief well, including an accepted Safety Case. Depending upon the location, the MODU may require the use of a HLV to expedite mobilisation (towed MODU averages 4kn, compared with >12kn for HLV).

The selection of a suitable MODU and support vessels would focus on the units currently operating in Australia under an accepted Safety Case that are suitable to drill the relief well (considering water depth and other well specifications). If required, a Safety Case acceptance would be prepared during the time it takes to mobilise the rig to the incident location (approximately 51 days).

The accepted Safety Case would be used as the basis for preparing the relief rig Safety Case and best efforts would be made to secure acceptance for the relief rig within the mobilisation timeframe. MODU/jack up rig, HLV and support vessels would need to meet project ballast water/biofouling requirements.

# 8 Implementation strategy

| Environment Regulations requirements |
| --- |
| **Section 22 Implementation strategy for environment plan** |
| 22(1)<br>*The environment plan must contain an implementation strategy for the activity in accordance with this section.*<br>Consultation and compliance<br>22(16)<br>*The implementation strategy must comply with the Act, this instrument, any other regulations made under the Act, and any other environmental legislation applying to the activity.* |

This implementation strategy outlines the relevant systems, practices and procedures to direct, review and manage activities, ensuring that environmental risks and impacts are continually being reduced to ALARP and remain acceptable, and that the EPOs and EPSs described in this EP are achieved.

## 8.1 Systems, Practice and Procedures

All operational activities are planned and performed in accordance with relevant legislative and internal environment standards and procedures identified in this EP.

Processes are implemented to verify controls to manage environmental impacts and risks to:

- a level that is ALARP and acceptable
- meet EPOs
- comply with EPSs defined in this EP.

A summary of all environmental controls is included in Appendix K.

Document names and reference numbers may be subject to change during the statutory duration of this EP and is managed through a Change Register and update process. Further information regarding some of the key systems, practices and procedures relevant to implementation of this EP is provided below.

## 8.2 Standards of Business Conduct

Esso complies with the Standards of Business Conduct, which require the Esso/the Company to conduct business in a manner that is compatible with the environmental, social and economic needs of the communities in which it operates. These Standards also aim to protect the safety and health of employees, those involved in operations, and members of the public.

The Standards of Business Conduct include the following foundation policies:

- Ethics Policy
- Conflicts of Interest Policy
- Corporate Assets Policy
- Directorships Policy
- Gifts and Entertainment Policy
- Anti-Corruption Policy
- Political Activities Policy
- International Operations Policy
- Antitrust Policy
- Health Policy
- Environment Policy
- Safety Policy

- Product Safety Policy
- Customer Relations and Product Quality Policy
- Alcohol and Drug Use Policy
- Equal Employment Opportunity Policy
- Harassment in the Workplace Policy

This EP complies with the applicable Standards of Business Conduct, in particular, the Environment Policy which states:

*Environment Policy*

It is Esso's/the Company's policy to conduct its business in a manner that is compatible with the balanced environmental and economic needs of the communities in which it operates. Esso/the Company is committed to continuous efforts to improve environmental performance throughout its operations.

Accordingly, Esso/the Company's policy is to:

- Comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist
- Encourage concern and respect for the environment, emphasise every employee's responsibility in environmental performance, and foster appropriate operating practices and training
- Work with government and industry groups to foster timely development of effective environmental laws and regulations based on sound science and considering risks, costs, and benefits, including effects on energy and product supply
- Manage its business with the goal of preventing incidents and of controlling emissions and wastes to below harmful levels; design, operate, and maintain facilities to this end
- Respond quickly and effectively to incidents resulting from its operations, in cooperation with industry organisations and authorised government agencies
- Conduct and support research to improve understanding of the impact of its business on the environment, to improve methods of environmental protection, and to enhance its capability to make operations and products compatible with the environment
- Communicate with the public on environmental matters, and share its experience with others to facilitate improvements in industry performance
- Undertake appropriate reviews and evaluations of its operations to measure progress and to foster compliance with this policy.

## 8.3 Environmental Management System

| **Environment Regulations requirements** |
|---|
| **Section 22 Implementation strategy for environment plan** |
| Environmental management system<br>22(2)<br>*The implementation strategy must contain a description of the environmental management system for the activity, including specific measures to be used to ensure that, for the duration of the activity:*<br>*(a) the environmental impacts and risks of the activity continue to be identified and reduced to a level that is as low as reasonably practicable; and*<br>*(b) control measures detailed in the environment plan are effective in reducing the environmental impacts and risks of the activity to as low as reasonably practicable and an acceptable level; and* |

| Environment Regulations requirements |
| --- |
| *(c) environmental performance outcomes and environmental performance standards in the environment plan are being met.* |

In addition to the Standards of Business Conduct, Esso manages its operations in accordance with a structured and disciplined risk management framework known as Operations Integrity Management System (OIMS). The Environmental Management System for this EP is OIMS.

OIMS identifies, evaluates and manages risks across all exploration, construction and production activities.

### *8.3.1 Operations Integrity Management System*

The OIMS Framework establishes common worldwide expectations to address the risks inherent to the business. The term Operations Integrity (OI) is used to address all aspects of its business impacting personnel and process safety, security, health and environmental (SSHE) performance. The OIMS Framework includes 11 elements, as shown in Figure 8-1. Each element contains overarching objectives and a set of expectations. Within each OIMS element, there are a number of separate systems, designed to meet the objectives and expectations of each element. The OIMS Framework can be found at: https://corporate.exxonmobil.com/-/media/global/files/risk-management-and-safety/oims-framework-brochure.pdf

The OIMS Framework also includes the characteristics of and processes for implementing OI Management Systems. Application of the OIMS Framework is required across the entire enterprise, with a specific emphasis on design, construction and operations.

The OIMS Management Committee has overall accountability for the implementation, execution, and continuous improvement of OIMS within Esso.

Key responsibilities of the OIMS Management Committee include:

- demonstrate commitment to OIMS through active and visible participation in OIMS implementation, execution and improvement
- ensure that Annual System Reviews are conducted
- review key OI performance indicators that show the status and effectiveness of OIMS implementation and execution
- periodically review OI incidents for learning and continuous improvements to OIMS.




**Figure 8-1 OIMS Framework**

Table 8-1 outlines the 11 OIMS elements and their objectives, as outlined in the *EAPL System Summary Document* (AUGO-PO-SUM-001).

**Table 8-1 Description of the 11 elements within the OIMS Framework**

| Element | Objectives |
|---|---|
| **Element 1**<br>Leading Managing and Driving Performance | • Leadership behaviours and actions required to drive effective application of the Operations Integrity Management System (OIMS) and OI Objectives are defined.<br>• Each business unit has effective management systems and processes to consistently meet OI Objectives.<br>• Management and supervisor accountability is clarified throughout the organization. |
| **Element 2**<br>Identifying, Assessing, Mitigating and Accepting Risk | • OI hazards inherent to the business are identified, including hazards to people, communities, the environment, and our facilities.<br>• The risk(s) associated with these hazards is assessed, communicated, prioritized and mitigated to an acceptable level.<br>• Risk management safeguards are identified and mapped to systems to ensure there is a mechanism to maintain the safeguards' health.<br>• Decision making associated with risk mitigation and acceptance are made at the right level within the organization and based on thorough analysis. |
| **Element 3**<br>Designing, Constructing and Preparing Assets | • Risks are identified, assessed, mitigated and communicated during facility design, construction and startup.<br>• Design and construction meet approved standards, and deviations are approved at the appropriate level within the organization. |

| Element | Objectives |
|---|---|
| (Facilities) for Start Up<br><br>NB: Major Projects are not within the scope of this EP | • Quality assurance processes are in place during construction to ensure facilities and materials are consistent with design specifications.<br>• Readiness to operate is confirmed through execution of a pre-startup review |
| **Element 4**<br>Providing Information needed for Asset Construction, Operation and Maintenance | • Information and documentation needed to meet Operating Integrity Objectives are accurate, accessible and appropriately retained. |
| **Element 5**<br>Selecting, Training, Engaging and Enabling People | • People are selected and placed consistent with their abilities and job requirements.<br>• People are trained to achieve and maintain competency.<br>• Collective competency is maintained over time.<br>• Human Performance principles are applied to engage and enable people to successfully perform their work.<br>• Individual capability is developed over time to enable people to recognize, safely respond, and manage variability in the work and work environment. |
| **Element 6**<br>Operating and Maintaining Assets | • Procedures and work instructions effectively guide operations, maintenance and construction activities.<br>• Work to mitigate potential risks associated with operations, maintenance and construction activities is permitted and managed.<br>• Effectiveness of safeguards is verified before and during work to enable safe work execution.<br>• Interfaces to manage risk associated with simultaneous activities and operations are recognized, managed and operated.<br>• The mechanical integrity of facilities, equipment and wells is preserved.<br>• Risk associated with the defeat or degradation of safeguards<br>• are managed.<br>• Governmental and regulatory requirements, applicable laws, permits and external obligations are met |
| **Element 7**<br>Managing Changes | • Changes in operations, procedures, site standards, facilities or organizations are evaluated and managed to ensure Operations<br>• Integrity safeguards remain healthy, and risks remain at an acceptable level |
| **Element 8**<br>Selecting and engaging with Third-Party Providers | • Third-party providers' performance expectations are established, and third parties are selected (and supported, as required) in a manner to meet these expectations.<br>• Third-party providers are monitored and held accountable to performance objectives.<br>• Engagements between Esso/the Company and third-party providers are tailored based on the potential OI consequences of the work and the type of third-party provider. |
| **Element 9** | • OI learning occurs from work (proactive) and from events (i.e. incidents, near misses).<br>• Events with high potential consequence are thoroughly investigated. |

| Element | Objectives |
|---|---|
| Learning from Operating Experience and Incidents | • Root causes are identified, including failed safeguards and leadership/organizational factor.<br>• High value lessons learned are shared openly and implemented proactively across operating sites and organizations and from other companies. |
| **Element 10**<br>Preparing for Emergencies and Managing Potential Risk to the Community | • Equipment, facilities and personnel are prepared to respond to OI emergencies.<br>• Communities are engaged proactively to build and maintain relationships and manage potential OI risks. |
| **Element 11**<br>Assessing and Driving Effectiveness | • OI Objectives are met through the effective application of OIMS and gaps and their root causes are identified, corrected and remain closed |

### *8.3.2 Applicable OIMS Systems for this EP*

OIMS is characterised in this section of the EP within the context of a PLAN-DO-CHECK-ACT cycle (Table 8-2) that is the basis of a systematic approach to environmental management under AS/NZ ISO 14001 where:

- PLAN = establish environmental objectives and processes necessary to deliver results in accordance with the organisation's environmental policy
- DO = implement the processes as planned
- CHECK = monitor and measure processes against the environmental policy including its commitments, environmental objectives and operating criteria and report results
- ACT = take actions to continually improve

The implementation strategy outlines the assessment of impacts and risks and describes how the control measures are applied to achieve environmental performance outcomes. The OIMS framework provides the systems, practices and procedures to plan, implement, monitor and manage operational activities so that environmental risks and impacts are reduced to ALARP.

The OIMS Elements and subsidiary Systems relevant to this EP are summarised below;

- Element 1: Leading Managing and Driving Performance
  - OIMS System 1-1: Leading, Managing and Driving Performance
- Element 2: Identifying, Assessing, Mitigating and Accepting Risk
  - OIMS System 2-1: Risk Assessment and Management
- Element 3: Designing, Constructing and Preparing Assets (Facilities) for Start Up
- Element 4: Providing Information needed for Asset Construction, Operation and Maintenance
  - OIMS System 4-1: Information Management
- Element 5: Selecting, Training, Engaging and Enabling People
  - OIMS System 5-1: Selecting, Training, Engaging and Enabling People
- Element 6: Operating and Maintaining Assets
  - OIMS System 6-1: Operating and Maintenance Procedures
  - OIMS System 6-2: Facility Integrity Management System
  - OIMS System 6-3: Well Management
  - OIMS System 6-4: Work Management
  - OIMS System 6-5: Environmental and Regulatory Management
- Element 7: Managing Changes
  - OIMS System 7-1: Managing Changes
- Element 8: Selecting and engaging with Third-Party Providers
  - OIMS System 8-1: Selecting and Engaging with Third-Party Providers

- Element 9: Learning from Operator Experience and Incidents
  - OIMS System 9-1: Learning from Operating Experience and Incidents
- Element 10: Preparing for Emergencies and Managing Potential Risk to the Community
  - OIMS System 10-1: Community Risk Management
  - OIMS System 10-2: Preparing for Emergencies
- Element 11: Assessing and Driving Effectiveness
  - OIMS System 11-1: Assessing and Driving Effectiveness

The following sections describe how each of these OIMS Systems is implemented to meet the requirements of this EP.

**Table 8-2 Description of Upstream OIMS Systems applicable to this EP**

| OIMS System | Document or process highlighted in EP | PDCA cycle | | | |
|---|---|---|---|---|---|
| | | Plan (P) | Do (D) | Check (C) | Act (A) |
| 1-1 Leading, Managing and Driving Performance | Organisation Structure | | X | | |
| | OIMS Management Committee | X | X | X | X |
| | Environment Plan – Key Roles and Responsibilities | | X | | |
| 2-1 Risk Assessment and Management | Risk Matrix | X | X | | |
| 3 Designing, Constructing and Preparing Assets (Facilities) for Start Up | Not Applicable | - | - | - | - |
| 4-1 Information Management | Drawings, Records and Documentation Retention | | X | | |
| 5-1 Selecting, Training, Engaging & Enabling People | Personnel Selection and Competency | | X | | |
| | Environmental Plan Awareness | | X | | |
| | Offshore Induction | | X | | |
| | Platform Induction Card 'Green Card' | | X | | |
| | Vessel Management Environmental Familiarisation | | X | | |
| 6-1 Operating and Maintenance Procedures | Procedures and Work Instructions | | X | | |
| 6-2 Facility Integrity Management System | Facilities Integrity Management System | | X | | |
| | Hydrocarbon Control Practices Measurement and Analysis for Production Manual | | X | | |

| OIMS System | Document or process highlighted in EP | PDCA cycle | | | |
|---|---|---|---|---|---|
| 6-3 Well Management | Well Integrity Management System (WIMS) | X | X | | X |
| 6-4 Work Management | The Work Management System | | X | | |
| | Safe Work Practices | | X | | |
| 6-5 Environmental and Regulatory Management | Environmental Aspects Assessment | X | X | | |
| | Environmental Business Planning | | X | X | X |
| | Chemical Discharge Assessment Process | | X | | |
| | Invasive Marine Species Risk Assessment Process | | X | | |
| | Subsea Materials Register Management Process | | X | | |
| | Waste Management Manual | | X | | |
| | Greenhouse Gas Management Plan | X | X | | |
| | Produced Formation Water Management | | X | X | X |
| | Environmental Plan Management of Change (EPMOC) Process | | | X | X |
| | Audit, Inspection and Assessments | | X | X | X |
| | Ongoing Environmental Stewardship | | X | X | X |
| | Monitoring of Emissions and Discharges | | | X | X |
| | Environment Plan Reporting | | | X | |
| 7-1 Managing Changes | Management of Change | | X | | |
| 8-1 Selecting and Engaging with Third-Party Providers | Contractor Selection and Management | X | X | | |
| | Contractor Performance Monitoring | | | X | X |
| 9-1 Learning from Operating Experience and Incidents | Management of Non-Conformance | | X | X | X |
| | External Incident Notification and Reporting | | X | | |
| 10-1 Community Risk Management | Community Risk Management | X | X | X | X |

| OIMS System | Document or process highlighted in EP | PDCA cycle | | | |
|---|---|---|---|---|---|
| 10-2 Preparing for Emergencies | Emergency Response Manual | X | X | | |
| | OPEP | X | X | X | |
| | OSMP | X | X | X | |
| | Australia Wells Tier II/III ERP | | X | | |
| | Testing of Oil Spill Response Arrangements | | X | X | |
| | Oil Spill Response Competency and Training | | X | | |
| 11-1 Assessing and Driving Effectiveness | OIMS Assessment | | | X | X |

## 8.4 OIMS System 1-1: Leading, Managing and Driving Performance

| Environment Regulations requirements |
|---|
| **Section 22 Implementation strategy for environment plan** |
| Responsibilities of employees and contractors<br>22(3)<br>*The implementation strategy must establish a clear chain of command, setting out the roles and responsibilities of employees and contractors in relation to the implementation, management and review of the environment plan, including during emergencies or potential emergencies.* |

The OIMS System 1-1 establishes leadership and management expectations to ensure consistent and effective application of the Operations Integrity Management System (OIMS). The system;

- defines required leadership behaviours
- clarifies management accountability, and
- ensures each business unit maintains systems and processes that meet Operations Integrity Objectives.

The system aligns with corporate expectations covering leadership commitment, risk-based prioritisation, safeguard health, competency, third-party oversight, human performance, and the use of indicators and assessments to evaluate performance.

Supporting processes and procedures include corporate leadership frameworks, training programs and OIMS reference standards. Responsibilities are defined for System Owners, System Leads, System Users, OIMS Steering Committees, and subject-matter experts to provide governance, drive system effectiveness, and support cross-business learning.

An annual review of system effectiveness is led by the System Lead, using feedback from system users, assessment learnings and performance indicators to identify and implement improvements.

This system also ensures that OIMS performance is assessed such that the EP is effectively resourced and maintained through performance evaluation. In accordance with OIMS System 1-1, Esso has defined the roles and responsibilities relevant to this EP.

### *8.4.1 Organisational Structure (PDCA: Do)*

This section sets out the roles and responsibilities of personnel in relation to the implementation, management and review of this EP.

Figure 8-2 presents the indicative offshore organisation structure in place throughout all activities conducted under this EP.

### *8.4.2 OIMS Management Committee (PDCA: Plan, Do, Check, Act)*

The OIMS Management Committee (OIMS MC) has overall accountability for the implementation, execution and continuous improvement of OIMS within Esso.

Key responsibilities of the OIMS MC include:

- demonstrate commitment to OIMS through active and visible participation in OIMS implementation, execution and improvement
- ensure that Annual System Reviews are conducted
- review key OI performance indicators that show the status and effectiveness of OIMS implementation and execution
- periodically review OI incidents for learning and continuous improvements to OIMS.

### *8.4.3 Environment Plan Key Roles and Responsibilities (PDCA: Do)*

Key roles and responsibilities for Esso and Contractor personnel relating to implementing, managing and reviewing this EP are described in Table 8-3.

**Table 8-3 Key roles and responsibilities**

| Role | Key OIMS Interfaces* | Responsibility |
|---|---|---|
| **Operations** | | |
| All site personnel | OIMS Systems:<br>• 6-1<br>• 6-4<br>• 6-5<br>• 7-1<br>• 9-1 | • Follow procedures and safe work practices.<br>• Comply with requirements and expectations of the Permit to Work system, including completing job competency requirements.<br>• Store equipment, chemicals and oils in designated areas to prevent spills to the environment.<br>• Dispose of waste appropriately.<br>• Notify relevant person in charge of all environmental incidents immediately.<br>• Record and report environmental hazards. |
| Asset Manager | OIMS Systems:<br>• 1-1<br>• 5-1<br>• 6-1<br>• 6-5<br>• 7-1<br>• 9-1 | • Ensure sufficient competent staff to operate the platform and pipelines under normal and emergency conditions.<br>• Ensure operations are conducted as per this EP and approval conditions.<br>• Liaise with regulatory authorities as required.<br>• Support and resource close out of corrective actions identified during environmental monitoring or audits.<br>• Verify relevant Environmental Approvals for petroleum activities exist prior to commencing an activity. |
| Offshore Field Superintendent | OIMS Systems:<br>• 1-1<br>• 5-1<br>• 6-1<br>• 6-4 | • Assist Environment and Regulatory advisors to:<br>- engage with OIMs on environmental matters<br>- communicate environmental expectations and guidance materials |

| Role | Key OIMS Interfaces* | Responsibility |
|---|---|---|
| | • 6-5<br>• 7-1<br>• 9-1 | - communicate environmental learnings.<br>• Ensure operations are conducted as per this EP and approval conditions.<br>• Stewardship and sustainability of OIMS on platforms.<br>• Encourage active employee and contractor involvement in hazard identification and risk assessment processes.<br>• Oversee change requests for the activity and submit a Management of Change (MOC) to notify the Offshore Environmental Adviser of any scope changes in a timely manner.<br>• Provide notification of potential new activity/modification of existing activity/change in stage of activity for new or increased risk to the Offshore Environmental Advisor.<br>• Verify relevant Environmental Approvals for all petroleum activities exist prior to commencing activity.<br>• Track and report compliance with performance outcomes and performance standards as per the requirements of this EP.<br>• Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately. |
| Maintenance Field Superintendent | OIMS Systems:<br>• 1-1<br>• 5-1<br>• 6-1<br>• 6-4<br>• 6-5<br>• 7-1<br>• 9-1 | • Ensure maintenance and testing activities are carried out in accordance with OIMS 6-4 requirements, with support from the Reliability and Integrity teams<br>• Ensure that a SSHE Execution Plan is in place as required.<br>• Review current operations and maintenance issues with the Asset Manager and the Offshore Field Superintendent.<br>• Oversee change requests for the activity and submit MOC to the Offshore Environmental Advisor for assessment of implications for this EP.<br>• Provide notification of potential new activity/modification of existing activity/change in stage of activity for new or increased risk to the Offshore Environmental Advisor.<br>• Ensure subsea installation activities are conducted as per this EP and approval conditions.<br>• Verify relevant Environmental Approvals for all petroleum activities exist prior to commencing activity.<br>• Track and report compliance with performance outcomes and performance standards as per the requirements of this EP.<br>• Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately. |
| Offshore Installation Managers (OIM)/Designated person in charge | OIMS Systems:<br>• 5-1<br>• 6-1<br>• 6-4<br>• 6-5<br>• 7-1 | • Encourage active employee and contractor involvement in hazard identification and risk assessment processes.<br>• Ensure platform inductions (Greencards) are completed as required.<br>• Ensure all personnel (including third-party service contractors) on platforms complete a HSE induction. |

| Role | Key OIMS Interfaces* | Responsibility |
|---|---|---|
| | • 9-1 | • Ensure personnel are competent to perform the work they have been assigned.<br>• Ensure waste is managed on platforms and that it is stored and sent to shore as per relevant Waste Management Plan.<br>• Review and approve Permits to Work.<br>• Review and approve daily operations performance data (e.g. water discharge, fuel and flare volumes).<br>• Develop, track and close out corrective actions from inspections, audits or environmental monitoring in a timely manner.<br>• Ensure operations are conducted in accordance with this EP and approval conditions.<br>• Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately.<br>• Complete verbal notifications of reportable incidents to NOPSEMA. |
| Platform Services Operator | OIMS Systems:<br>• 5-1<br>• 6-1<br>• 6-4<br>• 6-5 | • Deliver Platform Induction Card 'Green Card'.<br>• Ensure waste is transported with correct labelling.<br>• Oversee general platform housekeeping.<br>• Correspondence with helicopters and vessels from platform. |
| Supply Chain (Marine) Superintendent | OIMS Systems:<br>• 5-1<br>• 6-1<br>• 6-5<br>• 7-1 | • Responsible for sourcing and contracting vessels.<br>• Liaise with Contractor Representative – Vessel Services.<br>• Ensure Vessel Management team completes an Environmental Familiarisation. |
| Production Chemist | OIMS Systems:<br>• 6-5 | • Ensure all chemicals proposed to be discharged are communicated to the Offshore Environment Advisor, assessed and approved prior to discharge<br>• Ensure all chemicals are used in approved concentrations<br>• Provide relevant documentation and assist Offshore Environmental Advisor in assessment of chemicals proposed to be discharged |
| **Wellwork** | | |
| Well Operations Superintendent | OIMS Systems:<br>• 1-1<br>• 6-3<br>• 6-5<br>• 7-1<br>• 9-1<br>• 11-1 | • Monitor and steward close out of corrective actions identified during environmental monitoring or audits.<br>• Manage change requests for the activity and submit MOC to the Offshore Environmental Adviser for assessment of implications for this EP.<br>• Submit notification of potential new activity/modification of existing activity/change in stage of activity for new or increased risk to the Offshore Environmental Advisor.<br>• Verify relevant Environmental Approvals have been obtained prior to commencing activity. |

| Role | Key OIMS Interfaces* | Responsibility |
|---|---|---|
| Well Operations Supervisor | OIMS Systems:<br>• 1-1<br>• 5-1<br>• 6-3<br>• 6-5<br>• 7-1<br>• 9-1 | • Manage work activities in accordance with Operations, Maintenance, Wellwork and Work Management procedures.<br>• Steward wellwork and contractor management requirements on Workover/Wireline Rig and Marine Operations while servicing Esso operations.<br>• Manage change requests for the activity and submit MOC to the Offshore Environmental Adviser for assessment of implications for this EP.<br>• Submit notification of potential new activity/modification of existing activity/change in stage of activity for new or increased risk to the Offshore Environmental Advisor.<br>• Verify relevant Environmental Approvals have been obtained prior to commencing activity.<br>• Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately. |
| **Facility Surveillance** | | |
| Platform Facility Supervisor/ Engineers | OIMS Systems:<br>• 6-1<br>• 6-2<br>• 6-4<br>• 6-5<br>• 7-1 | • Close out assigned corrective actions identified during environmental monitoring or audits.<br>• Surveillance and optimisation of platform system, including monitoring of assigned safety and environmental parameters.<br>• Implement changes to the facility using the MOC process, including liaison with Environmental team as appropriate. |
| **Third-Party Services** | | |
| Vessel Contractor - HSE Representative | OIMS Systems:<br>• 5-1<br>• 6-1<br>• 6-2<br>• 6-4<br>• 6-5<br>• 7-1<br>• 8-1 | • Develop and maintain a SSHE Execution Plan which details Esso EP obligations and HSE requirements.<br>• Track and report compliance with performance outcomes and performance standards as per the requirements of this EP.<br>• Verify that contractors meet environmental-related contractual obligations.<br>• Ensure personnel are competent to perform the work they have been assigned.<br>• Ensure the vessel management system and procedures are implemented.<br>• Maintain Vessel ERP.<br>• Ensure all chemicals proposed to be discharged are communicated to, assessed and approved prior to discharge.<br>• Ensure periodic environmental compliance reviews are completed. Corrective actions from inspections must be developed, tracked and closed out in a timely manner.<br>• Monitor and steward close out of corrective actions identified during environmental monitoring or audits.<br>• Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately. |

| Role | Key OIMS Interfaces* | Responsibility |
|---|---|---|
| | | • Ensure emergency drills are conducted as per the Shipboard Marine Pollution Emergency Plan (SMPEP) schedule.<br>• Manage change requests for the activity and submit MOC to notify the Offshore Environmental Adviser of any scope changes in a timely manner.<br>• Provide notification of potential new activity/modification of existing activity/change in stage of activity for new or increased risk to the Offshore Environmental Advisor.<br>• Verify relevant Environmental Approvals for the activities exist prior to commencing activity. |
| Offshore Third-Party Service Providers - Contractor Representative – (for all contractors except for contractor providing vessel services) | OIMS Systems:<br>• 6-5<br>• 8-1 | • Develop and maintain a SSHE Execution Plan (if required) which details Esso EP obligations and HSE requirements.<br>• Track and report compliance with performance outcomes and performance standards as per the requirements of this EP.<br>• Ensure periodic environmental compliance reviews are completed. Corrective actions from inspections must be developed, tracked and closed out in a timely manner.<br>• Verify that contractors meet environmental-related contractual obligations.<br>• Ensure personnel are competent to perform the work they have been assigned.<br>• Ensure all chemicals proposed to be discharged are communicated to, assessed and approved prior to discharge.<br>• Close out corrective actions identified during environmental monitoring or audits.<br>• Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately.<br>• Ensure emergency drills are conducted as per the SMPEP schedule.<br>• Provide notification of potential new activity/modification of existing activity/change in stage of activity for new or increased risk to the Offshore Environmental Advisor.<br>• Verify relevant Environmental Approvals for all petroleum activities exist prior to commencing activity. |
| Contract Administrator (Esso) | OIMS Systems:<br>• 5-1<br>• 6-5<br>• 8-1 | • Confirm that activities are conducted in accordance with this EP, as detailed in the approved Contactor SSHE Execution Plan (or equivalent).<br>• Ensure contracted personnel are competent to perform the work they have been assigned.<br>• Track and report compliance with performance outcomes and performance standards in accordance with requirements in this EP.<br>• Ensure that a SSHE Execution Plan is in place where required.<br>• Verify that contractors meet environmental-related contractual obligations. |
| **Safety, Security, Health and Environment (SSHE)** | | |

| Role | Key OIMS Interfaces* | Responsibility |
|---|---|---|
| Offshore Risk, Environment and Regulatory Supervisor | OIMS Systems:<br>• 1-1<br>• 2-1<br>• 5-1<br>• 6-4<br>• 7-1<br>• 8-1<br>• 9-1<br>• 10-1<br>• 10-2<br>• 11-1 | • Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately.<br>• Ensure ongoing engagement with government agencies and other relevant external stakeholders.<br>• Liaise with regulatory authorities as required.<br>• Monitor and steward close out of corrective actions identified during environmental monitoring or audits.<br>• Review environmental performance at Asset Leadership team meetings.<br>• Verify relevant Environmental Approvals for petroleum activities exist prior to commencing activity. |
| Offshore Environmental Lead/Advisor | OIMS Systems:<br>• 1-1<br>• 2-1<br>• 5-1<br>• 6-4<br>• 7-1<br>• 8-1<br>• 9-1<br>• 10-1<br>• 10-2<br>• 11-1 | • Provide day-to-day environmental advice and support for EP implementation.<br>• Coordinate environmental incident reporting, investigation and regulatory notifications.<br>• Prepare, review and maintain environmental compliance documentation and regulatory submissions.<br>• Communicate EP requirements to company and contractor personnel and develop environmental induction content.<br>• Provide guidance and tools to help personnel understand and meet environmental obligations.<br>• Verify activities are conducted in accordance with the EP and relevant contractor SSHE Execution Plans.<br>• Track and report compliance with EP performance outcomes, performance standards and implementation measures.<br>• Ensure required environmental monitoring, inspections and audits are conducted and steward close-out of actions.<br>• Review proposed changes through the environmental MOC process to confirm alignment with the approved EP.<br>• Assess chemicals proposed for discharge for environmental risk and compliance with approval requirements.<br>• Liaise with regulators as needed and confirm all environmental approvals are in place before activities commence. |
| Emergency Preparedness & Response (EP&R) Advisor | OIMS Systems:<br>• 6-1<br>• 6-5<br>• 10-2 | • Ensure emergency drills are conducted as per the OPEP schedule.<br>• Maintain OPEP and Emergency Response Manual.<br>• Verify, maintain and monitor changes in oil spill capabilities (EPOs and EPSs). |
| IMT Duty Manager | OIMS Systems:<br>• 6-5<br>• 10-2 | • Establish and take control of the IMT and establish an appropriate command structure for the incident. Implement Emergency Response Activities as required and as outlined in the OPEP. |
| Offshore OIMS & Stewardship Coordinator | OIMS Systems:<br>• 6-5<br>• 9-1 | • Confirm environmental incident reporting meets internal event recording, investigation and learning requirements. |

| Role | Key OIMS Interfaces* | Responsibility |
|---|---|---|
| Stakeholder Consultation Advisor | OIMS Systems:<br>• 6-1<br>• 6-5<br>• 10-1 | • Perform ongoing liaison and notification as outlined in the EP.<br>• Prepare and implement the Stakeholder Consultation Plan Report on stakeholder consultation. |
| **Management** | | |
| SSHE Manager | OIMS Systems:<br>• 1-1<br>• 6-5<br>• 11-1 | • Hold personnel accountable for ensuring operations are conducted as per the relevant standards and commitments in this EP.<br>• Review environmental performance at Business Unit Leadership meetings. |
| Production Manager | OIMS Systems:<br>• 1-1<br>• 5-1<br>• 6-1<br>• 6-4<br>• 6-5<br>• 7-1<br>• 9-1<br>• 11-1 | • Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately.<br>• Ensure an effective organisational structure is in place, with defined roles and responsibilities to ensure the implementation of OIMS for offshore facilities and associated pipeline operations.<br>• Hold personnel accountable for ensuring operations are conducted as per the relevant standards and commitments in this EP.<br>• Verify relevant Environmental Approvals for petroleum activities exist prior to commencing activity. |
| Projects Manager | OIMS Systems:<br>• 1-1<br>• 5-1<br>• 6-1<br>• 6-4<br>• 6-5<br>• 7-1<br>• 9-1 | • Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP are reported immediately.<br>• Provide notification of potential new activity/modification of existing activity/change in stage of activity for new or increased risk to the Offshore Environmental Advisor .<br>• Verify relevant Environmental Approvals for petroleum activities exist prior to commencing activity. |

* OIMS System 4-1 Information Management is applicable to all of the above interfaces for appropriate classification, storage and retention of relevant information for accessibility and verification purposes.

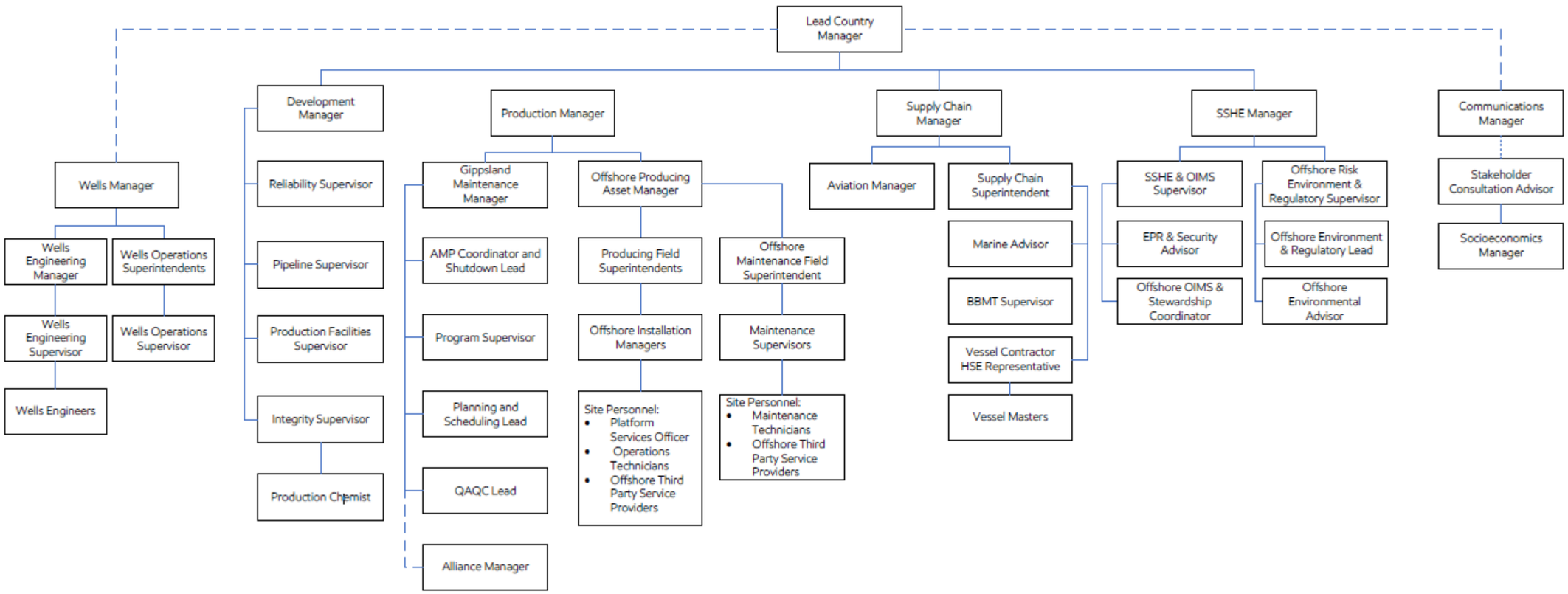



*Chart current at time of writing. Subject to change*

**Figure 8-2 Organisational chart**

## 8.5 OIMS System 2-1: Risk Assessment and Management (PDCA: Plan, Do)

OIMS System 2-1 provides the framework for identifying, assessing and managing Operations Integrity risks across all Upstream activities. The system ensures hazards to people, communities, the environment and facilities are systematically identified, assessed by qualified personnel, prioritised and mitigated to a level acceptable to the business. It defines how major hazard scenarios and associated safeguards are documented, communicated and mapped to systems responsible for maintaining safeguard health. Risk decisions, including acceptance of residual risks, are made at the appropriate organisational level and supported by structured analysis. The system aligns with corporate expectations for ongoing and change-related risk assessments, scenario and safeguard management, verification of critical safeguards and maintenance of hazard inventories. Verification activities include ensuring timely risk assessment approvals, appropriate risk screening, structured assessments for higher-consequence scenarios, periodic management review of major risks, and documentation of risk and safeguard communication. Continuous improvement is supported through annual system reviews and follow-up of actions from assessments, monitoring and verification activities.

Implementation of OIMS System 2-1 within this EP is achieved through application of the Environmental Aspects methodology described in Section 5 , which identifies, evaluates and manages environmental hazards and associated safeguards to ensure risks are reduced to ALARP. The implementation measures, performance outcomes, performance standards and associated verification criteria for these safeguards are detailed in Sections 6 and 7.

Beyond the specific Environmental Aspects assessment, ongoing risk identification and assessment processes are implemented to manage hazards to ensure mitigation to ALARP, and include the following processes:

- **Risk Screen**: initial screening conducted with participation from relevant workforce where a potential issue is identified through operations or as a result of the OIMS 7-1 MOC process (Section 0) to review whether current OIMS systems are effective to manage potential risk, including environmental. Additional actions can also be raised to mitigate potential risks. Where it is determined that current controls are effective, no further action is taken
- **Structured Risk Assessment (SRA)**: undertaken where a Risk Screen has identified that there is potential for a higher consequence Category I or II risk. This assessment is facilitated by qualified risk personnel and involves participation from relevant workforce including HSR and environmental SME and may include experts from outside the immediate unit as appropriate, with actions implemented to reduce potential risks to ALARP. Risk Assessments are updated at specific intervals as changes occur.

An MOC may be triggered as a result or a Risk Screen or SRA, where additional actions are identified to mitigate risks to ALARP (OIMS 7-1).

## 8.6 OIMS Element 3: Designing, Constructing and Preparing Assets (Facilities) for Start Up

OIMS Element 3 relates to project execution management, including the application of approved design practices and engineering standards to new facilities or significantly modified infrastructure, along with associated quality assurance and construction-phase verification activities. These processes apply when major capital projects are being planned, designed, and constructed.

This EP covers operational activities only and does not include any major projects or significant modifications to existing facilities. As a result, there is no interface with project design, construction, or commissioning activities, and the controls required under OIMS Element 3 are not triggered.

Where major projects do occur, they are delivered under separate project-specific EPs and managed through dedicated project execution systems. Only once a project is completed and formally handed back to operations

would any interface arise - and at that point, the asset would fall under the routine operational management systems covered by this EP, not the project execution framework.

Accordingly, OIMS Element 3 has limited/no operational applicability to the scope of this EP.

## 8.7 OIMS System 4-1: Information Management (PDCA: Do)

In accordance with OIMS System 4-1, Esso implements processes for the identification of integrity critical documents and drawings, as well as making provisions for these to be accessible, accurate and appropriately safeguarded.

In the context of this, system integrity critical information is the general term used to refer to both integrity critical documentation and pertinent records.

In accordance with Regulation 52 (storage of records) of the Environment Regulations, documents and records relevant to the implementation of this EP (such as environmental performance, emissions and discharges records, inspection and audit reports) are electronically stored and maintained by Esso for a minimum of five years. In accordance with Regulation 53 (making records available) of the Environment Regulations, these records will be made available to a NOPSEMA inspector in electronic or printed form upon request.

The Management of Protection of Information (MPI) guidelines detail appropriate classification, storage and retention requirements of information and establish retention periods based on document type and regulatory obligations, ensuring that records remain accessible for audits, inspections, and verification purposes.

## 8.8 OIMS System 5-1: Selecting, Training, Engaging and Enabling People

| **Environment Regulations requirements** |
|---|
| **Section 22 Implementation strategy for an EP** |
| Responsibilities of employees and contractors<br>22(4)<br>*The implementation strategy must include measures to ensure that each employee or contractor working on, or in connection with, the activity is aware of the employee's or contractor's responsibilities in relation to the environment plan, including during emergencies or potential emergencies, and has the appropriate competencies and training.* |

In accordance with OIMS System 5-1, Esso has processes in place for the selection of competent personnel and to ensure they are trained in the knowledge and skills necessary to meet the requirements of their specific positions and roles.

### *8.8.1 Personnel selection and competency (PCDA: Do)*

#### 8.8.1.1 Esso personnel

Position descriptions for key positions, which could have a significant impact on OI, include the required OI-related competencies and/or experience. This provides the basis for ensuring personnel selection and placement decisions meet specific job requirements. Personnel performing tasks with environmental aspects and impacts/risks will have the knowledge and skills necessary to perform their work in a manner consistent with the Environment Policy and the requirements of OIMS System 6-5.

The placement of personnel is subject to verification of completion of any needed training and/or experience, and demonstration of the required competencies for the performance of the job. The extent of initial, ongoing and refresher training provided is based on established requirements for OI-related training and an individual's

competency and/or experience gaps. These training requirements are documented in a training plan. The requirements may be met through training and/or developmental activities (i.e. training assignments).

Learning management systems are used for competency tracking, e-learning, training, scheduling and tracking of re-qualification requirements. Training progress is reviewed periodically by an individual's Supervisor. Any new training requirements are completed per the training plan.

In addition to the process of assuring that a person is competent in the knowledge and skills necessary to perform in a position, an assessment of the individual's performance and behaviours in that position is conducted annually. The performance assessment process includes OI aspects and behaviours such as compliance with OIMS Systems and associated procedures.

#### 8.8.1.2 Third-Party Service Providers

Third-party services contractor requirements are addressed in OIMS System 8-1 Third-Party Services. Job specific requirements are defined and communicated to contractors during the contracting process and all contractor personnel are screened, trained and suitably qualified.

Each contractor is required to maintain training files for their personnel. Esso verifies these records as part of the initial contracting process and at least annually for OIMS Critical contractors.

In accordance with OIMS System 5-1, Esso has developed training programs, specific to this EP, that are implemented for Esso personnel and contractors.

### *8.8.2 Environmental Plan Awareness (PDCA: Do)*

All personnel with roles and responsibilities (as defined in Figure 8-1) will complete environmental awareness training as relevant to their role within the EP. This training outlines EP importance, structure, implementation, roles and responsibilities, defines reportable environmental incidents and highlights the associated reporting requirements. Personnel receiving the training will be made aware of all environmental performance outcomes and standards relating to their area of work and that a breach of any outcome or standard constitutes a recordable environmental incident. This training will also cover reporting of recordable incidents.

Guidance documents exist for identifying and reporting environmental reportable incidents, identifying environmental recordable incidents and incidents involving wildlife. These documents will be reviewed, updated as required and distributed to the relevant personnel on an annual basis or if triggered earlier (e.g. following an update to this EP).

### *8.8.3 Offshore Induction (PDCA: Do)*

The Offshore Induction is compulsory for anyone accessing Esso's offshore facilities. The Offshore Induction describes basic requirements including identifying and reporting incidents to the OIM, work permits and waste management practices. Records of inductions are maintained by the Training and Procedures group.

### *8.8.4 Platform Induction Card 'Green Card' (PDCA: Do)*

The Platform Induction or 'Green Card' is provided to all personnel that have not visited a platform before or have not been to the platform in more than a year. The induction includes platform-specific information about environmental awareness, including reporting oil/chemical spills or potential spills and locating emergency spill kits. A record is kept of all completed inductions on the platform for a minimum of one year.

### *8.8.5 Vessel Management Environmental Familiarisation (PDCA: Do)*

Vessel management personnel receive Esso environmental familiarisation. The familiarisation material includes specific Environmental Plan vessel requirements and definitions of environmental incidents. The familiarisation material will ensure vessel management personnel are aware of all environmental performance outcomes and standards relating to their work and understanding of environmental reporting commitments for recordable and reportable incidents. The environmental familiarisation material will be delivered on newly contracted vessels and to new crew members when they board the vessel for the first time. The familiarisation material

will be reviewed, updated as required and distributed to the relevant personnel on an annual basis or if triggered earlier (e.g. following an update to this EP).

**Table 8-4 Overview of offshore personnel EP induction and training**

| Component | Esso office-based personnel (including engineers, contractors) | Esso facilities | | Vessels |
|---|---|---|---|---|
| | | Esso offshore personnel (field staff) | Third-party service providers (contractors) | Vessel personnel |
| EP/environmental incident definition | EP Awareness | EP Awareness | EP Awareness | Vessel management environmental familiarisation |
| WMS (risk assessments) to manage environmental risks | Offshore Induction (where relevant) | WMS Fundamentals Training<br>Offshore Induction | WMS Fundamentals Training (where relevant)<br>Offshore Induction | Contractor Management System<br>SSHE Execution Plan |
| Identification and reporting of environmental hazards and incidents | Platform Induction Card Green Card (where relevant) | Platform Induction Card Green Card | Platform Induction Card 'Green Card'<br>SSHE Execution Plan | SSHE Execution Plan<br>Vessel management environmental familiarisation |
| Overview of oil spill response procedures | Green Card (where relevant)<br>Included in Esso Offshore Induction<br>Specific training for those with a response position in an emergency | Green Card<br>Included in Esso Offshore Induction<br>Specific training for those with a response position in an emergency | Green Card<br>Included in Esso Offshore Induction<br>Specific training for those with a response position in an emergency | SSHE Execution Plan<br>Contractor Vessel Induction<br>Vessel management environmental familiarisation |
| MOC | Via use of Procedures Management Electronic Tool (PMeT) which includes MOC training | Via use of PMeT which includes MOC training | MOC for work completed by third-party service providers on Esso facilities is managed by Esso personnel. | Via implementation of contractor MOC system<br>Vessel management environmental familiarisation |

## 8.9 OIMS System 6-1: Operating and Maintenance Procedures (PDCA: Do)

System 6-1 ensures that procedures and work instructions are current and used to ensure effective outcomes of work activities. Considerations for procedures include: level of OI risk associated with the work activity and level of detail required to meet OI objectives, operating envelopes and consequence of deviation, response actions, and regulatory requirements.

Esso has a comprehensive library of operations and maintenance procedures and work aids that cover the full range of activities that are undertaken throughout the Bass Strait operation. Key procedure types are:

- platform operating procedures detail procedures for operating the platform, including start up procedures, critical function test procedures, process or platform shut down procedures, managing the flare, vent and drain system, and managing the produced water handling system
- offshore maintenance procedures cover inspection and maintenance related activities on offshore platforms, pipelines and subsea facilities and include: vessel tanks and exchangers; pumps; compressors; generators and turbines; piping and valves; instrumentation and electrical systems; fire, safety and protective equipment; as well as maintenance and calibration of the produced water online analyser (if online)

Procedures are stored and accessed via a globally mandated electronic system known as the Procedures Management Electronic Tool. This ensures that the most recent version of a procedure is readily available for use. The Procedures Management Electronic Tool is supplemented by physical back-up copies of many of the manuals listed above including procedures and other documents, for situations where the Procedures Management Electronic Tool system is unavailable.

Screening processes are used to identify when procedures are needed to mitigate a risk. Screening determines whether the instructions should be a procedure or a work aid and consider the difficulty, importance (risk) and frequency of a task. The procedure's classification establishes the approval authority, deviation authority, review period, and compliance expectations.

## 8.10 OIMS System 6-2: Facility Integrity Management System (PDCA: Do)

OIMS System 6-2 establishes the processes for maintaining the mechanical integrity and reliability of facilities, wells and critical equipment across Upstream operations. The system ensures equipment is inspected, tested and maintained in line with defined strategies, quality assurance requirements, and relevant operating and maintenance standards. It provides for the identification and management of Operations Integrity critical equipment, including the verification of set points, alarm functionality and the stewardship of critical safeguard health. The system also covers the management of equipment during long-term shutdown or abandonment.

Verification activities include maintaining an approved list of critical equipment, executing integrity programs with KPIs, reviewing exception reports, and ensuring non-conformances with potential SH&E impacts are appropriately screened and assessed. Continuous improvement is achieved through annual system reviews, assessment learnings and data-driven performance analysis.

Its implementation is supported by key procedures such as Facility Integrity Management, Work Management, Well Integrity and Root Cause Failure Analysis. The key components of FIMS are:

- a **Criticality Assessment** to develop a prioritised list of equipment based on the consequences of equipment failure
- **Equipment Strategies** are developed for specific equipment and facilities to determine the appropriate (preventative) maintenance and inspection regime to ensure its required reliability and integrity, based on its criticality. Equipment Strategies are developed in accordance with the **Equipment Strategy Development Manual** and draw upon other technical resources as required.

- **Computerised Maintenance Management System (CMMS)** is a computerised maintenance management system used to implement the facilities' integrity program based on the Equipment Strategy
- **FIMS program manuals** are a suite of manuals that describe the management system in place for ensuring the collective reliability and integrity of various similar equipment and facilities (e.g. structural equipment, pipelines, machinery, critical instrumentation, controls and alarms). The list of FIMS program manuals is attached together with a list of equipment that they typically cover and the applicability and interfaces of the FIMS programs with the EP.
- **KPIs** check and monitor the health of critical controls.

Figure 8-3 illustrates the FIMS process model and the tools that it draws upon. It shows how the various FIMS programs are structured around a Program Design, Program Execution, Program Stewardship and Improvement model and the corresponding supporting processes and tools used as part of FIMS. FIMS relies on Prevent, Detect, Respond and Recover barriers to avoid and/or mitigate significant facility integrity hazard events, such as those that could harm the environment, i.e. FIMS aims to:

- PREVENT incidents from occurring,
- DETECT threats before an event occurs, and
- RESPOND and RECOVER effectively and efficiently following an incident, limiting consequence escalation.

The workings of the various FIMS programs are detailed in a suite of FIMS manuals that describe the technical requirements and the specific Prevent, Detect, Respond and Recover tools and procedures used to implement the required integrity programs. The program applies over the complete equipment life cycle. An owner and lead are assigned to each integrity program with clear roles and responsibilities. Subject Matter Experts and resources are assigned to support and implement the program.

#### 8.10.1.1 Equipment criticality assessment

The criticality of equipment that protects the environment as described in the EP is assessed using the consequence-based equipment Criticality Assessment process. Critical equipment includes equipment meeting the following criteria defined in OIMS System 6-2 FIMS and may be categorized as Criticality Level A, B, C or D, where 'A' criticality is of most relevant in this EP:

- **A (SHES Critical) -** Equipment or systems vital for preventing or mitigating an event that could result in a SHE Consequence Level I or II impact per the Corporate Risk Matrix (Figure 5-1), or regulatory or Local Production Unit requirements apply to the equipment.

The purpose of criticality assessment is to develop a prioritised list of equipment based on the consequences of equipment failure. The prioritised list is used to identify equipment requiring:

- **Equipment Strategies** - These are then developed to detail the integrity tasks that must be implemented to ensure safe, reliable, and cost-effective operation of all critical equipment over the life of the facility
- inclusion in the FIMS, noting that there is a vast variation in the integrity program activities and in their application frequency, analysis detail and the inspection, maintenance, and testing requirements depending on the nature of the equipment and the assessed equipment criticality. These details are described in the Equipment Strategies that pertain to the FIMS programs as described herein.

The list of equipment and their assessed criticality categories is documented in the Equipment Strategy Database and the CMMS. This list of equipment is evergreen since the criticality assessment is not fixed for the operating life of the facility. Factors that may result in altered equipment failure consequences and may either increase or decrease the equipment's criticality level, include changes in operation, facility modifications, technology changes and/or operating experience. As a facility transitions to a new stage of activity (e.g. from production to CoP) equipment strategies continue to be implemented until such time that an equipment strategy is reviewed.

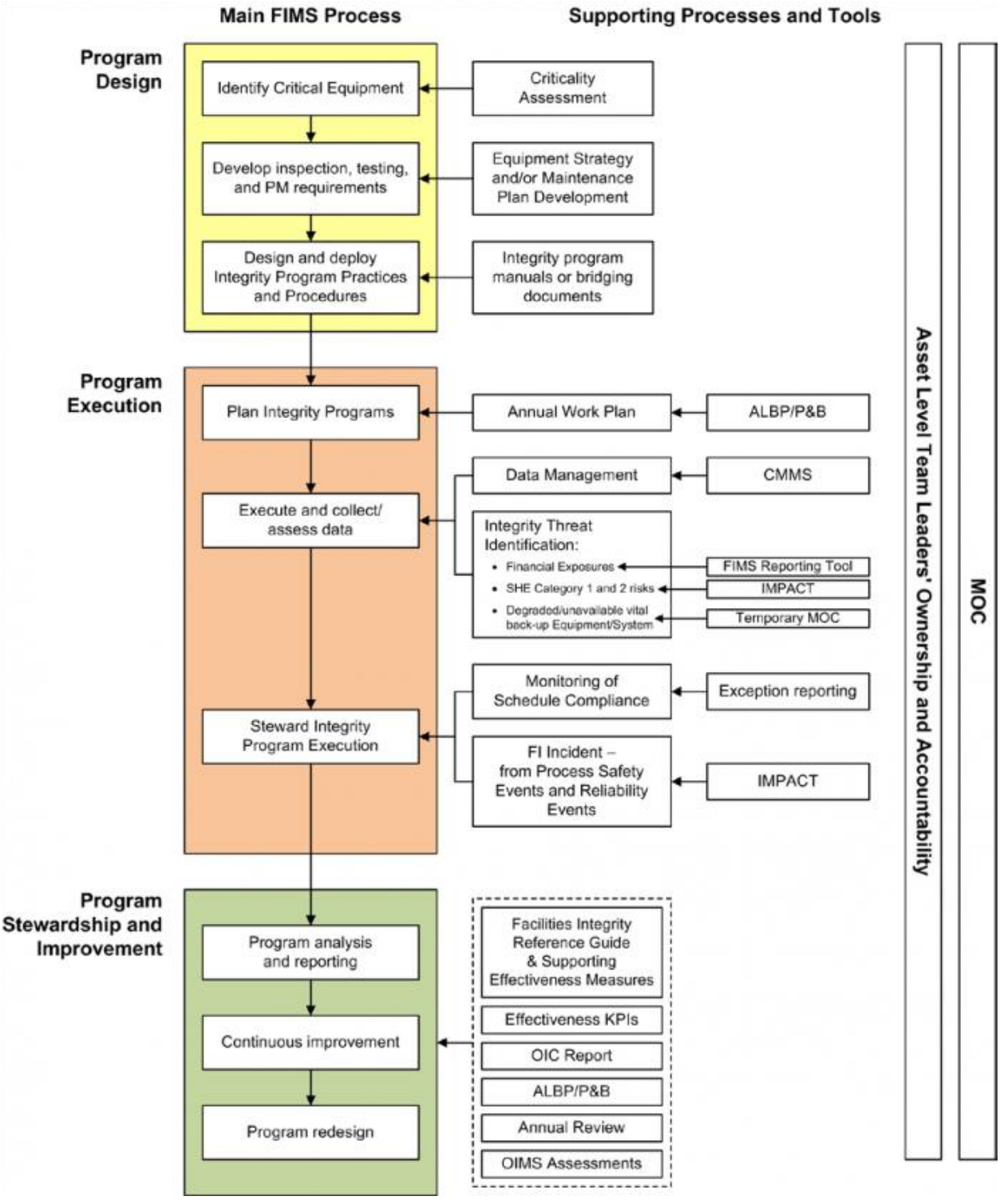



**Figure 8-3 FIMS process model and tools**

#### 8.10.1.2 Program design

Equipment Strategies identify degradation mechanisms and are developed to analyse and define the maintenance requirements for specific plant and equipment on a risk of failure basis. The process EAPL uses is described in the Equipment Strategy Development Manual (ESDM-000-001) which summarises the major program activities and defines the primary roles and responsibilities for equipment strategy implementation, stewardship, documentation, and reporting requirements.

The equipment strategy development process provides a methodology to identify credible modes of equipment degradation applicable to each equipment class, the assigning consequences and probabilities of failures for each mechanism and determining appropriate mitigation measures. It also describes a process by which to modify or customise the minimum expectations listed in other technical resources to reflect operating experience, site practices, specific equipment applications, local degradation mechanisms, and Australian local regulatory requirements.

The equipment strategy process results in a defined set of monitoring, preventive maintenance, corrosion control and inspection activities, each scheduled at frequencies appropriate to the equipment type and its criticality. Technical Reference Manuals (TRMs) provide guidance on the monitoring, inspection and maintenance practices needed to meet integrity, reliability, capacity and overall facility performance objectives. TRMs outline recommended tasks and baseline frequencies that serve as a starting point for developing an optimised integrity program aligned with equipment criticality ratings. Examples include TRM01 for Corrosion Control and Chemical Injection, TRM03 for Pipelines, TRM04 for Structural Equipment, TRM05 for Machinery, and TRM08 for Critical Instrumentation, Controls and Alarms (CICA).

The identified monitoring, corrosion control, inspection, testing and maintenance activities are grouped into Facility Integrity Management program manuals for the purpose of managing and stewarding the activities, analysing the information collected by the activities, and providing continuous improvement.

Updates to equipment strategies are based on a triggered review process. Triggers for a review can include, but are not limited to, incidents or near misses, changes in process conditions or equipment, changes in the risk of equipment failure, and changes in best practices, industry standards or local regulations.

An example list of Equipment Degradation Documents (EDD's) and EIG technical resources as inputs to the Equipment Strategy process is given in Figure 8-4 and Figure 8-5 below.

| Equipment Class | EDD # | EDD Description |
|---|---|---|
| Machinery | 307 | Fouling |
| | 308 | Impeller/Casing Wear, Erosion |
| | 404 | Compressor Internal Foaling |
| | 405 | Internal Corrosion |
| | 417 | External / Internal Gasket Material Degradation |
| | 451 | Corrosion |
| | 454 | Fouling |
| | 455 | Erosion |
| | 493 | Internal Fouling / Corrosion |
| Pressure Equipment (Materials, Heat Exchangers, Fired Heaters & Fixed Equipment) | 1A | Corrosion Under Insulation |
| | 1B | Atmospheric Corrosion |
| | 1C | Corrosion Under Fireproofing |
| | 2 | Wet H2S Cracking/Hydrogen Cracking |
| | 4A | Process Piping Deadlegs |
| | 4B | Small Diameter Connections |

| Equipment Class | EDD # | EDD Description |
|---|---|---|
| Civil, Environmental & Utilities | 105 | Atmospheric Corrosion of Steel Structures |
| | 106 | Reinforcement Corrosion in Concrete Structures |
| | 175 | Wastewater Corrosion |
| Pipelines | 2001 | Underground External Stress Corrosion Cracking |
| | 2002 | External Seawater Corrosion |
| | 2020 | Underground Corrosion of Onshore Pipelines |
| | 2021 | Unidentified Internal Corrosion of Low Water Cut Stabilized Liquid Pipelines |

**Figure 8-4 Example list of Equipment Degradation Documents (EDD) used to create Equipment Strategies**

| Corrosion Control | EIG # | EIG Description |
|---|---|---|
| Cathodic Protection | 01-200-01 | Impressed Current Hardware Monitoring |
| | 01-210-01 | Insulation Flanges/Joints & Cathodic Protection Monitoring |
| | 01-220-01 | Test Station Potential Monitoring |
| | 01-230-01 | Cathodic Protection (CP) Pipeline Continuous Surveys |
| | 01-260-01 | Drop Cell Potential Surveys |
| | 01-270-01 | Diver- or ROV-Conducted Potential Survey |
| Chemical Treatment | 01-300-01 | Chemical Program Management Team |
| | 01-310-01 | Corrosion Inhibition |
| | 01-320-01 | Biocide Treatment |
| | 01-330-01 | Scale Inhibition |
| | 01-340-01 | Oxygen Scavenger Treatment |
| | 01-350-01 | Hydrotest and Mothballing Water Treatment |
| | 01-360-01 | Chemical Injection Equipment Surveillance |
| Painting & Coating | 01-400-01 | Painting Inspection |
| | 01-410-01 | Inspection of Internal Coatings (Pressure Vessels, Piping and Tanks) |
| | 01-420-01 | External Pipeline Coatings |
| Metallurgy | 01-500-01 | Chloride Stress Corrosion Cracking (SCC) of Austenitic & Duplex Stainless Steels |
| | 01-510-01 | Hydrogen Sulphide SCC |
| | 01-520-01 | Hydrogen Induced Cracking (HIC) |
| | 01-530-01 | Brittle Fracture Review |
| | 01-540-01 | Positive Materials Identification (PMI) |

| Corrosion Control | EIG # | EIG Description |
|---|---|---|
| Inspections | 01-600-01 | Corrosion Under Insulation (CUI) and Fireproofing |
| | 01-610-01 | Riser Inspections |
| | 01-620-01 | Ground Entry / Air-Ground Interface (AGI) Inspections |
| | 01-630-01 | Visual (Level I) Inspections |
| | 01-640-01 | Platform / Structure API RP 2A Level I Inspections |
| | 01-650-01 | Platform / Structure API RP 2A Level II to IV Inspections |
| | 01-660-01 | Pressure Vessel & Heat Exchanger Inspection |
| | 01-670-01 | Piping Inspections |
| Corrosion Control & Chemical Injection | 01-010-01 | Corrosion Management Program |
| | 01-020-01 | Internal Corrosion Monitoring Program |
| | 01-030-01 | Fluid Monitoring |
| | 01-040-01 | Corrosion Coupons |
| | 01-050-01 | Corrosion Probes |
| | 01-060-01 | Oxygen Concentration Monitoring |
| | 01-070-01 | Corrosion Spools |
| | 01-090-01 | Ultrasonic & Radiographic Methods |
| | 01-100-01 | Dewpoint Monitoring |
| | 01-110-01 | Bacteria Monitoring |
| | 01-120-01 | Pigging Return Analysis |
| | 01-130-01 | Sand / Erosion Monitoring |

**Figure 8-5 Examples of specific technical resources used to create Equipment Strategies relevant to Corrosion and Control Chemical Injection**

#### 8.10.1.3 Program execution

Maintenance and inspection programs tasks and requirements, such as those defined in Equipment Strategies are contained within CMMS. Planners, Supervisors and Technicians use CMMS and other tools to generate work requests and work orders, plan and schedule work, order parts and materials, write technical reports and record failure mode and other useful data.

CMMS is applicable to all forms of maintenance activities including regulatory, safety, repair, programmed, condition monitoring, inspection, corrective action, root-cause failure analysis, and improvements. Various types of maintenance are coded, such as:

- PM01 is ad hoc maintenance (repairs)
- PM02 is preventative maintenance
- PM03 is associated with facility modifications/projects (CAPEX)
- PM04 is facility modifications associated with operations.

Data and reports are constantly drawn from CMMS and used to identify system improvement opportunities and the maintenance and reliability of critical equipment.

Maintenance and inspection program tasks are undertaken in accordance with the Maintenance System Manual which describes the requirements and procedures for implementation of all planned maintenance work and for the treatment of new work which has been identified. Reporting of maintenance work is done by the person who completed the work and this includes information such as, as found and as left condition of the equipment, test and inspection results, updating of documentation and also has a process for notification of any additional work or corrective actions identified as a result of the maintenance or inspection task. The results may also be used to determine whether a review of the integrity program (which may result in a change to the condition monitoring or inspection program and schedule) is appropriate.

New work notifications are categorised and recorded through CMMS Work Notifications and have a defined process for assessment and implementation. The notification categories include Break-in (Corrective Work that is urgent enough to break into the weekly work schedule) and Emergency work (Corrective Work that needs attention within 24 hours because of significant SSHE or business need, breakdown or shutdown) to address urgency and criticality of the new task.

A Risk Based Work Selection process is used to assess work notifications. Operations, maintenance and technical (where required) personnel (OMT Forum) screen the notifications and use the risk-based selection tools (Work Selection Matrix, Work Selection Worksheet and interpretive guidance document) to validate and approve new work notifications including the timeframe in which the task is required to be performed. The Work Selection Worksheet assesses the unmitigated and mitigated safety, health, environmental, economic and business disruption risk (each is assessed separately) based on the proposed task. Any corrective tasks consider the prevention, detection and response/recovery opportunities used per the initial development of the maintenance or inspection activity.

Service deliverable dates are pre-defined and utilise the Risk Based Work Selection process to guide the latest acceptable completion date for repairs for critical equipment, leveraging the OMT process to determine timeframes for repair. Pile equipment (level instrumentation and pumps) as described in Section 2.5.4. are assigned service deliverable dates where repairs are required.

Equipment that is found to be inoperable, faulty or out of service is managed in the field through the WMS (OIMS System 6-4, refer to Section 8.12) and includes controlled processes such as isolation systems (locking and tagging), temporary defeat and shutdown, which must be approved and recorded in the electronic Permit to Work system. The Permit to Work process is designed to identify and safely manage all work that occurs on facilities including on or around effected equipment.

#### 8.10.1.4 Program Stewardship and Improvement

*EXCEPTION REPORTING*

FIMS compliance on SHE critical equipment (Criticality Level A) is monitored through the Exception Reporting process to ensure activities are carried out on time and in accordance with the approved plans. Latest acceptable completion dates are recorded, monitored and reported against. Results from the activities/tasks are reviewed and appropriate action taken, if tasks are not completed within specified time frames.

The SHE critical equipment exceptions (overdue by >30 days) report is reviewed, endorsed and approved monthly:

- review of the reason for the delays and plans for completion
- review of the risk of continued operation until plans for completion
- endorsement of the exception by the Offshore Risk, Environment and Regulatory Supervisor (for environment critical equipment items)
- approval by the Operation and Maintenance Superintendents
- approval by the Maintenance and Asset and Manager for black risk and items overdue >90 days.

**Table 8-5 FIMS program details relevant to the EP**

| No | FIMS program | Equipment typically included | Manual description | EP applicability/interfaces |
|---|---|---|---|---|
| 01 | Corrosion Control and Chemical Injection | Cathodic protection, corrosion probes, corrosion coupons, and laboratory equipment as applicable. | Corrosion Integrity Program Manual (AUGO-PO-XXX)<br><br>Monitors, reports and controls corrosion (internal and external). It covers sampling, corrosion monitoring, corrosion control (including cathodic protection), and chemical management. | Corrosion control and chemical injection is important to contain fluids and gases, and maintain integrity of supporting structures, thereby preventing a release to the environment and a potential pipeline rupture or LOWC.<br><br>The equipment scope of the CIPM spans the equipment classes covered by the:<br><br>• *Pressure Equipment Integrity Program Manual* (AUGO-PO-PRE-001)<br>• *Pipeline Integrity Program Manual* (AUGO-PO-PIP-001)<br>• *Structural Integrity Program Manual* (AUGO-PO-SIM-001)<br>• *Subsea Integrity Program Manual* (AUGO-PO-SIP-001)<br>• *Well Integrity Manual* (AUGO-PO-WIM-001)<br><br>These manuals detail the required interfaces with the corrosion program activities for equipment within their scopes and may refer to the CIPM for reference and further guidance. |
| 02 | Pressure Equipment | Pressurized facilities that typically consist of tanks, vessels, fired equipment, | *Pressure Equipment Integrity Program Manual* (AUGO-PO-PRE-001) | Pressure equipment integrity is important to contain fluids and gases, and to prevent a pipeline rupture or |

| No | FIMS program | Equipment typically included | Manual description | EP applicability/interfaces |
|---|---|---|---|---|
| | | exhaust stacks, flares (tips and towers), coolers, heat exchangers, filters, accumulators, piping, valves (all valves except subsea valves, shutdown valves, blowdown valves, emergency isolation valves, and business critical control valves), pulsation dampers and pressure relief devices (which includes tank pressure and vacuum relief valves, rupture disks, rupture pin devices, and associated flame and spark arrestors); instrument air systems, deaeration systems, chemical injection skids, piping and vessels on machinery skids, onshore inert gas generator systems (for example, nitrogen. This program has significant ties to Program 01. | Details pressurised equipment and facilities and covers the inspection programs for this equipment to maintain their design integrity and continued safe use.<br>The inspection program for each equipment item, as defined in the Equipment Strategy, monitors the rate of corrosion by comparing wall thickness data at the same inspection points over time, and uses this to predict future corrosion rates. Corrosion rates are used to determine when the next inspection should occur, and to predict the point at which a component will no longer be fit for service. | LOWC from occurring that could damage the environment. |
| 03 | Pipelines | Onshore and offshore pipelines, risers, flowlines, gathering lines, injection lines, subsea isolation valves, and launchers and receivers. | PIPM<br>Defines strategies, programs and execution, roles and responsibilities, results management, performance monitoring and feedback mechanisms and regulatory interfaces. | Pipeline integrity is important to contain fluids and gases within the pipeline and to prevent a pipeline rupture from occurring that could damage the environment. |
| 05 | Machinery | Pumps, compressors, gas turbines and engines, steam turbines, fans and blowers, | *Machinery Integrity Program Manual* (AUGO-PO-MAC-001) | Machinery integrity is important to contain fluids and gases within the machinery, preventing a LOC from |

| No | FIMS program | Equipment typically included | Manual description | EP applicability/interfaces |
|---|---|---|---|---|
| | | electric motors (mechanical), gear boxes, and all auxiliary equipment associated with the preceding machinery (except piping and vessels); anti-surge controls, air inlet systems and exhaust collectors (ducting and supports are part of the Structural Integrity Program). Package auxiliary systems where the primary function is to support operation of the machinery. The functional intent of that system is within scope, however individual components within those systems may be covered by other programs. This may include the following:<br>• pump and compressor suction strainers<br>• pulsation bottles, bladder accumulators for machinery<br>• pump and compressor critical piping spring support hangers and dampeners<br>• machinery foundations, support, and grouting<br>• machinery vents, flame traps, liquid knock out (KO) pots (e.g. seal pots)<br>• flex hoses, flex exhaust joints, expansion joints. | Establishes and documents the surveillance, inspection and overhaul practices for EAPL machinery, and describes the fundamental philosophies and assumptions used. It also summarises the major program activities and defines the primary roles and responsibilities for program implementation, stewardship, documentation, and reporting requirements.<br>The management of machinery integrity uses Equipment Strategies to provide an analysis of equipment degradation mechanisms, defining preventative tasks and appropriate intervals. Equipment strategies derive a combination of input sources including recommendations from the manufacturer, network experience and site experience to consider a risk-based approach to managing maintenance. While some modes of failure are time based and can be detected and prevented, many machinery failures are more random in nature where mitigation of failure is the most effective strategy. | occurring that could damage the environment.<br>Machinery that is covered by the *Machinery Integrity Program Manual* (AUGO-PO-MAC-001) that is important to environmental protection and minimizing environmental harm includes main oil line, pumps, pile pumps, gas compressors, etc. |

| No | FIMS program | Equipment typically included | Manual description | EP applicability/interfaces |
|---|---|---|---|---|
| 06 | Subsea Equipment | Subsea wellheads, christmas trees, jumpers, umbilicals and distribution, manifolds, subsea and topsides control systems, riser tension monitoring system, and multiphase pumps. | *Subsea Equipment Integrity Manual* (AUGO-PO-SIP-001)<br><br>Defines requirements for integrity management of subsea equipment in the areas of risk-based inspection, operations and maintenance, roles and responsibilities and verification and measurement to monitors KPIs and system performance. | Subsea equipment integrity is important in preventing leaks of fluids and gases into the sea environment. |
| 08 | Critical Instrumentation, Controls, and Alarms | Critical alarms and shutdown initiators, safety instrumented system (protective system) controls, business critical process control systems (except anti-surge controls), final control elements, including shutdown valves, blowdown valves, emergency isolation valves, and business critical control valves, fixed fire and gas detection devices and systems, manual fire alarms and call stations, fire and gas executive action final control elements including deluge valves, fire pump starting signals, carbon dioxide trip solenoids, safety critical paging, alarm tone generation, and alarm beacons. | *Critical Function Test Management System* (CFT-001 to 005)<br><br>Sets out the strategies, programs, execution, roles and responsibilities, results management, performance monitoring, feedback mechanisms and regulatory interfaces for effective management of the defined critical instrumentation, controls and alarms.<br><br>The intent of the integrity management scheme is to repair or replace these devices before they reach the end of their useful life. A device that fails to function at all during a test (due to a random failure) is either repaired or replaced. Test failures are analysed to determine if any adjustments to testing intervals are needed. | The integrity of critical instrumentation, controls and alarms is important in preventing a LOC of fluids of gases to the environment and monitoring and controlling emissions, in particular:<br>• Emergency Shut Down Systems<br>• Blowdown Systems.<br><br>Various critical process monitoring instrumented loops (e.g. high pile level, high fuel gas pressure, OIW monitors, monitors (e.g. pile level). |
| 10 | Cranes and Lifting Gear | Cranes, hoists, winches, tuggers, personnel lifts, elevators, and all associated lifting gear (for example, slings, | *Crane Operation Maintenance and Inspection Manual – Offshore* (COMI -OFFS-0 to 8)<br><br>Defines crane maintenance philosophy, maintenance and inspection programs and activities, safety device testing | The COMI is important in preventing dropped objects from lifted loads, which if dropped may result in equipment damage with a potential for |

| No | FIMS program | Equipment typically included | Manual description | EP applicability/interfaces |
|---|---|---|---|---|
| | | wire rope, shackles and hooks, and other items). | programs, safety systems, reporting forms, maintenance and operating procedures. It identifies the various personnel and groups within EAPL who have an ongoing involvement in crane operation, inspection, maintenance and training activities, and defines their responsibilities. The manual also specifies all necessary reporting procedures, periodic inspections and draws attention to relevant statutory requirements.<br><br>The Lifting Equipment Manual provides guidelines for the use, storage, maintenance, inspection, testing and purchase of lifting equipment, rigging equipment and lifted equipment used on EAPL sites.<br><br>These manuals also define roles and responsibilities, change management and verification of system performance. | a LOC of fluids and gases with damage to the environment from pipeline rupture. |

#### 8.10.1.5 Facility Integrity Management System Management of Change

*MANAGEMENT OF CHANGE – EQUIPMENT STRATEGIES*

Revisions or changes to equipment strategies occur through a formal process and are initiated through the Triggered Equipment Strategy Review Request Form. Examples of triggers include:

- change in a process condition or
- change or deviation in performing a mitigation task
- near miss or incident where the level of maintenance is a root cause or a contributing factor
- it is proposed to change the scope or frequency of a preventative maintenance task
- circumstances change in such a way as to significantly alter the risk of equipment failure.

The nature of the critical equipment and the type of change request will determine the level of review and approval necessary before the change can be made. This may include a full workshop risk review. The reviews take into consideration the purpose of the criticality classification (threat to people (safety and health), property, the environment, security or business impact) and whether the proposed change will impact these or on the regulatory requirements, applicable industry codes, and recommended practices.

Deviations to the Equipment Strategy program must be endorsed by the Program Supervisor and approved by respective Site Operations and Maintenance Superintendents and must still meet the initial objectives and considerations of the strategy with regard to the criticality classification.

*MANAGEMENT OF CHANGE – COMPUTERISED MAINTENANCE MANAGEMENT SYSTEM*

Change requests can also be triggered through a CMMS which has an electronic workflow of approval steps to allow changes. These are based on the type of change requested (8 types of change are considered including equipment type, maintenance frequency, parameters etc.). Each type of change must follow the requirements of the CMMS Change Request approval matrix which defines the level of endorsement and approved needed from the CMMS Lead through to the FIMS Program Supervisor approval with Maintenance Superintendent endorsement. If the change involves a change to an equipment strategy, CMMS rejects the request (requiring the requester to use the Triggered Equipment Strategy Review Request Form, as above).

### *8.10.2 Hydrocarbon Control Practices Measurement and Analysis for Production Manual and the Controls Integrity Management System (PDCA: Do)*

HCP-MAP sits under the Controls Integrity Management System (CIMS). The HCP-MAP underpins the EP in relation to the accurate measurement of emissions, such as Green House Gases (GHG) and flared gas and ensuring the reliability and integrity of such measurement equipment.

#### 8.10.2.1 Controls Integrity Management System

CIMS provides a structured, common process for all Esso/the Company's functional and service organizations to conduct its business in a controlled manner. The System of Management Control provides the key attributes of an effective control system designed to meet regulatory requirements and corporate expectations. These high-level, broad-based expectations for business controls form the basis for all other standards, practices, and processes including lower-level management and control systems, such as CIMS and OIMS. The System of Management Controls principles and standards are developed to set the stage for more specific business and operational controls and procedures through systems like CIMS and OIMS. These systems include risk evaluation, establishing cost effective fit-for-risk controls, monitoring and ensuring compliance, and prioritizing resolution of control weaknesses.

CIMS consists of five elements, the main principles of which are given in the CIMS diagram shown below.

#### 8.10.2.2 Hydrocarbon Control Practices Measurement and Analysis for Production Manual

The HCP-MAP is managed by CIMS processes and applies to all measurements for custody transfer or monthly inventory of petroleum-based raw materials and intermediate/finished products, certain utilities, defined bulk purchased process chemicals at all Esso's/the Company operating business entities, GHG and Carbon Trading, Streams associated with Low Carbon Solution operations ($H_2$, $CO_2$) and flare gas. It does

not apply to environmental waste streams. The manual requirements are applicable to Esso/the Company controlled movements and measurements. It is set out along the lines of the five CIMS principles, i.e.:

1. Management, Leadership, Commitment and Accountability
2. Risk Assessment
3. Business Process Management and Improvement
4. Personnel and Training
5. Management of Change.

Section 3 sets out the requirements for items such as:

- Equipment calibration (3.01) - Nominated equipment used for directly determining the quantity of relevant material transferred is identified and maintenance strategies appropriate to the exposure and likelihood of loss are developed and maintained to the determined accuracy tolerances and frequencies. When a measurement device is proved or calibrated it is set to be as near to the true value as practical. If a device is found to be within tolerance at the time of verification, no adjustment is required. Calibration intervals are set to maintain an assurance that the equipment will be at the required accuracy at the time it is used.
- Verification measurement (3.04) - An exposure assessment or other risk-based analysis determines the need for a verification system.
- Flare gas measurement (3.18) - Flare gas volumes may be measured or estimated depending on regulatory requirements. The basis for the estimated amount is documented and periodically reviewed.
- GHG reporting (3.19) - The tolerances and calibration intervals for equipment used for GHG reporting comply with any regulatory requirements and includes temperature and pressure compensation. For all meters that are used for GHG reporting the parameters that the computer system uses to calculate flow are checked initially and when conditions may have changed.

In this way, the HCP-MAP assures the integrity and reliability of equipment that measures certain EP parameters important for regulatory compliance and environmental protection.

## 8.11 OIMS System 6-3: Well Management (PDCA: Plan, Do, Act)

In accordance with OIMS System 6-3, Esso has processes in place to document, understand, and effectively execute wellwork programs. Well integrity processes are in place to effectively address OI for all well types and well status.

The Well Management System (OIMS System 6-3) provides the structure for wellwork planning and operations as well as ongoing well integrity activities. The Well Integrity Manual provides guidelines to comply with OIMS System 6-3, Well Management, and country specific regulations. The Manual describes policy, management principles, performance standards, assurance processes, procedures and practices that exist to ensure well integrity and to minimise the risk of unplanned or uncontrolled release of wellbore fluids. Monitoring and maintenance of well integrity is completed on a regular basis and includes:

- annulus pressure monitoring and bleed down test
- subsurface safety valve testing
- wellhead and tree testing and maintenance
- regulatory required tests
- downhole corrosion control.

The WIMS, which is described in the Well Integrity Manual, is used to ensure that well integrity tasks are scheduled for completion and the results are documented. A risk-based approach is used to determine well monitoring, testing and maintenance requirements and frequencies.

When determining these requirements consideration is given to:

- well type and status
- production method

- mechanical condition
- critical equipment installed
- environmental sensitivity
- well stream composition
- wellhead pressure
- regulatory requirements.

Monitoring and testing acceptance criteria are also established and routine testing or surveillance activities may identify potential issues that require further analysis.

Risk assessment processes are used during wellwork planning and execution to identify procedures needed to prevent or mitigate risk and to categorise the criticality of the well activity procedure. The Wells Standards provide a process for assessing the overall risk of wellwork operations.

Active and shut in wells equipment maintenance, well integrity and annulus integrity are conducted at the following frequency:

- SSSV testing: three to six months depending on type of valve
- annulus pressure monitoring: 6 – 12 months depending on type of well
- wellhead and tree testing: six monthly.

Wells that have been suspended, temporarily abandoned or abandoned (until removed from the WOMP as per Offshore Petroleum and Greenhouse Gas Storage Regulations (Resource Management and Administration) 2011 (Cth), Section 5.17) undergo 6 - 12 monthly pressure and fluid checks on the tubing, PA and SA (depending on the type of well) to ensure that the wells are standing full of inhibited sea water and that the down hole isolations maintain integrity.

Additional requirements for subsea wells include aerial inspection of subsea wells and ROV visual subsea inspection of the subsea facilities, every three or six years (depending on the risk characterisation of the well or subsea facility). This is considered to be an appropriate methodology for the following reasons:

- this monitoring/surveillance method allows the wellhead to be inspected for oil seepage, gas bubbles, for signs of extensive corrosion, damage or excessive debris and confirmation of well status (debris cap position). The debris cap protects the wellhead sealing surfaces. This cap is not removed during ROV inspections as this would increase the risk of damage to the wellhead
- this methodology is consistent with practices adopted worldwide with regard to monitoring of exploration wells
- the methodology and frequency of these inspections is consistent with the accepted Bass Strait WOMP.

Any changes to the frequencies or the testing criteria are subject to MOC approval.

All well integrity testing is done in accordance with the platform operating procedures which outline specific steps to ensure the accuracy of tests while minimising the risk of spills or incidents. Testing results are reported to Wells Engineers for review. If any issues are identified during WIMS testing, appropriate mitigations are considered which may include shutting in the well until appropriate maintenance activities can be completed.

The schedule of well integrity tasks is reviewed each month and an exception report prepared for Operations Management detailing all wells for which any tasks are past due. These exception reports require the appropriate level of management approval, as defined in OIMS System 6-3, Well Management, depending on the nature and duration of the exception.

Overdue tests greater than three months require a justification and action plan. Wells with known integrity issues are identified and actions are put in place to manage safety and environmental risks. This could include actions ranging from minor wireline workovers through to abandonment of wells where repair is not reasonably practicable.

## 8.12 OIMS System 6-4: Work Management

OIMS 6-4 establishes the processes for safely planning, authorising and executing operations and maintenance activities across Upstream assets. The system ensures permitted and non-permitted work is managed according to its Operations Integrity risk, including verification of safeguards for higher-risk work, control of temporary defeats, and clear communication and authorisation processes. It also governs management of key interfaces—such as shift handover, simultaneous operations, stacked work and coordination with third parties—to prevent incidents arising from misunderstandings or incomplete information. Implementation is supported by established work management, operator care and wells procedures. Verification activities include ensuring appropriate use of work permits, effective SIMOPS management, approval of temporary defeats, robust shift handover processes and oversight of organisational and third-party interfaces.

The OIMS 6-4 Work Management System has two parts: the Work Management System and Safe Work Practices (SWPs).

### *8.12.1 The Work Management System (PDCA: Do)*

The WMS describes the different types of permits and the process for work planning, authorisation, execution and re-instatement. The WMS provides a framework for identifying hazards, planning work, actively managing the risks associated with the work and confirming that interfaces with the work activity are considered appropriately. This ensures that the activities are undertaken in a structured and controlled manner to reduce the risk of incidents.

The WMS defines controls and restrictions required when simultaneous activities are planned. In particular, simultaneous operations include helicopter procedures and communication as they relate to platform operations and vessel authorisation to enter the 500m PSZ.

The WMS also includes the electronic Permit to Work system which requires proposed work to be planned and reviewed by the team before starting work. It includes the use of tools to identify and mitigate possible safety and environmental risks. Permits must be reviewed and approved by the person in charge before work can commence, and must be closed out once work is complete. Permits are archived electronically for a minimum period of three years.

#### 8.12.1.1 Temporary defeats

Temporary defeats are an integral part of Permit to Work. They control the removal and reinstatement of functionality of critical protective devices. Section 4.3 of the WMS details the process for temporarily defeating critical devices, so that required work can be performed while maintaining acceptable levels of safety. When planning the temporary defeat of a critical device or system, considerations are given which include aspects such as equipment or systems that will be unprotected, evaluation of alternative controls, method by which the critical device will be defeated, and level of approval required.

Pile equipment is an example of critical devices as defined in Appendix A, Section 4.3 of the WMS. If pile equipment is out of service, a temporary defeat is applied.

### *8.12.2 Safe Work Practices (PDCA: Do)*

The WMS also includes SWPs which describe additional requirements for a range of specific work activities and hazards. SWPs can be referenced when preparing permits to ensure site specific risks and requirements are addressed. As an example, SWP 50.109 details a standard to be applied to any work involving the exposure of personnel to NORM within process equipment that has been in contact with formation fluids.

## 8.13 OIMS System 6-5: Environmental and Regulatory Management

| Environment regulations requirements |
| --- |
| **Section 22 Implementation strategy for environment plan** |
| Monitoring and reporting<br>22(5)<br>*The implementation strategy must provide for sufficient monitoring, recording, audit, management of non-conformance and review of the titleholder's environmental performance and the implementation strategy to ensure that the environmental performance outcomes and environmental performance standards in the environment plan are being met.* |

OIMS 6-5 establishes the framework for identifying, communicating and complying with all applicable environmental laws, regulations and permits. The system ensures environmental aspects and risks associated with activities, products and services are identified, assessed and controlled in line with corporate policy and regulatory obligations, with compliance periodically verified. Implementation is supported by environmental performance indicator guidance, environmental aspects assessment processes and regulatory compliance procedures. Verification activities include tracking regulatory assessments, monitoring environmental performance, ensuring identified aspects are addressed in management plans, and maintaining processes to steward new or revised regulatory requirements. Continuous improvement is driven through annual system reviews and follow-up on actions from assessments and compliance activities.

The requirements of Regulation 22(5) are primarily achieved through the implementation of OIMS System 6-5 (Environmental and Regulatory Management), with the exception of non-conformance management, which is addressed under OIMS System 9-1. OIMS System 6-5 defines the corporate expectations for environmental management, including socioeconomic and community health considerations, and requires the development of Environmental Management Plans that identify, assess and control all environmental aspects, impacts and risks associated with Esso's activities. This EP satisfies that requirement by documenting the impacts and risks of the activities described and the controls, EPOs, EPSs and implementation measures used to manage them.

OIMS System 6-5 also establishes mechanisms for identifying new or amended regulatory or environmental requirements relevant to this EP. These include engagement with government agencies, participation in regulatory and industry forums, monitoring of government and industry publications, and subscription to specialist regulatory update services. When new or changed requirements are identified, they are assessed for applicability and potential impact on Esso's operations and environmental risk profile. Such changes may include updates to legislation, revisions to protected matters, amendments to external approvals, new scientific or stakeholder information, or learnings from incidents and emergency response activities.

Changes to legislation or regulatory obligations are initially screened and, where necessary, referred to subject-matter experts for detailed assessment. A tracking register of emerging or amended requirements is maintained. Relevant changes to protected matters are periodically reviewed and incorporated into environmental risk assessments, control measures, EPOs, EPSs and the EP's implementation strategy where required. All identified changes are evaluated and managed in accordance with OIMS System 7-1.

### *8.13.1 Environmental Aspects Assessment (PDCA: Plan, Do)*

The Environmental Aspects Assessment (EAA) process provides a systematic method for identifying, assessing and managing the environmental and socioeconomic aspects and risks associated with Esso's activities. Consistent with the Environmental Aspects Guide (EAG), *Protect Tomorrow. Today.*, and ISO 14001 principles, the process supports the corporation's commitment to superior environmental performance, continuous improvement, and responsible operation of projects and facilities.

The EAA process forms an integral part of the broader risk management system and OIMS expectations, particularly those relating to leadership commitment (OIMS 1-1), environmental risk identification and mitigation (OIMS 2-1), community impacts management (OIMS 10-1), and integration of Environmental Business Planning (EBP) into routine operations (OIMS 6-5). The process screens environmental and socioeconomic aspects in a consistent and comprehensive manner to determine significance, and the resulting outputs are used to inform business planning and ensure appropriate controls are embedded.

A detailed description of the applied methodology is included in Section 5.

### *8.13.2 Environmental Business Planning (PDCA: Do, Check, Act)*

Environmental Business Planning addresses environmental priorities and is accomplished as an integral part of overall business planning and stewardship activities to achieve long term improvement in environmental management. The environmental planning process requires assets to:

- identify environmental planning focus areas and objectives as appropriate
- develop strategies to address such environmental planning focus areas and achieve objectives, and then to
- set metrics and goals to measure progress.

A key deliverable from Environmental Business Planning is a common understanding of environmental priorities and objectives throughout the business.

Environmental Business Planning is integrated into annual business planning. As depicted in Figure 8-6 strategies should include plans to address higher–significance aspects identified in the site Environmental Aspects Assessment per the Environmental Aspects Guide, respond to focus items communicated by the Business Line, and incorporate corporate sustainability goals and ambitions, such as for flaring and methane reduction.

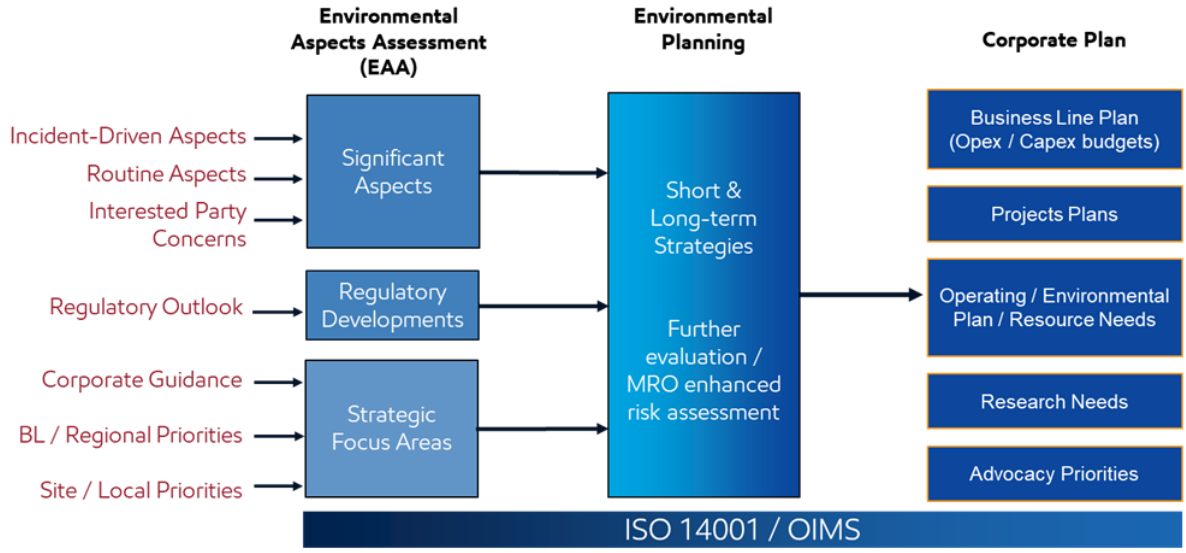



**Figure 8-6 Environmental Business Planning integration into the annual business planning process**

Business Lines are expected to develop and implement Environmental Business Planning processes appropriate to their specific situations. Elements to address are included in Figure 8-7.

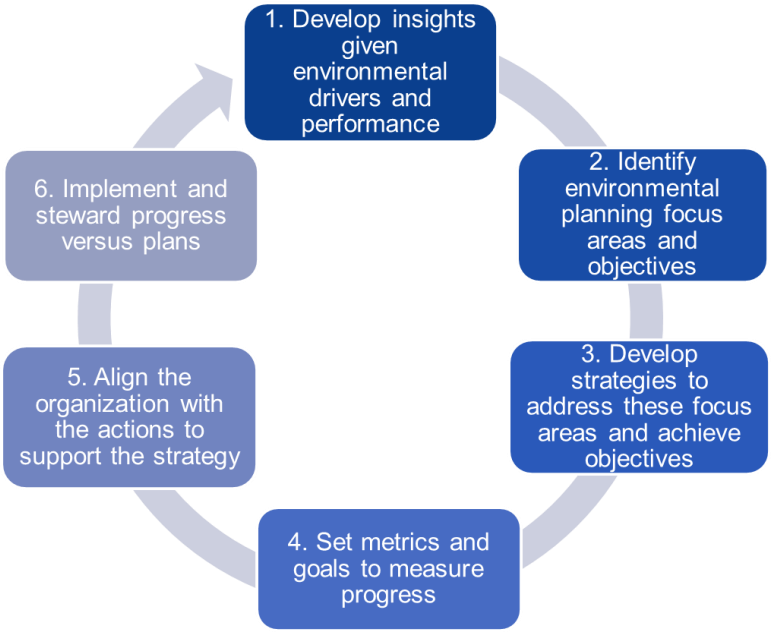



**Figure 8-7 The Environmental Planning process cycle**

Esso undertakes the Environmental Business Planning process annually. Some improvements require capital projects. Others will be achieved through operating or maintenance improvements. Many will require integration and prioritization in the business plan to get the necessary resources allocated.

### *8.13.3 Chemical Discharge Assessment Process (PCDA: Do)*

Esso assesses all chemicals that are likely to be discharged during the activities described in this EP. The chemical discharge assessment process is triggered by the MOC process. The introduction of a new chemical to Esso's facilities requires assessment for environmental and safety suitability in accordance with the *Workplace Substances Manual* (AUGO-PO-WSM-MOHLINK).

Chemicals that have the potential to be discharged into the marine environment must be screened per the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) to identify if the chemical is considered to be environmentally hazardous in the marine environment. The objective of this process is to promote the selection of chemicals with the highest biodegradability, and the lowest possible toxicity and bioaccumulation potential for use in operational activities and to reduce the potential environmental impact of a discharge or unplanned release to ALARP and acceptable levels. Esso maintains preference for chemicals with low toxicity that meet the technical needs of the chemical application without compromising the safety of personnel.

The procedure is designed in compliance with Australian and international standards that include:

- Industrial Chemicals Environmental Management Standard
- Australian Environmental Criterial for Persistence, Bioaccumulative and/or Toxic Chemicals
- OCNS
- OSPAR Convention (formally known as the Convention for the Protection of the Marine Environment of the North-East Atlantic)
- Centre for Environment, Fisheries and Aquaculture Science (CEFAS)
- Minamata Convention on Mercury.

In the absence of Australian standards regarding the suitability of well operations fluid chemical additives, the OCNS is generally used as a basis for selecting environmentally acceptable chemicals in the Australian offshore petroleum industry. The OCNS manages chemical use and discharge by the UK and Netherlands offshore petroleum industries. The scheme is regulated in the UK by the Department of Energy and Climate Change using scientific and environmental advice from the UK's CEFAS and Marine Scotland.

The OCNS uses the Harmonised Mandatory Control Scheme developed through the OSPAR Convention. This ranks chemical products according to Hazard Quotient, calculated using the CHARM model (CHARM Implementation Network, 2017). The CHARM model requires the biodegradation, bioaccumulation and toxicity data of the product to be provided.

Under the OSPAR Convention, organic-based compounds used in production, completion and workovers, drilling and cementing are subject to the CHARM model. The CHARM model calculates the ratio of the 'Predicted Effect Concentration' against the 'No Effect Concentration' expressed as a Hazard Quotient, which is then used to rank the product. The Hazard Quotient is converted to a colour banding to denote its environmental hazard, which is then published on the *Definitive ranked lists of registered products* (OCNS, 2022). Gold has the lowest hazard, followed by silver, white, blue, orange and purple (having the highest hazard).

Products not amenable to assessment under the CHARM model (i.e. inorganic substances, synthetic based muds, hydraulic fluids or chemicals used only in pipelines) are assigned an OCNS grouping A – E, with 'A' having the greatest potential environmental hazard and 'E' having the least. Products that only contain substances that poses little or no risk to the environment are given the OCNS 'E' grouping. Data used for the assessment includes toxicity, biodegradation and bioaccumulation. This is known as the non-CHARM model.

Chemicals that are hazardous to the marine environment are subject to substitution warnings under the Harmonised Mandatory Control Scheme. The UK follows and applies the OSPAR harmonised pre-screening scheme and complies with the recommendation of Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals, to replace chemical substances identified as candidates for substitution. These substances are flagged with a substitution warning on the product template and CEFAS encourages operators to select products without a substitution warning.

Only chemicals ranked under the OCNS rating system as 'gold' or 'silver' (CHARM) and 'E' or 'D' (non-CHARM) with no substitution warning will be approved for discharge without further assessment.

If a chemical is not on the OCNS list, has a substitution warning (or equivalent) or has limited ecotoxicity data available, then further assessment is required to determine if the chemical is suitable for discharge to the marine environment. This assessment can include:

- an examination of legislative requirements and thresholds
- details of the technical requirement for this product and review of any possible alternative chemicals
- assessment of impacts to the receiving environment from discharge in the relevant scenario
- consideration of additional restrictions or controls to the approval e.g. timeframes for use, periodic reassessment
- determination of any by-products that could be generated as a result of how the product is used (i.e. through thermal or chemical decomposition) and what impact these by-products would have on the environment
- seeking guidance from toxicity experts
- whole effluent toxicity testing the chemical in the discharge to determine if the environmental impact is beyond the mixing zone, and/or
- completing chemical dispersion modelling in the local environment.

### *8.13.4 Invasive Marine Species Risk Assessment Process (PDCA: Do)*

The *IMS Risk Assessment Procedure* (AUGO-EV-PCE-014) was developed to complement Australian IMS prevention efforts in the context of Esso's operations offshore in Bass Strait. The assessment is undertaken prior to the mobilisation of a vessel to an Esso OA (as defined under the EP for the activity). This assessment incorporates key considerations from other established risk assessment processes.

### *8.13.5 Subsea Materials Register Management Process (PDCA: Plan, Do)*

The *Subsea Materials Register Management Process* (AUGO-SS-PCE-001) describes the purpose, management and use of the SMR, to provide a single source of information for all property brought onto title on the seafloor within the OA.

Sources of information captured on the SMR include:

- dropped objects (from a vessel or platform) that are unable to be immediately recovered
- debris identified during subsea campaigns
- equipment or infrastructure in association with project campaigns that requires temporary storage on the sea floor.

The Subsea Materials Register Management Process also defines roles, responsibilities, data sources, minimum data requirements, to ensure that the SMR is maintained effectively, such that it can utilised to support long term planning of decommissioning activities, including progressive debris recovery.

The SMR is updated as items are recovered or are newly identified as part of works execution activities.

The *Object Overboard Procedure* (AUGO-EV-EMM-023) administered under OIMS 6-1 includes guidance for actions required by platform and vessel-based personnel in the event of an object being dropped overboard (dropped object).

### *8.13.6 Waste Management Manual (PDCA: Do)*

Waste management activities will align with established procedures, incorporating the principles of the waste hierarchy. This includes proper classification and segregation of waste streams, secure storage, compliance with transport requirements, accurate record-keeping (such as inventories and tracking), engagement of licensed contractors and approved facilities, and implementation of auditing processes.

All wastes generated in association with operations will be managed in accordance with the WMM (AUGO-EV-EDS-002).

### *8.13.7 Greenhouse Gas Management Plan (PDCA: Plan, Do)*

The GHG Management Plan (AUGO-EV-EDS-003) outlines the systems and processes used to monitor, manage and reduce GHG emissions from Esso's operations. Emission-reduction opportunities are identified through engineering assessments, operational insights, audits, performance-data analysis, technology reviews and industry benchmarking, and are evaluated via two pathways: tactical operational measures and more complex or capital-intensive initiatives, using feasibility screening, regulatory alignment and economic tools such as Marginal Abatement Cost Curves. Governance is provided by the Gippsland Emissions Reduction Leadership (GERL) Team, which conducts periodic reviews to assess opportunities, track progress against GHG KPIs, update the multi-year abatement roadmap and ensure alignment with corporate expectations, including the ambition for net-zero operated-asset emissions by 2050 and initiatives such as Zero Routine Flaring and the Methane Guiding Principles. Endorsed initiatives are integrated into the Business Plan and managed through existing project-management systems, with post-implementation validation undertaken to confirm realised abatement through operational data and NGER-reported emissions trends.

### *8.13.8 Produced Formation Water Management (PDCA: Check, Act)*

#### 8.13.8.1 Produced formation water Adaptive Monitoring and Management Framework

In the event that produced water is discharged overboard from MLB, the Adaptive Monitoring and Management Framework will be implemented to monitor and manage ongoing discharge of PFW and involves routine monitoring/ modelling, analysis, and implementation of management measures or additional (non-routine) monitoring/ modelling as required.

Figure 8-8 to Figure 8-10 provides a summary of the Adaptive Monitoring and Management Framework. The framework consists of routine monitoring and/or modelling, consisting of:

- annual detailed composition sampling
- annual microtox testing

- three yearly WET testing

In-sea and other types of non-routine monitoring or modelling may be triggered if relevant trigger factors indicate that the ability to maintain the designated mixing zone could have, or may be, compromised; increased frequency routine, or non-routine monitoring/modelling can be triggered by a relevant trigger in this adaptive management process.

Note that composition sampling, microtox testing and/or WET testing or other non-routine monitoring/modelling could be triggered through other changes, such as changes to chemical additives (this section), legislation (for example changes in ANZECC/ARMCANZ guidance) or changes to process conditions (e.g. via MOC).

Non-routine monitoring/modelling may involve:

- non-routine WET testing
- dispersion modelling
- sediment sampling
- water sampling
- biological sampling
- composition analysis
- mictrotox testing.

A description of each monitoring/modelling component of the framework, along with associated trigger points, is provided in the following sections.

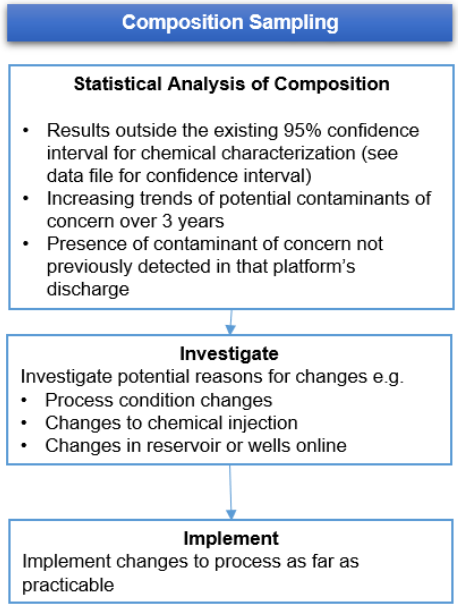



**Figure 8-8 Line of evidence 1 – Statistical analysis of composition**

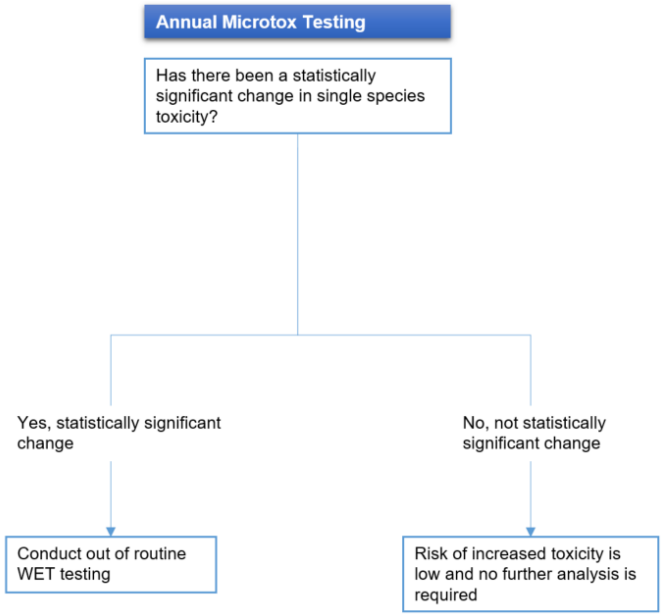



**Figure 8-9 Line of evidence 2 – Microtox testing**

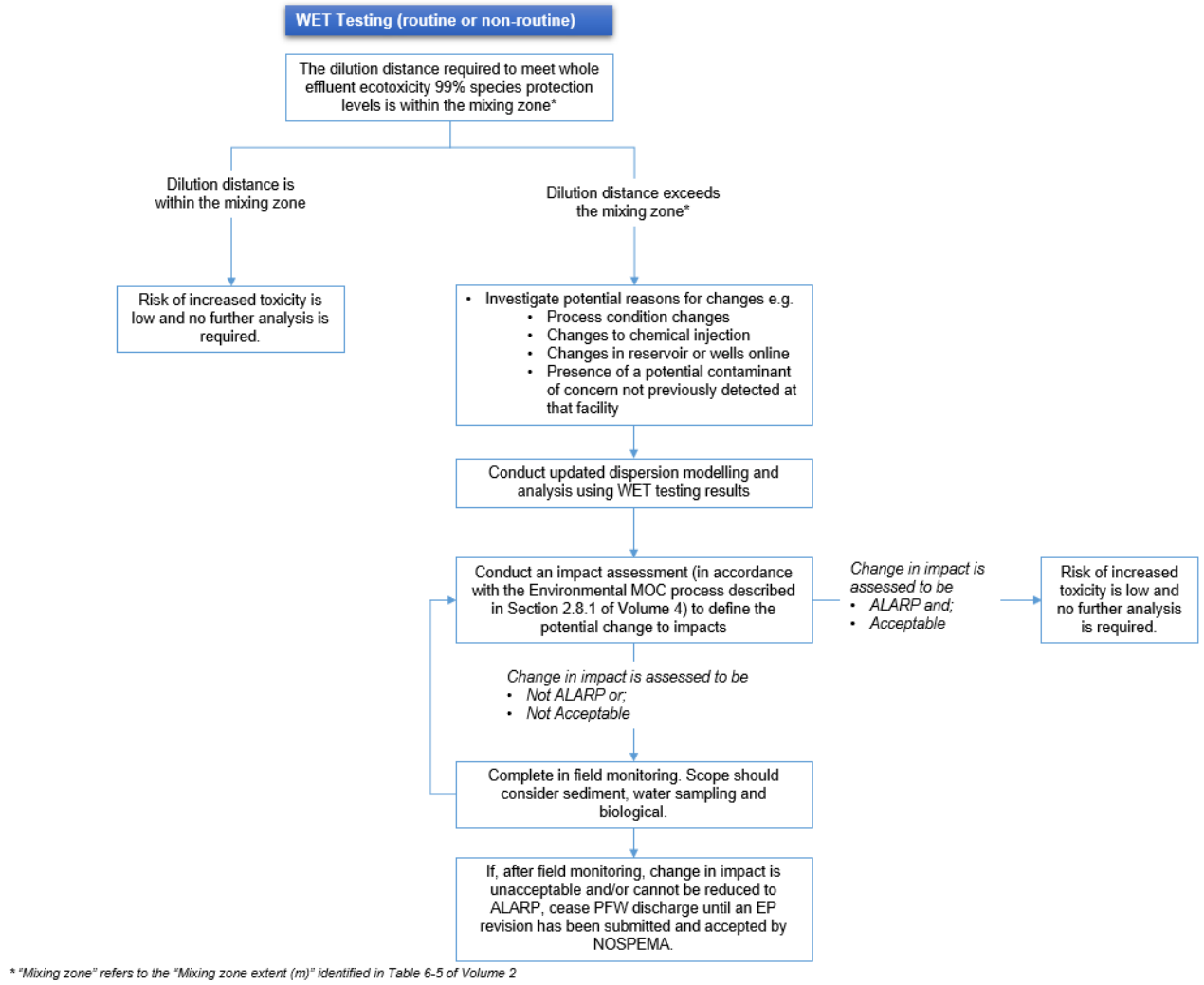



**Figure 8-10 Line of evidence 3 – WET testing**

#### 8.13.8.2 Detailed compositional samples

Samples will be collected in order to understand the MLB PFW composition and to identify changes in composition that may require management actions. Annual sampling is targeted to be completed in third quarter each year. A recurring work order directs operators to complete annual sampling before the end of the calendar year for the MLB platform that is discharging produced water to the marine environment. Samples are sent to a third-party laboratory for compositional analysis using a comprehensive suite of tests. An Environmental Advisor analyses the composition results for changes and trends and compares the results to relevant guideline criteria.

#### 8.13.8.3 Statistical analysis of composition

A statistical analysis of the compositional data is conducted to capture any changes that may not be detected through changes to dilution distances or microtox testing. The following will act as triggers for further investigation when analysing the results for changes and trends:

- results that fall outside of the existing 95% confidence interval (see Volume 2 Appendix F – PFW Data File for confidence intervals)
- increasing trends of potential contaminant of concern over three years
- presence of a contaminant of concern not previously detected in that platform's discharge.

If any of the above triggers are met, investigation will be undertaken to identify possible reasons for the change. The investigation will consider:

- process condition changes
- changes to chemical injection
- changes in reservoir or well mix.

Changes to the process will be considered as a means for reducing or preventing further increase in contaminant levels as far as practicable.

Historically under this EP, dilution distances for analytes were based on compositional sampling, however, mixing zones are now determined through WET testing.

#### 8.13.8.4 Microtox testing

Microtox testing is a single species toxicity test which will be collected at the same time as the annual chemical characterisation and, when applicable, at the same time as WET testing sampling. The single species toxicity test to be undertaken is the Acute Microtox test which measures the decreased light output (luminescence) of the marine bacterium *Viberio fischeri* after exposure to PFW. The toxicity is expressed as the concentration of the PFW sample that causes a 50% reduction in the light output of the bacteria (EC50). These samples will be statistically compared over time to determine if there is a statistically significant change in single species toxicity. It must be noted that there are limitations to these statistical tests until enough sample points have been taken.

If the change in toxicity is not statistically significant, the risk of increased toxicity is low, and no further actions are required on the basis of microtox testing.

If the toxicity of the single species toxicity test has shown a statistically significantly increase, then the trigger has been exceeded and non-routine whole effluent toxicity (WET) testing will be undertaken.

#### 8.13.8.5 Whole effluent toxicity testing

Routine WET testing is also performed every three years. WET testing quantitatively takes into account the bioavailability and interactions of known and unknown substances.

In WET testing, toxicity tests (bioassays) determine the potential toxicity of the sample. Such tests allow for interactions between toxicants and take into account toxicants which cannot readily be measured or are not known to be present in the sample. The toxicity of the sample to temperate marine organisms is determined using chronic bioassays with species that cover a range of trophic levels.

Multiple (8+) tests are used in the full suite of WET testing. This number ensures that a range of species and endpoints can be measured with sufficient toxicity data available to establish a species sensitivity distribution curve with 50% confidence. From the species sensitivity distribution, the predicted no-effect concentration will be extrapolated; a valuable estimate to compare the toxicity of different samples to a range of biota.

Test species are selected based on their known sensitivity to contaminants, availability of species with standardised test protocols, and known reproducibility as surrogate test species for assessing contaminants in marine environments. Temperate species are selected in preference to tropical species, where possible, for the toxicity assessment. Toxicity tests with temperate species are carried out at their respective standardised temperatures and fall within the range of 18-20˚C.

Toxicity data generated from these toxicity tests will be utilised to determine a 95% and 99% species protection level equivalent per the guidance given in ANZECC (2000).

Species sensitivity distribution can also be plotted to derive the concentration that protects (i.e. not harms) 95% and 99% of species with 50% confidence (the predicted no-effect concentration). Species protection values derived from plus or minus eight chronic toxicity values are defined as having a high reliability provided there is an acceptable fit of the data in the species sensitivity distribution. Toxicity data from at least eight toxicity tests is required to ensure that a Burr Type III curve fit is utilised to extrapolate species protection values however eight data points does not necessarily guarantee a good curve fit from which the species protection values are derived. The species protection values (PC95 and PC99) will be derived using the methods described in the Revised Method for Deriving Australian and New Zealand Water Quality Guideline Values for Toxicants (Warne et al., 2014).

The results of both routine and non-routine WET testing will be used to determine the dilution distance required to meet 99% species protection. This distance will be compared to the mixing zone distance.

If the dilution distance based on the WET test results is within the mixing zone, the risk of toxicity is low, and no further analysis is required.

If the dilution distance based on the WET test results is greater than the mixing zone in the first instance, investigation into potential reasons for the change will occur. This will involve investigation into:

- process condition changes
- changes to chemical injection
- changes in reservoir or well mix
- presence of a potential contaminant of concern which has not previously been detected at that facility.

Following investigation, updated dispersion modelling will be conducted. Based on the updated dispersion modelling, an impact assessment will be conducted to determine whether the potential change in impact is ALARP and acceptable in accordance with the Environment Regulations. This impact assessment will be facilitated by the Environmental MOC process described in Section 8.13.9. If the change in impact is assessed to be ALARP and acceptable, the risk of increased toxicity is considered to be low, and no further analysis is required.

If the impact assessment determines that the impact is either not ALARP or not acceptable, in-field monitoring will be triggered. The scope of in-field monitoring will consider sediment sampling, water sampling and biological sampling. Monitoring programs will be designed in consultation with relevant guidance (e.g. *Australian and New Zealand guidelines for fresh and marine water quality* (ANZECC, 2000)) to ensure the program will be appropriate for demonstrating that the environmental performance outcomes have been met (per CM68).

Following in-field monitoring, if the change in impact is unacceptable or cannot be reduced to ALARP, PFW discharge from that facility must cease until an EP revision has been submitted and accepted by NOPSEMA.

### *8.13.9 Environment Plan Management of Change (EPMOC) Process (PDCA: Check, Act)*

An established Environment Plan Management of Change (EPMOC) process is in place to identify and assess any change that may require a revision of this EP. The process applies to all proposed or emerging changes that could alter the environmental impacts or risks of the activity, or affect how these are managed. Changes assessed under the EPMOC process include:

- new activities, assets, equipment, processes or procedures that could impact the environment and have not been previously assessed or authorised under existing plans or procedures.
- modifications to existing activities, assets or equipment (including changes of operational status) that may alter environmental impacts, risks or interactions with environmental receptors
- changes to the receiving environment, including shifts in fisheries, tourism, commercial or recreational uses, or updates to protected species, protected matters or conservation requirements
- revisions to external approvals, such as updated licence conditions or new regulatory obligations

- new or updated information that could affect the EP—such as research findings, stakeholder input, legal updates, or emerging scientific data
- findings from audits, inspections, assessments, incident investigations or emergency response activities that indicate updated controls or reassessment is required

The EPMOC process is aligned with NOPSEMA Guideline A515816 – When to submit a proposed revision of an EP, ensuring changes are screened consistently with regulatory expectations. When a potential change is identified—through the OIMS 7-1 MOC process, OIMS 2-1 risk screening, or operational observation—the Offshore Environmental Advisor conducts an assessment in accordance with Regulation 39 of the Environment Regulations.

A proposed revision of the EP is required where the change:

- constitutes a new stage or significant modification; or
- introduces a significant new environmental impact or risk; or
- significantly increases an existing environmental impact or risk.

In completing the assessment, the EPMOC process also considers:

- Regulation 38 – Activity contrary to the EP (new activity)
- Regulation 39(1) – Significant modification or new stage of the activity
- Regulation 39(2) – Significant new or increased environmental impact or risk
- Regulation 39(3) – Change in titleholder
- Regulation 22(2) – Have the impacts and risks been reduced to as low as reasonably practicable
- OPGGS Act, Section 572 – Maintenance and removal or property by titleholder
- Regulation 22(8) – Maintenance of oil spill response arrangements.

Where the assessment determines that a change does not trigger Regulation 39, the EP may be updated administratively, and the amendment recorded in the EP Change Register. Where the assessment concludes that the activity is not provided for in the existing EP, a proposed EP revision or new EP will be submitted to NOPSEMA.

All EPMOC assessments are undertaken by an Offshore Environmental Advisor, with technical input as required, and are approved in accordance with the documented process. Records of all assessments and decisions are maintained on file.

### *8.13.10 Audit, Inspection and Assessments (PDCA: Check, Act)*

Esso undertakes a structured program of audits, inspections, assessments and monthly verification activities to confirm ongoing implementation of this EP, ensure controls remain effective, and support continuous improvement.

A summary of the required audits, inspections and assessments, including their frequency and responsible roles, is provided in Table 8-6. Collectively, these activities ensure robust ongoing verification that environmental performance outcomes and standards are being met, controls remain effective, and the environmental impacts and risks of activities continue to be managed to ALARP and acceptable levels.

**Table 8-6 Audits and inspections**

| Audit / Inspection / Assessment | Frequency | Purpose | Responsibility |
|---|---|---|---|
| **EP Pre-mobilisation Vessel Inspection** | Prior to initial mobilisation | Verify vessel readiness and confirm Marine Quality Assurance, IMS Risk Assessment and EP compliance procedures are in place | Offshore Environment Advisor |
| **EP Compliance Vessel Audit/Inspection** | Annually for contracts > 1 year | Confirm ongoing compliance of vessel | Offshore Environment Advisor |

| Audit / Inspection / Assessment | Frequency | Purpose | Responsibility |
|---|---|---|---|
| | | operations with EP requirements | |
| **Monthly Vessel EP Compliance Checklist** | Monthly | Routine verification of vessel controls and EP compliance | Vessel Master / HSE Representative |
| **Monthly EP Control Verification Review** | Monthly | Monitor ongoing compliance with EPOs and EPSs; identify breaches, trends and emerging issues | Offshore Environment Advisor |
| **Annual EP Compliance Audit (onsite + desktop)** | Annual (minimum) | Verify activities comply with EPOs/EPSs and controls remain effective in reducing impacts and risks to ALARP | Offshore Environment Advisor / Independent Auditor |
| **Periodic Internal Environmental Audits** | Periodic, risk-based | Assess higher-risk activities, key focus areas or specific EPOs/EPSs | Offshore Environment Advisor / appointed auditor |

#### 8.13.10.1 Environment Plan Compliance Audits

An annual EP compliance audit is conducted as a minimum, incorporating both desktop review and offshore site verification, with each facility covered by the EP audited at least once during the life of the plan. Additional internal environmental audits are carried out on a risk basis, focusing on higher-consequence risk categories, key focus areas or specific EPOs and EPSs. These audits follow the Esso Internal Audit Protocol, which applies a risk-based methodology informed by activity type, potential environmental impacts, past performance and incident trends.

The Offshore Environmental Advisor plans and coordinates audits and may act as auditor where independent from the work area; otherwise, an independent auditor is appointed. The audit program verifies compliance with EPOs and EPSs, confirms that controls remain effective in reducing impacts and risks to ALARP, and may also assess training and competency, risk management practices and environmental management system performance. Non-compliances or improvement opportunities are communicated immediately, documented in an audit report, tracked to closure, and summarised in the annual environmental performance report to NOPSEMA.

In addition to audits, Esso conducts a monthly EP control verification review in accordance with the Monthly Compliance Template. The Environment Advisor reviews environmental performance each month—using a risk-based approach to determine the frequency at which individual EPOs and EPSs are assessed—to confirm that EP requirements continue to be met. The review is documented, and any breaches of EPOs or EPSs are recorded and reported to NOPSEMA through the monthly recordable incident report. Monthly verification provides regular comparison of trends in environmental compliance and may inform audit focus areas. The completed review is issued to the Offshore Asset Managers each month.

#### 8.13.10.2 Vessel Inspections & Audits

For vessel operations, several layers of inspection and verification apply. A pre-mobilisation inspection is conducted prior to the initial mobilisation of every vessel to confirm readiness and compliance with EP requirements, including Marine Quality Assurance checks, IMS risk assessment and verification of the vessel operator's environmental procedures. For vessels under contract for more than one year, an annual audit is completed. A monthly EP compliance checklist is also completed by the vessel and submitted to the Environmental Advisor. Any breaches of vessel controls are recorded in the incident records system, included in monthly NOPSEMA reporting, and discussed with contractor management.

Marine Quality Assurance requirements also apply. Vessel capability and safety management systems are assessed using recognised industry standards, including the Offshore Vessel Safety Management System Assessment and

the Offshore Vessel Inspection Questionnaire (OVIQ). These assessments are tailored to the vessel and intended operations and completed by an OCIMF-accredited inspector, with results uploaded to the OCIMF database. Additional inspections such as Condition and Suitability Surveys or assessments against IMCA guidelines may be undertaken where relevant. In circumstances where an OVIQ or equivalent assessment cannot reasonably be obtained (for example, short-term vessel hire), an alternative inspection method may be approved.

### *8.13.11Ongoing Environmental Stewardship (PDCA: Do, Check, Act)*

Environmental stewardship is maintained through a structured set of routines, meetings and oversight processes that collectively ensure environmental performance is monitored, emerging risks are identified, and continuous improvement is embedded across operations.

Together, these ongoing stewardship processes provide comprehensive oversight—from field-level daily checks through to quarterly strategic review—ensuring that environmental performance is continuously monitored, issues are escalated appropriately, and the commitments of this EP are sustained throughout the life of the activity.

#### 8.13.11.1 Business Unit Leadership

Business Unit Leadership meetings —attended by the Production Manager, SSHE Manager, Production Projects Manager and others—provide oversight of overall upstream business performance and include periodic review of key environmental KPIs. While these meetings do not examine compliance against every EPO and EPS, they provide senior visibility of environmental performance trends and issues requiring business-level attention.

#### 8.13.11.2 Operations Integrity Management System Management Committee

Quarterly OIMS Management Committee reviews (attended by Production Management, SSHE leadership, Maintenance and Integrity leaders, Asset Managers and OIMS coordinators) provide formal governance oversight of the OIMS framework. These reviews may consider regulatory submissions, enforcement notices and changes in regulatory focus areas. The Committee also conducts an annual review of OIMS System 6-5 (Environmental Management), focusing on system-level KPIs such as spill trends, compliance incidents and opportunities for improvement. These reviews assess the health of the environmental management system rather than detailed performance against individual EP requirements.

#### 8.13.11.3 Asset Manager Environmental Performance Review

Environmental performance is also reviewed quarterly through the Asset Managers Environment Meeting involving Offshore Environmental Advisors, Offshore Asset Managers and Field Superintendents. The monthly EP compliance review feeds into these meetings, which serve as the formal escalation point for breaches of EPOs or EPSs, deterioration in control effectiveness or emerging trends requiring strategic intervention. These quarterly reviews provide strategic oversight, direct resources for corrective actions, identify systemic issues and confirm continuous improvement priorities. Insights from both monthly and quarterly reviews are used to refine audit focus areas.

#### 8.13.11.4 Platform surveillance and optimisation

Engineers and technical specialists provide continuous operational oversight through platform surveillance and optimisation activities. This includes monitoring reservoir and production performance, facility efficiency, flaring rates and other operational parameters. They also implement facility improvements and ensure operations remain within design limits. A structured monthly technical monitoring program supports this work by analysing trends in equipment and process stability—including pile levels, fuel and flare performance, and (where relevant) produced-formation-water handling and oil-in-water trends. Deviations trigger investigation and corrective action. Monitoring parameters may be adjusted as operational systems change.

#### 8.13.11.5 Red Box

The Red Box Team—including OIMs and Field Superintendents—meets fortnightly to discuss operational performance across the platforms, including fuel gas usage and flaring. These meetings provide a regular forum to confirm that day-to-day operational performance aligns with EP expectations. Any variances or emerging issues generate follow-up actions, with key points captured to maintain visibility of commitments and support continuous improvement. A snapshot of key points and agreed actions is recorded for each meeting.

#### 8.13.11.6 Incident reviews

Weekly Offshore Incident Review meetings—attended by Asset Managers, Field Superintendents, the Offshore Safety Coordinator and OIMS Coordinator—examine all incidents and near misses from the prior week, including those relating to this EP. These reviews confirm environmental team involvement where required and check whether any reporting or investigation triggers have been met.

#### 8.13.11.7 Toolbox

Daily toolbox meetings ensure shift-level awareness of safety and environmental risks. Teams discuss planned work, required permits and job safety requirements, and review incident records from the previous day, including environmental incidents. This ensures personnel understand relevant environmental risks and controls before commencing work.

### *8.13.12 Monitoring of Emissions and Discharges (PDCA: Check, Act)*

| **Environment regulations requirements** |
|---|
| **Section 22 Implementation strategy for an EP** |
| Monitoring and reporting<br>22(6)<br>*The implementation strategy must provide for sufficient monitoring of, and maintaining a quantitative record of, emissions and discharges (whether occurring during normal operations or otherwise), such that the record can be used to assess whether the environmental performance outcomes and environmental performance standards in the environment plan are being met.* |

The purpose of emissions and discharges monitoring is to assess compliance with EP requirements and to reduce environmental impacts and risks to ALARP. Monitoring data may also inform identification of improvement opportunities as part of continuous improvement over the life of an activity. Table 8-7 summarises the monitoring requirements of emissions and discharges for routine operations activities.

**Table 8-7 Summary of monitoring of emissions and discharges**

| **Activity aspect** | **Platform operations**<br>**Subsea facilities operation**<br>**Pipeline operations**<br>**Facility IMR**<br>**Pipeline and subsea IMR** | **Wellwork** | **Vessel operations**<br>**ROV operations** |
|---|---|---|---|
| **Planned discharges** | | | |
| Emissions to air | Platform fuel, flare, and GHG emissions volumes recorded and reported (including wellwork emissions) – daily, by exception.<br>Monthly technical monitoring for fuel and flare to identify anomalies – monthly.<br>Diesel usage reported and recorded. | | Recorded by vessel operator. |
| Planned discharge – Domestics wastes and drainage (cooling water, deck drainage and bilge, sewage and | Discharges in accordance with MARPOL. | N/A | Discharges in accordance with MARPOL. Recorded by vessel operator. |

| Activity aspect | Platform operations<br>Subsea facilities operation<br>Pipeline operations<br>Facility IMR<br>Pipeline and subsea IMR | Wellwork | Vessel operations<br>ROV operations |
|---|---|---|---|
| greywater, food waste). | | | |
| Planned discharge - Operational fluids and solids | Implement *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any planned discharges. | N/A | N/A |
| Planned discharge – Wellwork solids and fluids | N/A | Monitored and recorded in Wellview – daily. | N/A |
| PFW discharge | Will be monitored and recorded at MLB if brought online. | N/A | N/A |
| **Accidental/unplanned discharges** | | | |
| Unplanned release - LOC of hazardous liquids | Spill volumes estimated/calculated.<br>Documented via incident records – as required. | Spill volumes estimated/calculated.<br>Documented via incident records – as required. | Spill volumes estimated/calculated.<br>Documented via incident records – as required. |
| Unplanned release - Waste | Documented via incident records – as required. | Documented via incident records – as required. | Documented via incident records – as required. |
| Unplanned release - LOC of MDO - vessel collision | N/A | N/A | Spill volumes estimated/calculated.<br>Documented via incident records – as required. |
| Unplanned release – LOC of hydrocarbons – Pipeline rupture | Spill volumes estimated/calculated.<br>Documented via incident records – as required. | N/A | N/A |
| Unplanned Release - LOC of hydrocarbons - LOWC | Spill volumes estimated/calculated.<br>Documented via incident records – as required. | Spill volumes estimated/calculated.<br>Documented via incident records – as required. | N/A |

### *8.13.13 Environment Plan Reporting (PDCA: Check)*

| **Environment Regulations requirements** |
|---|
| **Section 22 Implementation strategy for environment plan** |
| 22(7)<br>*The implementation strategy must state when the titleholder will report to NOPSEMA in relation to the titleholder's environmental performance for the activity. The interval between reports must not be more than 12 months.*<br>Note:<br>Section 51 (Make records available): A titleholder must, on request, make available to NOPSEMA or the Minister any records required to be kept under these Regulations<br>Section 54 (Notifying start & end of activity): A titleholder must give NOPSEMA written notice that the title:<br>(1) is to commence at least 10 days before the activity commences<br>(2) has ended no later than 10 days after the activity ends.<br>Section 46 (Plan ends when titleholder notifies completion): The operation of an environment plan for an activity or activities under a title ends when:<br>(a) the titleholder notifies NOPSEMA that:<br>(i) the activity or activities to which the plan relates have ended; and<br>(ii) all of the obligations under the environment plan have been completed; and<br>(b) NOPSEMA accepts the notification |

The routine reporting requirements required for this EP are described in Table 8-8.

**Table 8-8 Routine EP reporting requirements**

| Requirement | Timing | Contact |
|---|---|---|
| Submit an annual EP environmental performance report to NOPSEMA. | The annual report for the calendar year (January – December) will be submitted to NOPSEMA by the end of February of the following year. | NOPSEMA – submissions@nopsema.gov.au |
| Submit an end of activity EP environmental performance report to NOPSEMA | The end of activity EP environmental performance report will be submitted to NOPSEMA within three months of the completion of the activity. | |
| Notify NOPSEMA of the commencement date | At least 10 days prior to activity. | |
| Notify NOPSEMA of the completion date | Within 10 days of activity completion. | |
| Notification of EP completion | Within 10 days of activity finalisation and obligation completion. | |

## 8.14 OIMS System 7-1: Managing Changes (PDCA: Do)

OIMS System 7-1 is a structured process, involving relevant engineers, technicians, operations and maintenance personnel and SSHE specialists to evaluate the potential consequences of the proposed change, and to seek the endorsement of all potentially impacted parties.

OIMS System 7-1 recognises that management of change processes are embedded within other OIMS systems. The below outline common interactions with other OIMS systems:

- OIMS System 2-1: Risk Assessment and Management

The MOC process is implemented electronically and requires a number of assessments which include technical, regulatory, safety and environmental assessments. A mandatory screening checklist is undertaken for all work being assessed under the MOC process to identify the potential for a change to, or increase in, environmental impacts. MOCs which identify potential change to or increase in environmental impacts during screening require completion of an environmental checklist. A mandatory regulatory checklist is also completed to identify if proposed activities will result in a change to the EP (refer to OIMS System 6-5). Environmental and regulatory checklists are reviewed and approved by an Environmental and Regulatory Advisor.

The risk discovery and management processes used during an MOC are prescribed by OIMS System 2-1. Environmental hazards and risks identified through an MOC are managed using the expectations and processes outlined under OIMS 2-1 (refer to section 8.5).

Procedures and MOCs are stored and accessed via the global Procedures Management Electronic Tool. This digital procedure tool ensures ready access to the most recent version of a procedure and a personal protective equipment associated MOCs, as described in OIMS System 6-1 (refer to section 0).

- OIMS System 4-1: Information Management

Critical documentation is commonly affected by a change and is managed in accordance with OIMS System 4-1 (refer to section 8.6). The timing of document updates may vary depending on the nature of the MOC; individuals managing these changes (e.g. Change Coordinators) are familiar with the processes outlined in OIMS 4-1and steward an MOC to ensures the appropriate change management processes are completed (e.g. MOC log records the MOC's status).

- OIMS System 5-1: Selecting, Training, Engaging & Enabling People
- OIMS System 8-1: Third-Party Services

Personnel selection, assessment and training are critical to achieving a safe and healthy work environment. OIMS System 5-1 (refer to section 8.8) addresses the training and ongoing verification of competency of employees in Key Positions to meet their specific job requirements. Contract personnel selected to fill a Key Position are subject to the requirements of this system. The selection of the company employing the third-party contract personnel is managed within OIMS System 8-1 (refer to section 8.15).

- OIMS System 6-2: Facility Integrity Management System

The management of change processes embedded within OIMS System 6-2 FIMS are outlined in section 8.10.1.5. Specifically, revisions and changes are managed via the MOC for Equipment Strategies and the MOC for CMMS.

- OIMS System 6-5: Environmental & Regulatory Management

The EPMOC process is embedded within OIMS System 6-5 and provides a structured mechanism to identify, assess and control changes that could alter the environmental impacts and risks described in this EP. The triggers to the EPMOC process are outlined in section 8.13.9; changes with potential environmental significance are evaluated as part of the EPMOC process.

## 8.15 OIMS System 8-1: Selecting and Engaging with Third-Party Providers

OIMS System 8-1 provides a systematic approach for the selection of contractors and subsequent management of interfaces between Esso and contractors to ensure work is performed in a safe, secure, and environmentally sound manner. This System applies to all service contractors (including marine operations, wireline and workover operations, crane services, provision of lifting equipment and aviation services) and suppliers of critical equipment (such as valves, seals, gaskets, lifting equipment and cranes).

### *8.15.1 Contractor Selection and Management (PDCA: Plan, Do)*

Esso's contractor selection and management processes support two different phases of a contract life cycle:

- the first phase includes requisitioning for contractor services, pre-qualifying contractors, selecting the contractor, and conducting pre-mobilisation activities associated with subsequent contractor interface management
- the second phase occurs during contract work execution and involves ongoing interface management between Esso and the contractor, as well as monitoring and stewardship activities to confirm that the contractor is meeting the OI requirements of the agreement.

The pre-qualification process includes review of recent contractor performance results, reviews of contractor SSHE programs, and site visits to the contractor's facilities to validate reported performance results and evaluate a contractor's capability for effective work execution. Esso's SSHE Group participates in the pre-qualification screening and bid evaluation process including contractor site assessments, as required. OIMS System 8-1 specifies that all contractors conducting activities with potential high SSHE impact must submit a SSHE execution plan or a bridging document for the scope of work. High SSHE impacts are activities which, if poorly executed, could cause significant safety or environmental impacts. These may include aviation, construction, wellwork, subsea activities and vessels.

The contractor's SSHE execution plan is required to address:

- communication of SSHE expectations and requirements to contractor crews and subcontractors
- compliance with relevant regulatory obligations (including Environmental Management Plans, Safety Cases, relevant laws and regulations)
- reporting of leading and lagging indicators
- incident investigation and management processes
- other specific requirements as dictated by the scope of the assignment or local site characteristics.

### *8.15.2 Contractor Performance Monitoring (PDCA: Check, Act)*

Esso develops performance monitoring plans for third parties prior to a contractor mobilising to a work site location.

The Esso Contract Administrator is engaged in the contract life cycle management and the Esso SSHE Group assists in the assessment and monitoring of contractor performance, as required. Providers of OIMS-critical services such as aviation, vessels, construction and wellwork are subject to a quarterly performance review and annual performance assessment.

Performance reporting consists of documented reports and verbal communications appropriate to the impacts and risks involved with the services provided. Written reports can include:

- non-conformance reports
- SSHE performance statistics, including environmental incidents
- assessments on the adequacy of actions taken from performance gaps/incidents
- deficiencies with SSHE requirements and recommended corrective actions
- review of contractor SSHE inspections and findings.

Report findings and recommendations are reviewed with contractor management and follow-up actions implemented to address deficiencies.

## 8.16 OIMS System 9-1: Learning from Operating Experience and Incidents

Consistent with NOPSEMA Policy – Investigations (NOPSEMA, 2025b), OIMS System 9-1 requires management of SSHE incidents including initial response and notifications, investigation and analysis, documentation, communication of lessons learned, corrective actions management and the analysis of trends. In the context of this System, incidents (including near misses) are related to:

- personnel safety
- process safety
- security
- occupational health

- regulatory conformance
- environmental
- equipment reliability (with SSHE consequences).

System 9-1 requires that:

- the incident is reported in the Incident records database
- an investigation occurs, if triggered by an evaluation of actual or potential incident severity
- the incident is correctly documented, lessons learned are communicated, and corrective actions are followed up and tracked in the Incident records database.

Esso utilises the incident database as the single, centralised tool for capturing data, tracking, sharing and analysing incidents, assessment findings, lessons learned and follow-up actions.

### *8.16.1 Management of Non-Conformance (PDCA: Do, Check, Act)*

Non-conformances with EPOs and EPSs are classified as environmental incidents. Employees and contractors are required to report all environmental incidents. Investigations into environmental incidents are conducted in accordance with the Esso incident management system required by OIMS System 9-1.

Notification, reporting and investigation of incidents achieves the following:

- ensures management, regulatory authorities and other appropriate personnel are notified of incidents and near misses on a timely basis
- enables sharing of learnings throughout the organisation to continuously improve SSHE systems
- identifies corrective actions to prevent re-occurrence including (if applicable) actions to re-establish the stated control measures, as outlined in this EP, in order to continue to reduce impacts and risks to ALARP and an acceptable level
- enables the analysis and trending of incident data to ensure appropriate focus on emerging issues.

Incidents are managed in accordance with the *Learning from Operating Experience and Incidents Guide* (AUGO-PO-IMG-015) which describes the responsibilities and processes for all stages of incident management. Esso utilises an incident database to provide a single, centralised tool for capturing data: tracking, sharing and analysing incidents, assessment findings, lessons learned and follow-up actions.

All Esso personnel are responsible for notifying their immediate supervisor of incidents, near misses and identified hazards, and for taking appropriate responses as part of their regular duties. Accountability for investigation lies with business line management. The Esso SSHE Group is responsible for maintaining the reporting system, subject matter expert advice and investigation support.

The triggers and expected deliverables for investigations are based on incident severity (actual and potential) and are documented in Appendix 1 of the *Learning from Operating Experiences and Incidents Guide*.

Corrective actions that address the root cause(s) of the incident are identified and implemented to prevent the recurrence of similar incidents. Corrective actions can be improvements to facilities, programs, processes or procedures that are identified to reduce the impact or risk and enhance the integrity of operations. Once corrective actions have been identified from incident reports (including audit and inspection reports), the implementation process is managed to completion via Incident records. This ensures results are achieved and that the improvement is documented and sustained.

### *8.16.2 External Incident Notification and Reporting (PDCA: Do)*

The Environment Regulations define 'recordable incidents' and 'reportable incidents', and also describe reporting requirements for each type of incident.

- Esso has a duty to notify and report reportable environmental incidents to NOPSEMA under Regulations 47, 48 and 49 of the Environment Regulations.
- Esso has a duty to notify and report recordable environmental incidents to NOPSEMA under Regulation 5 of the Environment Regulations.

The requirements for reporting environmental incidents are listed in Table 8-9.

**Table 8-9 External incident notification and reporting requirements**

| Requirement | Timing | Contact |
|---|---|---|
| **Recordable incidents** | | |
| A recordable incident, for an activity, means a breach of an EPO or EPS, in the EP that applies to the activity that is not a reportable incident.<br><br>The written report contains a record of all recordable incidents during that month including:<br><br>• all material facts and circumstances concerning the incidents that the titleholder knows or is able, by reasonable search or enquiry, to find out<br>• any action taken to avoid or mitigate any adverse environmental impacts of the recordable incidents<br>• the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future.<br><br>If no recordable incidents have occurred during any particular month, a recordable incident report is not required.<br><br>The written report is to be provided using the Monthly Environmental Incident Reports form | Not later than 15 days after the end of each calendar month. | NOPSEMA – submissions@nopsema.gov.au<br><br>Copy Joint Venture partner: Woodside Energy (Bass Strait) Pty Ltd – bass.strait@woodside.com.au |
| **Reportable incidents** | | |
| Reportable incidents are those that have caused, or have the potential to cause moderate to significant environmental damage.<br><br>The definition of 'environment' in the Environment Regulations is broad and covers:<br><br>a) ecosystems and their constituent parts, including people and communities<br>b) natural and physical resources<br>c) the qualities and characteristics of locations, places and areas<br>d) the heritage value of places<br><br>and includes the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d), above.<br><br>This includes, but is not limited to, those identified through the risk assessment process as having a consequence ranking of I or II, or at a minimum the following incidents:<br><br>• uncontrolled release of hydrocarbon liquids or chemicals exceeding 80L into the marine environment<br>• loss of a large structure (topside, jacket section, or strut) to the marine environment | Verbally as soon as practicable to NOPSEMA and no later than two hours of the incident, or, if the reportable incident was not detected by the titleholder at the time of the first occurrence – the time the titleholder becomes aware of the reportable incident.<br><br>Written notification as soon as practicable to NOPSEMA (copy to National Offshore Petroleum Titles Authority and DEECA. | NOPSEMA Incident Phone Line – 1300 674 472<br><br>Reportable incident reports to be submitted to NOPSEMA via e-mail - submissions@nopsema.gov.au or via secure file transfer https://securefile.nopsema.gov.au/filedrop/submissions<br><br>DEECA – Earth Resources Regulation – errchiefinspector@deeca.vic.gov.au<br><br>Compliance Duty Officer - 0419 597 010 (24-hour)<br><br>Department of Transport and Planning – marine.pollution@transport.vic.gov.au<br><br>State Duty Officer – 0409 858 715 |

| Requirement | Timing | Contact |
|---|---|---|
| • death or injury of a EPBC Act listed species, associated with the petroleum activity<br><br>The notification must contain:<br><br>• all material facts and circumstances concerning the reportable incident that the titleholder knows or is able, by reasonable search or enquiry, to find out<br>• any action taken to avoid or mitigate the adverse environmental impact of the reportable incident<br>• the corrective action that has been taken or is proposed to be taken to stop, control or remedy the reportable incident.<br>• Written notification must also include any action taken or proposed to be taken to prevent a similar incident occurring in the future. | Written report as soon as practicable to NOPSEMA but within three days after the first occurrence including specifying if a further written report will be provided (then copy to National Offshore Petroleum Titles Authority and DEECA within seven days).<br><br>If a formal investigation is triggered, a further written report must be submitted within the period specified by NOPSEMA. | National Offshore Petroleum Titles Administrator – reporting@nopta.gov.au<br><br>Copy Joint Venture partner: Woodside energy (Bass Strait) Pty Ltd – bass.strait@woodside.com |
| **Other reporting requirements** | | |
| Mandatory MARPOL report about a pollution incident involving:<br><br>• a discharge (or probable discharge) of oil or noxious liquid substances in excess of permitted MARPOL discharge levels, quantities or rates, for whatever reason, including those for the purpose of securing the safety of the ship or for saving life at sea<br>• a discharge (or probable discharge) of harmful substances in packaged form, including those in freight containers, portable tanks, road and rail vehicles and shipborne barges.<br><br>Report to include:<br><br>• name of ship/s involved<br>• time, type and location of incident<br>• quantity and type of harmful substance<br>• assistance and salvage measures<br>• any other relevant information. | Vessel Master to notify AMSA verbally without delay. If AMSA asks for a written MARPOL report this must be provided within 24 hours after AMSA asks for the report. | AMSA<br><br>+61 02 6230 6811 or 1800 641 792<br><br>rccaus@amsa.gov.au |
| Oiled wildlife. | Immediately | DEECA<br><br>State Agency Commander – 1300 134 444 (24 hours) |

| Requirement | Timing | Contact |
|---|---|---|
| | | Esso Environmental and Regulatory Advisor to notify JV partner Woodside Energy (Bass Strait) Pty Ltd – bass.strait@woodside.com |
| Wildlife emergency. | Immediately | DEECA<br>Whale and Dolphin Emergency Hotline – 1300 136 017<br>Seals, Penguins or Marine Turtles 136 186 (Mon-Fri 8am to 6pm)<br>Marine Response Unit – 1300 245 678<br>Esso Environmental and Regulatory Advisor to notify Joint Venture partner Woodside Energy (Bass Strait Pty Ltd – bass.strait@woodside.com |
| Notification of activities affecting listed species or ecological communities in or on a Commonwealth area (specifically unintentional injury or death of a cetacean or listed threatened/migratory/marine species caused by, or suspected to have been caused by petroleum activity). | Within seven days | DCCEEW-<br>Environmental Compliance Hotline: 1800 110 395<br>environment.compliance@dcceew.gov.au<br>Copy to Joint Venture partner Woodside Energy (Bass Strait Pty Ltd – bass.strait@woodside.com |
| Cetacean vessel strike. | Within three days | DCCEEW-<br>Hotline: 1800 920 528<br>Esso Environmental Advisor to notify Joint Venture partner Woodside Energy (Bass Strait Pty Ltd – bass.strait@woodside.com |
| Notification of any suspected or known marine pest is to be provided to DEECA and copied to DAFF, with the following information (if available):<br>• date and time of observation<br>• species details, if known, including numbers observed<br>• location – GPS coordinates if possible<br>• habitat (i.e. sandy seabed, hard substrate)<br>• water depth. | Written notification as soon as practicable upon observing or becoming aware of the presence of a suspected/known marine pest. | DAFF – ccimpe@aff.gov. Report a pest \| Marine Pests<br>DEECA – marine.pests@agriculture.vic.gov.au<br>or phone 136 186 or via online form: |

| Requirement | Timing | Contact |
|---|---|---|
| Photographs or imagery, including close up and from different angles and with a reference item such as a coin to show size if possible. | | Report a marine pest sighting \| Marine pests \| Biosecurity \| Agriculture Victoria<br>Copy of notification to be sent to NOPSEMA – submissions@nopsema.gov.au<br>Copy to Joint Venture partner Woodside Energy (Bass Strait Pty Ltd – bass.strait@woodside.com |
| Notification of identification of any historic shipwreck, aircraft or other type of UCH. | Within 21 days | Notification to be made to DCCEEW via the Australasian Underwater Cultural Heritage Database:<br>SHIPWRECKS - Notification of discovery of an in-situ Historic Shipwreck or Relic.<br>Copy to Joint Venture partner Woodside Energy (Bass Strait Pty Ltd – bass.strait@woodside.com |

## 8.17 OIMS System 10-1: Community Risk Management (PDCA: Plan, Do, Check, Act)

| Environment Regulations requirements |
|---|
| **Section 22 Implementation strategy for environment plan** |
| 22(15)<br>*The implementation strategy must provide for appropriate consultation with: (a) relevant authorities of the Commonwealth, a State or a Territory; and (b) other relevant interested persons or organisations.* |

OIMS System 10-1 sets an expectation that relationships with the community are established and maintained to build confidence and demonstrate commitment to the environment and emergency preparedness, including understanding and being responsive to the community's expectations and concerns.

Consistent with OIMS 10-1 and , Esso has developed a consultation and engagement methodology specific to the Environment Plan as detailed in Section 4 Relevant persons consultation.

## 8.18 OIMS System 10-2: Preparing for Emergencies

| Environment regulations requirements |
|---|
| **Section 22 Implementation strategy for environment plan** |

**Environment regulations requirements**

Oil pollution emergency response

22(8)

*The implementation strategy must contain an oil pollution emergency plan and provide for the updating of the plan.*

22(9)

*The oil pollution emergency plan must include adequate arrangements for responding to and monitoring oil pollution, including the following:*

- *the control measures necessary for timely response to an emergency that results or may result in oil pollution*
- *the arrangements and capability that will be in place, for the duration of the activity, to ensure timely implementation of the control measures, including arrangements for ongoing maintenance of response capability*
- *the arrangements and capability that will be in place for monitoring the effectiveness of the control measures and ensuring that the environmental performance standards for the control measures are met;*
- *the arrangements and capability in place for monitoring oil pollution to inform response activities.*

22(10)

*The implementation strategy must provide for monitoring of impacts to the environment from oil pollution and response activities that:*

- *is appropriate to the nature and scale of the risk of environmental impacts for the activity*
- *is sufficient to inform any remediation activities.*

22(11)

*The implementation strategy must include information demonstrating that the response arrangements in the oil pollution emergency plan are consistent with the national system for oil pollution preparedness and response.*

Testing oil pollution emergency response arrangements

22(12)

*The implementation strategy must include arrangements for testing the response arrangements in the oil pollution emergency plan. The testing arrangements must be appropriate to the response arrangements and to the nature and scale of the risk of oil pollution for the activity.*

22(13)

*The testing arrangements must include:*

- *a statement of the objectives of testing*
- *a proposed schedule of tests*
- *mechanisms to examine the effectiveness of response arrangements against the objectives of testing*
- *mechanisms to address any recommendations arising from tests.*

22(14)

*For the purposes of paragraph (13)(b), the proposed schedule of tests must provide for the following:*

- *testing the response arrangements when they are introduced*
- *testing the response arrangements when they are significantly amended*
- *testing the response arrangements not later than 12 months after the most recent test*
- *if a new location for the activity is added to the environment plan after the response arrangements have been tested, and before the next test is conducted–testing the response arrangements in relation to the new location as soon as practicable after it is added to the plan*

| Environment regulations requirements |
| --- |
| • *if a facility becomes operational after the response arrangements have been tested and before the next test is scheduled to be conducted–testing the response arrangements in relation to the facility when it becomes operational.* |

The process to prepare emergency preparedness and response plans, including procedures to prevent and mitigate potential environmental impacts associated with accidents and emergency situations, is addressed through OIMS System 10-2.

The purpose of OIMS 10-2 is to ensure that Esso establishes effective response to emergencies and business disruptions that threaten: the safety, security and health of the public, contractors and employees; the environment; asset integrity; and critical business operations. This System addresses all sites for which Esso has responsibility and includes emergencies, disruptions to critical business operations, and security threats that could occur throughout the business line's sphere of influence (e.g. processing, drilling, transportation, and office).

The System objectives are as follows:

- emergency response plan(s) and business continuity plan(s) are documented, resourced with qualified personnel, accessible, current, and clearly communicated
- required training, exercises, simulations, and/or drills are conducted to determine the adequacy of the emergency response and business continuity plans.

### *8.18.1 Emergency Response Manual (PDCA: Plan, Do)*

The *Emergency Response Manual* (ERM) (ERM-V2) consists of concise information that may be required immediately in the event of an incident. Information contained in the ERM includes emergency response organisational structures, emergency response procedures relevant to specific emergency events, personnel role and responsibility checklists, emergency response call-out procedures and contact directories.

Copies of the Emergency Response Manual are held on each platform and other Esso onshore sites.

### *8.18.2 Oil Pollution Emergency Plan (PDCA: Plan, Do, Check)*

In all cases the titleholder under the Environment Regulations, will retain control and responsibility for managing spill response.

Esso has an OPEP (see Attachment 2) in place for all its offshore assets and operations in Bass Strait that outlines how Level 1, 2 and 3 spills will be managed.

The OPEP is subject to an annual review to ensure that it remains accurate and aligned with current operational practices. This review includes a review of lessons learnt from environmental incidents or exercises, EP audit opportunities or findings, legislative changes or NOPSEMA guidelines relating to oil spill management, roles and responsibilities, and a review of third-party resource contact details.

In addition, Quick Reference Information specific to the activities of this EP, is included as Appendix D of the OPEP in Attachment 2. The Quick Reference Information summarises hydrocarbon properties, worst case deterministic modelling, receptors at risk, relevant shoreline Tactical Response Plans, and recommended spill response strategies.

### *8.18.3 Oil Spill Monitoring Program (PDCA: Plan, Do, Check)*

The OSMP guides monitoring of extent, severity and persistence of environmental impacts from a hydrocarbon spill and associated response activities.

A register of OSMP implementation resources is updated quarterly, with testing of the OSMP comprising an annual desktop capability review. A two-yearly detailed test of the ability to implement the OSMP is also conducted by the OSMP provider.

The OSMP is subject to an annual review to ensure that it remains accurate and aligned with current operational practices. This review includes a review of lessons learnt from environmental incidents or exercises, EP audit opportunities or findings legislative changes or NOPSEMA guidelines relating to oil spill management, outcomes of two-yearly implementation test, roles and responsibilities, and a review of third-party resource contact details.

The OSMP (Attachment 3) applies to all of Esso's offshore assets and operations in Bass Strait. The OSMP is supported by a set of internal implementation guides for each monitoring module which are designed to provide Esso and its monitoring providers with information to finalise a monitoring design appropriate to the nature and scale of the spill.

### *8.18.4 Australia Wells Tier II/III ERP (PDCA: Plan, Do)*

The *Australia Tier II/II Emergency Response Plan* (AUGO-EV-EMM-019) applies to all drilling, completion, intervention, and abandonment operations and covers both preparedness and response to a wells-related Tier II/III incident on the platform and subsea wells.

The scope of the plan is to provide the emergency response framework for the Wells Team, in the event of a well related source control event (Tier II/III incident). It will assist in mobilizing the necessary equipment and resources as defined in this plan and adopting the source control branch philosophy, if needed.

### *8.18.5 Testing of Oil Spill Response Arrangements (PDCA: Do, Check)*

In accordance with OPGGS (Environment) Regulation 22(14) and requirements of OIMS System 10-2: Emergency Preparedness and Response, the response arrangements within the Bass Strait OPEP will be tested:

- not later than 12 months after the most recent test
- when response arrangements are significantly amended
- In accordance with the:
  - EP-specific schedule outlined in Table 8-10
  - the annual Emergency Preparedness and Response Activity Plan

The annual EP&R Activity Plan includes additional detail on the type of test, frequency, duration, and participants and is cross-referenced to preparedness and response performance standards which are to be tested, as detailed in the OPEP, provided as Attachment 2.

Testing may be externally or internally facilitated. Tests will be documented, assessed against objectives and applicable performance standards and any corrective actions/recommendations arising from the tests will be managed in accordance with the *Emergency Preparedness and Response Programs Guide* (AUGO-PO-SRT-337). Emergency response training records will be maintained in accordance with OIMS System 10-2.

Where changes are required to emergency response documentation, resulting from testing/exercise outcomes, altered contractual arrangements, corrective actions, routine information updates (e.g. contact detail change), or other items; the OIMS System 10-2 Lead is responsible for ensuring changes are assessed against the revision criteria of Regulation 39 of the Environment Regulations, and where necessary, this EP and/or the OPEP is submitted to NOPSEMA as a formal revision, in accordance with the MOC process (OIMS System 7-1). For changes which do not trigger a formal revision, internal revisions to the OPEP will also be in accordance with the MOC process with any change justified.

**Table 8-10 Testing of oil spill response arrangements**

| Test | Objective | Parties Involved | Schedule |
|---|---|---|---|
| Emergency response contact lists | To ensure that current emergency response contact details contained in the ERM (ERM-V0) are current. | • Esso/Company<br>• Third-party service providers | 6 Monthly |
| IMT availability | To test the availability of personnel to staff the Esso Incident Management Team. | • Esso IMT | Quarterly |
| IMT capability | Esso offshore annual drill/exercise undertaken to test IMT members capability to respond, as well as undertaken first strike actions, test containment and recovery, dispersant, and shoreline response strategies, | • Esso IMT<br>• Australian Marine Oil Spill Centre (AMOSC) | Annual |

| Test | Objective | Parties Involved | Schedule |
|---|---|---|---|
| | testing of regulatory notifications, all surveillance and monitoring arrangements. | | |
| Net Environmental Benefit Analysis (NEBA) | To test the NEBA decision making process. | • Esso IMT – Environmental Unit | 6 Monthly |
| Level II/III response arrangements | To test Level II/III response arrangements included within OPEPs including activation of external service providers and Oil Spill Response Organisations including access to support vessels required.<br>To test interface and communication/reporting arrangements with regulatory authorities and controlling agencies. | • IMT and Emergency Support Group (ESG)<br>• State Govt. agencies<br>• Global Response Team<br>• AMOSC | Every five years |
| Dispersant | To test efficacy of Esso owned dispersant stockpile.<br>To test availability of Esso owned dispersant equipment. | • Esso/Company<br>• AMOSC or Third-party service providers | Annual |
| OSMP | To test availability of qualified personnel to implement OSMP. | • Esso/Company<br>• OSMP service provider | Annual |
| | To test ability to implement OSMP. | • Esso/Company<br>• OSMP service provider | Two yearly |
| Oil Spill Response (OSR) equipment readiness | To test availability of third-party and Esso owned, OSR equipment for containment and recovery, shoreline response. | • Esso/Company<br>• AMOSC<br>• OSRL | Quarterly |
| Subsea first response toolkit equipment readiness | To test readiness of third-party subsea first response toolkit OSR equipment. | • AMOSC<br>• OSRL | Quarterly |
| OSR equipment drills | To maintain familiarity with use of OSR equipment through field equipment deployment. | • Esso/Company Core Group members<br>• AMOSC | Annual |
| Oiled wildlife response | To test availability of oiled wildlife response resources to assist a State led oiled wildlife response. | • Esso/Company<br>• AMOSC<br>• OSRL<br>• State Govt. agencies | Every three years |

| Test | Objective | Parties Involved | Schedule |
|---|---|---|---|
| Waste management | To test ability to implement waste management plans. | • Esso/Company<br>• Waste Contractor | Two yearly |
| OSR organisations preparedness | To assess preparedness of AMOSC. | • Esso/Company<br>• AMOSC<br>• AEP | Annual |
| OSR organisations preparedness | To assess preparedness of OSRL. | • Esso/Company<br>• OSRL | Two yearly |

### *8.18.6 Oil Spill Response Competency and Training (PDCA: Do)*

In accordance with Regulation 22(4) of the Environment Regulations, this implementation strategy describes the processes by which Esso ensures personnel have the appropriate competencies and training to undertake their roles and responsibilities in emergency situations.

Esso implements incident management based on the Incident Command System (ICS). The ICS is a system designed to provide a consistent organisation to respond to emergency situations. Positions within the ICS are fixed and have specific functions, ensuring that all responders know what to do and where they report in the organisation structure. The ICS is based on the US National Incident Management System 2006 ICS Structure, with slight modifications for industry. ICS is the primary emergency response framework for an oil spill response from all offshore activities. Typical incident management roles and training requirements are outlined in Table 8-11.

IMT member nominations are reviewed by the OIMS 10-2 System Lead (to ensure training and competency requirements have been met or appropriate management measures have been put in place). IMT member nominations are reviewed by the OIMS 10-2 System Lead (to ensure training and competency requirements have been met or appropriate management measures have been put in place). An Emergency Preparedness and Response required competency road map is assigned to the new incumbent. To manage personnel that have Training or Compliance gaps in their emergency preparedness and response roadmaps, a similar approach to the Competency Assurance System is adopted whereby exception and mitigation is required.

IMT (Incident Commander, Section Chief and Safety Officer) members have six months to complete the required training once listed on the IMT. In the event of an incident, a person cannot be assigned an incident response IMT role (Incident Commander, Section Chief and Safety Officer) without first being fully trained.

The selection of the Environmental Unit Lead is based on relevant experience as an Environment Advisor, with five years' experience and training in the implementation of the operational and scientific monitoring plan.

**Table 8-11 Oil spill response competency and training**

| Section | Role | Training and competency |
|---|---|---|
| Command | Incident Commander | • Incident Management training (PMAOMIR 418).<br>• International Maritime Organisation (IMO) III – Command and Control training (for Level II/III incidents).<br>• Participate in regular drills and exercises. |
| | Safety Officer | • Incident Management training (PMAOMIR 322).<br>• IMO II – Oil Spill Management, or IMO III – Command and Control.<br>• Experience in implementing safety management systems.<br>• Participate in regular drills and exercises. |
| | Liaison Officer | • Incident Management training (PMAOMIR 322).<br>• Participate in regular drills and exercises. |

| Section | Role | Training and competency |
|---|---|---|
| Planning | Planning Section Chief | • Incident Management training (PMAOMIR 322).<br>• IMO II – Oil Spill Management, or IMO III – Command and Control.<br>• Participate in regular drills and exercises. |
| | Environment Unit Lead* | • IMO II – Oil Spill Management.<br>• Incident Management training (PMAOMIR 322).<br>• Familiarity with OSMP – Refer to Attachment 3.<br>• Participate in regular drills and exercises. |
| | All other roles | • ICS 100/200<br>• Participate in regular drills and exercises. |
| Operations | Operations Section Chief | • Incident Management training (PMAOMIR 322).<br>• IMO II – Oil Spill Management, or IMO III – Command and Control.<br>• Participate in regular drills and exercises. |
| | Maritime Unit | • Incident Management training (PMAOMIR 322).<br>• IMO II – Oil Spill Management, or IMO III – Command and Control.<br>• Experience in marine operations.<br>• Participate in regular drills and exercises. |
| | Aviation Unit | • ICS 100/200<br>• Participate in regular drills and exercises. |
| | Aerial Observer | • Aerial surveillance course. |
| | Source Control Branch (SCB) Director/Deputy Director (for LOWC incidents) | • ICS 300.<br>• Participate in regular drills and exercises. |
| | SCB – Team member | • ICS 100/200.<br>• Participate in regular drills and exercises. |
| Logistics | Logistics Section Chief | • Incident Management training (PMAOMIR 322).<br>• IMO II – Oil Spill Management, or IMO III – Command and Control.<br>• Participate in regular drills and exercises. |
| | All other roles | • ICS 100/200<br>• Participate in regular drills and exercises. |
| Finance and Administration | Finance and Administration Section Chief | • ICS 100/200.<br>• Participate in regular drills and exercises. |
| | All other roles | • ICS 100/200.<br>• Participate in regular drills and exercises. |

| Section | Role | Training and competency |
|---|---|---|
| ESG | All ESG members and select IMT members | • ESG training.<br>• Participate in regular drills and exercises. |
| AMOSC Core Group | Operations and Management stream | • IMO I – Oil Spill Response Operations<br>• IMO II Oil Spill Response Management<br>• Participate in AMOSC Core Group Workshop. |

*When the IMT is activated, the Environmental Unit Lead becomes responsible for managing implementation of the OSMP modules, as directed by the Planning Section Chief.

#### 8.18.6.1 Oil Spill response Training

Appropriate training will be made available to specific personnel required to undertake a role in oil spill response. Personnel with an oil spill response role will undertake incident management training including ICS and oil spill response specific training, as defined by their role and in accordance with the roles' training plan. The training program has been designed to meet the PMA08 Chemical, Hydrocarbons and Refining training standard and includes the courses and topics as outlined in Table 8-12.

**Table 8-12 Oil spill response training**

| Training/course | Delivered by | Training description |
|---|---|---|
| ICS 100 / 200 training | Computer-based training | ICS 100/200 training consists of computer-based training which addresses fundamental principles of the ICS including key roles and functions. |
| ICS 300 training | Various accredited organisations | ICS 300 training is instructor led training that expands upon the information covered in the ICS 200 course. |
| AMOSC Core Group training | AMOSC | Training provided in accordance with the AMOSC Core Group agreement. Personnel also participate in bi-annual training, exercise or response activities in order to maintain their competency. |
| IMO I – Oil Spill Response Operations | Various accredited organisations | Designed for all personnel who may be called upon to act as an oil spill first responder and to participate in an oil spill clean-up. |
| IMO II – Oil Spill Response Management (or equivalent) | Various accredited organisations | Training aimed at IMT personnel. |
| IMO III – Command and Control (or equivalent) | Various accredited organisations | Required for personnel identified to fulfil a Tier 2/3 Incident Commander role. |
| Aerial surveillance course | AMOSC and OSRL | The course is typically run over two days and includes theory and practical activities including:<br>• basic hydrocarbon theory and its relevance to aerial surveillance<br>• basic understanding of how to work in an aviation crew environment |

| Training/course | Delivered by | Training description |
|---|---|---|
| | | • how to effectively plan and coordinate an aerial surveillance flight<br>• how to carry out the plotting and recording of oil spill information<br>• how to present oil spill information back through the IMT in a clear and coherent manner. |
| ESG training | Esso | The ESG course is used to train ESG members in the ESG process as well as provide an overview of the emergency response structure.<br>Course objectives are to:<br>• increase awareness of the emergency response system and the underpinning principles<br>• assist in achieving a consistent approach to the ESG response process across the Corporation<br>• familiarise participants with roles and responsibilities within the ESG and the interface with other responders and stakeholders. |

#### 8.18.6.2 Additional oil spill response roles

Esso also allocates members to an ESG, which provide strategic support in the event of an oil spill or other emergency event. The Global Response Team includes personnel with experience and/or training in incident management and specialist areas. Including oiled wildlife response. These personnel are able to provide above-field support to an oiled wildlife response through development of response plans and coordination of specialist resources.

Selected personnel have been identified as members of the AMOSC Core Group and may be called upon to respond under the AMOSC Plan and National Plan arrangements.

Esso also have a SCB of the OFS IMT who specialise in source control in relation to wells. Personnel involved in SCB management (i.e. Branch Director/Deputy Branch Director) will have the minimum competencies and training or meet requirements recognition of prior learning and experience.

#### 8.18.6.3 Esso Source Control Branch

In a large-scale emergency response effort, the SCB of the OFS IMT is responsible for disabling the source of the incident while minimising the impact to People, Environment, Assets and Reputation (PEAR).

In a Wells-related Tier II/III incident, the Australian Wells Team will assume responsibility for SCB activities.

The structure of the SCB can be seen in Figure 8-11. The summary of responsibilities can be seen in Table 8-13.

The SCB members remain on call as part of their job descriptions. SCB members will be called upon based on the internal notification process as soon as an offshore emergency has been activated.

The Australia wells Tier II/III Emergency Response plan also contains all key information for contacting and mobilising key resource partners such as AMOSC, OSRL, and Wild Well Control based on existing contracts in place.

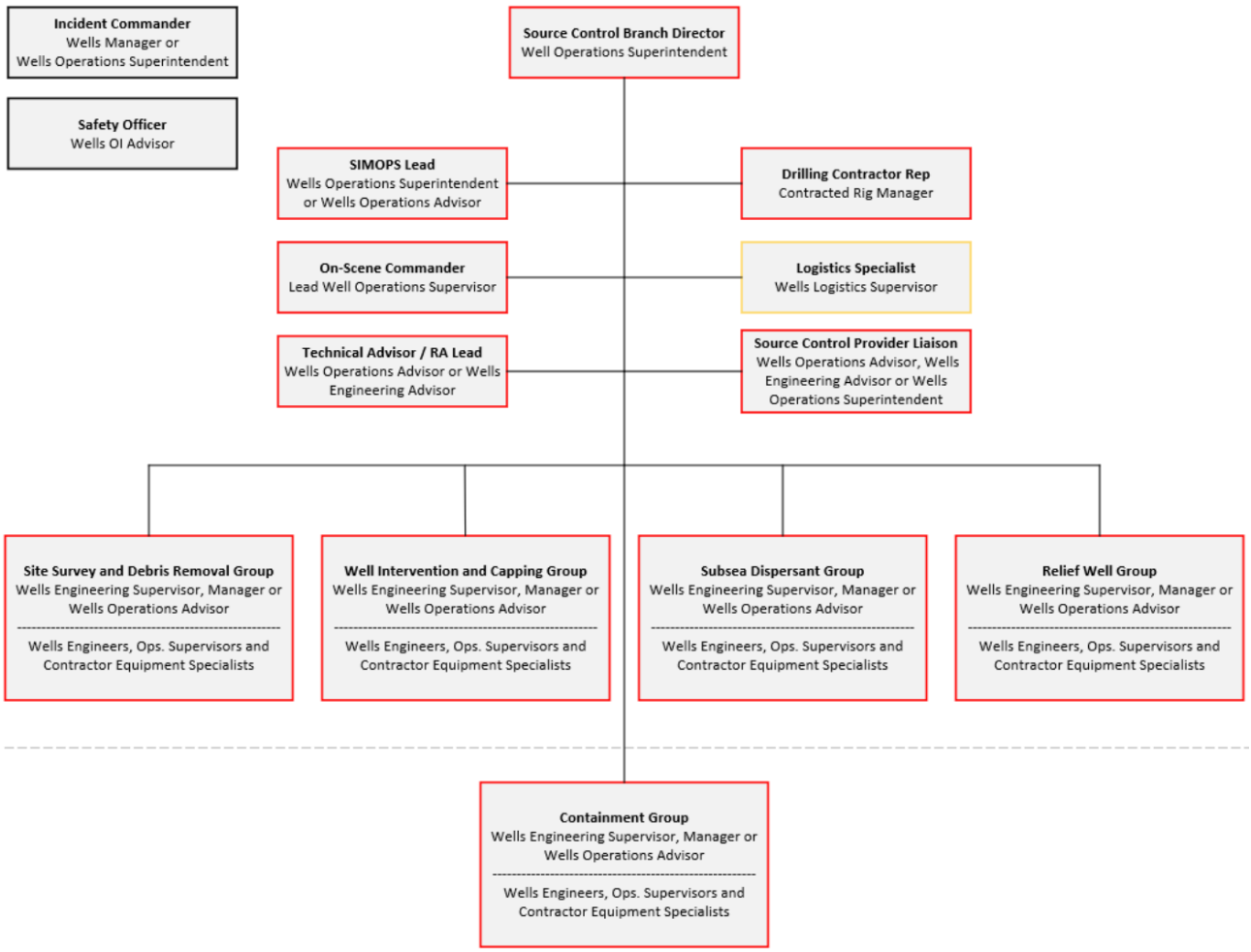



**Figure 8-11 SCB structure**

The SCB Director or delegate Deputy SCB Director is responsible for planning and executing tactics related to source control to achieve the incident objectives set by the OFS IMT Incident Commander. The size of the SCB Support Staff is dictated by the needs of the incident response. Their primary role during the incident is to support the SCB as described in the Source Control Branch Incident Management Handbook.

**Table 8-13 Summary of responsibilities: SCB Director/Command staff**

| Source Control Branch |
|---|
| **SCB Director and Deputy-Director** |
| • Implementation of (operational) tactics based on overall Incident Objectives as established by the Incident/Unified Command<br>• Manages and coordinates all operations and plans directly related to controlling the source. |
| **SCB – Command Staff (applicable if SCB is not co-located with IMT)** |
| • When needed, these individuals serve in their traditional roles, specifically supporting the SCB; if the IMT and SCB are co-located, the IMT may offer these services<br>• Includes access to the Law Officer, HR Officer, Safety Officer, Liaison Officer, Risk Assessment Lead, Public Information Officer, all of whom should be familiar with Wells/Drilling expectations and services<br>NOTE: Independent of the Response Tier, these specific functions would continue to support Wells organisation by interfacing with ESG and integrating with the IMT |

| Source Control Branch |
|---|
| **SCB – Planning** |
| • Manages the collection, evaluation, dissemination and use of incident information, and maintaining the status of assigned resources. |
| **SCB – Logistics** |
| • Provides facilities, services and material in support of the incident. |
| **SCB – Finance (as applicable)** |
| • Manages all financial, administrative, claims and cost analysis aspects of the incident |

**Table 8-14 Summary of responsibilities: On-scene Command/Staging Area**

| On-scene Commander | Staging Area Manager |
|---|---|
| • Oversees the execution of the tactics dictated by the SCB Director<br>• Maintains the right to stop operations at any time | • Call out vessels/aircraft, materials, etc. based on SCB needs<br>• Ensures all equipment is received, tracked (costs and whereabouts) and demobilised effectively<br>• Reports to the SIMOPS Lead |

The Site Survey and Debris Removal Group is responsible for initial and ongoing site surveys, along with designing an approach to managing debris that may present a hazard or restricting access to the wellsite if needed. The Site Survey and Debris Removal Group will work closely with the SIMOPS Lead, with the Resource Unit Specialist and WWC/OSRL to ensure the appropriate components are available and mobilised to site in a timely manner.

The Subsea Dispersant Group (if required) will work closely with the Subsea Operations Coordinator (responsible for executing ROV operations), with the Resource Unit Specialist and AMOSC Subsea First Response Toolkit/OSRL Subsea Incident Response Toolkit to ensure the appropriate components are available and mobilised to site.

The Well Intervention and Capping Group are responsible for stewarding intervention through existing blowout preventer (if possible), deployment/installation of a capping stack and the well shut-in procedure. The Well Intervention and Capping group receives guidance from the SCB Director and the Well Intervention and Containment Group Supervisor. This team works closely with the Flow Engineering team to design the shut-in procedure appropriate for the well, as well as any other modelling or engineering analysis required for installation of the capping stack.

The Flow Engineering team is responsible for fluid flow analysis (including rate and composition), well integrity evaluation/shut-in feasibility, dynamic kill modelling, flowback and collection design support, as well as relief well design support as needed.

The Relief Well group is responsible for planning, procurement and execution of the relief well. Depending on the circumstances of the event, support would be provided by the Reservoir Geoscience team. In the event of an incident, the Relief Well group would be led by the Relief Well group Supervisor (or delegate). The staffing profile for this group will be considered when the incident occurs in order to finalise the appropriate staffing commitments and requirements.

The subsea well Containment group (if required) is responsible for developing a temporary subsea production system. This may be necessary in cases where the capping stack cannot be shut-in on a well due to compromised well integrity and potential for broaching. The Containment group is responsible for sourcing equipment needed to establish this flowback system (e.g., subsea production foundations, surface production equipment, etc.) and developing procedures associated with these operations. In addition, the Containment Group will be responsible for temporary capture and collection operations if possible, including deployment of top hats.

The SIMOPS Lead is responsible for coordinating all SCB operations according to the priorities of the SCB Director and his/her staff. The scope of the operations is defined by the SCB exclusion zone. The SIMOPS Lead attends all meetings with the SCB Director and his Group supervisors, and ensures operations are carried out according to plan. The SIMOPS Lead communicates frequently with the On-Scene Commander. Both the SIMOPS Lead and the On-Scene Commander have the authority to make real-time decisions regarding the SCB operations.

## 8.19 OIMS System 11-1: Assessing and Driving Effectiveness (PDCA: Check, Act)

OIMS System 11-1 provides the framework for assessing and continually improving the effectiveness of Operations Integrity management. The system ensures that internal and external assessments are conducted at defined frequencies, focus on the highest operational integrity risks, and evaluate whether OIMS processes and leadership are achieving required outcomes. Assessment results are risk-rated, documented, and used to drive corrective actions, with verification measures including the tracking of overdue high-priority actions and the closure of improvements generated through Annual System Reviews.

In line with OIMS System 1-1, the System Lead completes an annual review of system status and effectiveness, with the System Owner and Lead ensuring follow-up and stewardship of all actions arising from assessments and verification activities to support continuous improvement.

# 9 Bibliography

Abdellatif, E. M., Ali, O. M., Khalil, I. F., & Nyonje, B. M. (1993, May). Effects of sewage disposal into the White Nile on the plankton community. *Hydrobiologia, Vol. 259*, 195–201. doi:10.1007/BF00006599

Abdul Azis, P. K., Al-Tisan, I. A., Daili, M. A., Green, T. N., Dalvi, A. G., & A, J. M. (2003, May 10). Chlorophyll and plankton of the Gulf coastal waters of Saudi Arabia bordering a desalination plant. *Desalination, 154*(3), 291-302.

Accomando, Finneran, Henderson, Jenkins, Kotecki, Martin, . . . Zapetis. (2024). *Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase 4).* Navbal Warfare Information Center.

Addison, R. F., & Brodie, P. F. (1984). Characterization of ethoxyresorufin O-de-ethylase in grey seal Halichoerus Grypus. *Comparative Biochemistry and Physiology Part C: Comparative Pharmacology, 79*(2), 261-263. doi:10.1016/0742-8413(84)90196-8

Addison, R. F., Brodie, P. F., Edwards, A., & Sadler, M. C. (1986). Mixed function oxidase activity in the harbour seal (Phoca vitulina) from Sable Is., N.S. *Comparative Biochemistry and Physiology Part C: Comparative Pharmacology, 85*(1), 121-124. doi:10.1016/0742-8413(86)90062-9

AECOM. (2024). *Environmental Media Report, Gippsland Basin Decommissioning State of the Environment .* AECOM.

AEMO. (2025). *Victorian Gas Planning Report.*

AEMO. (2025a). *2026 Integrated System Plan (ISP).* Retrieved from https://www.aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2026-integrated-system-plan-isp

AEMO. (2025b). *2025 Gas Infrastructure options report.*

Agency for Toxic Substances and Disease Registry. (2024). *Toxicological Profile for Mercury.* U.S. Department of Health and Human Services.

Agriculture Victoria. (2025). *Marine pests in Victoria*. Retrieved from Agriculture Victoria: https://agriculture.vic.gov.au/biosecurity/marine-pests/marine-pests-in-victoria

Aichinger Dias, L., Litz, J., Garrison, L., Martinez, A., Barry, K., & Speakman, T. (2017, January 31). Exposure of cetaceans to petroleum products following the Deepwater Horizon oil spill in the Gulf of Mexico. *Endangered Species Research, 33*, 119–125. doi:10.3354/esr00770

AIMS. (2025). *Fish and benthic communities of subsea pipelines, platforms, and natural habitats of the Bass Strait: informing decommissioning.* AIMS.

AMSA. (2013). *Advisory Note for Offshore Petroleum Industry Consultation with Respect of Oil Spill Contingency Plans and Environmental Plans.* Canberra: Australian Maritime Safety Authority. .

AMSA. (2014, October). Newsletter for the National Plan for Maritime Environmental Emergencies. *On Scene(Issue 26)*. Retrieved from https://www.amsa.gov.au/sites/default/files/amsa112-on-scene-newsletter-26.pdf

AMSA. (2015, January). Technical guidelines for preparing contingency plans for Marine and Coastal Facilities. *(D21/423725)*. Australian Maritime Safety Authority. Retrieved from https://www.amsa.gov.au/sites/default/files/np-gui-012-technical-guidelines-contingency-plans-15082023_0.pdf

AMSA. (2019). *National Plan for Maritime Environmental Emergencies 2019 Edition.* Canberra: Australian Government .

AMSA. (2022). *Annual report 2021-2022.*

AMSA. (2023, November 8). *Collisions between vessels and marine fauna*. Retrieved from AMSA.gov.au: https://www.amsa.gov.au/collisions-between-vessels-and-marine-fauna

AMSA. (2023). *Technical Guideline for the Preparation of Marine Pollution Contingency Plans for MArine and Coastal Facilities.* Australian Maritime Safety Authority.

ANZECC. (2000). *Australian and New Zealand guidelines for fresh and marine water quality.* Australian Government Initiative.

APMPL. (2025, August 21). Retrieved from Australian Priority Marine Pest List: https://www.marinepests.gov.au/what-we-do/apmpl

APPEA. (2002). *Guidelines for Naturally Occuring Radioactive Materials.*

APPEA. (2008). *Code of Environmental Practice.* Australian Petroleum Production and Exploration Association.

Arnould, H. (2025). *PRELIMINARY INVESTIGATION OF AUSTRALIAN FUR SEAL USE OF SEA FLOOR INFRASTRUCTURE.*

Arnould, J. P., Monk, J., Ierodiaconou, D., Hindell, M. A., Semmens, J., Hoskins, A. J., . . . Marshall, G. J. (2015). *Use of Anthropogenic Sea Floor Structures by Australian Fur Seals: Potential Positive Ecological Impacts of Marine Industrial Development.* PloS One. doi:https://doi.org/10.1371/journal.pone.0130581

Arnould, J., Monk, J., Ierodiaconou, D., Hindell, M., Semmend, J., HOskins, A., . . . Marshall, G. (2015). Use of Anthropogenic Sea Floor Structures by Australian Fur Seals: Potential Positive Ecological Impacts of Marine Industrial Development? *PLOS one*.

Aspirault, A. W. (2023). Impact of vessel noise on feeding behavior and growth of zooplanktonic species. *Frontiers in Marine Science (10)*.

Au, W., & Banks, K. (1998). The acoustics of the snapping shrimp Synalpheus parneomeris in Kaneohe Bay. *Journal of The Acoustical Society of America. 41-47*.

Aubin, D. S. (1988). Physiologic and toxicologic effects on pinnipeds. . *Synthesis of Effects of Oil on Marine Mammals, 120.*

Austin, M., Warner, G., & McCrodan, A. (2012). *Underwater Sound Propagation Acoustics Technical Report: Maersk Oil Kalaallit Nunaat A/S 2012 3D Seismic Program Block 9 (Tooq).* Technical report by JASCO Applied Sciences for Golder Associates A/S and Golder Associates Ltd.

Australian Geographic. (2025). *Australian fur seal fact file: Arctocephalus pusillus doriferus.* Retrieved from Australian Geographic: https://www.australiangeographic.com.au/fact-file/australian-fur-seal-arctocephalus-pusillus-doriferus-4/

Australian Marine Parks. (2025). *Australian Marine Parks*. Retrieved from Australian Marine Parks: https://australianmarineparks.gov.au/

Axelrad, D. M., Poore, G. C., Arnott, G. H., Bault, J., Brown, V., Edwards, R. R., & Hickman, N. (1981). The Effects of Treated Sewage Discharge on the Biota of Port Phillip Bay, Victoria, Australia. *Estuaries and Nutrients*. The Human Press Inc. doi:doi.org/10.1007/978-1-4612-5826-1_13

Ball, A., & Truskewycz, A. (2013). Polyaromatic hydrocarbon exposure: an ecological impact ambiguity. *Environmental Science and Pollution Research, 20*, 4311-4326.

Barron, M. G., Carls, M. G., Short, J. W., Rice, S. D., Heintz, R. A., Rau, M., & Di Giulio, R. (2005). Assessment of the phototoxicity of weathered Alaska North Slope crude oil to juvenile pink salmon. *Chemosphere*, 60(1), 105-110.

Bataluk Cultural Trail. (2025). Retrieved from https://www.batalukculturaltrail.com.au/language.php

Bax, N., & Williams, A. (2001). Seabed habitat on the south-eastern Australian continental shelf: context, vulnerability and monitoring. *Marine & Freshwater reaseach 52(4)*, 491-512.

Beach Energy. (2021). *Prion 3D Marine Seismic Survey (T/RL2, T/RL4, T/RL5) Environment Plan*. Retrieved from https://info.nopsema.gov.au/environment_plans/529/show_public

Beach Energy. (2021). *Prion 3D Marine Seismic Survey (T/RL2, T/RL4, T/RL5) Environment Plan*. Retrieved from https://info.nopsema.gov.au/environment_plans/529/show_public

Bell, B., Spotila, J. R., & Congdon, J. (2006). High Incidence of Deformity in Aquatic Turtles in the John Heinz National Wildlife Refuge. *Environmental Pollution, 142*(3), 457– 465.

Bik, H. M., Halanych, K. M., Sharma, J., & Thomas, W. K. (2012, June 6). Dramatic Shifts in Benthic Microbial Eukaryote Communities following the Deepwater Horizon Oil Spill. *PLoS ONE, 7*(6), e38550. doi:doi.org/10.1371/journal.pone.0038550

BIOSIS. (2023). *Exploration Cultural Heritage Desktop Assessment.*

Black, A. (2005). Light induced seabird mortality on vessels operating in the Southern Ocean: incidents and mitigation measures. *Antarctic Science*, 67-68.

Black, K., Brand, G., Grynberg, H., Gwyther, D., Hammond, L., Mourtikas, S., . . . Wardrop, J. (1994). Production facilities. In Environmental implications of offshore oil and gas development in Australia – the findings of an independent scientific review. *Young. Australian Petroleum Exploration Association. Sydney.*

Bock, M., Robinson, H., Wenning, R., French-McCay, D., Rowe, J., & Walker, A. (2018, August). Comparative risk assessment of oil spill response options for a deepwater oil well blowout: Part II. Relative risk methodology. *Marine Pollution Bulletin, 133*, 984-1000. doi:10.1016/j.marpolbul.2018.05.032

BOM. (2025). *Climate statistics for Australian locations*. Retrieved from Monthly climate statistics: Summary statistics EAST SALE: http://www.bom.gov.au/climate/averages/tables/cw_085072.shtml

BP. (2013). *Shah Deniz 2 Project: Environmental & Socio-Economic Impact Assessment.*

BP. (2014). *Abundance and Safety of Gulf Seafood. Seafood Background White Paper. .* London. : BP Exploration and Production Inc. .

BP. (2015). *Gulf of Mexico Environmental Recovery and Restoration.* London: BP Exploration and Production Inc.

BP. (2015). *Gulf of Mexico Environmental Recovery and Restoration. Five year Report. .* BP Exploration and Production Inc. London. .

Brian, S., Bryan, W., & Shigenaka, G. (2021). *Oil and Sea Turtles BIOLOGY, PLANNING, AND RESPONSE.* U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of Response and Restoration.

Brown, J. A., Stephens, S. M., & Stagg, R. M. (1999). Oil produced water: Chronic Impacts on Junevile Turbot. In C. Kennedy, & D. MacKinlay (Eds.), *Fish Response to Toxic Environments* (pp. 121-126). Baltimore, MD: International Congress on the Biology of Fish.

Burridge, L., Boudreau, M., Lyons, N., Courtenay, S., & Lee, K. (2011). Effects of Hibernia Production Water on the Survival, Growth and Biochemistry of Juvenile Atlantic Cod (Gadus morhua) abd Northern Mummichog (Fundulus heteroclitus macrolepidotus). In K. Lee, & J. Neff (Eds.), *Produced Water: Environmental Risks and Advances in Mitigation Technologies* (pp. 311-328). New York: Springer.

Cardno. (2019). *In-situ Produced Formation Water, Mariine Water and Sediment Sampling Program 2018. Prepared by Cardno for Esso Australia Pty Ltd.*

Cardno. (2022). *Bass Strait Sedimentation Study.*

Carroll, A., Przeslawski, R., Duncan, A., Gunning, M., & Bruce, B. (2017). A critical review of the potential impacts of marine seismic surveys on fish & invertebrates. *Marine Pollution Bulletin*.

CHARM Implementation Network. (2017). CHARM, Chemical Hazard Assessment and Risk Management: For the use and discharge of chemicals used offshore . *User Guide Version 1.5*.

Cholewiak, D., Clark, C., Ponirakis, D., Frankel, A., Hatch, L., & Risch, D. (2018). Communicating amidst the noise: modelling the aggregate influence of ambient and vessel noise on baleen whale communication space in a national marine sanctuary. *Endanger. Species Res. 36*, 59-75.

CIN. (2005). *Chemical Hazard Assessment and Risk Management, for the use and discharge of chemicals used offshore. User Guide version 1.4. .* CHARM Implementation Network (CIN). .

Clarke. (2010.). *The Status of Seabirds and Shorebirds at Ashmore Reef, Cartier Island and Browse Island. Monitoring Program for the Montara Well Release. Pre-impact Assessment and First Post-Impact Field Survey.* Melbourne.: Prepared on behalf of PTTEP Australasia and the Department of the Environment, Water, Heritage and the Arts by the Australian Centre for Biodiversity, Monash University.

CoA. (2013). *Recovery Plan for the White Shark (Carcharodon carcharias).* Commonwealth of Australia.

CoA. (2017). Australian National Guidelines for Whale and Dolphin Watching 2017. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/aust-national-guidelines-whale-dolphin-watching-2017.pdf

CoA. (2017). *National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna.* Commonwealth of Australia.

CoA. (2017). *Recovery Plan for Marine Turtles in Australia.* Commonwealth of Australia.

CoA. (2018). *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans.*

CoA. (2020). *National Recovery Plan for the Australian Fair Tern (Sternula nereis nereis).* Canberra: Commonwealth of Australia. Retrieved from https://www.environment.gov.au/biodiversity/threatened/species/pubs/82950-conservation-advice.pdf

CoA. (2022). *National Recovery Plan for albatrosses and petrels. .* Commonwealth of Australia 2022. Department of Climate Change, Energy, the Environment and Water.

CoA. (2022). National Recovery Plan for Threatened Albatrosses and Giant Petrels 2022. Commonwealth of Australia.

Committee on Oil in the Sea. (2003). *Oil in the Sea III: Inputs, Fates and Effects.* Washington, D.C.: The National Academies Press.

Commonwealth of Australia . (2024). *Future Gas Strategy.* Retrieved from https://www.industry.gov.au/sites/default/files/2024-05/future-gas-strategy.pdf

Commonwealth of Australia. (2015, June). A description of the ecosystems, conservation values and uses of the South-east Marine Region. *South-east marine region profile*. Department of the Environment. Retrieved from South-east marine region profile: A description of the ecosystems, conservation values and uses of the South-east Marine Region

Continental Shelf Associates. (1997). *Gulf of Mexico Produced Water Bioaccumulation Study, Technical Report for Offshore Operators Committee, Louisiana.*

Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2), FCA 1158 (Federal Court of Australia September 28, 2023). Retrieved from https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/single/2023/2023fca1158

CSIRO. (2004). *Development of genetic probes for rapid assessment of the impacts of marine invasive species on native biodiversity - Maoricolpus roseus.* Department of Environment and Heritage by CSIRO Marine Research.

CSIRO. (2024). *State of the Climate 2024.* Retrieved from Bureau of Meterology: https://www.csiro.au/en/research/environmental-impacts/climate-change/state-of-the-climate

CSIRO. (2025). *Greenhouse gases*. Retrieved from CSIRO: https://www.csiro.au/en/research/environmental-impacts/climate-change/State-of-the-Climate/Greenhouse-gases

Cunnigham, K., & Mountain, D. (2014). Simulated masking of right whalesounds by shipping noise: inccorporating a model of the auditory periphery. *J. Acoust.Soc.Am. 135*, 1632-1640.

DAFF. (2018). *National Biofouling Management Guidance for the Petroleum Production and Exploration Industry.*

DAFF. (2023a). *Australian Biofouling managment requirements (Version 2).* Canberra: Department Agriculture, Fisheries and Forestry.

DAFF. (2023b). *Offshore Installations Biosecurity Guide.* Department of Agriculture, Fisheries and Forestry.

DAFF. (2024). *Australian anti-fouling and in-water cleaning guidelines: exposure draft.* Department of Agriculture, Fisheries and Forestry.

Davis, H. K., Moffat, C. F., & Shepherd, N. J. (2002, December). Experimental Tainting of Marine Fish by Three Chemically Dispersed Petroleum Products, with Comparisons to the Braer Oil Spill. *Spill Science & Technology Bulletin, 7*(5-6), 257– 278. doi:10.1016/S1353-2561(02)00043-9

DAWE & NOPSEMA. (2021). Guidance on key terms within the Blue Whale Conservation Management Plan. Department of Agriculture, Water and the Environment.

DAWE. (2020). *Australian Ballast Water Management Requirements.* Department of Agriculture, Water and the Envrionment.

DAWR. (2018). *Marine Pest plan 2018-2023: the national plan for Marine Pest Biosecurity.* Canberra, May. CC By 4.0: Department of Agriculture and Water Resources.

DCCEEW. (2021, October 3). *Australia's Commonwealth Heritage List*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/parks-heritage/heritage/places/commonwealth-heritage-list

DCCEEW. (2021, October 3). *Directory of Important Wetlands in Australia*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands

DCCEEW. (2021c, October 3). *Australia's Commonwealth Heritage List*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/parks-heritage/heritage/places/commonwealth-heritage-list

DCCEEW. (2022). *About threatened ecological communities*. Retrieved from DCCEEW : https://www.dcceew.gov.au/environment/biodiversity/threatened/communities/about#what-important

DCCEEW. (2022). *Australian Ramsar Wetlands*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/australian-ramsar-wetlands

DCCEEW. (2022, July 26). *Invasive species*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/environment/invasive-species

DCCEEW. (2022a). *Oxides of Nitrogen*. Retrieved from NPI: https://www.dcceew.gov.au/environment/protection/npi/substances/fact-sheets/oxides-nitrogen-0#tabs-3

DCCEEW. (2022b). *Carbon monoxide*. Retrieved from NPI: https://www.dcceew.gov.au/environment/protection/npi/substances/fact-sheets/carbon-monoxide-0

DCCEEW. (2022c). *Total Volatile Organic Compounds*. Retrieved from NPI: https://www.dcceew.gov.au/environment/protection/npi/substances/fact-sheets/total-volatile-organic-compounds

DCCEEW. (2022d). *Particulate matter (PM10 and PM2.5)*. Retrieved from NPI: https://www.dcceew.gov.au/environment/protection/npi/substances/fact-sheets/particulate-matter-pm10-and-pm25

DCCEEW. (2023). *Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999*. Canberra: Department of Climate Change, Energy, the Environment and Water. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/interim-engaging-with-first-nations-people-and-communities-assessments-and-approvals-under-epbc-act.pdf

DCCEEW. (2023). *Interim Engaging with First Nations People and Communities on Assessments and Approvals Under the Environment Protection and Biodiversity Conservation Act 1999*. Canberra: Department of Climate Change, Energy, the Environment and Water. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/interim-engaging-with-first-nations-people-and-communities-assessments-and-approvals-under-epbc-act.pdf

DCCEEW. (2023). National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds.

DCCEEW. (2023). *Safeguard Mechanism Reforms Factsheet*. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/safeguard-mechanism-reforms-factsheet-2023.pdf

DCCEEW. (2023, September 25). *Sea Country Indigenous Protected Areas Program - Grant Opportunity*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/environment/land/indigenous-protected-areas/sea-country-grant-opportunity

DCCEEW. (2023d). National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds.

DCCEEW. (2024). *Australia's World Heritage List*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/parks-heritage/heritage/places/world-heritage-list

DCCEEW. (2024). *National Recovery Plan of the Southern Right Whale (Eubalaena australis).* Canberra: Department of Climate Change, Energy, the Environment and Water.

DCCEEW. (2024d, July 18). *Gippsland, Victoria declared offshore wind area*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/energy/renewable/offshore-wind/areas/gippsland

DCCEEW. (2024f). *Assesing and Managing Impacts to Underwater Cultural Heritage in Australian Waters.* Canberra: Department of Climate Change, Energy, the Environment and Water.

DCCEEW. (2025). *Australia's National Heritage List*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/parks-heritage/heritage/places/national-heritage-list

DCCEEW. (2025). *Biologically Important Areas for protected marine species (BIAs)*. Retrieved from DCCEEW : https://www.dcceew.gov.au/environment/marine/bias

DCCEEW. (2025). *Key Ecological Features*. Retrieved from Species Profile and Threats Database: https://environment.gov.au/sprat-public/action/kef/search

DCCEEW. (2025a). *National Greenhouse Gas Inventory Quarterly Update: June 2025.* Retrieved from https://www.dcceew.gov.au/climate-change/publications/national-greenhouse-gas-inventory-quarterly-update-june-2025

DCCEEW. (2025a). *Safeguard Mechanism*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/climate-change/emissions-reporting/national-greenhouse-energy-reporting-scheme/safeguard-mechanism

DCCEEW. (n.d.). *Marine Key Ecological Features*. Retrieved November 2025, from Find Environmental Data: https://fed.dcceew.gov.au/datasets/erin::marine-key-ecological-features/explore?showTable=true

De Campos, L. F., Paiva, P. M., Rodrigues, P. P., Ferreira, M. I., & Junior, J. L. (2017, May). Disposal of waste from cementing operation from offshore oil and gas wells building. *Ciencia e Natura, 39*(2), 413-422. doi:10.5902/2179460X25821

DEECA. (2025). *Victoria's climate change strategy*. Retrieved from https://www.climatechange.vic.gov.au/victorias-climate-change-strategy: https://www.climatechange.vic.gov.au/victorias-climate-change-strategy

DELWP. (2018). *Our Wildlife Fact Sheet: Australian Fur Seal.* Retrieved from https://www.wildlife.vic.gov.au/__data/assets/pdf_file/0009/114021/Australian-Fur-Seal.pdf

DELWP. (2021). *Victoria's Climate Change Strategy*. Retrieved from https://www.climatechange.vic.gov.au/victorias-climate-change-strategy

Department of Conservation. (2016). Report of the Non-Standard Surveys Technical Working Group. *Marine Species and Threats, Department of Conservation, Wellington, New Zealand.*, 23.

Department of the Environment. (2015). Conservation Management Plan for the Blue Whale 2015–2025. *A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia. Retrieved from

https://www.dcceew.gov.au/sites/default/files/documents/blue-whale-conservation-management-plan.pdf

DEWHA. (2008). *EPBC Act Policy Statement 2.1 - Interaction between offshore seismic exploration and whales.* Department of the Environment, Water, Heritage and the Arts. Australian Government. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/seismic-whales.pdf

Director of National Parks. (2025). *South-east Marine Parks Management Plan.*

DNP. (2018). *Temperate East Marine Parks Network Management Plan 2018.* DNP.

DNV. (2011). *Assessment of the Risk of Pollution from Marine Oil Spills in Australian Ports and Waters. Final Report. Report No PP002916, Rev 4. Report for Australian Maritime Safety Authority.* London: Det Norske Veritas.

DoE. (2013). Matters of National Environmental Significance - Significant impact guidelines 1.1. *EPBC Act Policy Statement*. Retrieved from https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance

DoEE. (2016). *Coastal wetlands—Mangroves and saltmarshes.* Canberra: Department of the Environment and Energy. .

DoEE. (2017). Recovery Plan for Marine Turtles in Australia 2017-2027. Department of the Environment and Energy, Commonwealth of Australia. Retrieved from http://www.environment.gov.au/sprat

DSEWPAC. (2012). Conservation Management Plan for the Southern Right Whale 2011–2021. *A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/e-australis-2011-2021.pdf

DSEWPAC. (2013). Recovery Plan for the White Shark (Carcharodon carcharias). Commonwealth of Australia.

DSEWPC. (2013b). *Conservation Advice for SUBTROPICAL AND TEMPERATE COASTAL SALTMARSH.* Canberra: Department of Sustainability, Environment, Water, Population and Communities. .

Dunlop, M. (2012). *The implications of climate change for biodiversity conservation and the National Reserve System: Final synthesis*. Retrieved from https://library.dbca.wa.gov.au/FullTextFiles/923912.pdf

Dunlop, R. (2016). The effect of vessel noise on humpback whale, Megaptera novaeangliae, commiunication behaviour. *Animal Behaviour(111)*, 13-21.

Elliott, M. (2014). *Environmental Impact Assessment in Australia: Theory and Practice.* Leichhardt, NSW: Federation Press, 6th Edn.

Ellis, M. R., Treml, E. A., Brown, M. S., Matthews, T. G., Pocklington, J. B., Stafford-Bell, R. E., . . . Sherman, C. D. (2025). Detecting marine pests using environmental DNA and biophysical models. *Science of The Total Environment*.

Ellison, W., Southall, B., Clark, C., & Frankel, A. (2012). A new context based approach to assess marine mammal behavioral repsonses to anthropogenic sounds. *Conservation Biology, 26*, 21-28.

Engelhardt, F. R. (1982). Hydrocarbon metabolism and cortisol balance in oil-exposed ringed seals, Phoca hispida. *Comparative Biochemistry and Physiology Part C: Comparative Pharmacology, 72*(1), 133-136. doi:10.1016/0306-4492(82)90219-2

Engelhardt, F. R. (1983). Petroleum effects on marine mammals. *Aquatic Toxicology, 4*(3), 199-217. doi:10.1016/0166-445X(83)90018-8

EPA. (2025). *Our statement of regulatory intent on climate change 2025 to 2027 | .* Retrieved from epa.vic.gov.au

Erbe. (2023). Effects of ship noise on marine mammals. *Marine Pollution Bulletin*.

Erbe, C., & McPherson, C. (2017). Underwater noise from geotechnical drilling and standard penetration testing. *Journal of Acoustical Society of America*, 142(3): EL281.

Erbe, C., Reichmuth, C., Cunnigham, K., Lucke, K., & Fooling, R. (2015). Communication masking in marine mammals: A review and research strategy. *Mar.Pol.Bull.103(1-2)*, 15-38.

Esso. (2009). Bass Strait Environment Plan (BSEP) Geophysical and Geotechnical Supplement Summary Environment Plan. Esso Australia Pty Ltd.

European Commission. (2019). *Best Available Techniques Guidance Document on Upstream Hydrocarbon Exploration and Production.* Luxembourg: Publications Office of the European Union.

Extent Heritage and Wessex Archaeology. (October 2024). *Gippsland Basin Decommissioning Cumulative Effects Analysis Cultural Heritage Addendum Report.*

ExxonMobil. (2021, December). ExxonMobil Upstream Socioeconomic Management Standard.

ExxonMobil. (2024). Risk Matrix Application Guide.

ExxonMobil. (2024). Sustainability Management: Environmental Aspects Guide.

Felder, D., Thoma, B., Schmidt, W., Sauvage, T., Self-Krayesky, S., Christoserdov, A., . . . Fredericq, S. (2014). Seaweeds and Decapod Crustaceans on Gulf Deep Banks after the Macondo Oil Spill. *Bioscience* , (64): 808–819. .

Finneran, J. (2016). *Auditory weighting functions and TTS/PTS exposure functions for marine mammals exposed to underwater noise.*

Finneran, J. (2016). *AUditory weighting functions and TTS/PTS exposure functions for marine mammals exposed to underwater noise.*

Finneran, J., Henderson, E., Houser, D., Jenkins, K., Kotecki, S., & Mulsow, J. (2017). *Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III).* SSC Pacific.

Fish, F. E., Howie, L. E., & Murray, M. M. (2023). Hydrodynamic flow control in marine mammals. *Journal of Experimental Biology, 226*(4).

French-McCay, D. &. (2016). *Modeling Oil Fate and Subsurface Exposure Concentrations from the Deepwater Horizon Oil Spill.*

French-McCay, D. (2009). State-of-the-art and research needs for oil spill impact assessment modelling. Proceedings of the . *32nd Arctic and Marine Oil Spill Program Technical Seminar.* Ottawa. : Environment Canada, .

Frost, K. J., & Lowry, L. F. (1994). *Assessment of Injury to Harbor Seals in Prince William Sound, Alaska, and Adjacent Areas Following the Exxon Valdez Oil Spill. Exxon Valdez Oil Spill: State/Federal Natural Resource Damage Assessment Final Report.* Marine Mammal Study Number 5 (Restoration Study Number 73).

Fucik, K. W., Carr, K. A., & Balcom, B. J. (1995). Toxicity of oil and dispersed oil to the eggs and larvae of seven marine fish and invertebrates from the Gulf of Mexico. In P. Lane (Ed.), *The use of chemicals in oil spill response* (pp. 135-171). Philadelphia, PA: American Society for Testing and Materials.

Fucik, K. W., Carr, K. A., & Balcom, B. J. (1995). Toxicity of oil and dispersed oil to the eggs and larvae of seven marine fish and invertebrates from the Gulf of Mexico. In A. S. Materials, & P. Lane (Ed.), *The use of chemicals in oil spill response*.

Furuholt, E. (1996). Environmental effects of discharge and reinjection of produced water. In E. Furuholt, M. Reed, & S. Johnsen (Eds.), *Produced Water 2. Environmental issues and mitigation technologies.* (pp. 275-288). New York: Plenum Press.

Gabriele, C., Ponirakis, D., Clark, C., Wombe, J., & Vanselow, P. (2018). UNderwater ecology metrics in an Alaska marine protected area reveal marine mammal communication masking and management alternatives. *Front. Mar. Sci. 5:270*.

Gagnon, M. M. (2011). Evidence of exposure of fish to produced formation water at three offshore facilities, Northwest Shelf, Australia. In K. Lee, & J. Neff (Eds.), *Produced Water: Environmental Risks and Mitigation Technologies.* Springer Publishing.

Gagnon, M., & Rawson, C. (2011). *Montara Well Release, Monitoring Study S4A – Assessment of Effects on Timor Sea Fish.* Perth, Australia: Curtin University.

GEMS. (2005). Nexus Petroleum. Oil Spill Risk Assessment Longtom-3 Bass Strait VIC. . *Global Environmental Modelling System.* .

Geraci, J. R., & St Aubin, D. J. (1980). Offshore Petroleum Resource Development and Marine Mammals: A Review and Research Recommendations. *Marine Fisheries Review*.

Geraci, J. R., & St. Aubin, D. J. (1990). *Sea Mammals and Oil: Confronting the Risks.* San Diego, CA: Academic Press.

Geraci, J., & St. Aubin, D. (1988). *Synthesis of Effects of Oil on Marine Mammals.* . Ventura, California. : Report to US Department of the Interior, Minerals Management Service, Atlantic OCS Region, OCS Study. .

Gibbs, C. F., Arnott, G. H., Longmore, A. R., & Marchant, J. W. (1991). Nutrient and plankton distribution near a shelf break front in the region of the Bass Strait cascade. *Australian Journal of Marine and Freshwater Research, 42*(2), 201-217.

Gill, P., Morrice, M., Page, B., Pirzl, R., Levings, A., & Coyne, M. (2011). Blue whale habitat selection and within-season distribution in a regional upwelling system off southern Australia. *Mar. Ecol. Prog. Ser*.

Gippsland Times. (2014). Beach oil spill. Report by Julianne Langshaw, March 17, 2014. Gippsland. *Times and Maffra Spectator. Victoria.*

Glaholt, Marko and Duke. (2011). Investigations into Gas Pipeline Operational Noise and its Potential to Impact Toothed and Baleen Whales. *Environmental Science*.

Glaholt, R. (2008). Investigation of the Potential Effects of Marine Pipelines on Dungeness Crab Movement and Benthic Ecology. *Environment Concerns in Rights-of-Way Management 8th International Symposium*, (pp. 679-692).

GLaWAC. (2015, July). Gunaikurnai Whole-of-Country Plan. Retrieved from https://gunaikurnai.org/wp-content/uploads/2021/07/Gunaikurnai-Whole-of-Country-Plan-ONLINE.pdf

GLaWAC. (2022, October 7). Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) Submission for Offshore renewable energy infrastructure area proposal: Bass Strait off Gippsland. *Position Statement: Offshore Renewable Energy Infrastructure Area*. Retrieved from https://gunaikurnai.org/wp-content/uploads/2022/11/Offshore-Renewable-Energy-Infrastructure-Area-Submission-GLaWAC-221007.pdf

GLaWAC. (2023). *Our Country*. Retrieved from Gunaikurnai Land and Waters Aboriginal Corporation: https://gunaikurnai.org/our-country/

GLAWAC. (2025). *Our Country*. Retrieved from gunaikurnai.org: https://gunaikurnai.org/our-country/

Goldsworthy, S. D. (2015). *Arctocephalus pusillus ssp. doriferus. The IUCN Red List of Threatened Species 2015: e.T2067A66991075.* IUCN. Retrieved from http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T2067A66991075.en

Gomex, C., Lawson, L., Wright, A., Buren, A., Tollit, D., & Leasage, V. (2016). A systematic review on teh behavioural response of wild mainre mammals to noise: the dipsarity between science and policy. *Canadian Journal or Zoology*, 801-819.

Greenhouse Gas Protocol. (n.d.). *Calculation Tools and Guidance*. Retrieved from https://ghgprotocol.org/calculation-tools-and-guidance

Hamoutene, D., Volkoff, H., Parrish, C., Samuelson, S., Mabrouk, G., Mansour, A., . . . Lee, K. (2011). Effect of Produced Water on Innate Immunity, Feeding and Antioxidant Metabolism in Atlantic Cod (Gadus morhua). In K. Lee, & J. Neff (Eds.), *Produced Water: Environmental Risks and Advances in Mitigation Technologies* (pp. 311-328). New York: Springer.

Hansen, B., Sørensen, L., Størseth, T., Nepstad, R., Altin, D., Krause, D., . . . Nordtug, T. (2019). Embryonic exposure to produced water can cause cardiac toxicity and deformations in Atlantic cod (Gadus morhua) and haddock (Melanogrammus aeglefinus) larvae. *Marine Environmental Research, 148*.

Hayworth, J. S., Clement, T. P., & Valentine, J. F. (2011). Deepwater Horizon oil spill impacts on Alabama Beaches. *Hydrology and Earth System Sciences, 15*(12), 3639– 3649. doi:10.5194/hess-15-3639-2011

Helm, R. C., Costa, D. P., DeBruyn, T. D., O'Shea, T. J., Wells, R. S., & Williams, T. M. (2015). Overview of effects of oil spills on marine mammals. *Handbook of oil spill science and technology*, 455-475.

Henderson, S. B., Grigson, S. J., Johnsen, P., & Roddie, B. D. (1999). Potential impact of production chemicals on the toxicity of produced water discharges from the North Sea oil platforms. *Mar Poll Bull, 38*, 1141-1151.

Heyward, A., Moore, C., Radford, B., & Colquhoun, J. (2010). *Monitoring Program for the Montara Well Release Timor Sea: Final Report on the Nature of Barracouta and Vulcan Shoals* . Report prepared by the Australian Institute of Marine Science for PTTEP Australasia (Ashmore Cartier) Pty Ltd. .

Hickle-Conn, C., Flleger, J. W., Gregg, J. C., & Carman, K. R. (1998). Effects of sediment-bound polycyclic aromatic hydrocarbons on feeding behaviour in juvenile spot (Leiostomus zanthurus). *Journal of Experimental Marine Biology and Ecology, 227*, 113-132.

Higgins, L. V., & Gass, L. (1993). Birth to weaning: parturition, duration of lactation, and attendance cycles of Australian sea lions (Neophoca cinerea). *Canadian Journal of Zoology, 71*, 2047-2055.

Hofmeyr, G. J. (2015). *Arctocephalus pusillus. The IUCN Red List of Threatened Species 2015: e.T2060A45224212.* IUCN. doi:http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T2060A45224212.en

Hook, S., Batley, G., Holloway, M., Irving, P., & Ross, A. (2016). Oil Spill Monitoring Handbook. Melbourne: CSIRO Publishing.

Hook, S., Batley, G., Holloway, M., Irving, P., & Ross, A. (2016). *Oil Spill Monitoring Handbook.* . Melbourne. : CSIRO Publishing. .

IALA. (2021). *G1162 The Making of Offshore Man-made Structures.* IALA Guideline. Retrieved from https://www.iala.int/product/g1162/

IALA. (2021). IALA Guideline - G1162 The Making of Offshore Man-made Structures, Ed 1.1.

IMO. (2012). 2012 Guidelines For The Development Of Garbage Management Plans.

IMO. (2023). *Guidelines for the control and management of ships' biofouling to minimise transfers of invasive aquatic species.* International Maritime Organisation.

IMO. (2024). International Maritime Dangerous Goods Code.

IOGP. (2019). *Risk Assessment Data Directory – Blowout Frequencies. Report 434-02, Version 2.0.*

IOGP. (2020). *Risk Based Assessment of Offshore Produced Water Discharges. Report 633. September 2020.* London: International Association of Oil & Gas Producers.

IPCC. (2023). *AR6 Synthesis Report Climate Change 2023*. Retrieved from https://www.ipcc.ch/report/ar6/syr/

IPCC. (2025). *2006 IPCC Guidelines for National Greenhouse gas inventories.* Retrieved from https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html

IPIECA. (1999). *Biological Impacts of Oil Pollution: Sedimentary Shores.* International Petroleum Industry Environmental Conservation Association. Retrieved from https://www.amn.pt/DCPM/Documents/SedimentaryShores.pdf

IPIECA-IOGP. (2020). *Environmental management in the upstream oil and gas industry.* London: International Association of Oil & Gas Producers and IPIECA.

IPIECA-IOGP. (2020). *Environmental management in the upstream oil and gas industry.* London.: International Association of Oil & Gas Producers and IPIECA. .

ITOPF. (2011). *Effects of Oil Pollution on the Marine Environment.* London: ITOPF Ltd. Retrieved from https://www.itopf.org/fileadmin/uploads/itopf/data/Documents/TIPS_TAPS_new/TIP_13_Effects_of_Oil_Pollution_on_the_Marine_Environment.pdf

ITOPF. (2025). *Handbook 2025/26.* International Tankers Owners Pollution Federation Ltd, UK.

JASCO. (2025). *Addendum 1: Esso Bass Strait Operations Modelling – Generic Platform.*

Jenkins, G., & McKinnon, L. (2006). Channel Deepening Supplementary Environment Effects Statement - Aquaculture and Fisheries. *Primary Industries Research, Victoria.*

Jiang, Z., Huang, Y., Xu, X., Liao, Y., Shou, L., Liu, J., & . Zeng, J. (2010). Advance in the toxic effects of petroleum water accommodated fraction on marine plankton. . *Acta Ecologica Sinica*, 30(1), 8-15.

Jiménez-Arranz et al, .. J.-A. (2020). *Review on Existing Data on Underwater Sounds Produced by the Oil and Gas Industry. A report prepared by Seiche Ltd for the Joint Industry Programme (JIP) on E&P Sound and Marine Life. JIP Topic - Sound source characterisation and propagation.*

Jones, R. A. (2024). Auditory Masking Parameters for Otariid, Odobenid, and Phocid Pinnipeds. *ESOMM Conference.*

Kaviraj, A., Bhunia, F., & Saha, N. C. (2004). Toxicity of Methanol to Fish, Crustacean, Oligochaete Worm, and Aquatic Ecosystem. *International Journal of Toxicology, 23*(1). doi:https://doi.org/10.1080/10915810490265469

Kennish, M. (1996.). *Practical Handbook of Estuarine and Marine Pollution.* . Florida. : CRC Press. .

Kiszka, J. J., Woodstock, M. S., & Heithaus, M. R. (2022). Functional roles and ecological importance of small cetaceans in aquatic ecosystems. *Frontiers in Marine Science, 9*. Retrieved from https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2022.803173/full

Klein, R. A. (2009). Firefighting foam and the environment. *Fire Risk Management*, pp. 13-17.

Klinger Integrity Services . (2024). *Leak Detection Survey Report for Marlin A & B, Snapper, Tuna A, West Tuna, Barracouta A Offshore platforms* . Klinger Integrity Service Division .

Krassoi, F., Brown, K., Bishop, M., & Summerhaye, S. (2008). Condition-specific competition allows coexistence of competitively superior exotic oysters with native oysters. *J Anim Ecology*, 1365-2656.

Krzysztof, K., Gorecki, J., & Burmistrz, P. (2021). Opportunities for reducing mercury emissions in . *Journal of Cleaner Production, Science Direct*, 293.

Laist, D. W., Knowlton, A. R., Mead, J. G., Collet, A. S., & Podesta, M. (2001, January). Collisions between Ships and Whales. *Marine Mammal Science, 17*(1), 35-75. doi:10.1111/j.1748-7692.2001.tb00980.x

Lamendella, R., Strutt, S., Borglin, S., Chakraborty, R., Tas, N., Mason, O. U., . . . Jansson, J. K. (2014, April 3). Assessment of the Deepwater Horizon oil spill impact on Gulf coast microbial communities. *Frontier in Microbiology, 5*, e130. doi:doi.org/10.3389/fmicb.2014.00130

Langford T.E.L. (1990). Ecological effects of thermal discharges. *Elsevier*.

Lavender, A., Bartol, S., & Bartol, I. (2014). Ontogenetic Investigation of Underwater Hearing Capabilities in Loggerhead Sea Turtles (Caretta caretta) Using a Dual Testing Approach. *Journal of Experimental Biology*, 2580-2589.

Lawrence, J. M., Heath, M. R., Speirs, D. C., & Fernandes, P. G. (2024, September). Structure size may affect fish density around oil platforms. *Journal of Marine Science, 81*(7), 1399-1411. doi:https://doi.org/10.1093/icesjms/fsae083

Leo Akiba on behalf of the Torres Strait Regional Seas Claim Group v Commonwealth of Australia, HCA 33 (High Court of Australia August 7, 2013).

Lin, Q., & Mendelssohn, I. A. (1996). A comparative investigation of the effects of south Louisiana crude oil on the vegetation of fresh, brackish and salt marshes. . *Marine Pollution Bulletin*, 32(2), 202-209. .

Lindquist, D.C., Shaw, R.F. and Hernandez Jr, F.J. (2005). Distribution patterns of larval and juvenile fishes at offshore petroleum platforms in the north-central Gulf of Mexico. *Estuarine, Coastal and Shelf Science*, 655-665.

Ling. S D, K. J. (2018). *Resurvey of the Longspined Sea Urchin (Centrostephanus rodgersii) and associated barren reef in Tasmania.* Hobart: University of Tasmainia.

Liu, J., & Stephen, T. (2025a). *Addendum 1: Esso Bass Strait Modelling - reprocessing with 2024 Noise effect criteria.* JASCO Applied Sciences.

Liu, J., & Stephen, T. (2025b). *Addendum 2: Esso Bass strait modelling - Marlin Platform.* JASCO.

Luter, H. M., Whalan, S., Andreakis, N., Wahab, M. A., Botte, E. S., Negri, A. P., & Webster, N. S. (2019). The effects of crude oil and dispersant on the larval sponge holobiont. *mSystems, 4*(6). doi:https://doi.org/10.1128/msystems.00743-19

Mabo v Queensland (No 2) 175 CLR 1, HCA 23 (High Court 1992).

Macarena, P. D., Hansjoerg, P., Kunc, J., & Houghton, J. D. (2024). Anthropogenic noise predicts sea turtle behavioural responses. *Marine Pollution Bulletin*, 25-32.

Marine Mammal Commission. (2024). *Oil and gas development and marine mammals*. Retrieved from https://www.mmc.gov/priority-topics/offshore-energy-development-and-marine-mammals/offshore-oil-and-gas-development-and-marine-mammals/

Mathieu, A., Hanlon, J., Myers, M., Melvin, W., French, B., DeBlois, E. M., . . . Janes, G. (2011). Studies on Fish Health Around the Terra Nova Oil Development Site on the Grand Banks Before and After Discharge of Produced Water. In K. Lee, & J. Neff (Eds.), *Produced Water: Environmental Risks and Advances in Mitigation Technologies* (pp. 375-400). New York: Springer.

Matkin, C. O., Saulitis, E. L., Ellis, G. M., Olesiuk, P., & Rice, S. D. (2008). Ongoing population-level impacts on killer whales Orcinus orca following the 'Exxon Valdez' oil spill in Prince William Sound, Alaska. *Marine Ecology Progress Series, 356*, 269-281.

Matthews, M. N., Connell, S. S., & McPherson, C. R. (2022). *Esso Bass Strait Operations Modelling: Assessing Marine Fauna Sound Exposures.* JASCO Applied Sciences.

Matthews, M., Connell, S., & McPherson, C. (2023). Esso Bass Strait Operations Modelling: Assessing Marine Fauna Sound Exposures. Document 02700, Version 2.0. *Technical report by JASCO Applied Sciences for Esso Australia Pty. Ltd.*

McCauley, R. (1998). *Radiated Underwater Noise Measured from the Drilling Rig Ocean General, Rig Tenders Pacific Ariki and Pacific Frontier, Fishing Vessel Reef Venture and Natural Sources in the Timor Sea, Northern Australia.*

McCauley, R., Fewtrell, J., & Popper, A. (2003). High intensity anthropogenic sound damages fish ears. *The Journal of the Acoustical Society of America. 113*, 638-642.

McInnes, K. L., & Hubbert, G. D. (2003, September). A numerical modelling study of storm surges in Bass Strait. *Australian Meteorological Magazine, 52*(3), 143-156.

McLean et al. (2022a, May). *Marine communities of offshore platforms and surrounding natural habitats in the Gippsland region, south-east Australia.* Prepared for Esso Australia Pty Ltd.

McLean, D., Jaworski, S., Bornt, K., Galaiduk, R., Birt, M., Mc Cormack, S., . . . Case, M. (2025). *Fish and benthic communities of subsea pipelines, platforms, and natural habitats of the Bass Strait: informing decommissioning. Report prepared for Esso Australia Pty Ltd.* Perth, WA. 132 pp.: Australian Institute of Marine Science,.

McLean, D., S, J., K, B., R, G., M, B., S, M. C., . . . M., C. (2025). *Fish and benthic communities of subsea pipelines, platforms, and natural habitats of the Bass Strait: informing decommissioning. Report prepared for Esso Australia Pty Ltd.* Perth, WA. 132 pp.: Australian Institute of Marine Science,.

Meekan, M. G., Wilson, S. G., Halford, A. and Retzel, A. (2001). A comparison of catches of fishes and invertebrates by two light trap designs, in tropical NW Australia. *Mar. Biol.*, 139: 373 – 381. .

Meier, S., Anderson, T. E., Hasselberg, L., Kjesbu, O. S., Klungsoyr, J., & Svardal, A. (2002). Hormonal effects of C4-C7 alkylphenols on cod (Gadus morhua). *Institute of Marine Research Project Report.* Norway.

Meier, S., Grøsvik, B. E., Makhotin, V., Geffen, A., B. S., Kvestad, K. A., . . . Svardal, A. (2010). Development of Atlantic cod (Gadus morhua) exposed to produced water during early life stages. Effects on embryos, larvae, and juvenile fish. *Marine Environmental Research, 70*, 383-394.

MESA. (2025). *http://www.mesa.edu.au/marine_pests*.

Milicich, M., Meekan, M. and Doherty, P. (1992). Larval supply: a good predictor of recruitment in three species of reef fish (Pomacentridae). *Mar. Ecol. Prog. Ser*, 86: 153-166.

Muellenmeister et al., M. A. (2023). *2023. Esso G&T Wells Plug and Abandonment: Acoustic Modelling for Assessing Marine Fauna Sound Exposures. Technical report by JASCO Applied Sciences for Aventus Consulting Pty Ltd.*

Myrberg, A. A. (2001). The Acoustical Biology of Elasmobranchs. *Environmental Biology of Fishes*, 31-46.

National Environment Protection Council. (2021). National Environment Protection (Ambient Air Quality) Measure .

National Native Title Tribunal. (2025). *About native title applications or native title determination applications*. Retrieved from Native Title Applications: http://www.nntt.gov.au/nativetitleapplications/Pages/default.aspx

NCE. (2007). Treatments for reducing underwater sounds from oil and gas industry activities. . *Report prepared by Noise Control Engineering Inc. Report: 07-001.*

Neff, J. (2002). *Bioaccumulation in Marine Organisms: Effect of Contaminants from Oil Well Produced Water.* Oxford: Elsevier.

Neff, J., Lee, K., & DeBlois, E. (2011). Produced water: overview of composition, fates, and effects. In K. Lee, & J. Neff (Eds.), *Produced Water: Environmental Risks and Advances in Mitigation Technologies* (pp. 3-54). New York: Springer.

NERA. (2017). Planned discharge of sewage, putrescible waste and grey water. *Environment Plan Reference Case*. Commonwealth of Australia. Retrieved from https://referencecases.nera.org.au/Attachment?Action=Download&Attachment_id=231

Neuparth, T., Costa, F. O., & Costa, M. H. (2002, February). Effects of Temperature and Salinity on Life History of the Marine Amphipod Gammarus locusta. Implications for Ecotoxicological Testing. *Ecotoxicology, 11*, 61–73. doi:10.1023/A:1013797130740

NMFS. (2024). Update to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0): Underwater and In-Air Criteria for Onset of Auditory Injury and Temporary Threshold Shifts. *NNational Oceanic and Atmospheric Administration Technical Memorandum NMFS-OPR-71*.

NMFS. (2024). *Update to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Vesrion 3.0): Underwater and In-Air Criteria for Onset of Auditory Injury and Temporay Threshold Shifts.* U.S. Dept. of Commer., NOAA.

NOAA. (2012). *Managing Seafood Safety after an Oil Spill.* Washington: National Oceanic and Atmospheric Administration.

NOAA. (2013a). *Deepwater Horizon Oil Spill: Assessment of Potential Impacts on the Deep Softbottom Benthos. Interim data summary report. NOAA Technical Memorandum NOS NCCOS 166.* Washington.: National Oceanic and Atmospheric Administration. .

NOAA. (2013b). *Shoreline Assessment Manual. 4th Edition.* . U.S. Dept. of Commerce. Seattle, WA: Emergency Response Division, Office of Response and Restoration, National Oceanic and Atmospheric Administration. .

NOAA. (2019). National Marine Fisheries Service 2018 Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of

Permanent and Temporary Threshold Shifts. *U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OPR-59*, 167. Retrieved March 10, 2020, from NOAA Fisheries.

NOAA. (2024). Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing. *Underwater and In-Air Criteria for Onset of Auditory Injury and Temporary Threshold Shifts. (3).*

*NOAA Fisheries*. (2024, January 27). Retrieved from ESA Section 7 Consultation Tools for Marine Mammals on the West Coast: https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/esa-section-7-consultation-tools-marine-mammals-west

NOO. (2002). *Sea Country – an Indigenous Perspective; The South-east Regional Marine Plan Assessment.*

NOPSEMA. (2019). *Environment Bulletin: Oil Spill Modelling - A652993.*

NOPSEMA. (2019, April). Oil spill modelling. *Environment bulletin(A652993)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/2021-04/A652993.pdf

NOPSEMA. (2020, 05 04). Recordable Environmental Incident Monthly Report. *Form(A198750)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/Monthly%20Environmental%20Incident%20Reports%20form%20%28A198750%29.docx

NOPSEMA. (2022, August 1). ALARP. *Guidance Note(A138249)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/N-04300-GN0166%20-%20ALARP%20%28A138249%29.pdf

NOPSEMA. (2022, March 29). Consultation with Commonwealth agencies with responsibilities. *Guideline*.

NOPSEMA. (2024). *Considerations for five-year environment plan revisions.* Information Paper. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/Considerations%20for%20five-year%20environment%20plan%20revisions%20-%20%20information%20paper.pdf

NOPSEMA. (2024a, January 10). *When to submit a proposed revision of an EP.* Guideline, National Offshore Petroleum Safety and Environmental Management Authority. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/When%20to%20submit%20a%20proposed%20revision%20of%20an%20Environment%20Plan%20guideline%2028%20Feb%202024.pdf

NOPSEMA. (2024b, May 20). Consultation in the course of preparing an environment plan. *Guideline(A900179)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/Consultation%20in%20the%20course%20of%20preparing%20an%20Environment%20Plan.pdf

NOPSEMA. (2024b, May 20). Consultation in the course of preparing an environment plan. *Guideline(A900179)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/Consultation%20in%20the%20course%20of%20preparing%20an%20Environment%20Plan.pdf

NOPSEMA. (2024b). *N-04750-IP1899 A715054, January 2024 reducing marine pest biosecurity risks through good practice biofouling management.* NOPSEMA.

NOPSEMA. (2024c, January 10). Environment Plan Assessment. *Policy(A662608)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A662608.pdf

NOPSEMA. (2024c, January 10). *Environment plan content requirement.* Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A339814.pdf

NOPSEMA. (2024d, January 10). *Environment Plan Assessment.* Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A662608.pdf

NOPSEMA. (2024d). *Reducing marine pest biosecurity through good practice biofouling management.* NOPSEMA.

NOPSEMA. (2024e, January 1). *Environment Plan decision making.* Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/2021-06/A524696.pdf

NOPSEMA. (2024e, January 1). Environment Plan decision making. *Guideline(A524696)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/2021-06/A524696.pdf

NOPSEMA. (2024f, January 10). Consultation with Commonwealth agencies with responsibilities in the marine area. *Guideline, A705589(N-04750-GL1887)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/Consultation%20with%20agencies%20with%20responsibilities%20in%20the%20Commonwealth%20marine%20area.pdf

NOPSEMA. (2025). *Environment Bulletin: Oil Spill Modelling - A652993.*

NOPSEMA. (2025a, January 10). Environment plan content requirement. *Guidance Note(A339814)*. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A339814.pdf

NOPSEMA. (2025b). *Investigation N-03000-PL1697 A493962.* NOPSEMA.

NOPSEMA. (2025b). *Petroleum activities and Australian Marine Parks.* Guidance Note. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/N-04750-GN1785%20-%20Petroleum%20activities%20and%20Australian%20marine%20parks%20%28A620236%29.pdf

NOPSEMA. (2025b, January 28). *Section 572 Maintenance and removal of property.* National Offshore Petroleum Safety and Environmental Management Authority. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/N-00500-PL1903%20-%20S572%20Maintenance%20and%20Removal%20of%20property%20%28A720369%29.pdf

NOPSEMA. (2025c, 10 21). ALARP . *Document A138249*.

NOPSEMA. (2025d). Application of oil spill modelling in Environmental Plans A1289237. *Application of oil spill modelling in Environmental Plans A1289237*. NOPSEMA.

NOPSEMA. (2025d, Jan 28). Section 572 Maintenance and removal of property policy. *Document No: N-00500-PL1903 A720369*.

NOPSEMA. (2025e, 12 10). Information Paper - Application of oil spill modelling in Environment Plans - A1289237.

NOPSEMA. (2025e, 01 28). Planning for proactive decommissioning. *N-00500-IP2002 A816565*.

NOPSEMA. (2025f). Application of oil spill modelling in EPs - A1289237. *Application of oil spill modelling in EPs*. NOPSEMA.

NOPSEMA. (2025g). *Petroleum activities and Australian Marine Parks guidance note N-04750-GN1785 .* NOPSEMA.

NRDA. (2012). *Status Update for the Deepwater Horizon Oil Spill.* Natural Resource Damage Assessment.

Nystuen, J., Amitai, E., Anagnostou, E., & Anagnostou, M. (2008). Spatial averaging of oceanic rainfall variability using underwater sound: Ionian sea rainfall experiment 2004. *The Journal of the Acoustical Society of America. 123(4).* .

OCNS. (2022, 11 15). *Definitive ranked lists of registered products*. Retrieved 2022, from Cefas (Centre for Environment, Fisheries and Aquaculture Science): https://www.cefas.co.uk/data-and-publications/ocns/definitive-ranked-lists-of-registered-products/

OGP. (2002). *Environmental Aspects of Produced Water Discharges. Report No. 2.80/302.* International Association of Oil and Gas Producers.

OGP. (2005). *Fate and Effects of Naturally Occurring Substances in Produced Water on the Marine Environment. Report No. 1.60/324.* International Association of Oil & Gas Producers .

OGUK. (2014, July). Guidelines on Risk Related Decision Making. *(2)*. London: The UK Oil and Gas Industry Association Limited.

Osenberg, C. W., Shima, J. S., Miller, S. L., & Stier, A. C. (2011). Ecology: assessing effects of marine protected areas: confounding in space and possible solutions. In *Marine protected areas: a multidisciplinary approach* (pp. 143-167).

Pangerc, T., Robinson, S., Theobald, P., & Galley, L. (2016). Underwater sound measurement data during diamond wire cutting: First description of radiated noise. *Proceedings of Meetings on Acoustics, 27*, e040012. doi:10.1121/2.0000322

Parks Victoria. (2023, October 1). *Marine pests in Victoria - A quick reference guide.* Retrieved from parks.vic.gov.au: https://www.parks.vic.gov.au/get-into-nature/conservation-and-science/conserving-our-parks/marine-pests

Parnell, P. E. (2003, May). The effects of sewage discharge on water quality and phytoplankton of Hawaiian Coastal Waters. *Marine Environmental Research, 55*(4), 293-311. doi:10.1016/s0141-1136(02)00275-1

Parry, G. D., Campbell, S. J., & Hobday, D. K. (1990). *Marine resources off East Gippsland, southeastern Australia.* Queenscliff: Marine Science Laboratories.

Parry, G., & Cohen, B. (2001). *The distribution , abundance and population dynamics of the exotic seastar Asterias amunernsis during the first three years of its invasion of Port Phillip Bay(incorporating a report on the Bay pest 2 April 2000).*

Peakall, D. B., Wells, P. G., & Mackay, D. (1987). A hazard assessment of chemically dispersed oil spills and seabirds. *Marine Environmental Research, 22*(2), 91-106.

Peel, D., Smith, J. N., & Childerhouse, S. (2016). *Historical Data on Australian Whale Vessel Strikes - International Whaling Commission June 2016.* International Whaling Commission. Retrieved from https://www.nespmarine.edu.au/document/historical-data-australian-whale-vessel-strikes-international-whaling-commission-june-2016

Penguin Foundation. (n.d.). *Australian fur seal.* Retrieved from Penguin Foundation: https://penguinfoundation.org.au/about-us/species/australian-fur-seal

Pillard, D. A., Tietge, J. E., & Evan, J. M. (1996). Estimating the acute toxicity of produced waters to marine organisms using predicitve toxicity models. In M. Reed, & S. Johnsen (Eds.), *Produced water 2: Environmental issues and mitigation technologies* (pp. 49-60). New York: Plenum Press.

Piniak, W., Mann, D., Harms, C., Jones, T., & Eckert, S. (2016). Hearing in the Juvenile Green Sea Turtle (Cheloniamydas): A Comparison of Under water and Aerial Hearing Using Auditory Evoked Potentials. *PLOS ONE*.

Pomeroy, P., Connor, L., & Davies, P. (2015). Assessing use of and reaction to unmanned aerial systems in grey and harbor seals during breeding and molt in the UK. *Unmanned Veh. Syst.*, 102–113.

Popper, A. N., Hawkins, A. D., Fay, R. R., Mann, D., Bartol, S., Carlson, T., . . . Tavolga, W. N. (2014). *Sound Exposure Guidelines for Fishes and Sea Turtles.* Springer Cham. doi:10.1007/978-3-319-06659-2

Poulsen, R., Scholz, L., Constatin, L., Favre-Bulle, I., VanWallenghem, G., & Scott, E. (2019). Broad frequency sensitivity and complex neural coding in the larval zebrafish auditory system. *Current Biology, 31(9)*.

PTTEP. (2013). *Montara Environmental Monitoring Program.* West Perth: PTTEP Australasia. Retrieved from https://www.au.pttep.com/wp-content/uploads/2013/10/2013-Report-of-Research-Book-vii.pdf

Putland, R., Merchant, N., Farcas, A., & Radford, C. (2018). Vessel noise cuts down communciation space for vocalizing fish and maine mammals. *Glob. Change Biol. 24*, 1708-1721.

Querbach, K., Maillet, G., Cranford, P. J., Taggart, C., Lee, K., & Grant, J. (2005). Potential effects of produced water discharges on the early life stages of three resource species. In S. Armsworthy, P. J. Cranford, & K. Lee (Eds.), *Offshore Oil and Gas Environmental Effects Monitoring (Approaches and Technologies)* (pp. 343-372). Colombus, Ohio: Battelle Press.

Rabalais, N. N., McKee, B. A., Reed, D. J., & Means, J. C. (1992). Fate and effects of produced water discharges in coastal Louisiana, Gulf of Mexico, USA. In *Produced Water: Technological/Environmental Issues and Solutions* (pp. 355-369). Boston, MA: Springer US.

Raimondi, P. T., & Schmitt, R. J. (1992). Effects of Produced Water on Settlement of Larvae: Field Studies using Red Abalone. In J. P. Ray, & F. R. Englehardt (Eds.), *Produced Water: Technological/Environmental Issues* (pp. 415-430). New York: Plenum Press.

Rani, B., Singh, U., Chuhan, A. K., Sharma, D., & Maheshwari, R. (2011). .Photochemical smog pollution and its mitigation measures. . *Journal of Advanced Scientific Research*, 2(04), 28-33.

Richardson, W. J., Greene, C. R., Malme, C. I., & Thomson, D. H. (1995). Marine Mammals and Noise. 576. San Diego: Academic Press. doi:10.1016/C2009-0-02253-3

Richardson, W. J., Greene, C. R., Malme, C. I., & Thomson, D. H. (1995). *Marine Mammals and Noise.* San Diego: Academic Press. doi:10.1016/C2009-0-02253-3

Robertson, P., & Coventry, A. (2014). *Reptiles of Victoria: a guide to identification and ecology.* CSIRO.

RPS. (2019). *MAQ0781J | Gippsland Basin Vessel Activities | Oil Spill Modelling .* RPS.

RPS. (2025). *GOC371529 Bass Strait Environmental Plan Renewal Oil Spill Modelling Rev 1.* RPS.

RPS APASA. (2016). *Esso Platform Operations, Gippsland Basin - Produced Water Dispersion Modelling. .* Report prepared for Esso Australia Pty Ltd.

RPS APASA. (2016). *Esso Platform Operations, Gippsland Basin, Produced Water Dispersion Modelling. Prepared for Esso Australia Pty Ltd.*

Ruppel, C., Weber, T., Staaterman, & E Labak, S. &. (2022). Categorizing Active Marine Acoustic Sources Based on Their Potential to Affect Marine Animals. *Journal of Marine Science and Engineering,*, 10(1278): 1-46.

Ruppel, C., Weber, T., Staaterman, E Labak, S., & Hart, P. (2022). Categorizing Active Marine Acoustic Sources Based on Their Potential to Affect Marine Animals. *Journal of Marine Science and Engineering,*, 10(1278): 1-46.

Saadoun, I. M. (2015). *Impact of Oil Spills on Marine Life. EmergingPollutants in the Environment - Current and Further Implications. InTech.* Available at: http://dx.doi.org/10.5772/60455.

Sabri, Y., Ippolito, S., Tardio, J., & Bhargava, S. (2012). *Understanding mercury accumulation in MEG and its fate in the MEG regeneration process. A report for Esso by the Research Laboratory for Mercury Sensing and Abatement.* RMIT, Centre for Advanced Materials and Industrial Chemistry (AMIC).

Santos NA Barossa Pty Ltd v Tipakalippa, FCAFC 193 (Federal Court of Australia - Full court December 2, 2022).

Schmeichel, J. (2017). *Effects of produced water and production chemical additives on marine environments: a toxological review (Master of Environmental Assessment).* Raleigh: North Carolina State University .

Shaw, R., Lindquist, D., Benfield, C., Farooqi, T., Plunket, J. (2002). *Offshore petroleum platforms: functional significance for larval fish across longitudinal and latitudinal gradients.* repared by the Coastal Fisheries Institute, Louisiana State University. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2002-077.

Simmonds, M. D. (2004). *Oceans of noise, WDCS Science Report.* Chippenham: Whale and Dolphin Conserbation Society.

Simmonds, M., Dolman, S., & Weilgart, L. (2003). Oceans of noise: A WDCS science report. . *Whale and Dolphin Conservation Society, 164.*

Simpson, S. L., Batley, G. B., & Chariton, A. A. (2013). *Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines.* CSIRO Land and Water.

Slabbekoorn, H., Bouton, N., van Opzeeland, I., Coers, A., ten Cate, C., & Popper, A. (2010). A noisy spring: The impact of globally rising underwater sound levels on fish. *Trends in Ecology and Evolution 25, (7)*, 419–427.

Smyth, D., & Isherwood, M. (2016). Protecting Sea Country: Indigenous Peoples and Marine Protected Areas in Australia. In J. Fitzsimons, & G. Wescott (Eds.), *Big, Bold and Blue: Lessons from Australia's Marine Protected Areas* (pp. 307-325). Melbourne: CSIRO.

Southall, B. L., Finneran, J. J., Reichmuth, C., Nachtigall, P. E., Ketten, D. R., Bowles, A. E., . . . Tyack, P. L. (2019). Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals, 45*(2), 125-232. doi:10.1578/AM.45.2.2019.125

Southall, B., Bowles, A., Ellison, W., Finneran, J., Gentry, R., Greene, C., . . . Tuack, P. (2007). Marine Mammal Noise Exposire Criteria: initail Scientific Recommendations. . *Aquatic Mammals. 33(4)*, 411-521.

Spence, J., Fischer, R., Bahtiarian, M., Boroditsky, L., N, J., & Dempsey, R. (2007). Review of Existing and Future Potential Treatments for Reducing Underwater Sound from Oil and Gas Industry Activities. *Noise Control Engineering Inc.*

Staples, C. A., Williams, J. B., Craig, G. R., & Roberts, K. M. (2001, April). Fate, effects and potential environmental risks of ethylene glycol: a review. *Chemosphere, 43*(3), 377-383.

Stimmelmayr, R., Ylitalo, G. M., Sheffield, G., Beckmen, K. B., Burek-Huntington, K. A., Metcalf, V., & Rowles, T. (2018). Oil fouling in three subsistence-harvested rainged (Phoca hispida) and spotted seals (Phoca largha) from the Bering Strait region, Alaska: Polycyclic aromatic hydrocarbon bile and tissues levels and pathological findings. *Marine Pollution Bulletin, 130*, 311-323.

Stimpert AK, M. B. (2019). Acoustic influence of underwater mobile survey vehicles on the soundscape of Pacific rockfish habitat. *Acoust Soc Am*.

Swan, J., Neff, J., & Young, P. (1994). Environmental implications of offshore oil and gas development in Australia - the findings of an independent scientific review. *Australian Petroleum Exploration Association Limited*.

Takeshita R, Sullivan L, Smith C, & T, C. (2017). The Deepwater Horizon oil spill marine mammal injury assessment. . *Endang Species Res* , 33: 95–106 .

Tenneson, J. P. (2016). Acoustic propoagation modelling indicates voacl compensation in noise improves communciation range for North Atlantic right whales. *Endanger. Species Res. 30*, 225-237.

Terrens, G. W., Gwyther, D., Keogh, M. J., & Tait, R. D. (1998). Environmental assessment of synthetic based drilling mud discharges to Bass Strait, Australia. *SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production.* . SPE.

Tipakalippa v National Offshore Petroleum Safety and Environmental Management Authority (No 2), FCA 1121 (Federal Court of Australia September 21, 2022). Retrieved from https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/single/2022/2022fca1121

Tomczak, M. (1985). The Bass Strait water cascade during winter 1981. *Continental Shelf Research 4*, 255-278.

TSSC. (2014). *Approved Conservation Advice for Thinornis rubricollis (Hooded Plover, Eastern).*

TSSC. (2015a). *Conservation Advice Megaptera novaeangliae humpback whale.* THREATENED SPECIES SCIENTIFIC COMMITTEE.

TSSC. (2015b). *Conservation Advice Balaenoptera borealis sei whale.* THREATENED SPECIES SCIENTIFIC COMMITTEE.

TSSC. (2015c). *Conservation Advice Balaenoptera physalus fin whale.* THREATENED SPECIES SCIENTIFIC COMMITTEE.

Tyack, P. (2008). Convergence of calls as animals form social bonds, active compensation for noisy communication channels, and the evolution of vocal learning in mammals. *Journal of Comaparative Puschology, 122(3)*, 319-331.

UNEP. (1985). GESAMP: Thermal discharges in the marine environment. *United Nations Environment Programme Regional Seas Reports and Studies No. 45.*

UNEP IE. (1997). *Environmental management in oil and gas exploration and production.* Retrieved from United Nations Environment Programme Industry and Environment and the Oil Industry International Exploration and Production Forum: https://wedocs.unep.org/rest/bitstreams/13599/retrieve

UNEP/WHO. (1996). *Water Quality Monitoring - A Practical Guide to the Design and Implementation of Freshwater Quality Studies and Monitoring Programmes.* (J. Bartram, & R. Ballance, Eds.) United Nations Environment Programme and the World Health Organisation.

United Nations. (2015). *Transforming our World: The 2030 Agenda for Sustainable Development.* Retrieved from https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981

United Parks & Resorts. (2025). *Communication and Echolocation*. Retrieved from SeaWorld Parks & Entertainment, Inc: https://seaworld.org/animals/all-about/bottlenose-dolphin/communication/#:~:text=Bottlenose%20dolphins%20produce%20directional%2C%20broadband,(sometimes%20called%20acoustic%20lipids)

University of Rhode Island and Inner Space Center. (2025). *Discovery of Sound in the Sea*. Retrieved from Waves on Beach: The university of Rhode Island & Inner Space Center: https://dosits.org/galleries/audio-gallery/other-natural-sounds/waves-on-beach/

USEPA. (1986). *Quality Criteria for Water.* US Environmental Protection Agency, US Department of Commerce, National Technical Information Service, Springfield, Virginia.

Van Meter, R. J., Spotila, J. R., & Avery, H. W. (2006). Polycyclic Aromatic Hydrocarbons Affect Survival and Development of Common Snapping Turtle (Chelydra serpentina) Embryos and Hatchlings. *Environmental Pollution, 142*(3), 466–475.

Vas, E., Lescroël, A., Duriez, O., Boguszewski, D., & Grémillet, D. (2015). Approaching birds with drones: first experiments and ethical guidelines. *Biology Letters*.

Velando, A., Munilla, I., Lopez-Alonso, M., Freire, J., & Perez, C. (2010. ). EROD activity and stable isotopes in seabirds to disentangle marine food web contamination after the Prestige oil spill. *Environmental Pollution 158,* , pp. 1275-1280. doi:10 1016/j.envpol.2010.01.029.

VFA. (2023). *Offshore*. Retrieved from https://vfa.vic.gov.au/recreational-fishing/victorias-top-fishing-destinations/east-gippsland/where-to-fish-east-gippsland/offshore

Volkman, J. K., Miller, G. J., Revill, A. T., & Connell, D. W. (1994). Oil spill. In A. P. Limited, J. M. Swan, J. M. Neff, & Young (Eds.), *Environmental Implications of offshore oil and gas development in Australia - The findings of an independent scientific review.*

Volkman, J. K., Miller, G. J., Revill, A. T., & Connell, D. W. (1994). Oil Spills. In J. M. Swan, J. M. Neff, & P. C. Young (Eds.), *Environmental implications of offshore oil and gas development in Australia - the findings of an independent scientific review.* Sydney: Australian Petroleum Exploration Association.

Walker, D. I., & McComb, A. J. (1990, April). Salinity response of the seagrass Amphibolis antarctica (Labill.) Sonder et Aschers.: an experimental validation of field results. *Aquatic Botany, 36*(4), 359-366. doi:10.1016/0304-3770(90)90052-M

Walker, D., Baumgartner, D., Gerba, C., & Fitzsimmons, K. (2019). Surface water pollution. *Environmetnal and Pollution Science*.

Wang, W. (2024). Eutrophication Mechanisms and Their Impacts on Coastal Marine Ecosystems. *International Journal of Marine Science, Vol.14, No.4,* , 285-294.

Wardrop, J. A., Butler, A. J., & Johnson, J. E. (1987). A field study of the toxicity of two oils and a dispersant to the mangrove Avicennia marina. *Marine Biology*, 96(1), 151–156. .

Warne, M. S., Batley, G. E., Van Dam, R. A., Chapman, J. C., Fox, D. R., Stauber, J. L., & Hickey, C. W. (2018). *Revised Method for Deriving Australian and New Zealand Water Quality Guideline Values for Toxicants.* Australian Government Department of Agriculture and Water Resources, Canberra.

Wartzok, D., & Ketten, D. (1999). Marine Mammal Sensory Systems. In: Biology of Marine Mammals. Reynolds, J. and Rommel, S. (eds.). . *Smithsonian Institution Press, Washington DC.* , 117–175.

Weir, J. (2012). Country, Native Title and Ecology. In *Country, Native Title and Ecology* (pp. (pp.1-19)).

WEL. (2014). Browse FLNG Development Draft Environmental Impact Statement. Woodside Energy.

Wiese, F. K., Montevecchi, W. A., Davoren, G. K., Huettmann, F., Diamond, A. W., & Linke, J. (2001). Seabirds at risk around offshore oil platforms in the North-west Atlantic. *Marine Pollution Bulletin, 42*(12), 1285-1290.

Wood, J., Southall, B., & Tollit, D. (2012). PG&E offshore 3D Seismic survey Project EIR-Marine Mammal Technical Draft report. *SMRU Ltd.*

Woodside. (2008). Torosa South-1 Pilot Appraisal Well Environment Plan. *Browse LNG Development*. Perth: Woodside Energy Ltd.

Woodside Energy. (2011, November). Browse LNG Development: Draft Upstream Environmental Impact Assessment. *EPBC Referral 2008/4111*, 435. Perth.

WorkSafe Victoria. (2013). Code of practice for the storage and handling of dangerous goods. *Dangerous Goods Act 1985, WSV1552/01/09.13*. Retrieved from https://content-

v2.api.worksafe.vic.gov.au/sites/default/files/2022-11/ISBN-Code-of-practice-for-the-storage-handling-dangerous-goods-2022-11.pdf

World Bank. (2015a). *World banks 'Zero routine flaring by 2030'*. Retrieved from https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030

World Bank Group. (2009). *Guidance on upstream flaring and venting : policy and regulation.* World Bank Group.

World Bank Group. (2015). *Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development .* Washington. : World Bank Group. .

World Resources Institute and World Business Council for Sustainable Development. (2004). Greenhouse Gas Protocol: a Corporate Accounting and Reporting Standard.

Worley Parsons. (2013). *Mercury Dispersion Modelling WTN & MLA and B Platforms. Report prepared for Esso Kipper Mercury Removal Project -FEED.*

# Appendix A: Description of the Environment in the EMBA

## TABLE OF CONTENTS

Appendix A: Description of the Environment in the Producing EMBA ..... 1
A.1 Description of the environment ..... 9
A.1.1 Conservation values and sensitivities ..... 11
A.1.2 Regional context ..... 53
A.1.3 Physical environment ..... 57
A.1.4 Biological environment ..... 63
A.1.5 Cultural heritage values ..... 124
A.1.6 Socio-economic environment ..... 134
A.2 References ..... 183

## LIST OF FIGURES

Figure A-1 Producing EMBA ..... 10
Figure A-2 World heritage listed properties within the EMBA ..... 12
Figure A-3 National heritage listed sites within the EMBA ..... 14
Figure A-4 Ramsar wetlands within the EMBA ..... 19
Figure A-5 NIWs within the EMBA ..... 25
Figure A-6 TECs intersected by the EMBA ..... 29
Figure A-7 AMPs intersected by the EMBA ..... 34
Figure A-8 KEFs intersected by the EMBA ..... 38
Figure A-9 Victorian protected areas intersected by the EMBA ..... 50
Figure A-10 Tasmanian protected areas intersected by the EMBA ..... 51
Figure A-11 NSW protected areas intersected by the EMBA ..... 52
Figure A-12 Provincial bioregions within the EMBA ..... 55
Figure A-13 Mesoscale bioregions within the EMBA ..... 56
Figure A-14 Major ocean currents in southeastern Australian waters summer ..... 59
Figure A-15 Major ocean currents in southeastern Australian waters winter ..... 60
Figure A-16 Bathymetry within the EMBA ..... 62
Figure A-17 Mean percent cover of all benthic biota and substrate types from imagery on the pipelines, West Tuna platform, on West Tuna rock scour protection, in benthic surrounds, at reference sites and south-east reef locations during the day and night in December 2023 ..... 65
Figure A-18 Number of taxa sampled at West Kingfish platform (Zones 1 and 2) and reference locations (Locations 1 and 2). Values in parentheses indicate the total number of taxa sampled ..... 65
Figure A-19 Number of taxa sampled at Tuna platform (Zones 1 and 2) and reference locations (Locations 1 and 2). Values in parentheses indicate the total number of taxa sampled ..... 66
Figure A-20 Taxa classed abundance of infauna at West Barracouta monitoring ..... 66
Figure A-21 Natural values ecosystems in the EMBA ..... 70
Figure A-22 Primary productivity hotspots from 2002 - 2014 (Huang Z. , 2018) ..... 75
Figure A-23 Grey nurse shark BIAs intersected by the EMBA ..... 79

Figure A-24 Great white shark BIAs intersected by the EMBA ..... 81
Figure A-25 SRW BIAs intersected by the EMBA ..... 84
Figure A-26 Simplified guide to blue whale presence in Australia ..... 86
Figure A-27 PBW foraging BIAs intersected by the EMBA ..... 88
Figure A-28 Upwelling frequency (Huang & Hua Wang, 2019) ..... 90
Figure A-29 Humpback whale BIAs intersected by the EMBA ..... 92
Figure A-30 Indo-Pacific bottlenose dolphin BIAs intersected by the EMBA ..... 96
Figure A-31 Australian fur seal distribution, breeding colonies and haul-out sites within the EMBA ..... 99
Figure A-32 New Zealand fur seal distribution, breeding colonies and haul-out sites within the EMBA ..... 101
Figure A-33 BIAs for the antipodean albatross (*Diomedea antipodensis*), black-browed albatross (*Thalassarche melanophris*), Buller's albatross (*Thalassarche bulleri*) and Campbell albatross (*Thalassarche impavida*) intersected by the EMBA ..... 105
Figure A-34 BIAs for the Indian yellow-nosed albatross (*Thalassarche carteri*), shy albatross (*Thalassarche cauta*), wandering albatross (*Diomedea exulans*) and white-capped albatross (*Thalassarche cauta steadi*) intersected by the EMBA ..... 106
Figure A-35 BIAs for the black petrel black-winged petrel, common diving petrel and the great-winged petrel intersected by the EMBA ..... 107
Figure A-36 BIAs for the Kermadec petrel , northern giant petrel , providence petrel and the soft-plumaged petrel intersected by the EMBA ..... 108
Figure A-37 BIAs for the southern giant petrel , white-bellied storm petrel , white-faced storm petrel and Wilson's storm petrel intersected by the EMBA ..... 109
Figure A-38 BIAs for the flesh-footed shearwater , little shearwater and short-tailed shearwater intersected by the EMBA 111
Figure A-39 BIAs for the sooty and wedge-tailed shearwaters intersected by the EMBA ..... 112
Figure A-40 BIAs for the crested, sooty, white and white-fronted tern intersected by the EMBA ..... 115
Figure A-41 BIAs for the masked booby, black-faced, black and common noddy intersected by the EMBA 116
Figure A-42 BIAs for the grey ternlet and red-tailed tropicbird intersected by the EMBA ..... 117
Figure A-43 Little penguin BIAs intersected by the EMBA ..... 119
Figure A-44 The range and migration route of the orange-bellied parrot intersected by the EMBA ..... 121
Figure A-45 IPAs within the EMBA ..... 125
Figure A-46 Proposed Nanjit to Mallacoota Sea Country IPA ..... 127
Figure A-47 Native Title claims and determinations intersected by the EMBA ..... 129
Figure A-48 ILUAs overlapped and in proximity to the EMBA ..... 131
Figure A-49 Shipwrecks within the EMBA ..... 133
Figure A-50 BSCZSF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA ..... 138
Figure A-51 ETBF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA ..... 139
Figure A-52 SPF maximum area fished (2023 season) intersected by the EMBA ..... 140
Figure A-53 Southern and Eastern Scalefish and Shark Fishery (SESSF) CTS otter-board jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA ..... 141
Figure A-54 SESSF CTS Danish-seine jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA 142

Figure A-55 SHS jurisdiction and fishing intensity (2019 - 2021) intersected by the EMBA....143
Figure A-56 SESSF SGSHS gillnet jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA 144
Figure A-57 SESSF SGSHS hook jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA 145
Figure A-58 SBTF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA....146
Figure A-59 SSJF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA....147
Figure A-60 Victorian abalone fishery jurisdiction intersected by the EMBA....151
Figure A-61 Victorian giant crab fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA 152
Figure A-62 Victorian pipi fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA.153
Figure A-63 Victorian rock lobster fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA 154
Figure A-64 Victorian scallop fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA 155
Figure A-65 Victorian octopus fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA 156
Figure A-66 Victorian wrasse fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA 157
Figure A-67 Victorian sea urchin fishery jurisdiction intersected by the EMBA....158
Figure A-68 Victorian ocean trawl fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA 159
Figure A-69 Victorian inshore trawl fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA 160
Figure A-70 Tasmanian abalone fishery jurisdiction intersected by the EMBA....164
Figure A-71 Tasmanian scalefish fishery jurisdiction intersected by the EMBA....165
Figure A-72 Rock lobster, giant crab and scallop fishery jurisdiction intersected by the EMBA....166
Figure A-73 Tasmanian commercial dive fishery jurisdiction intersected by the EMBA....167
Figure A-74 Tasmanian shellfish fishery jurisdiction intersected by the EMBA....168
Figure A-75 Petroleum exploration and production permits, oil and gas fields and petroleum production infrastructure in the Gippsland Basin....175
Figure A-76 Offshore renewable energy infrastructure regions overlapped by the EMBA....178
Figure A-77 Bass Strait ATBA (ABF, 2019)....179
Figure A-78 Vessel traffic within the EMBA based on January – July 2025 AMSA data....180
Figure A-79 UXO sites within the EMBA....182

## LIST OF TABLES

Table A-1 Criteria for identifying Wetlands of International Importance....15
Table A-2 NIWs in the EMBA....20
Table A-3 Marine/aquatic protected areas that are within the EMBA....39

Table A-4 Average monthly sea surface temperature and salinity nearby all platforms and pipeline locations 60
Table A-5 Reef and sediment ecosystems within the EMBA ..... 67
Table A-6 Key threats to threatened whale species relevant to the activity ..... 94
Table A-7 Key threats to threatened turtle species relevant to the activity ..... 102
Table A-8 Albatross and petrel breeding site locations in Australia's jurisdiction ..... 104
Table A-9 Commonwealth fisheries within the EMBA ..... 135
Table A-10 Victorian managed fisheries within the EMBA ..... 148
Table A-11 Tasmanian managed fisheries within the EMBA ..... 161
Table A-12 NSW managed fisheries within the EMBA ..... 169
Table A-13 Production licenses, exploration permits and retention leases within Gippsland Basin ..... 176

## ABBREVIATIONS

| Abbreviation | Definition |
|---|---|
| AIMS | Australian Institute of Marine Science |
| AMP | Australian Marine Park |
| AMSA | Australian Maritime Safety Authority |
| AMSIS | Australian Marine Spatial Information System |
| APPEA | Australian Petroleum Production and Exploration Association (now known as the Australian Energy Producers) |
| ASL | Above Sea Level |
| ATBA | Area To Be Avoided |
| BIA | Biologically Important Area |
| BSCZSF | Bass Strait Central Zone Scallop Fishery |
| CTS | Commonwealth Trawl Sector |
| DAWE | Department of Agriculture, Water and the Environment |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water |
| EAC | East Australian Current |
| EARPL | Esso Australia Resources Pty Ltd |
| EMBA | Environment That May Be Affected |
| EP | Environment Plan |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Cth) |
| ETBF | Eastern Tuna and Billfish Fishery |
| GIS | Geographic Information System |
| GLaWAC | Gunaikurnai Land and Waters Aboriginal Corporation |
| ILUA | Indigenous Land Use Agreement |
| IMCRA | Integrated Marine and Coastal Regionalisation of Australia |
| IPA | Indigenous Protected Area |
| IUCN | International Union for Conservation of Nature |
| KEF | Key Ecological Feature |

| Abbreviation | Definition |
|---|---|
| NIW | Nationally Important Wetland |
| NOAA | National Oceanic Atmospheric Administration |
| NOPSEMA | National Offshore Petroleum Safety and Environmental Management Authority |
| OPEP | Oil Pollution Emergency Plan |
| PBW | Pygmy Blue Whale (*Balaenoptera musculus brevicauda*) |
| PMST | Protected Matters Search Tool |
| Ramsar | Convention on Wetlands of International Importance especially as Waterfowl Habitat |
| SBTF | Southern Bluefin Tuna Fishery |
| SESSF | Southern and Eastern Scalefish and Shark Fishery |
| SGSHS | Shark Gillnet and Shark Hook Sectors |
| SHS | Scalefish Hook Sector |
| SPF | Small Pelagic Fishery |
| SRW | Southern Right Whale (*Eubalaena australis*) |
| SSJF | Southern Squid Jig Fishery |
| TEC | Threatened Ecological Community |
| TSSC | Threatened Species Scientific Committee |
| UXO | Unexploded Ordinance |

## UNITS

| Abbreviation | Unit |
|---|---|
| % | Percent |
| µg | Microgram |
| µg/L | Micrograms per litre |
| cm | Centimetre |
| ha | Hectare |
| km | Kilometre |
| $km^2$ | Square kilometre |

| Abbreviation | Unit |
|---|---|
| kn | Knots |
| L | Litre |
| m | Metre |
| $m^2$ | Square metre |
| $m^3$ | Cubic metre |
| $mg/m^3$ | Milligrams per cubic metre |
| M | Million |
| MMbbls | Million barrels |
| nm | Nautical mile |
| °C | Celsius degrees |
| PJ | Petajoule |
| psu | Practical salinity unit |
| t | Tonne |
| Tcf | Trillion cubic feet |
| dB | Decibel |

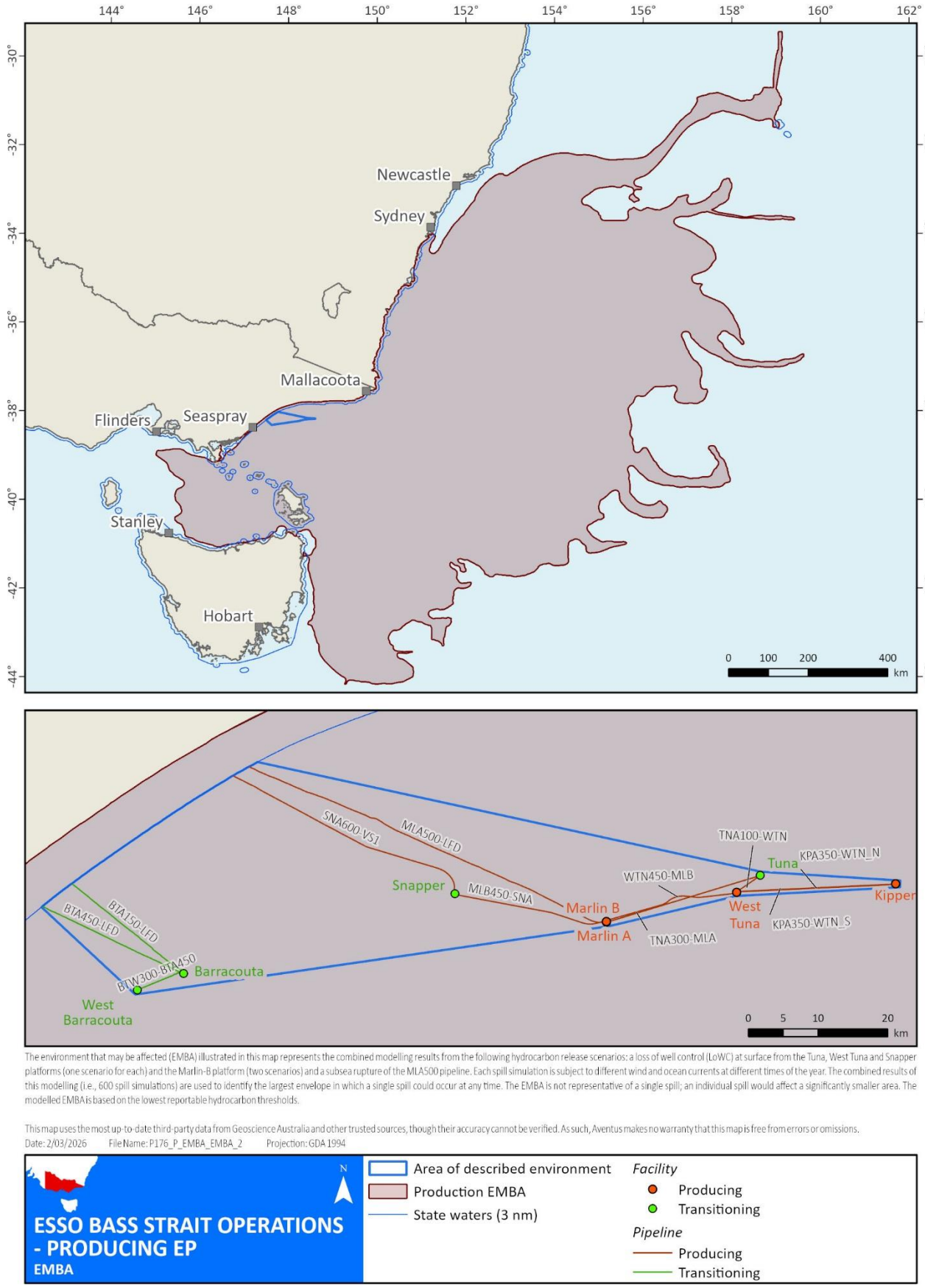
## A.1 Description of the environment

In accordance with Regulation 15(2) of the Environmental Regulations, the Environment That May Be Affected (EMBA) by the activity is described in this Section, together with its values and sensitivities. The definition of the EMBA is within Section 3 of this Environment Plan (EP). The EMBA is shown in Figure A-1.

The following explanation has been included on all figures displaying the EMBA throughout this Appendix:

> *"The environment that may be affected illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e. 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds."*

In accordance with NOPSMEA's *Application of oil spill modelling in Environmental Plans information paper* ***(A1289237)*** (NOPSEMA, 2025), this Appendix lists any marine features (i.e. water bodies) that are outside the bounds of the modelled EMBA but are in close proximity to it. In the absence of specific guidance on how to select which features are in proximity to the EMBA, GIS interrogation was undertaken against the Protected Matters Search Tool (PMST) results to identify protected features outside the EMBA. Once these features were identified, desktop research was undertaken to determine if the features are marine in nature (i.e. contained marine species, are subtidal, and water bodies that are not land locked). If they contained marine features, they were listed within their appropriate sections with distances from the EMBA boundary noted.




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_EMBA_2 Projection: GDA 1994

**Figure A-1 Producing EMBA**

## A.1.1 Conservation values and sensitivities

The conservation values and sensitivities found within EMBA are described within this Section.

### *A.1.1.1 World heritage*

World heritage is defined in Table 3-2 of the EP. World Heritage Sites within the EMBA are described below and shown in Figure A-2.

#### A.1.1.1.1 Lord Howe Island Group

The Lord Howe Island Group is located 700km northeast of Sydney and covers an area of 1463km$^2$, the Lord Howe Island Group comprises Lord Howe Island, Admiralty Islands, Mutton Bird Islands, Ball's Pyramid, and associated coral reefs and marine environments. The Lord Howe Island Group was inscribed on the World Heritage List in 1982 (DCCEEW, 2022d).

The justification criteria for its world heritage listing are its exceptional diversity of spectacular and scenic landscapes within a small area, including sheer mountain slopes, a broad arc of hills enclosing the lagoon and Balls Pyramid rising abruptly from the ocean. It is considered to be an outstanding example of an island system developed from submarine volcanic activity and demonstrates the nearly complete stage in the destruction of a large shield volcano. Having the most southerly coral reef in the world, it demonstrates a rare example of a zone of transition between algal and coral reefs. Many species are at their ecological limits, endemism is high, and unique assemblages of temperate and tropical forms cohabit (DCCEEW, 2022d).

The second criteria for the world heritage listing is that it is an outstanding example of the development of a characteristic insular biota that has adapted to the island environment through speciation. A significant number of endemic species or subspecies of plants and animals have evolved in a very limited area. The diversity of landscapes and biota and the high number of threatened and endemic species make these islands an outstanding example of independent evolutionary processes (DCCEEW, 2022d). Endemic species occur in the flora and invertebrate fauna; 60% of invertebrate fauna are endemic with discovery of new species still occurring. Of the endemic flora, more is known about the vascular plants of which 113 of the 239 species are endemic. Whilst less is known about the non-vascular plants, they are also thought to be highly diverse and include endemic species (DECC (NSW), 2007). Lord Howe Island Group is within the Lord Howe Marine Park.

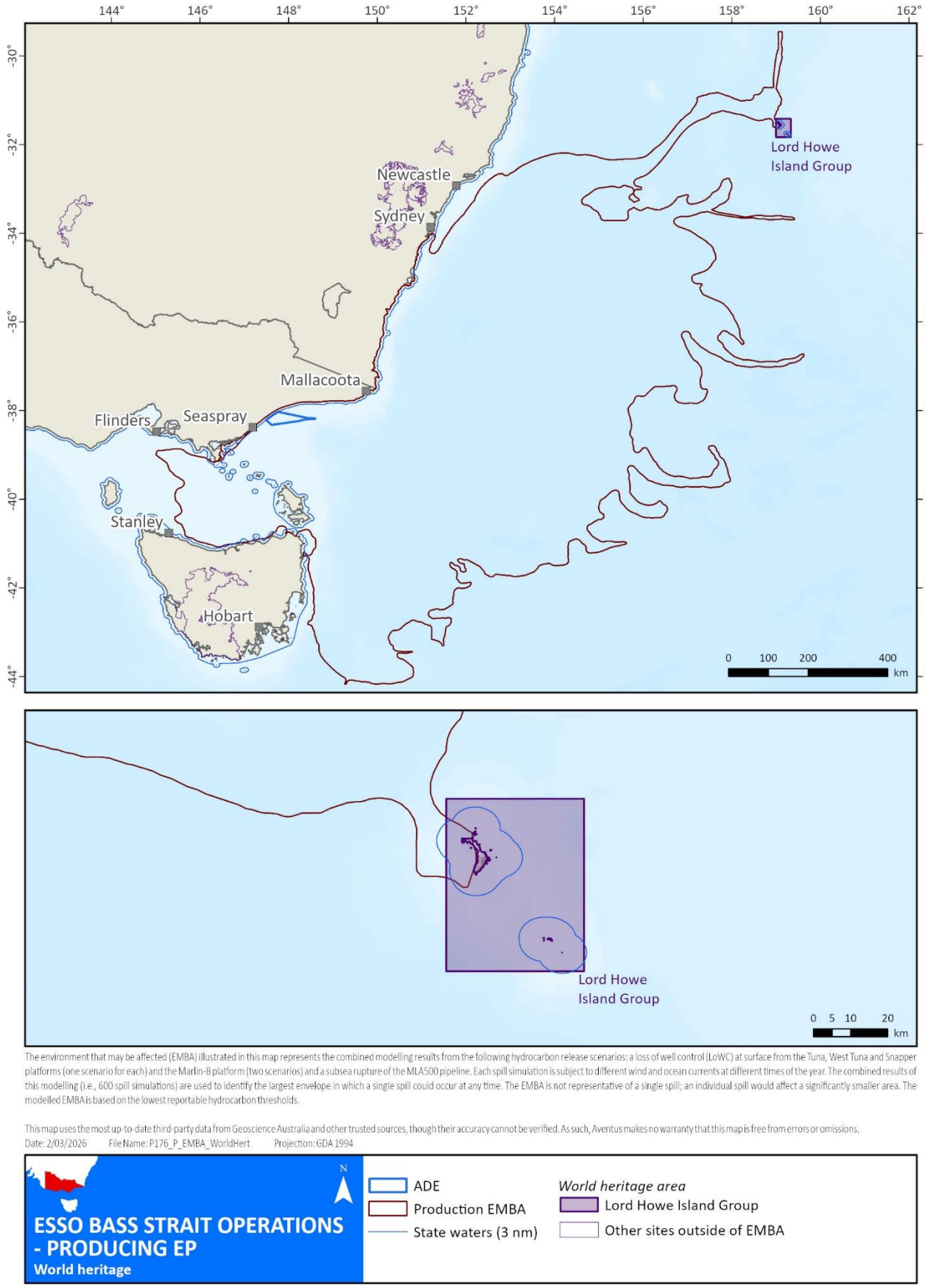



**Figure A-2 World heritage listed properties within the EMBA**

### *A.1.1.2 National heritage*

National heritage is defined in Table 3-2 of this EP. National Heritage Sites within the EMBA are described below and shown in Figure A-3. Bondi Surf Pavilion, Centennial Park, First Government House Site, Governors' Domain and Civic Precinct, Hyde Park Barracks, Sydney Harbour Bridge and Sydney Opera House are excluded from this section as they are located onshore and the EMBA will only affect marine or coastal areas.

#### A.1.1.2.1 Lord Howe Island Group

The Lord Howe Island Group was one of 15 World Heritage Places included in the National Heritage List on 21 May 2007, see Section A.1.1.1 for the description.

#### A.1.1.2.2 Kamay Botany Bay: Botanical collection sites

The Kamay Botany Bay: Botanical collection sites were added to the National Heritage List in 2017. Botanist Sir Joseph Banks and naturalist Dr Daniel Solander accompanied Captain James Cook on the 1770 voyage to Australia. Upon the first landing, plants collected by Banks and Solander included many iconic Australian plant species, including some that later had important scientific and research value. Banks and Solander collected specimens of at least 132 plant species, including iconic members of the Proteaceae family (Banksia) and Myrtaceae family (Eucalyptus, Melaleuca and Leptospermum) (DCCEEW, 2022a).

The plant collection sites at Kamay Botany Bay, together with the collected plant material, represent the symbolic and actual integration of Australian flora into western science. The place is broadly comprised of three areas: the Kurnell Peninsula and La Perouse Headland which are located within Kamay Botany Bay National Park and the Towra Point Nature Reserve (DCCEEW, 2022a).

The site incorporates coastal areas including Cape Banks, Towra Spit Beach and Pelican Point that are within the EMBA.

#### A.1.1.2.3 Kurnell Peninsula Headland

The Kurnell Peninsula Headland was added to the National Heritage List in 2005. The Kurnell Peninsula Headland was the landing site of Captain James Cook which led to the British settlement of the Australian continent. It altered forever the way of life for Indigenous Australians, dramatically expanded the world's scientific understanding of the continent's unique flora and fauna and ultimately led to the creation of a new nation — Australia. The site also represents the first recorded contact between Indigenous people and Britain in eastern Australia representing the birthplace of a nation and the dispossession of Indigenous people (DCCEEW, 2022b).

#### A.1.1.2.4 Royal National Park and Garawarra State Conservation Area

The Royal National Park and Garawarra State Conservation Area were added to the National Heritage List in 2006. Royal National Park was Australia's first national park, and the world's second official national park after Yellowstone National Park in the USA. Located on the southern edge of Sydney, Royal National Park and the adjacent Garawarra State Conservation Area have one of the richest concentrations of plant species in temperate Australia. Royal National Parks is a landscape of sparkling beaches, cliffs, wild heathlands and woodlands. Its rich concentration of more than 1000 plant species supports a wide array of birds, reptiles and butterflies (DCCEEW, 2022c).

#### A.1.1.2.5 Sydney Cultural Crescent Rock Art

The Sydney Cultural Crescent Rock Art has the potential to be recognised for its outstanding heritage value to the nation, primarily due to the dense rock art across the region. Although the assessment completion date was June 2025, at the time of this EP preparation, the Sydney Cultural Crescent Rock Art was not officially listed on the Natural Heritage list (DCCEEW, 2025b).

The Sydney Cultural Crescent Rock Art spans an area approximately 2,000,000ha across eastern NSW, Sydney and the Central Coast including Ku-ring-gai Chase, Berowra, and the Hawkesbury River regions. Indigenous elders define rock art as 'history books', with larger sites being determined as 'libraries' that provide tangible records of the Aboriginal peoples' traditions, presence, cultural practices and knowledge (Ku-ring-gai GeoRegion, 2025). Some areas of rock art are located along the coast.

Only a very small portion of this site is overlapped by the EMBA, as seen in Figure A-3 (Ku-ring-gai GeoRegion, 2025).

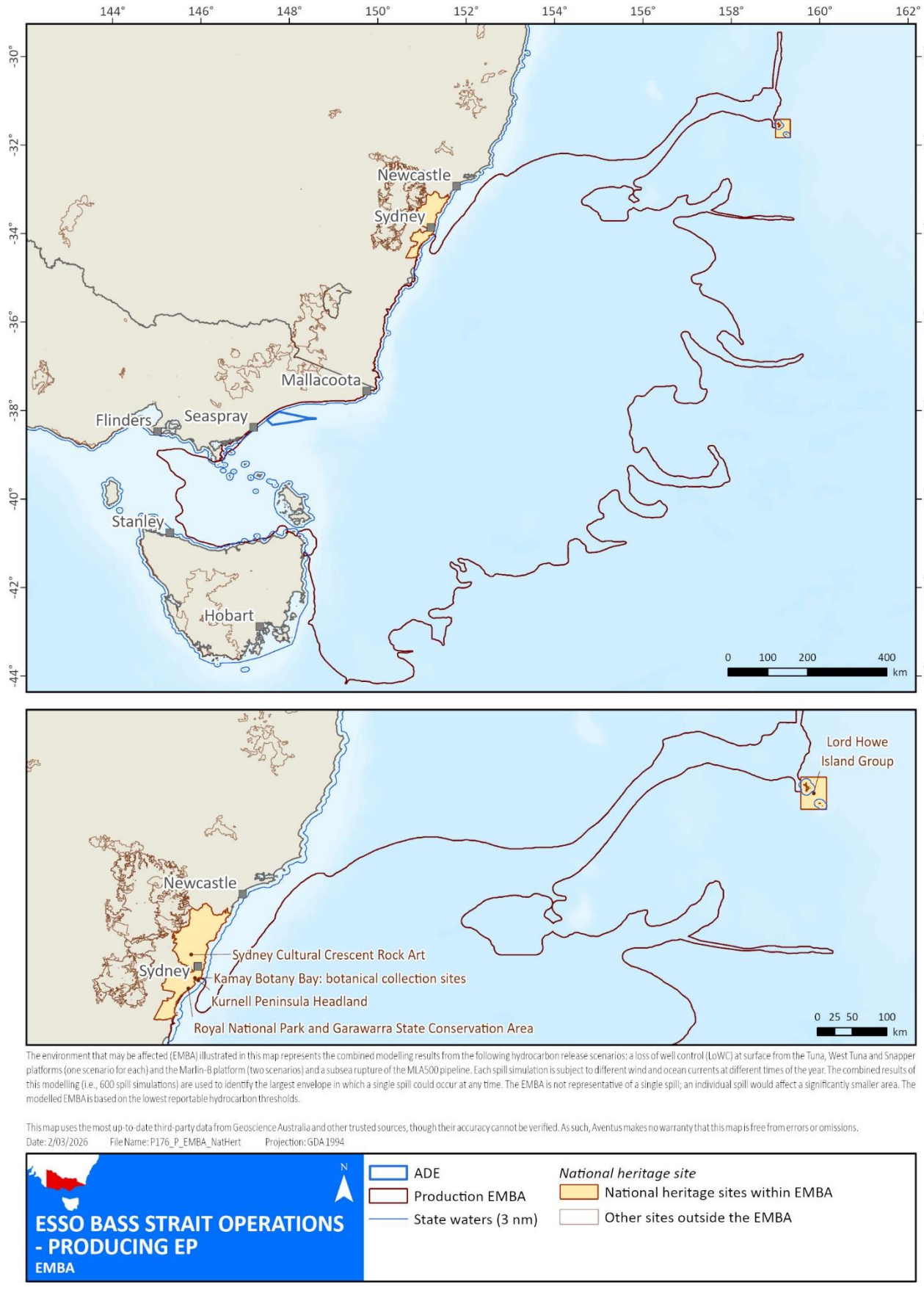



**Figure A-3 National heritage listed sites within the EMBA**

### *A.1.1.3 Commonwealth heritage*

Commonwealth heritage is defined in Table 3-2 of this EP. The following Commonwealth heritage listed sites are within the EMBA as seen in Appendix D, only sites that are marine or coastal in nature are described below:

- Natural heritage:
  - Beecroft Peninsula - The Beecroft Peninsula is the best example of a Permian cliffed coast in NSW. It is about 4040ha located south of the town of Currarong. The area supports a high diversity of vegetation types within a small area including mangroves, saltmarsh, freshwater swamps, heathland, eucalypt forest and subtropical and littoral rainforest. Beecroft Peninsula retains the largest area of heath remaining on the south coast of NSW. This floristically rich vegetation provides important habitat for a variety of bird species, including the vulnerable ground parrot (Pezoporus wallicus) (DCCEEW, 2024a).
- Indigenous heritage:
  - Jervis Bay Territory - The Jervis Bay Territory is composed of Bherwerre Peninsula, Bowen Island, and the part of Jervis Bay from Captains Point to Bowen Island. The coast of Bherwerre Peninsula includes high sea cliffs, sea caves, intertidal rock platforms, beaches, and sublittoral rocky reefs. Aboriginal people used Bherwerre long before rising sea levels at the end of the last Ice Age turned this area of land into a peninsula. Evidence from the nearby Burrill Lake demonstrates that Aboriginal occupation extends back at least 20,000 years. The rise of sea levels at the end of the last Ice Age created a diversity of habitats on the Bherwerre Peninsula and the surrounding marine environment. This diversity of habitats and resources attracted Aboriginal people to the area and provided them with sustenance (DCCEEW, 2023c).

### *A.1.1.4 Wetlands of International Importance*

Wetlands of International Importance (Ramsar) are defined in Table 3-2 of this EP. Ramsar sites within the EMBA are described below and shown in Figure A-4. The criteria for identifying Wetlands of International Importance are outlined in Table A-1.

**Table A-1 Criteria for identifying Wetlands of International Importance**

| Site | Species |
|---|---|
| Criterion 1 | A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region. |
| **Criteria based on species and ecological communities** | |
| Criterion 2 | A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or Threatened Ecological Communities (TECs). |
| Criterion 3 | A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region. |
| Criterion 4 | A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycle or provides refuge during adverse conditions. |
| **Specific criteria based on waterbirds** | |
| Criterion 5 | A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds. |
| Criterion 6 | A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird. |

| | |
|---|---|
| **Specific criteria based on fish** | |
| Criterion 7 | A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity. |
| Criterion 8 | A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend. |
| **Specific criteria based on other taxa** | |
| Criterion 9 | A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species. |

Source: (DCCEEW, 2021a)

#### A.1.1.4.1 Corner Inlet

The following information was obtained from the Australian Wetlands Database (DCCEEW, 2019a).

The Corner Inlet Ramsar Site includes Corner Inlet and Nooramunga Marine and Coastal Parks, and the Corner Inlet Marine National Park. It covers 67,186ha and comprises of a chain of barrier islands, multiple beach ridges, lagoons, swamps, tidal creeks, tidal deltas, and tidal washovers.

The site meets five of the nine Ramsar criteria: 1, 2, 4, 5, 6 and 8.

The coast and several sandy islands within the site are covered with mangroves, saltmarshes, sandy beaches and extensive intertidal mudflats. The site contains the only extensive bed of broad-leafed seagrass (*Halophila ovalis*) in Victoria.

The islands of Corner Inlet are of high biogeographical significance as a result of their geological history and connectivity to the mainland during ice ages. The islands also contain significant areas of saltmarsh and mangroves, both of which have a very limited distribution.

Corner Inlet supports over 390 species of marine invertebrates and native flora. The site also has a high diversity of bird species with 32 wader species recorded. Corner Inlet provides extensive tidal flats that are exposed at low tide, which are important feeding areas for waders.

Nationally threatened species such as the orange-bellied parrot (*Neophema chrysogaster*), growling grass frog *(Litoria raniformis),* Australian grayling (*Prototroctes maraena*) and swift parrot (*Lathamus discolor*) utilise the site.

Corner Inlet was used traditionally by Indigenous people, and many archaeological sites including scarred trees, burial sites, artefact scatters, shell middens and camps have been found. Currently, the site is used for biological conservation, ports with servicing facilities for offshore oil and gas exploration, commercial and recreational fishing, and other recreational activities. Diving is popular around the numerous shipwreck sites in Corner Inlet and around the barrier islands.

#### A.1.1.4.2 Gippsland Lakes

The following information was extracted from the Australian Wetlands Database (DCCEEW, 2019b).

The Gippsland Lakes Ramsar Site, located in Victoria is a series of large, shallow, coastal lagoons approximately 70km in length and 10km wide, separated from the sea by sand dunes. The surface area of the lakes is approximately 364km$^2$ and the three main water bodies are Lake Wellington, Lake Victoria, and Lake King.

The site meets five of the nine Ramsar criteria: 1, 2, 4, 6 and 8.

The Gippsland Lakes is a good representation of a natural or near-natural wetland, characteristic of the biogeographical region. It forms one of the largest coastal lagoon systems in the drainage division and contains a

distinctive landscape of wetlands and flat coastal plains. The site supports a broad range of wetland types in close proximity to each other, including periodically and permanently inundated palustrine marshes, both shallow and deep lake features, lagoons with narrow inlets, and broad embayment's.

The Gippsland Lakes Ramsar Site supports several nationally threatened wetland fauna species at various stages of their life cycle including two nationally threatened frog species (green and golden bell frogs (*Litoria aurea*) and growling grass frogs), the Australian painted-snipe (*Rostratula australis),* the Australian grayling as well as three nationally threatened wetland-associated flora species the dwarf kerrawang (*Commersonia prostrata*), swamp everlasting (*Xerochrysum palustre*) and metallic sun-orchid (*Thelymitra epipactoides*). The site supports habitat and conditions that are important for critical life cycle stages of a variety of wetland-dependent fauna species.

The permanence of the main lakes and the relatively regular flooding of the adjacent wetlands mean that this wetland is an important drought refuge for many water birds and other aquatic species, including as permanent refuges and breeding sites for two threatened frog species. The Gippsland Lakes have been identified as being of outstanding importance for waterbirds, regularly supporting more than 20,000 waterfowl. Waterbird species which are considered to have met the one per cent population threshold are: red-necked stint (*Calidris ruficollis*), black swan (*Cygnus atratus*), sharp-tailed sandpiper (*Calidris acuminata*), chestnut teal (*Anas castanea*), musk duck (*Biziura lobata*), fairy tern (*Sternula nereis*) and little tern (*Sterna albifrons*).

Gippsland Lakes provides important habitats, feeding areas, dispersal and migratory pathways, and spawning sites for numerous fish species of that are directly and indirectly significant for commercial fisheries. Currently, parts of the lakes' system are heavily used for commercial and recreational fisheries and boating activities, while the immediate hinterland has been developed for agricultural use, and limited residential and tourism purposes.

#### A.1.1.4.3 East Coast Cape Barren Islands Lagoons

The following information was extracted from the Australian Wetlands Database (DCCEEW, n.d.).

East Coast Cape Barren Island Lagoons is located on the east coast of Cape Barren Island in Tasmania. The site is significant as it forms a representative sample of coastal lagoons in the Flinders Biogeographic Region and is relatively undisturbed.

The site meets two of the nine Ramsar criteria: 1 and 3.

The Cape Barren Dunes, within the site, are a geo-conservation site in Tasmania. Thirsty Lagoon is a hypersaline lagoon and is a Tasmanian estuary of critical conservation significance. Three of the lagoons within the site, Flyover Lagoon 1, Flyover Lagoon 2, and Little Thirsty Lagoon, have been assessed as near pristine wetlands for Tasmania, and are recognised Nationally Important Wetlands (NIWs).

The critical components and processes for the site at the time of listing in 1982 have been determined to be geomorphology, hydrology and vegetation types. While there is some anecdotal evidence that this site is important for shorebirds, there is insufficient data to evaluate whether they are a critical component.

The East Coast Cape Barren Island Lagoons Ramsar Site is an important habitat for a number of plant species and vegetation communities. Thirteen threatened species listed in Tasmania occur on the site, including the furze hakea *(Hakea ulicina)* and horny cone-bush (*Isopogon ceratophyllus*). The site represents the only known reserve in Tasmania for the threatened pink bladderwort (*Utricularia tenella*). The white-bellied sea eagle (*Haliaeetus leucogaster*), and the ruddy turnstone (*Arenaria interpres*) also occur within the site.

This Ramsar site is of cultural importance to the local Indigenous community, who manage the freehold title to part of Cape Barren Island, including the Ramsar site. Access is currently restricted, keeping the site largely undisturbed.

#### A.1.1.4.4 Logan Lagoon

The following information was extracted from the Australian Wetlands Database (DCCEEW, 2019c).

The Logan Lagoon Ramsar Site is enclosed within the Logan Lagoon Conservation Area located on the southeast corner of Flinders Island, Tasmania. The site is an excellent, regionally representative example of a coastal estuarine wetland system.

The site meets five of the nine Ramsar criteria: 1, 2, 3, 4 and 6.

The Ramsar site contains two sites listed on the Tasmanian Geo-conservation Database: Logan Lagoon Holocene Shorelines and Planter Beach Coastal Barrier System. Logan Lagoon, with other lagoons and dunes in

the area, represents and outstanding example of the development of Holocene shorelines for the local region. Logan Lagoon is recognised as a wetland in near pristine condition. The Planter Beach Coastal Barrier System, partly within the site, represents and outstanding example of how offshore bars formed with Holocene sea level rise and barrier growth has enclosed the coast, forming large lagoons.

The nationally threatened northern leek orchid (*Prasophyllum secutum*) and a subspecies of the common wombat (*Vombatus ursinus*) (Bass Strait) also occur on the site and is restricted to Flinders Island. Logan Lagoon supports species and communities threatened in the Tasmania drainage division, particularly oyster bay pine (*Callitris rhomboidei*) forest and the rayless starwort (*Stellaria multiflora*). The site provides breeding habitat for two beach nesting shorebirds that are threatened, the fairy tern and little tern.

The Ramsar site is an important area for birds migrating between southeastern Australia and Tasmania. Supporting five migratory bird species, the red-necked stint, curlew sandpiper (*Calidris ferruginea*), sharp-tailed sandpiper, common greenshank (*Tringa nebularia*), and little tern. The site also regularly supports 1% of the global or regional populations of the: hooded plover *(Thinornis cucullatus)*, fairy tern, musk duck, and chestnut teal.

#### A.1.1.4.5 Elizabeth and Middleton Reefs Marine National Nature Reserve

The following information was extracted from the Australian Wetlands Database (DCCEEW, n.d.).

Elizabeth and Middleton Reefs are located in the northern Tasman Sea, 150km north of Lord Howe Island. Elizabeth and Middleton Reefs are a pair of isolated oceanic platform reefs separated from one another by 45km of deep oceanic waters and together they represent the southern-most platform reefs in the world. Elizabeth Reef measures 8.2km by 5.5km and Middleton Reef, slightly larger but of a similar shape, at 8.9km x 6.3km.

The site meets five of the nine Ramsar criteria: 1, 2, 3, 4 and 8.

Critical services provided by this site are:

- representative of a unique ecosystem in the bioregion: southern-most open ocean coral reef platform in the world
- supports the green turtle *(Chelonia mydas)* (feeding habitat only, no nesting)
- supports regionally high species diversity: fish; coral communities; molluscs; and sea cucumbers
- supports animal taxa at a vulnerable or critical stage of their lifecycle, particularly the Galapagos shark *(Carcharhinus galapagensis)* (likely nursery ground)
- supports the last known large population of black rockcod (*Epinephelus daemelii*).

Currently, Elizabeth and Middleton Reefs are mainly use for nature conservation and scientific research, with limited recreational diving and fishing also occurring.

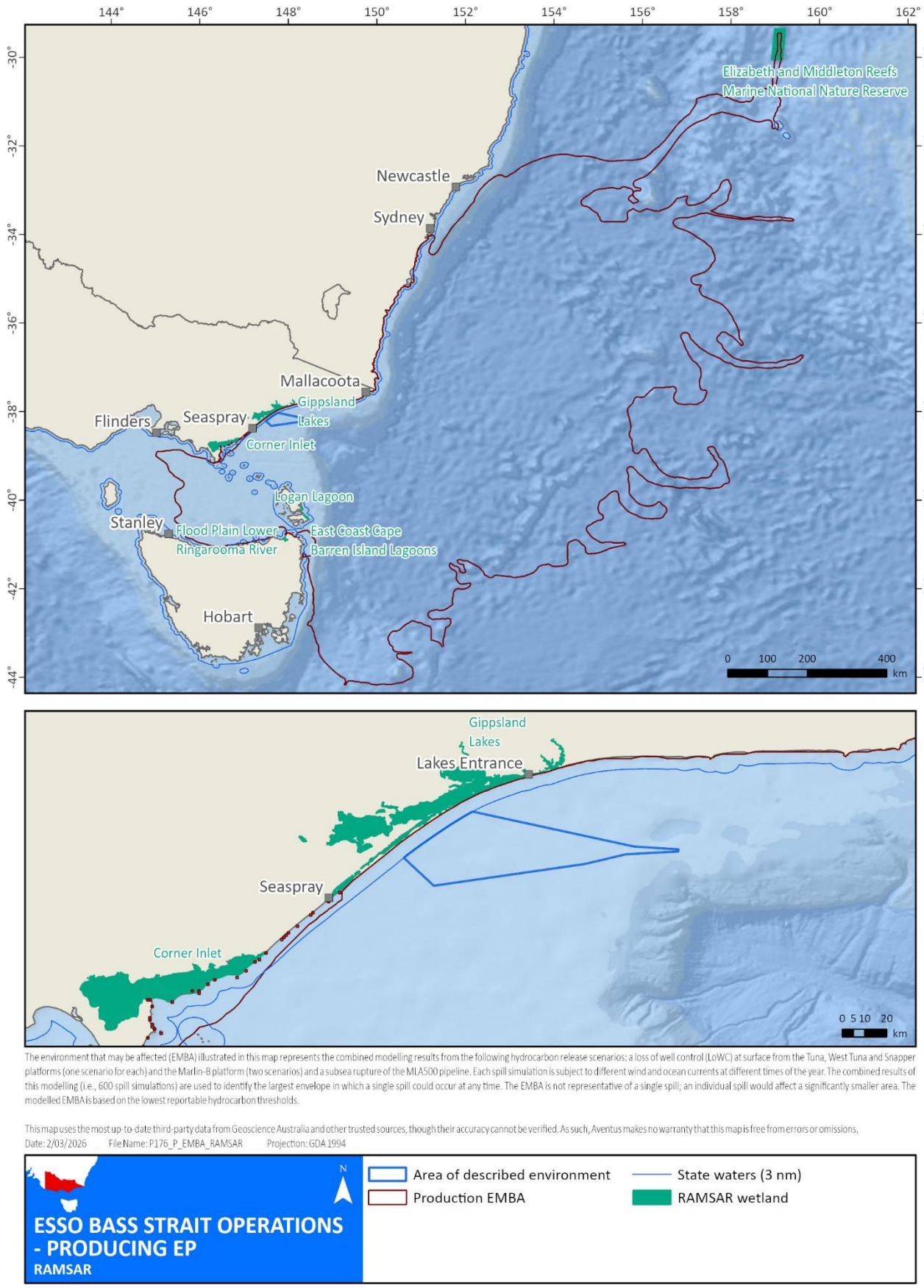



**Figure A-4 Ramsar wetlands within the EMBA**

### *A.1.1.5 Nationally Important Wetlands*

NIWs are defined in Table 3-2 of the EP. Table A-2 outlines the NIWs that are marine/coastal in nature that are within the EMBA and are shown in Figure A-5. An extensive list of NIWs detected by the PMST is provided in Appendix D.

**Table A-2 NIWs in the EMBA**

| NIWs | Description |
|---|---|
| **Victoria** | |
| Benedore River | The Benedore River is part of the East Gippsland River Catchment which is bordered by a national park and the Bass Strait. The lower Benedore reach flows through sedimentary beach deposits.<br>The river has no introduced fish species and a natural assemblage of native species. There are twenty-five threatened fauna species within the Benedore reach, including the little tern. |
| Corner Inlet | Corner Inlet contains the most southerly tidal mudflat system of mainland Australia which provides a large feeding grounds for many waterfowl and wader species. The mangrove and seagrass communities also provide critical habitat for juvenile fish and commercial fish populations.<br>Corner Inlet is also listed as a Ramsar site as is described in Section A.1.1.4.1. |
| Ewing's Marsh (Morass) | The Marsh was formerly an open lagoon supplied with seawater and freshwater floods. It is now virtually enclosed within a barrier. Ewings Marsh is an important coastal wetland ecosystem which provides an important habitat for fauna, particularly water birds and supports a diversity of fauna. |
| Lake Bunga | Lake Bunga is a narrow freshwater lagoon and is the former entrance to the Gippsland Lakes. Lake Bunga is fed by Bunga Creek and is rarely open to the sea.<br>Lake Bunga is a high value wetland for its geological, geomorphological, botanical and ornithological features. |
| Lake King Wetlands | The Lake King Wetlands consist of two large coastal lagoons and associated channels with surrounding salt marshes and brackish to fresh marshes.<br>The Lake King Wetlands are high value for ecological, recreational, scientific, cultural and landscape features. |
| Lake Tyers | Lake Tyers is a branched inlet formed by marine submergence of incised valleys. It has a well-developed tidal delta with marshy islets. The lake is fed by several creeks including Stony and Boggy Creeks and is occasionally open to the sea.<br>Over 50 waterbird species have occurred at Lake Tyers. |
| Lake Wellington Wetlands | Lake Wellington Wetlands are high value for their ecological, recreational, scenic and cultural features. The wetlands contain excellent examples of both deep freshwater marshes and permanent saline wetlands. |
| Mallacoota Inlet Wetlands | Mallacoota Inlet was formed by the submergence of the Genoa and Wallagaraugh River valleys and partial closure of the resulting marine embayment by a sandy barrier and accumulation of dunes, sea water enters the Inlet through tidal movement at the entrance but is probably impeded by the very shallow entrance channel.<br>At least three invertebrate species of marine affinity occur in Lake Barracoota and have apparently adapted to freshwater conditions. |

| NIWs | Description |
|---|---|
| Snowy River | The Snowy River reach commences at the Victoria/NSW border, and continues south to Marlo in East Gippsland, Victoria to enter the sea in Bass Strait.<br>The river reach is a major corridor for the movement of many migratory and nomadic native birds, as well as providing permanent or important habitats for waterbirds, estuarine fish and remnant lowland vegetation. |
| Sydenham Inlet Wetlands | The Sydenham Inlet Wetlands include a variety of wetland types affected by fresh to saline water, providing a large area of estuarine habitat and supports a high diversity of flora and fauna.<br>Notable fish species include the common galaxias (*Galaxias maculatus*), southern pygmy perch (*Nannoperca australis*) and black bream (*Acanthopagrus butcheri*). |
| Tamboon Inlet Wetlands | The Tamboon Inlet Wetlands have a variety of wetland types affected by fresh to saline water which supports a diversity of flora and fauna. The inlet provides a large area of estuarine habitat.<br>When the inlet entrance is closed, river water builds up until the entrance is breached again. Tidal inflows then occur so that salinity in the Inlet varies from brackish to fresh. |
| Thurra River | The lower reach flows through beach deposits, the middle through marine sandstone, and the upper reach through granite, non-marine sand, gravel, ironstone and brown coal.<br>There is one natural barrier to fish movement in the upper reach and surface water is fresh with low conductivity. |
| **Tasmania** | |
| Logan Lagoon | Logan Lagoon is one of three large estuarine lagoons which make up a coastal lagoon system along the southeast coast of Flinders Island. The lagoon is contained entirely within Holocene alluvial deposits which, when mobilised by longshore drift, block freshwater drainage to the sea.<br>Logan Lagoon supports large numbers of migratory waterbirds and a number of species which are rare or vulnerable in Tasmania. |
| Unnamed Wetland (TAS011) | The wetland is a coastal lagoon that does not have permanent water. The wetland supports species and communities which are rare and poorly reserved in Tasmania. |
| Unnamed Wetland (TAS052) | This lagoon is one of a number of shallow, saline coastal lagoons and marshes, which occur on the east coast of Cape Barren Island. Collectively these lagoons are listed on the Convention on Wetlands as the East-Coast Cape Barren Island Lagoons.<br>This site is important for large numbers of migratory waterbirds. |
| **NSW** | |
| Beecroft Peninsula | The Beecroft Peninsula forms the northern headland of Jervis Bay and is a remnant of a Permian coastal plateau that slopes north and east from high ocean cliffs to the gentler shore of the Bay. The area supports a high diversity of vegetation types within a small area including mangroves and saltmarsh.<br>Lake Wollumboola, which is the largest shallow saline lagoon on the south coast of NSW, is seldom open to the sea. The gully is frequently open to Jervis Bay at which time it becomes a tidal channel. |

| NIWs | Description |
|---|---|
| Budgewoi Lake Sand Mass | The Budgewoi Lake Sand Mass is a large coastal estuarine lake situated on the NSW Central Coast. Budgewoi Lake and the other lagoons of the Tuggerah Lakes system was formed in approximately its present configuration when the sea level rose to its present position at the end of the last glacial. Coastal sandy barriers were formed by sand pushed shoreward as the sea level rose.<br><br>A band of seagrasses occur on the western side of this sand flat. Many species of birds utilise the site. |
| Clyde River Estuary | The Clyde River Estuary rises in the Budawang Morton National Park system where the majority of its catchment lies. The Clyde Estuary has steep shorelines and occupies a narrow, meandering drowned river valley.<br><br>The Clyde River supports areas of mangrove (3200 ha), seagrass (70 ha) and saltmarsh (100 ha). The estuary provides habitat for the Australian Grayling (*Prototroctes maraena*) as well as important nursery habitat for commercial fish species. |
| Jervis Bay Sea Cliffs | The sea cliffs are among the tallest on the NSW coastline. The site includes incised inlets, rocky offshore islets, high sandstone cliffs, marine caves, overhangs, tunnels and crevices.<br><br>The sooty oystercatcher (*Haematopus fuliginosus*) and the ground parrot have been recorded within the site. Caves are possible roosts for threatened bat species. |
| Merimbula Lake | Merimbula Lake is a tidal lake that supports relatively large area of seagrasses (2300ha) and smaller areas of mangrove (40ha) and saltmarsh (60ha).<br><br>Key fauna species include the hawksbill turtle (Eretmochelys imbricata), leopard seal (*Hydrurga leptonyx*), dugong (*Dugong dugon*), little penguin (*Eudyptula minor*), little pied cormorant (*Phalacrocorax melanoleucos*), little black cormorant (*Phalacrocorax sulcirostris*), Australian pelican (*Pelecanus conspicillatus*), and Australian white ibis (*Threskiornis molucca*). |
| Meroo Lake Wetland Complex | Meroo Lake Wetland Complex is an extensive coastal lagoon with a catchment area of approximately 1950ha. It comprises one large and one small estuarine wetland that are linked to the lake. This very large wetland contains some mosaic communities with mixes of dominant species not often seen elsewhere. |
| Minnamurra River Estuary | The Minnamurra River Estuary includes the Minnamurra River and its adjacent wetland areas. The riverine vegetation is dominated by thick stands of grey mangrove (Avicennia marina) and river mangrove (*Aegiceras corniculatum*) with areas of saltmarsh, casuarina forest and rushes in brackish areas subject to flooding or tidal movements.<br><br>The Minnamurra Estuary is also an important area for commercial oyster farming. |
| Moruya River Estuary Saltmarshes | Moruya River Estuary contains a number of extensive, modified salt and brackish marshes. The saltmarsh is part of a mature estuarine system with a relatively extensive floodplain.<br><br>Several albatross species have been recorded at the site. |
| Nadgee Lake and Tributary Wetlands | Nadgee Lake is a relatively large intermittently closed and open coastal lake. It is closed to the ocean more often than it is tidal. The lake is fed by large swamps and ephemeral creeks.<br><br>The lake supports interesting waterbird assemblages including musk duck and black swan and may be an important drought refuge for waterbirds. Notable fauna recorded at the site include the ground parrot, hooded plover, little tern and pied oystercatcher (*Haematopus longirostris*). |

| NIWs | Description |
|---|---|
| Nelson Lagoon | Nelson Lagoon is an intermittently closed and open barrier lagoon with several small, indented bays. The site has some areas of saltmarsh. |
| Pambula Estuarine Wetlands | Pambula Estuarine Wetlands are subject to tidal influences, and the waters are saline with dilution during run-off from the surrounding areas. Tidal attenuation is relatively minor and the mouth of the Pambula River is always open. |
| Swan Lagoon | Swan Lagoon is shallow, tideless and occasionally breaches to the sea naturally. Notable fauna includes black swans, chestnut teal, grey teal (*Anas gracilis*), Pacific black ducks (*Anas superciliosa*), Australasian shovelers (*Spatula rhynchotis*) and musk ducks. |
| Five Islands Nature Reserve | The Five Islands are rocky offshore islands consisting of Big Island, Rocky Islet and Martin Islet. The island are significant areas for seabird breeding, also offering shelter to many migratory birds. The Five Islands Nature Reserve is a site of significance to the local Aboriginal people. |
| Termeil Lake Wetland Complex | Termeil Lake is a large relatively undisturbed coastal lagoon with a catchment area of about 1400ha. The wetland supports a number of regionally rare plant species and uncommon wetland vegetation communities and is a rare example of freshwater vegetation communities.<br>Additionally, the wetland supports a range of water birds and two threatened bat species. |
| Tuross River Estuary | The estuary is a complex delta estuary at intermediate stage of infilling with many low islands and islets. The Islands contain a variety of plant and animal communities including mangroves, saltmarsh, swamp forest, littoral rainforest, sand and mud flats. |
| Twofold Bay | The Twofold Bay site is the area of the bay shoreline and seabed up to 6m deep, which includes the rocky and sandy shorelines of Twofold Bay, the Towamba River and Nullica River Estuaries, Curalo Lagoon and the seabed of four separate embayments.<br>Humpback whales (Megaptera novaeangliae) are regularly sighted in the area on their annual migrations northward and southward. Southern right whales (*Eubalaena australis*) (SRWs) and the blue whales (*Balaenoptera musculus*) occur in Twofold Bay from time to time. Other species of cetaceans are known including dolphins and pilot whales (*Globicephala*). |
| Wallaga Lake | Wallaga lake is a permanently open estuary with considerable area of sandflat exposed at low tide near the entrance. Upper reaches of tributaries contain saltmarsh habitats. The lake is mostly fringed by a swamp oak (*Casuarina glauca*). Extensive eelgrasses (*Zostera marina*) indicate potential fish nursery habitat.<br>Waterbird and seabird habitat for resting and foraging is provided by sandflats. |
| Wallagoot Lagoon (Wallagoot Lake) | Wallagoot Lagoon is an example of a simple embayment lake which has extensive sand spits and sandy islets at the eastern end of the lagoon. Water quality at the site is described as hyposaline, depending on whether the mouth is open there is an increasing salinity gradient from west to east.<br>The lagoon has extensive areas of seagrass beds, a variety of rushes and sedges and saltmarsh. Hundreds of birds have been recorded at the site. |
| **Commonwealth Area** | |

| NIWs | Description |
|---|---|
| Elizabeth and Middleton Reefs (EXT003) | These reefs, together with reefs around Lord Howe Island, are regarded as the southernmost coral reefs in the world. Over 100 coral species have been recorded from the reefs. There are indications the reefs support numerous endemic species or species with limited distribution<br>The Elizabeth and Middleton Reefs are also considered a Ramsar wetland and are described in Section A.1.1.4.5. |

Source: (DCCEEW, 2019)

In accordance with NOPSEMA's *Application of oil spill modelling in Environmental Plans information paper* (A1289237)) (NOPSEMA, 2025), NIWs that are located adjacent to the EMBA and are marine/coastal are listed here:

Victoria:

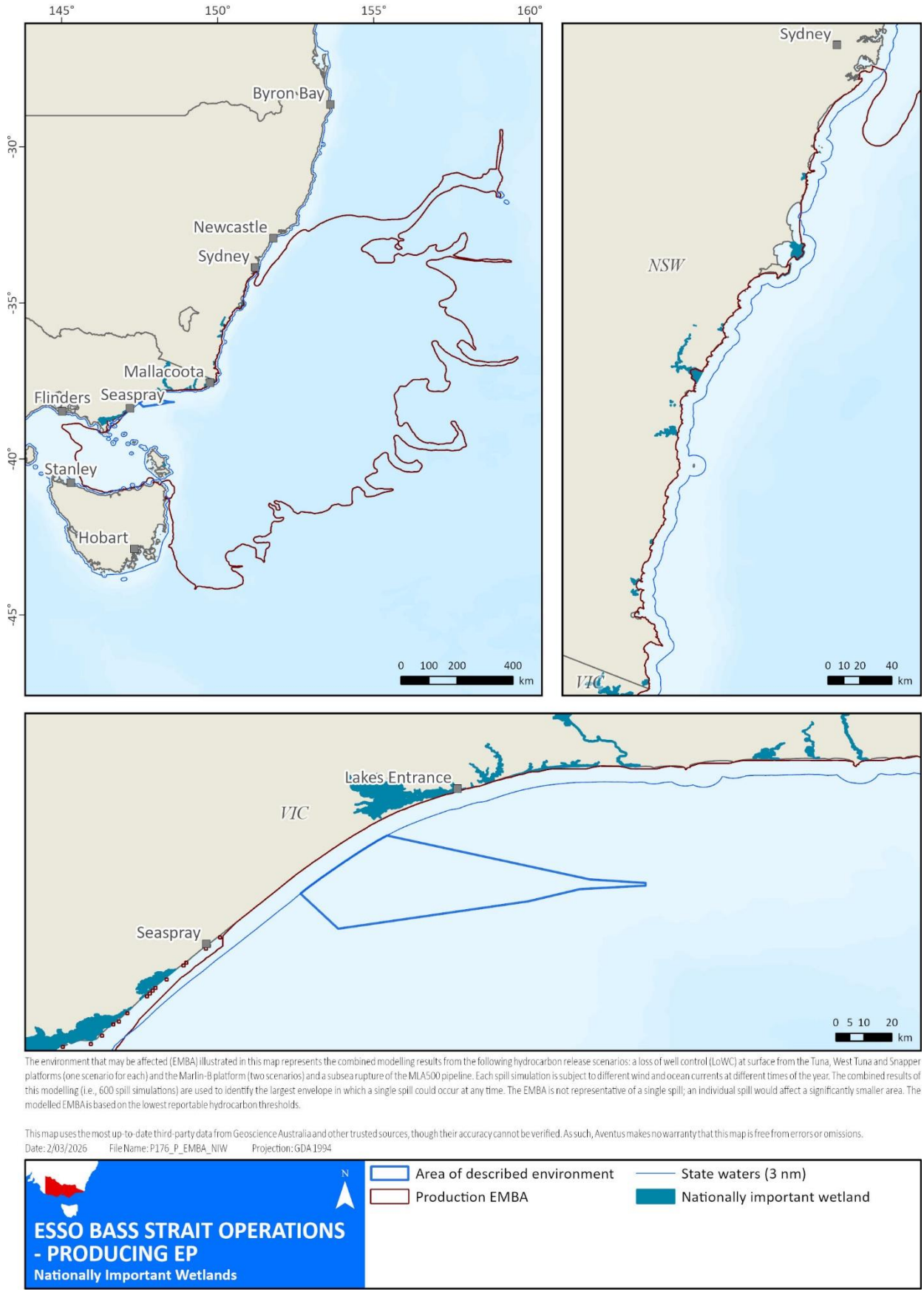
- Jack Smith Lake State Game Reserve – located onshore adjacent to the EMBA.
- Lake Victoria Wetlands - located 2.1km north from the EMBA.
- Lower Snowy River Wetlands System – located 150m north from the EMBA.

Tasmania:

- Unnamed Wetland (TAS052) – located 80m north from the EMBA.

NSW:

- Cullendulla Creek and Embayment - located 1.6km northwest from the EMBA.
- Durras Lake – located 450m west from the EMBA.
- Lake Illawarra – located 970m west from the EMBA.
- Nargal Lake – located 120m northwest from the EMBA.
- Towra Point Estuarine Wetlands – located 2.2km west from the EMBA.




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_NIW Projection: GDA 1994

**Figure A-5 NIWs within the EMBA**

### *A.1.1.6 Threatened Ecological Communities*

TECs are defined in Table 3-2 of the EP. TECs within the EMBA are described below and shown in Figure A-6. Only TECs that are marine/coastal in nature have been described, a full list of TECs detected by the PMST report can be seen in Section A.1.1.6.8 and Appendix D.

#### A.1.1.6.1 Littoral rainforest and coastal vine thicket

This TEC is listed as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). This ecological community is a complex of rainforest and coastal vine thickets influenced by its proximity to the sea; and provides habitat for over 70 threatened plants and animals and provides important stepping-stones along the eastern Australian coast for various migratory and marine birds. The community also provides an important buffer to coastal erosion and wind damage (Commonwealth of Australia, 2019).

The ecological community occurs as a series of naturally disjunct and localised stands within 2km of the eastern coastline of Australia or adjacent to a large saltwater body, such as an estuary on a range of landforms including dunes and flats, headlands, and sea-cliffs, including offshore islands (Commonwealth of Australia, 2019).

This TEC has scattered and fragmented distribution from Princess Charlotte Bay, Queensland to East Gippsland in Victoria, including on estuarine and offshore islands. Sites that occur on the east Gippsland coast (including locations near Lakes Entrance, Marlo and Mallacoota) and communities found along most of the NSW coastline intersect with the EMBA.

#### A.1.1.6.2 Subtropical and Temperate Coastal Saltmarsh

This TEC is listed as vulnerable under the EPBC Act. The known distribution of this TEC includes the southern and eastern coasts of Australia where it occurs within a narrow margin in the subtropical and temperate climatic zones; and includes coastal saltmarsh occurring on islands within these climatic zones (DSEWPAC, 2013a).

The physical environment for the ecological community is coastal areas under regular or intermittent tidal influence. The community consists mainly of salt-tolerant (halophytes - grasses, herbs, sedges, rushes and shrubs) and non-vascular vegetation including epiphytic algae, diatoms and cyanobacterial. The ecological community is inhabited by a wide range of infaunal and epifaunal invertebrates, and temporary inhabitants such as prawns, fish and birds (and can often constitute important nursery habitat for fish and prawn species). The dominant marine residents are benthic invertebrates, including molluscs and crabs that rely on the sediments, vascular plants, and algae, as providers of food and habitat across the intertidal landscape (DSEWPAC, 2013a).

This community occurs sporadically along coastline which intersects with the EMBA.

#### A.1.1.6.3 Giant kelp marine forests of Southeast Australia

This TEC is listed as an endangered under the EPBC Act and has progressively diminished, especially on the east coast of Tasmania due to changing oceanographic conditions and corresponding changes in threatening processes caused by climate change (DSEWPAC, 2012c). The TEC is found from Eddystone Point in the northeast of Tasmania all along the eastern coastline and around the southern coast as far as Port Davey. The TEC community has also been known to intermittently develop on the northern and western coasts of Tasmania and occur in the coastal waters off Victoria and southeast South Australia where physical conditions and environmental factors are favourable for its growth (DSEWPAC, 2012c).

Giant kelp (*Macrocystis pyrifera*) plants are the foundation species of this TEC. Giant kelp is a large brown alga that grows on rocky reefs from the seafloor 8m below sea level and deeper. Its fronds grow vertically toward the water surface, in cold temperate waters off southeast Australia. Their presence on a rocky reef adds vertical structure to the marine environment that creates significant habitat for marine fauna (DSEWPAC, 2012c). The kelp species itself is not protected; to be considered a giant kelp marine forest, the plants must form a closed or semi-closed canopy at or below the water's surface and grow at depths generally greater than 8m on a rocky substrate. Other components of this TEC include a large range of marine algae, reef associated fish and numerous invertebrates that shelter, feed, and reproduce within giant kelp marine forests (DSEWPAC, 2012c).

#### A.1.1.6.4 Coastal swamp oak (*Casuarina glauca*) forest of New South Wales and Southeast Queensland

This TEC is listed as endangered under the EPBC Act and occurs along Southeast Corner Bioregions of NSW in coastal catchments, on coastal flats, floodplains, drainage lines, lake margins, wetlands and estuarine fringes

where soils are at least occasionally saturated, water-logged or inundated. Coastal swamp oak forest is often found in association with other vegetation types such as coastal saltmarsh and mangroves (DoEE, 2018).

The vegetation of the coastal swamp oak forest provides diverse habitat values and is a source of food for a wide range of fauna, particularly the crevices and hollows within older trees. Most fauna species that form a part of the coastal swamp oak forest also inhabit adjacent wetlands, grasslands, woodlands, and forests. Many fauna species within the ecological community are listed as threatened under State and/or Commonwealth legislation including small mammals, reptiles, invertebrates, amphibians, and birds (DoEE, 2018).

#### A.1.1.6.5 Coastal swamp sclerophyll forest of New South Wales and Southeast Queensland

This TEC is listed as endangered under the EPBC Act and includes the plants, animals and other organisms typically associated with forested palustrine wetlands, or swamp forests. This TEC is found in the temperate to subtropical coastal valleys between the Great Dividing Range and the coastline from near Gladstone in Queensland, through to the south coast of NSW (DAWE, 2021). This TEC is present in in low-lying coastal alluvial areas with minimal relief at elevations below 20m above sea level (ASL) but may occur occasionally up to 220m ASL (DAWE, 2021) .

This TEC often has a layered canopy, dominated by melaleucas and/or eucalyptus robusta. This TEC supports a range of aquatic, ground dwelling and arboreal species.

#### A.1.1.6.6 Coastal Upland Swamps in the Sydney Basin

This TEC is listed as endangered under the EPBC Act and is endemic to NSW. This TEC is including a range of vegetation and fauna associated with periodically waterlogged soils on the Hawkesbury Sandstone Plateaux (DoE 2014). This TEC is found in the eastern part of the Sydney Basin, occurring primarily on poorly permeable sandstone plateaux in low relief headwater valleys of streams and on sandstone benches with abundant seepage moisture. Majority of the swamps exist at elevations of 200 - 450m ASL. However, the elevation of some swamps in the region can vary from as low as 20m to around 600m ASL (TSSC, 2014).

The TEC is characterised by highly diverse and variable mosaics of vegetation depending on soil conditions, size of the site, recent rainfall conditions, fire regimes and disturbance history. The swamps also provide habitat for a wide range of fauna permanently or as transients (TSSC, 2014).

#### A.1.1.6.7 Posidonia Australis Seagrass Meadows of the Manning Hawkesbury Ecoregion

This TEC is listed as endangered under the EPBC Act. This TEC comprises of plants, animals and micro-organisms associated with seagrass meadows dominated by strapweed (*Posidonia australis)* occurring in the warm temperate Manning Shelf and Hawkesbury Shelf Bioregions (NSW) from Wallis Lake to Port Hacking (DoE, 2015a). This TEC mainly occurs within sheltered environments of permanently open estuaries, typically in subtidal waters at depths ranging less than 1 - 10m on sand and silty mud substrate (DoE, 2015a).

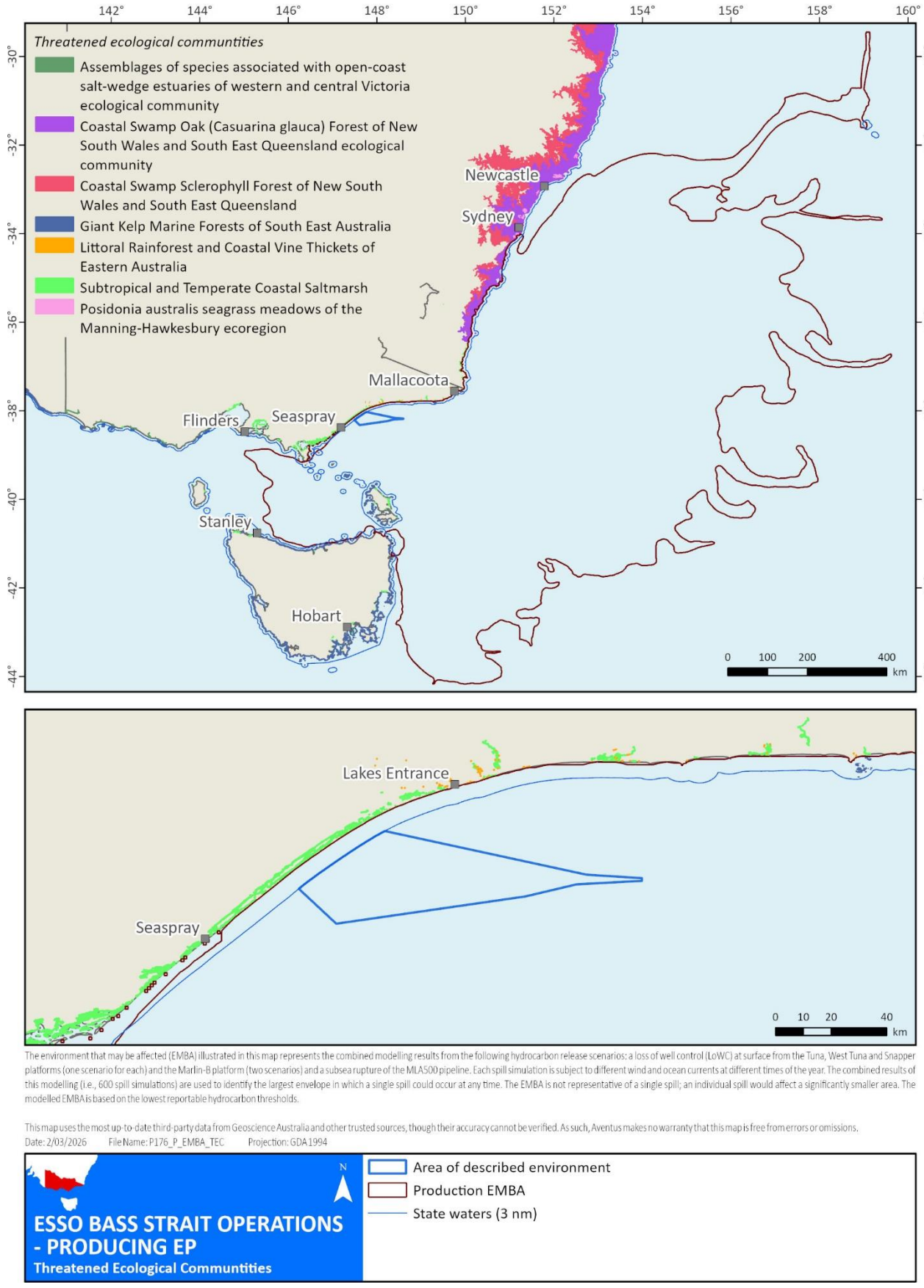
The wide strap-like leaves of strapweed provides substrate for a diverse collection of benthic flora. Strapweed is believed to provide the greatest habitat structure of any of the seagrass species found in NSW, supporting an abundance of fauna.

#### A.1.1.6.8 Terrestrial Threatened Ecological Communities

In accordance with NOPSEMA (2025) TECs detected by the PMST that are terrestrial in nature and therefore not described in this Section, but are adjacent to the EMBA are listed here:

- alpine sphagnum bogs and associated fens
- araluen scarp grassy forest
- brogo vine forest of the Southeast Corner Bioregion
- Eastern Suburbs banksia scrub of the Sydney Region
- Gippsland red gum (*Eucalyptus tereticornis* subsp. *mediana*) grassy woodland and associated native grassland
- Illawarra and South Coast lowland forest and woodland ecological community
- Illawarra-Shoalhaven subtropical rainforest of the Sydney Basin Bioregion
- lowland grassy woodland in the southeast Corner Bioregion
- lowland native grasslands of Tasmania
- natural damp grassland of the Victorian Coastal Plains
- river-flat eucalypt forest on coastal floodplains of Southern NSW and Eastern Victoria

- Robertson rainforest in the Sydney Basin Bioregion
- shale sandstone transition forest of the Sydney Basin Bioregion
- Tasmanian forests and woodlands dominated by black gum or Brookers gum (*Eucalyptus ovata/Eucalyptus brookeriana*)
- Tasmanian white gum (*Eucalyptus viminalis*) wet forest
- Turpentine-ironbark forest of the Sydney Basin Bioregion
- upland basalt eucalypt forests of the Sydney Basin Bioregion
- white box-yellow box-Blakely's red gum grassy woodland and derived native grassland.




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_TEC Projection: GDA 1994

**Figure A-6 TECs intersected by the EMBA**

### *A.1.1.7 Australian Marine Parks*

Australian Marine Parks (AMPs) are defined in Table 3-2 of this EP. AMPs within the EMBA are described below and shown in Figure A-7.

#### A.1.1.7.1 East Gippsland Marine Park

The East Gippsland Marine Park is located off the northeast corner of Victoria and is 4127km$^2$ the full area of the marine park is designated as a multiple use zone International Union for Conservation of Nature (IUCN) VI (DNP, 2025). The park contains deepwater ecosystems extending from the upper slope to the abyssal plain. The main seabed features include a dome-shaped plateau on the mid slope, two large box canyons and several large, tilted blocks (DNP, 2025).

The park includes both warm and temperate waters, which create habitat for free-floating aquatic plants or microscopic plants (i.e. phytoplankton) communities. Complex seasonality in oceanographic patterns influences the biodiversity and local productivity. The East Australian Current (EAC) brings subtropical water from the north, and around Cape Howe the current forms large eddies, with a central core of warm water. Around the outside of the eddies, cooler, nutrient-rich waters mix with the warm water creating conditions for highly productive phytoplankton growth, which supports a rich abundance of marine life. During winter, upwellings of cold water may occur and bring nutrient-rich waters to the surface, boosting productivity (DNP, 2025). The lower slope, in depths of 2500 m to 3850 m, supports a diverse invertebrate fauna, including large red spiny king crab *(Neolithodes bronwynae ),* squat lobsters, finned octopus, sea cucumbers, sea stars, sea spiders, shrimp, crinoids and sea whips, polychaetes and bivalves.

Many oceanic seabirds forage in these waters, including albatrosses, petrels and shearwaters.

Major conservation values include:

- examples of ecosystems, habitats and communities associated with the Southeast Transition and associated with seafloor features of abyssal plain/deep ocean floor, canyon, escarpment, knoll/abyssal hill and slope
- features with high biodiversity and productivity are the Bass Cascade and Upwelling East of Eden
- important foraging area for the wandering albatross (*Diomedea exulans*), black-browed albatross (*Thalassarche melanophris*), Indian yellow-nosed albatross (*Thalassarche carteri*), shy albatross (*Thalassarche cauta*); great-winged petrel (*Pterodroma macroptera*); wedge-tailed shearwater (*Puffinus pacificus*); and cape petrel (*Daption capense*)
- important migration area for the humpback whale.

Ecosystems include (DNP, 2025):

- upper-slope sediments
- mid-slope sediments
- lower-slope reef and sediments
- abyssal reef and sediments.

#### A.1.1.7.2 Beagle Marine Park

The Beagle Marine Park lies entirely within Bass Strait and represents an area of shallow continental shelf ecosystems in depths of about 46 - 77m that extends around southeastern Australia to the east of Tasmania. The seabed that it covers formed a land bridge between Tasmania and Victoria during the last ice age 10,000 years ago. The area of the marine park (2928km$^2$) is split into two zones; a multiple use zone (2448km$^2$) and a national park (479km$^2$) (DNP, 2025).

The Beagle Commonwealth Marine Reserve represents an area of shallow continental shelf ecosystems in depths of about 50 – 70m that extends around southeastern Australia to the east of Tasmania. The seafloor that it covers formed a land bridge between Tasmania and Victoria during the last ice age 10,000 years ago. The park also contains mesophotic rocky reefs (DNP, 2025).

Major conservation values include:

- ecosystems, habitats and communities associated with the Southeast Shelf Transition and associated with seafloor features of basin, plateau, shelf, sill
- important migration and resting on migration area for the SRW

- important foraging area for the Australian fur seal (*Arctocephalus pusillus doriferus*), killer whale (*Orcinus orca*), great white shark (*Carcharodon carcharias*), shy albatross, Australasian gannet (*Morus serrator*), short-tailed shearwaters (*Puffinus tenuirostris*), pacific gulls (*Larus pacificus*), silver gulls (*Chroicocephalus novaehollandiae*), crested tern (*Thalasseus bergii*), common diving-petrel (*Pelecanoides urinatrix*), fairy prion (*Pachyptila tutur*), black-faced cormorant (*Phalacrocorax fuscescens*) and little penguin.

Maritime heritage sites of the wreck of the steamship SS *Cambridge* and the wreck of the ketch *Eliza Davies* are within the park.

#### A.1.1.7.3 Flinders Marine Park

The Flinders Marine Park is located east of the northeast tip of Tasmania and Flinders Island and extends over 400km eastward. It covers a depth range from about 34m on the shallow continental shelf to abyssal depths of 5000m or more near the edge of Australia's exclusive economic zone. The park (27,046km$^2$) is recognised as a National Park Zone, Habitat Protection Zone and Multiple Use Zone.

Key features of this area are the continental shelf, and a long section of steep continental slope, incised by a series of deep submarine canyons. Sea bottom habitats include sheer rocky walls and large rocky outcrops that support a rich diversity of small seabed animals, such as lace corals and sponges. These and the large expanses of sandy and muddy sediments are habitats to a wide variety of fishes and to populations of the giant crab. Areas between 400m and 600m of the continental slope seafloor are habitat for the southern dogfish (*Centrophorus uyato*), Harrison's dogfish *(Centrophorus harrissoni)* and gulper sharks *(Centrophorus granulosus)* (DNP, 2025).

Major conservation values include:

- ecosystems habitats and communities associated with the Tasmania Province, the Tasmanian Shelf Province, the Southeast Transition, the Southeast Shelf Transition
- associated with seafloor features abyssal plain/deep ocean floor, canyon, plateau, seamount/guyot and shelf slope
- features with high biodiversity and productivity are east Tasmania Subtropical Convergence Zone
- the park is an important foraging area for wandering, black-browed, Indian yellow-nosed and shy albatrosses; northern giant petrel (*Macronectes halli*), Gould's petrel *(Pterodroma leucoptera)*, cape petrel, killer whale, great white shark and Harrison's dogfish
- the park is an important migration area for the humpback whale.

Ecosystems include (DNP, 2025):

- mesophotic rocky reefs
- rariphotic shelf reefs
- upper-slope reefs
- upper-slope sediments
- canyons
- mid-slope sediments
- lower-slope reef and sediments
- abyssal reef and sediments.

#### A.1.1.7.4 Jervis Marine Park

Jervis Marine Park is located about 20km offshore, adjacent to the NSW Jervis Marine Park comprising an area of 2473km$^2$ and covering a depth range from 120 - 5000m approximately. The park has Habitat Protection and Special Purpose (Trawl) Zones (DNP, 2018).

Seafloor features represented in the reserve include abyssal-plain/deep ocean floor, canyons, shelf and slope. The reserve includes two Key Ecological Features (KEFs), it is one of three shelf incising canyons occurring within the region (unique seafloor feature with ecological properties of regional significance) and shelf rocky reefs.

Major conservation values are:

- ecosystems habitats and communities associated with the Central Eastern Province and Southeast Shelf Transition
- important foraging area for seabirds, grey nurse sharks *(Carcharias taurus)* and humpback whales
- KEFs; Canyons on the Eastern Continental slope and Shelf Rocky Reefs

- contains one known shipwreck listed under the *Historic Shipwrecks Act 1976* (Cth) - HMAS *Tattoo* (wrecked in 1939).

#### A.1.1.7.5 Freycinet Marine Park

The Freycinet Marine Park is located east of Tasmania, offshore from the Freycinet Peninsula. It covers 57,941km$^2$, with depths from 40 – 530m. It has national park, recreational use, habitat protection and multiple use zones. The reserve spans the continental shelf and deeper water ecosystems that extend around southeastern Australia to the east of Tasmania. The shelf is adjoined to a large offshore saddle (DNP, 2025).

Major conservation values are:

- ecosystems habitats and communities associated with the Tasmania Province, the Tasmanian Shelf Province, the Southeast Transition
- associated with seafloor features are abyssal plain/deep ocean floor, canyon, escarpment, knoll/abyssal hill, saddle, seamount/guyot, terrace and shelf
- features with high biodiversity and productivity are east Tasmania subtropical convergence zone
- the park is an important foraging area for wandering, black-browed, and shy albatrosses, cape petrel, fairy prion, sei whales and killer whales
- the park is an important migration and resting during migration area for SRW and migration area for humpback whales.

Ecosystems include (DNP, 2025):

- mesophotic rocky reefs
- rariphotic shelf reefs
- upper-slope sediments
- mid-slope sediments
- lower-slope reef and sediments
- abyssal reef and sediments
- seamount sediments.

#### A.1.1.7.6 Central Eastern Marine Park

Central Eastern Marine Park begins 30km east of Coffs Harbour. It covers 70,054km$^2$, with depths from 120 – 6,000m. It has Marine National Park Zone Habitat Protection Zone/Special Purpose Zone (Trawl).

The park is significant because it includes habitats, species and ecological communities associated with the Central Eastern Province, the Central Eastern Shelf Transition and the Tasman Basin Province. It includes three KEFs: Canyons on the Eastern Continental Slope; the Tasmantid Seamount Chain; and the Tasman Front and eddy field (both valued for high productivity, aggregations of marine life, biodiversity and endemism) (DNP, 2018).

Major conservation values are:

- ecosystems, habitats, and communities associated with Central Eastern Province, Central Eastern Shelf Transition and Tasman Basin Province
- it is an important area for foraging and breeding of seabirds and migrating humpback whales
- KEFs of the marine park are the Tasmantid Seamount Chain, Canyons on the Eastern Continental Slope and Tasman Font and eddy field
- Sea Country is valued for Indigenous cultural identity
- maritime heritage site for shipwrecks *Amelia* (1816) and *Illagong* (1872)
- social values are tourism, commercial fishing and recreation.

#### A.1.1.7.7 Lord Howe Marine Park

The Lord Howe Marine Park is located approximately 550km offshore of NSW, adjacent to the NSW Lord Howe Island Marine Park and World Heritage Area. The park has National Park Zone/Habitat Protection Zone, Habitat Protection Zone (Lord Howe), Recreation Zones/Special Purpose Zone (Trawl).

The waters are a unique mix of warm tropical and cool temperate ocean currents – are home to over 500 fish species, more than 90 coral species and countless other marine species, many only found in the immediate area.

A wide range of habitats include a barrier coral reef and lagoon, and fringing reefs dominated either by coral or macroalgal communities (DNP, 2018).

Major conservation values are:

- ecosystems, habitats and communities associated with Lord Howe Province and Tasman Basin Province
- important area for foraging and breeding of seabirds and migrating humpback whales
- KEFs of the marine park are Lord Howe Seamount Chain, Elizabeth and Middleton Reefs and Tasman Font and eddy field
- cultural values are the marine environment around Lord Howe Island valued by the Islanders and Sea Country is valued by the Indigenous people
- national and world heritage listed
- tourism, commercial fishing, recreation, including fishing, and scientific research, are important activities in the marine park.

#### A.1.1.7.8 Hunter Marine Park

Encompassing three KEFs, the Hunter Marine Park is located offshore from Port Stephens in NSW and extends out approximately 100km. The marine park (6257km$^2$) has Habitat Protection and Special Purpose Zones.

The Hunter Marine Park is significant because it contains habitats, species and ecological communities, representative of the Central Eastern Province and the Central Eastern Shelf Province. It includes three KEFs. The Marine Park supports a range of species, including species listed as threatened, migratory, marine, or cetacean under the EPBC Act (DNP, 2018).

The major conservation values are:

- ecosystems, habitats and communities associated with: Central Eastern Province and Central Eastern Shelf Province
- important area for foraging seabirds and humpback whales, migrating humpback whales and aggregation of grey nurse sharks
- KEFs of the marine park are Canyons on the Eastern Continental Slope, Shelf Rocky Reefs and Tasman Front and eddy field
- the marine park contains one known shipwreck listed under the *Historic Shipwrecks Act 1976* (Cth) - *India* (1884)
- commercial fishing, tourism, and recreation, including fishing, are important activities in the marine park.

These activities contribute to the wellbeing of regional communities and the prosperity of the nation.

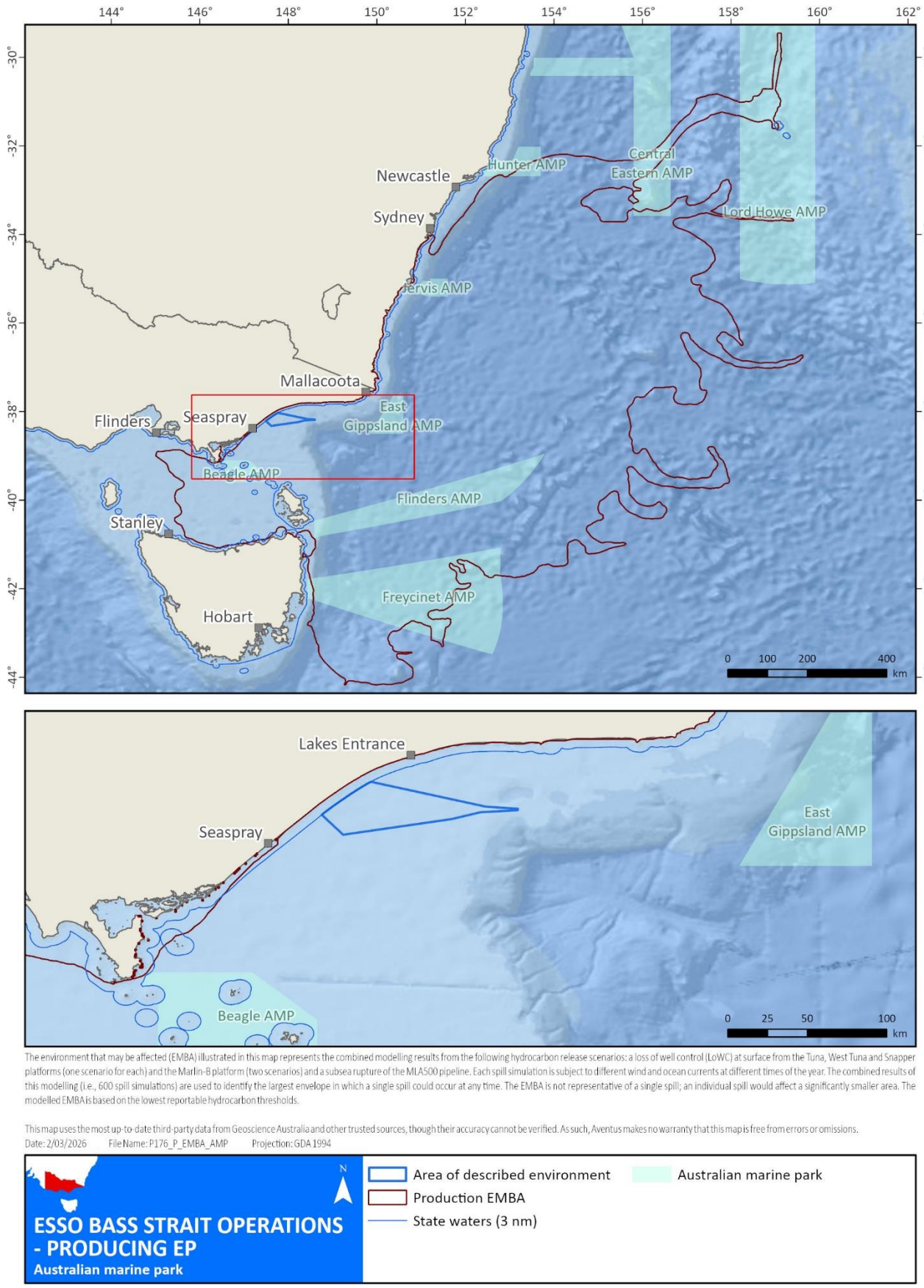



**Figure A-7 AMPs intersected by the EMBA**

### *A.1.1.8 Key Ecological Features*

KEFs are defined in Table 3-2 of this EP. KEFs within the EMBA are described below and shown in Figure A-8.

#### A.1.1.8.1 Upwelling East of Eden

The Upwelling East of Eden is present along the eastern Victorian and southern NSW coasts and is defined as a KEF as it is an area of high productivity and aggregations of marine life.

Dynamic eddies of the EAC cause episodic productivity events when they interact with the continental shelf and headlands. The episodic mixing and nutrient enrichment events drive phytoplankton blooms, the basis of productive food chains including zooplankton, copepods, krill, and small pelagic fish.

The upwelling supports regionally high primary productivity supports fisheries and biodiversity, including top order predators, marine mammals, and seabirds.

This area is one of two feeding areas for blue whales and humpback whales, known to arrive when significant krill aggregations form. The area is also important for seals, other cetaceans, sharks, and seabirds.

#### A.1.1.8.2 Big Horseshoe Canyon

Big Horseshoe Canyon is defined as a KEF as it is an area of high productivity and aggregations of marine life. The KEF lies south of the coast of eastern Victoria. This feature is the eastern most arm of the Bass Canyon system (Commonwealth of Australia, 2015a).

The steep, rocky slopes of the Big Horseshoe Canyon provide hard substrate habitat for attached large epifauna. Sponges and other habitat forming species provide structural refuges for benthic fishes, including the commercially important pink ling (*Genypterus blacodes*).

The Big Horseshoe Canyon is the largest southeastern canyon sampled for benthic biodiversity (Williams, et al., 2009). It has a total area of 319km$^2$ in 1500m depth that supports a rich, abundant, filter-feeding benthic megafauna, including large sponges in dense beds of large individuals at 120m and at 300 – 400m, dense stands of the stalked crinoid (*Metacrinus cyaneus*) in 200 – 300m, and many species of octocoral (especially gold corals (*Savalia savaglia*)) at depths greater than 700m (Kloser RJ, 2001). It is the only known temperate location of the stalked crinoid.

#### A.1.1.8.3 Seamounts South and East of Tasmania

The Seamounts South and East of Tasmania are defined as a KEF as they are an area of high productivity and aggregations of marine life.

These seamounts are a chain or cluster of seamounts rising from the abyssal plain, continental rise or plateau situated 200km or more from shore (east of Flinders Island to southeast of southern Tasmania). Seamounts with hard substrate summits and slopes provide attachment points for sessile invertebrates, while the soft sediments can be habitat for species that burrow into the sediments.

These seamounts create localised upwellings of nutrient rich waters from the seafloor. The hard substrate supports sessile invertebrates.

#### A.1.1.8.4 Canyons on the Eastern Continental Slope

The Canyons on the Eastern Continental Slope are defined as a KEF as they are a unique seafloor feature with enhanced ecological functioning and integrity, and biodiversity, which apply to both its benthic and pelagic habitats.

Canyon systems have a marked influence on diversity and abundance of species through their combined effects of topography, geology, and localised currents, all of which act to funnel nutrients and sediments into the canyon. As such, these features are valued for their enhanced productivity and biological diversity properties. Canyons contribute to habitat diversity by providing a hard surface that offers anchoring points and vertical relief for filter feeder benthic species. Hard substrata support different species assemblages; particularly favouring large filter feeder–dominated benthic species (e.g. attached sponges and crinoids) that thrive in abundance in the enhanced current flow conditions. Large benthic animals such as sponges and feather stars are abundant, with particularly high diversity found in the upper slope regions (150 – 700m). A range of higher trophic level species, including crustaceans, echinoderms, bivalves, cephalopods and fish are then attracted to these regions.

Canyons are therefore significant contributors to overall biodiversity, particularly in terms of benthic organisms. Due to isolation, restricted dispersal, and connectivity, it is also expected this diversity encompasses a high degree of endemism, further contributing to the social and biological values of these communities.

The Canyons on the Eastern Continental Slope lie off the coast of NSW.

#### A.1.1.8.5 Tasman Front and eddy field

The Tasman Front and eddy field occurs in the Temperate East Marine Region and is defined as a KEF formed by complex and dynamic oceanographic processes supporting transient patches of enhanced productivity that, in turn, attract aggregations of species across trophic levels, including top predators such as tuna and sharks.

This feature also supports biological connectivity with seamount habitats (Tasmantid Seamount Chain – refer Section A.1.1.8.3) further offshore. The Tasman Front is formed by a current that moves to the north in winter and to the south in summer. The Front separates the warm, nutrient-poor waters of the Coral Sea from the nutrient-rich waters of the Tasman Sea and its boundary can and associated eddies vary in shape, strength, and location.

In the southern portion of the Temperate East Marine Region, the Tasman Front creates a complex oceanographic environment with vertical mixing causing enhanced productivity. Patches of productivity are important for mid-level consumers including turtles and top fish predators. This is supported by fisheries oceanography studies that describe a positive relationship between fish catch rates and proximity to frontal features, and a predominance of bigeye tuna *(Thunnus obesus)* and swordfish *(Xiphias gladius)* associated with the Tasman Front (DoEE, 2025a).

#### A.1.1.8.6 Lord Howe Seamount Chain

Lord Howe Seamount Chain is a chain of submerged volcanoes running 1000km northsouth. The seamount chain includes Lord Howe Island and Elizabeth and Middleton Reefs. This seamount chain runs east of the Tasmantid Seamount discussed in Section A.1.1.8.3.

These isolated, oceanic reefs support a diverse range of tropical and temperate marine life, including both warm-water and cold-water corals and an abundance of fish species. This diversity is a result of the effect of the EAC on the reefs as it exposes the area to its warm waters, in contrast to the surrounding cooler ocean (DSEWPAC, 2012a).

#### A.1.1.8.7 Elizabeth and Middleton Reefs

Elizabeth and Middleton Reefs are a pair of isolated oceanic platform reefs approximately 150km north of Lord Howe Island. The reefs are separated by 45km of deep oceanic waters. These reefs are unique as they represent the southernmost platform reefs on the planet.

The reefs are largely awash with only small sand cays being seen when the tides are right. These reefs are located on the Lord Howe rise a volcanic ridge that extends northwest from New Zealand. Lord Howe island is the only other feature that emerges from this formation. These isolated reefs display a diverse and rich marine fauna and flora (Parks Australia, 2023).

### 1.1.1.1 Shelf Rocky Reefs

The Shelf Rocky Reefs habitat has been identified as a KEF as it is considered a unique seafloor feature which is associated with ecological properties of regional significance.

Shelf Rocky Reefs feature a range of complex benthic habitats that, in turn, support diverse benthic communities. Along the continental shelf, south of the Great Barrier Reef, benthic communities on rock outcrops and boulder substrates shift from algae-dominated communities to those dominated by attached invertebrates, including dense populations of large sponges, with a mixed assemblage of moss animals and soft corals; this shift generally occurs at a depth of 45m. Below wave-influenced areas, massive and branched growth forms of sponges are more prevalent, and sponge species richness and density generally increases with depth along the NSW coast.

Collectively, these invertebrates create a complex habitat-forming community that supports microorganisms and other invertebrates, such as crustaceans, molluscs, annelids, and echinoderms. These habitats also contribute to increased survival of juvenile fish by providing refuge from predation. Rocky reef habitats on Australia's east coast support a diverse assemblage of demersal fish, which show distinct patterns of association with shelf-reef

habitats, e.g. jackass morwong (*Nemadactylus macropterus*), barracouta (*Thyrsites atun*), orange-spotted catshark (*Asymbolus rubiginosus*), eastern orange perch (*Lepidoperca pulchella*), butterfly perch (*Caesioperca lepidoptera*) and blue warehou (*Seriolella brama*) are species that distinguish rocky reef habitats at depths greater than 45m from those of soft sediments.

The Shelf Rocky Reefs lie in deep waters off the coast of NSW.

#### A.1.1.8.8 Shelf Rocky Reefs and Hard Substrate

As outlined in Table 3-2 of the EP, this KEF has not been spatially defined. Information available on the location of this KEF in the south-east marine region indicates that it may be present between 50m and 220m depth, from the subtidal zone to the continental shelf break (Commonwealth of Australia, 2015a).

Figure A-8 shows the location of this KEF based on information available from government agencies, literature, and ROV data from Esso operations in the Bass Strait

#### A.1.1.8.9 The Bass Cascade (along Bass Canyon System)

The Bass Cascade refers to the 'underwater waterfall' effect brought about by the northward flow of Bass Strait waters in winter which are more saline and slightly warmer than surrounding Tasman Sea waters. As the water approaches the mainland in the area of the Bass Canyon group it forms an undercurrent that flows down the continental slope. The cascading water has a displacing effect causing nutrient rich waters to rise, which in turn leads to increased primary productivity in those areas. The cascading water also concentrates nutrients, and some fish and whales are known to aggregate along its leading edge. The Bass Cascade occurs during winter months only (Commonwealth of Australia, 2015a).

This KEF has not been spatially defined and hence is not shown in Figure A-8 however it is expected to occur within the EMBA.

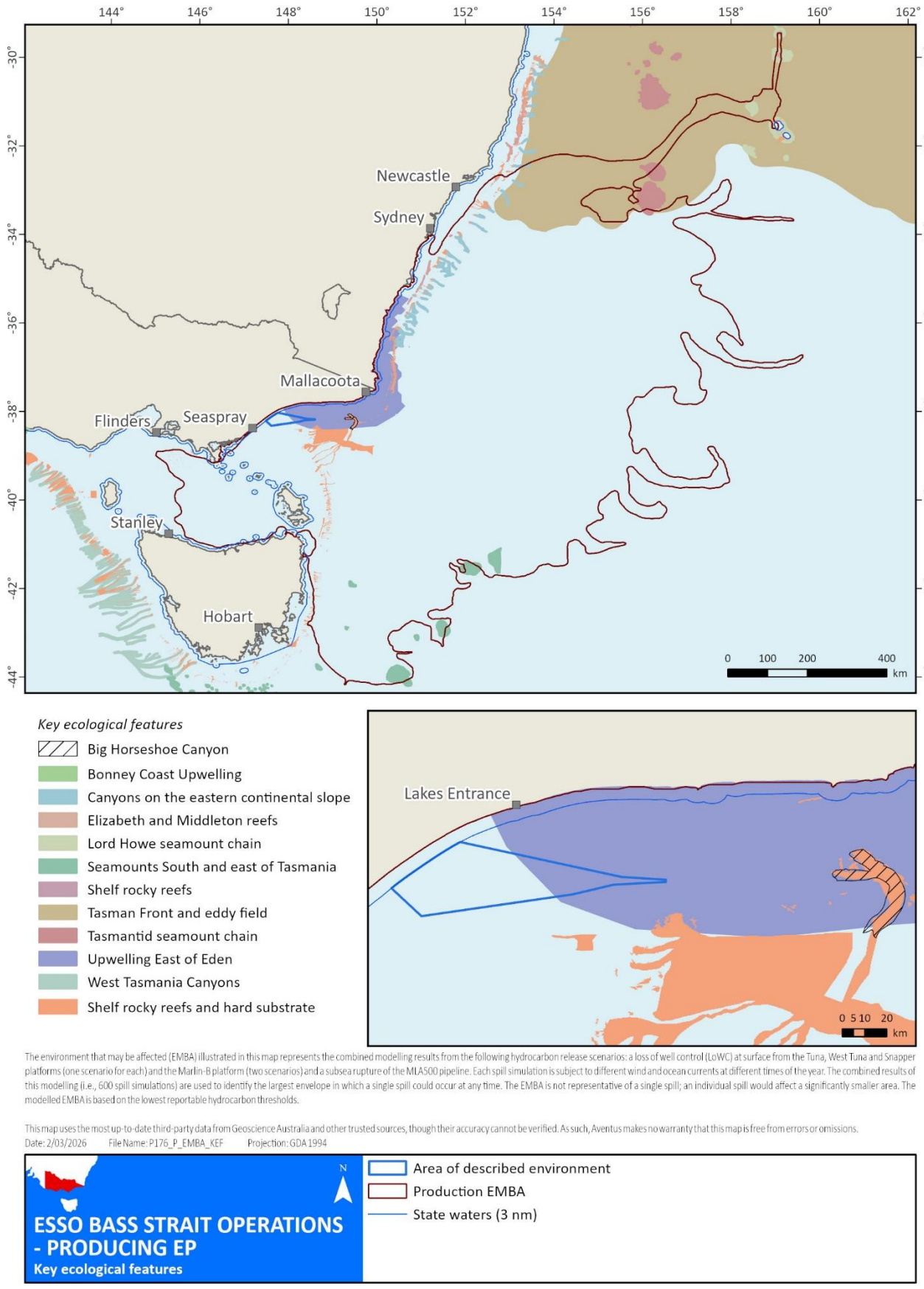



**Figure A-8 KEFs intersected by the EMBA**

### *A.1.1.9 Other protected areas*

The National Reserve System is Australia's network of protected areas and is made up of Commonwealth, State and Territory reserves, Indigenous lands, and protected areas. National parks and reserves which include marine protected areas and terrestrial protected areas are declared under each individual State's legislation and are managed by State authorities.

This Section only lists the protected areas that are marine and/or coastal in nature that are intersected by the EMBA and that are spatially defined. A detailed list of other protected areas found within the EMBA can be seen in the PMST report (Appendix D). The marine/aquatic and coastal protected areas in relation to each State are mapped in Figure A-9, Figure A-10 and Figure A-11.

#### A.1.1.9.1 Marine/aquatic protected areas

Table A-3 lists and describes the marine/aquatic protected areas that are within the EMBA.

**Table A-3 Marine/aquatic protected areas that are within the EMBA**

| Name | Description |
|---|---|
| **Victoria (see Figure A-9)** | |
| Beware Reef Marine Sanctuary | The Beware Reef Marine Sanctuary is a State marine protected area, IUCN Category II, located approximately 5km southeast of Cape Conran, comprising of a granite outcrop covering an area of 220ha and extending for a distance of approximately 500m from the edge of the exposed reef. It rises from a depth of approximately 30m and is exposed at low tide, providing a resting area for Australian fur seals.<br>The reef is covered by outcrops of bull kelp (*Durvillaea potatorum*) and supports a range of marine life, including seahorses and leafy seadragons (*Phycodurus eques*) (ParksVic, Beware Reef Marine Sanctuary., 2017a). Beware Reef is a popular location for recreational divers, and the remains of numerous shipwrecks can be encountered in the sanctuary. |
| Cape Howe Marine National Park | The Cape Howe Marine National Park is situated in the far east of Victoria alongside the border with NSW. The habitats found in the park include kelp forests, granite and sandstone reefs, sandy beaches and soft sediments.<br>The marine life of the area is particularly diverse because species of both warm and cool areas can reside here. Whales pass by Cape Howe on their migration from Antarctica and are sometimes followed by a pod of killer whales. Little penguins also forage at the rook on Gabo Island (ParksVic, 2017b). |
| Ninety Mile Beach Marine National Park | Ninety Mile Beach Marine National Park is located 30km south of Sale and adjacent to Gippsland Lakes Coastal Park, the Ninety Mile Beach Marine National Park covers 5km of coastline.<br>The huge subtidal sandy expanses characteristic of the area exhibits particularly high species diversity including tube building worms, small molluscs and many tiny crustaceans. Many pelagic fish species feed on the benthos, and young great white sharks have also been observed feeding in the area (ParksVic, 2017c). |
| Nooramunga Marine and Coastal Park | Nooramunga Marine and Coastal Park covers an area of 30,170ha in Corner Inlet. The park consists of shallow marine waters, intertidal mudflats and a series of over 40 sand islands. The park, along with the Corner Inlet Marine and Coastal Park to its west, contains the largest stands of white mangrove (*Laguncularia racemosa*) and saltmarsh areas in Victoria. The saltmarshes are dominated by beaded glasswort (*Sarcocornia quinqueflora*) and shrubby glasswort (*Tecticornia arbuscula*). Seagrass meadows also occur throughout the park. Seaward of the mangroves are extensive areas of intertidal mud and sand flats.<br>An immense range of marine plants and invertebrates can be found here that provide food for the thousands of migratory wading birds that arrive each year from their northern |

| Name | Description |
|---|---|
| | hemisphere breeding grounds. The seagrass meadows provide habitat to over 300 marine invertebrates, including a range of large crabs, seastars, sea snails, iridescent squid and many fish including pipefish *(Syngnathus watermeyeri)*, common stingarees (*Trygonoptera testacea*), flathead (*Platycephalus richardsoni*), whiting and flounder. Finfish such as snapper (*Pagrus auratus*), King George whiting (*Sillaginodes punctatus*), flathead, eastern sea garfish (*Hyporhamphus australis*) and Australian salmon (*Arripis trutta*) are caught by recreational fishers. Thirty-two migratory wader species have been recorded in the park. |
| Point Hicks Marine National Park | The Point Hicks Marine National Park is located alongside Croajingolong National Park, East Gippsland. Many creatures found here are not found further west because the water is too cold, for example the large black sea urchin (*Arbacia lixula*). The national park is approximately 4000ha in area, with fauna including intertidal and shallow subtidal invertebrates, diverse sessile invertebrates living on subtidal reefs, kelps and small algae, and a high diversity of reef fish. In addition to the subtidal reef, the marine environment around Point Hicks includes intertidal rock platforms and offshore sands (ParksVic, 2017d). Point Hicks Marine National Park is also a popular location for recreational divers. Remains of two shipwrecks (the *SS Kerangie* and the *SS Saros*) can be encountered in the national park. |
| Wilsons Promontory Marine National Park | Wilsons Promontory Marine National Park is Victoria's largest marine protected area at 15,550ha and is located around the southern tip of Wilsons Promontory.<br><br>There is a diversity of marine life including octopus, sharks and rays. It is a popular location for recreational divers particularly around the sponge gardens. The offshore islands, including Anser Island, support many colonies of fur seals and oceanic birds such as little penguins, fairy prions, silver gulls and pacific gulls (ParksVic, 2017f).<br><br>Wilsons Promontory National Park is a popular tourist destination due to its coastal scenery and diverse natural environments. Tourist activities include walking, camping, sightseeing, viewing wildlife, fishing, boating, diving, sea kayaking and surfing. The park is important for its range of plants and animals, including many threatened species including the New Holland mouse (*Pseudomys novaehollandiae*), ground parrot and white-bellied sea eagle.<br><br>Coastal features include expansive intertidal mudflats, sandy beaches and sheltered coves interrupted by prominent headlands and granite cliffs in the south, backed by coastal dunes and swamps. The avifauna recorded for Wilsons Promontory includes around half of all Victorian bird species. Significant species of migratory wading birds feed on the tidal mudflats of Corner Inlet within and adjoining the park. The offshore islands have breeding and roosting sites for sea birds, including a large number of short-tailed shearwaters (ParksVic, 2017f). |
| **Tasmania (see Figure A-10)** | |
| Arthur Bay Conservation Area | Arthur Bay Conservation Area covers 7.5km$^2$ and includes the coastline and marine areas south of Blue Rocks and north of Whitemark on the west coast of Flinders Island. There is no management plan in place. |
| Chappell Islands Nature Reserve | There is a scarceness of information regarding this nature reserve online. However, according to the Tasmania Parks and Wildlife Service listing in 2022 the Chappell Islands Nature Reserve is 199ha and is designated IUCN Category IV. There is currently no management plan in place. |
| Kent Group National Park | The six islands and islets of the Kent Group (Erith, Dover, Deal, North East Isle, South West Isle and Judgement Rocks) comprise Tasmania's northern most national park. Surrounding |

| Name | Description |
|---|---|
| | the largest of the islands, the Kent Group Marine Reserve covers 29,000ha of marine habitat including deep and shallow reefs as well as extensive sponge beds (TPWS, 2017).<br><br>The waters around the Kent Group include the southernmost strongholds of several fish species including the violet roughy (*Optivus agastos*), mosaic leatherjacket (*Eubalichthys mosaicus*) and Wilson's weedfish (*Heteroclinus wilsoni*), and the southern limit of distribution of Maori wrasse (*Ophthalmolepis lineolatus*), onespot puller (*Chromis hypsilepis*) and Bank's shovelnose (*Aptychotrema rostrata*). The marine protected area is made up of a sanctuary zone which is a 'no take' zone, and a Habitat Protection Zone which allows for lower impact fishing (e.g. abalone and rock lobster fishing, hand line fishing).<br><br>The North East Isle is a 32.62ha unpopulated granite island with a peak elevation of 125m ASL. Recorded breeding seabird and wader species include little penguin, short-tailed shearwater, fairy prior, common diving-petrel, pacific gull *(Larus pacificus)* and sooty oystercatcher (Brothers, Pemberton, Pryor, & Halley, 2001). |
| Marriott Reef Conservation Area | The Marriott Reef Conservation Area covers an area of 0.16km$^2$ of the marine environment and begins 500m off the west coast of Flinders Island. The area is designated IUCN Category V and there is no management plan in place. |
| Moriarty Rocks Nature Reserve | Moriarty Rocks Nature Reserve comprises two major rocks and several smaller ones in a reef formation. The more northerly rock is about 1.32ha in area and its southerly neighbour about 1.22ha (Coastcare, 2000).<br><br>Moriarty Rocks Nature Reserve is the only Australian fur seal breeding colony in the Furneaux Group. The two rocks which make up the reserve are constantly wave-washed which accounts for the large variation in the numbers of seal pups counted annually. Over the past 10 years in which the monitoring program has been conducted, there have been fluctuations in seal pup numbers, ranging from 397 to 1190 (Coastcare, 2000). |
| Pardoe Northdown Conservation Area | There is a scarceness of information regarding this nature reserve online. However, according to the Tasmania Parks and Wildlife Service listing in 2022 the Pardoe Northdown Conservation Area is 277ha and is designated IUCN Category VI. There is currently no management plan in place. |
| Reef Island Conservation Area | There is a scarceness of information regarding this conservation area online. However, according to the Tasmania Parks and Wildlife Service listing in 2022 the Reef Island Conservation Area is 7ha and is designated IUCN Category VI. There is currently no management plan in place. |
| Unnamed (Badger Corner) Conservation Area | There is a scarceness of information regarding this conservation area online. However, according to the Tasmania Parks and Wildlife Service listing in 2022 the Unnamed (Badger Corner) Conservation Area is 0.13ha and is designated IUCN Category IV. There is currently no management plan in place. |
| **NSW (see Figure A-11)** | |
| Batemans Marine Park | The Batemans Marine Park was established in 2006 and covers approximately 85,000ha, extending from the north end of Murramarang Beach near Bawley Point to Wallaga Lake in the south. It includes all of the seabed and waters from the mean high-water mark on the coast to 3nm miles offshore. Including all estuaries, creeks, rivers and lakes (except Nargal Lake) to the limit of tidal influence.<br><br>Scuba diving, snorkelling, beach going, whale, seal and other wildlife watching, fishing, swimming, surfing, and boating are all popular pastimes at this park. The park covers a |

| Name | Description |
|---|---|
| | range of habitats, including continental shelf seafloor along with sponge gardens, beaches, rocky shores, kelp beds, coralline algal banks, rocky reefs, islands, seagrass, mangroves, and estuarine habitats.<br><br>The Montague Island Nature Reserve, within the marine park, is a breeding and nesting place for over 40,000 sea birds including shearwaters, little penguins, crested terns and silver gulls and is a haul-out site for Australian fur seals and New Zealand fur seals (*Arctocephalus forsteri*). Both Montague Island and the Tollgate Islands (also within the park) are aggregation sites for grey nurse sharks (DPI (NSW), 2018). |
| Boat Harbour Aquatic Reserve | Boat Harbour Aquatic Reserve is located on the southern part of the Kurnell Peninsula, incorporating the whole of Merries Reef and extending east to three green 'Water Board' vents at Potter Point. The seaward boundary is 100m from the mean low water mark. It covers an area of approximately 70ha.<br><br>Boat Harbour is relatively isolated location. The reserve encompasses the whole of Pimweli Rocks and Merries Reef. It contains a sandstone shore and other important marine habitats including boulder and subtidal reefs interspersed with areas of sandy seabed. The rocky shore provides a feeding ground for a number of shorebirds, including threatened species such as sooty oystercatchers and migratory waders (DPIRD, n.d.). |
| Bushrangers Bay Aquatic Reserve | Bushrangers Bay Aquatic Reserve is a small rocky embayment at the eastern end of Bass Point, approximately 4km south of Shellharbour on the NSW South Coast. The reserve covers the entirety of Bushrangers Bay, an area of approximately 4ha.<br><br>The reserve was declared for its representation of rock platforms, crevices, and rock pools typical of the NSW mid-south coast and in recognition of the reserve's unique habitat and role as a nursery area located between temperate and tropical regions.<br><br>The aquatic reserve's diverse marine life includes common temperate and seasonal tropical fish, many of which are quite abundant in the reserve. Seagrass beds provide habitat for a variety of fish, including halfbanded seaperch (*Hypoplectrodes maccullochi*), southern Maori wrasse (*Ophthalmolepis lineolatus*) and senator wrasse (*Pictilabrus laticlavius*). These fish, together with a suite of other species, including red morwong (*Cheilodactylus fuscus*), striped trumpeter (*Latris lineata*), blue groper (*Achoerodus viridis*), horseshoe and pygmy leatherjackets (*Meuschenia hippocrepis and Brachaluteres jacksonianus*) and herring cale (*Odax cyanomelas*), forage between the seagrass and the variety of other habitats found within the reserve. The aquatic reserve is also the southernmost distribution for several species of tropical fish (DPIRD, n.d.)(a). |
| Cape Banks Aquatic Reserve | Cape Banks Aquatic Reserve is located on the northern headland of Botany Bay and extends along the whole foreshore from the bridge at Cape Banks to the Endeavour Light at Henry Head and 100m seaward from the mean low water mark. It covers an area of approximately 20ha. The aquatic reserve is surrounded by the Kamay Botany Bay National Park and the NSW Golf Course, which provide a substantial buffer from human influences and ensure the naturalness of the reserve is maintained.<br><br>A range of rocky intertidal habitats occur at Cape Banks, including platforms, crevices, rock pools, boulders, and cobbles, resulting in a diversity of intertidal marine plant and animal communities (DPIRD, (n.d.)(b)). |
| Jervis Bay Marine Park | Jervis Bay Marine Park on the NSW South Coast covers approximately 215km$^2$ and spans over 100km of coastline and adjacent oceanic and estuarine waters. It extends from Kinghorn Point south to Sussex Inlet. It includes most of the waters of Jervis Bay, with the remainder forming part of the Booderee National Park on Bherwerre Peninsula. It contains |

| Name | Description |
|---|---|
| | the tidal waters of Currambene Creek, Moona Creek, Carama Inlet, Wowly Gully, Callala Creek and Currarong Creek, and the mean high-water mark along the shores.<br><br>The marine park has six estuaries, excluding Jervis Bay, four small coastal creeks and two larger, wave-dominated estuaries. Four seagrass species are abundant making it an important nursery for fish and providing food and shelter for recreationally and commercially valuable species such as snapper, bream, luderick (*Girella tricuspidata*), whiting (*Sillaginodes punctatus*) and flathead.<br><br>The rocky shores are important roosting and feeding grounds for shorebirds including the threatened sooty oystercatcher. Shallow and intermediate reefs support a wide range of biodiversity, including habitat for commercially and recreationally valuable fish and for invertebrates such as cuttlefish, crabs, and rock lobsters.<br><br>The marine park contains important habitat for the endangered grey nurse shark. Protected species known to occur in the park include the eastern blue devilfish (*Paraplesiops bleekeri*), elegant wrasse (*Anampses elegans*), black rockcod, some hard and soft corals, sea anemones, zooanthids, and all pipefishes and seahorses. Pied and sooty oystercatchers, hooded plovers and ospreys *(Pandion haliaetus)* are among the threatened bird species known to nest, roost and/or feed on the rocky shores. Humpback and SRW are often spotted during migration and are an important tourist attraction. Indigenous people have strong ties to the land with midden sites located in areas around the marine park. Nine shipwrecks have been found in Jervis Bay, with the most renowned being the *Hive and the Merimbula* (DPIRD, n.d.). |
| Lord Howe Island Marine Park | The Lord Howe Marine Park contains a unique mix of warm tropical and cool temperate ocean currents that are home to over 500 fish species, more than 90 coral species and countless other marine species, many only found in the immediate area. A wide range of habitats include a barrier coral reef and lagoon, and fringing reefs dominated either by coral or macroalgal communities. The marine park shares the same values as described in Section A.1.1.1. |

#### A.1.1.9.2 Coastal protected areas

This Section lists the coastal protected areas that are within or in proximity to the EMBA.

##### *A.1.1.9.2.1 VICTORIA (SEE FIGURE A-9):*

- Anser Island Reference Area
- Cape Conran Coastal Park
    - This park extends from Sydenham Inlet in the east to Point Ricardo near Marlo. The park includes ocean beaches and is a popular park for water activities - swimming, diving, boating, fishing and rock pooling. Many birds feed on the nectar rich plants of the heathlands and banksia woodlands including the threatened ground parrot. Lizards and large lace monitors *(Varanus varius)* are common around Cape Conran (ParksVic, 2017e).
- Cape Howe Wilderness Zone
- Croajingolong National Park
    - The Croajingolong National Park follows the far-eastern coastline of Victoria for 100km and together with the adjoining Nadgee Nature Reserve in NSW is classified as a UNESCO World Biosphere Reserve. Over 1000 species of native plants have been recorded in the park including 90 species of orchids. The park also contains areas of cool temperate and warm temperate rainforest, eucalypt forest and coastal heathland. Of the 52 mammal species recorded in the park, arboreal mammals, such as possums, gliders and bats are common. Seals, whales, and dolphins occur in coastal waters adjacent to the park. The islands and ocean beaches attract migratory seabirds and waders, the wetlands are habitat for a diversity of waterfowl, and the coastal woodlands are favoured habitat for birds of prey; the Nadgee Lake and tributary wetlands are a recognised NIW.

Significant populations of reptiles and amphibians also occur within the park. The park's secluded coastal camping locations make it popular for beach walks, bird watching, boating and fishing (ParksVic, 2017g).

- East Gippsland Coastal streams
- Ewing Morass Natural Features Reserve
- Gippsland Lakes Coastal Park
    - The Gippsland Lakes are a group of large coastal lagoons in eastern Victoria, separated from the sea by sand dunes and fringed on the seaward side by Ninety Mile Beach. The main lakes - Wellington, Victoria and King cover an area of 340km$^2$ and have a shoreline of 320km. The lakes are fed by a number of river systems. The largest of the rivers are the Latrobe River and the Avon River (flowing into Lake Wellington), and the Mitchell River, Nicholson River and Tambo River (flowing into Lake King). The system is linked to the sea by an artificial entrance near the eastern end, opened in 1889, where the town of Lakes Entrance is now situated (ParksVic, 2017h ) (ParksVic, 2017i).
- Jack Smith Lake Wildlife Reserve
- Lake Tyers S.P. State Park
    - Ewing Morass Wildlife Reserve and Lake Tyers State Park are located along Pettmans Beach, approximately 20km east of Lakes Entrance. It is an extensive sandy beach, frequented by campers and fishers. The area is highly significant to Gunaikurnai Traditional Owners due to its Aboriginal cultural heritage (ParksVic, 2023).
- Nooramunga State Faunal Reserve
- Rame Head Remote and Natural Area
- Sandpatch Wilderness Zone
- Seal Islands Wildlife Reserve
- Snowy River Heritage River
- Southern Wilsons Promontory Remote and Natural Area
- Vereker Outlook Walk (Wilsons Promontory National Park)
- Wilsons Promontory National Park
- Wilsons Promontory Islands Remote and Natural Area.

*A.1.1.9.2.2 TASMANIA (SEE FIGURE A-10):*

- Anderson Islands Conservation Area
- Babel Island Indigenous Protected Area
- Badger Corner Private Sanctuary
- Bass Pyramid Nature Reserve
- Battery Island Conservation Area
- Baynes Island Nature Reserve
- Big Green Island Nature Reserve
- Big Silver Conservation Covenant
- Blyth Point Conservation Area
- Boat Harbour Road Killiecrankie Conservation Covenant
- Boxen Island Conservation Area
- Briggs Islet Conservation Area
- Brougham Sugarloaf
- Bun Beetons Point Conservation Area
- Cape Portland Conservation Area
- Cape Portland Private Sanctuary
- Cat Island Conservation Area
- Chalky Island Conservation Area
- Cone Islet Conservation Area
- Craggy Island Conservation Area
- Curtis Island Nature Reserve

  - Curtis Island, part of the Curtis Group, is a granite island with an area of 150ha lying in northern Bass Strait between the Furneaux Group and Wilsons Promontory. It is a nature reserve and supports up to 390,000 breeding pairs of short-tailed shearwaters. Other recorded breeding seabird and wader species include little penguin, fairy prion, pacific gull and sooty oystercatcher. Other islands in the Curtis Group are Cone Islet, Sugarloaf Rock and Devils Tower. Devils Tower comprises two small granite islands with a combined area of 4.77ha. It is a nature reserve and recorded breeding seabird species include short-tailed shearwater, fairy prion and common diving-petrel. The island is also used as a regular haul-out site for Australian fur seals (Brothers, Pemberton, Pryor, & Halley, 2001).

- Darling Range Conservation Area
- Devils Tower Nature Reserve - see description above.
- Doughboy Island Conservation Area
- East Kangaroo Island Nature Reserve
- East Moncoeur Island Conservation Area
  - West Moncoeur Island and East Moncoeur Island are part of Tasmania's Rodondo Group lying in northern Bass Strait south of Wilsons Promontory. The islands are granite islands ringed by steep cliffs. Recorded breeding seabird and wader species include little penguin, short-tailed shearwater, fairy prion, common diving-petrel, pacific gull and sooty oystercatcher. Both islands are considered important breeding sites for seabirds (Brothers, Pemberton, Pryor, & Halley, 2001). West Moncoeur Island holds an important breeding colony of Australian fur seals and is a nature reserve (Coastcare, 2000).
- Egg Beach Conservation Area
- Emita Nature Recreation Area
- Foochow Conservation Area
- Forsyth Island Conservation Area
- Foster Islands Nature Reserve
- Fotheringate Bay Conservation Area
- Goose Island Conservation Area
- Gull Island Conservation Area
- Hogan Group Conservation Area
  - Hogan Island, the largest island in the Hogan Group, is a 232ha granite island located in northern Bass Strait between the Furneaux Group and Wilsons Promontory. Recorded breeding seabird and wader species include little penguin, short-tailed shearwater, pacific gull, silver gull and sooty oystercatcher (Brothers, Pemberton, Pryor, & Halley, 2001). Other islets of the group include: Twin, Long, Round, East, Boundary (or North East) islets, and Seal Rock.
- Holts Point Conservation Area
- Humbug Point Conservation Area
- Isabella Island Nature Reserve
- Jacksons Cove Conservation Area
- Killiecrankie Nature Recreation Area
- Lackrana Conservation Area
- Lands End Conservation Covenant
- Lighthouse Point Conservation Area
- Lime Pit Road Conservation Area
- Little Chalky Island Conservation Area
- Little Dog Island Game Reserve
- Little Green Island Conservation Area
- Little Island Conservation Area
- Little Swan Island Nature Reserve
- Logan Lagoon Conservation Area
  - also a Ramsar site see Section A.1.1.4.4 for description.
- Logans Lagoon Conservation Covenant

- Long Island Conservation Area
- Low Islets Nature Reserve
- Low Point Conservation Area
- Lughrata Conservation Covenant
- Marshall Beach Conservation Area
- Mile Island Conservation Area
- Mount Tanner Nature Recreation Area
- Musselroe Bay Conservation Area
- Musselroe Bay Conservation Covenant
- Neds Reef Conservation Area
- Night Island Conservation Area
- Ninth Island Conservation Area
- North East Islet Nature Reserve
- North East River Game Reserve
- Oyster Rocks Conservation Area
- Palana Beach Nature Recreation Area
- Pasco Group Conservation Area
- Passage Island Conservation Area
- Patriarchs Conservation Area
- Patriarchs Private Sanctuary
- Prime Seal Island Conservation Area
- Ram Island Conservation Area
- Reedy Lagoon Private Nature Reserve
- Rodondo Island Nature Reserve
- Roydon Island Conservation Area
- Sellars Lagoon Game Reserve
- Sentinel Island Conservation Area
- Settlement Point Conservation Area
- Sister Islands Conservation Area
- Spike Island Conservation Area
- St Helens Conservation Area
- Storehouse Island Conservation Area
- Strzelecki National Park
    - Strzelecki National Park is located on Mount Strzelecki which is the highest point on Flinders Island. The park has distinctive granite peaks that offer spectacular views, a rich variety of flora and fauna, and beautiful coastal waters, Strzelecki National Park is an ideal spot for walkers, birdwatchers and kayakers. There are well over 100 bird species recorded on the Island, none more prominent than the Cape Barren goose. Many rare or endangered species inhabit the Island, such as the swift parrot, forty-spotted pardalote *(Pardalotus quadragintus)*, grey-tailed tattler *(Tringa brevipes)* and the hooded plover. The park is also home to a large number of endemic species, you can expect to see wombats, Bennett's wallabies *(Notamacropus rufogriseus),* echidnas and pademelons as you explore the park. There are also long-nosed potoroos *(Potorous tridactylus)* (TPWS, 2022).
- Sugarloaf Rock Conservation Area
- Sydney Cove Historic Site
- The Dock Conservation Covenant
- Trousers Point Beach Conservation Area
- Vansittart Island Conservation Area
- West Moncoeur Island Nature Reserve
    - West Moncoeur Island and East Moncoeur Island are part of Tasmania's Rodondo Group lying in northern Bass Strait south of Wilsons Promontory. The islands are granite islands ringed by steep cliffs. Recorded breeding seabird and wader species include little penguin, short-tailed shearwater, fairy prion, common diving-petrel, pacific gull and sooty oystercatcher. Both islands are considered important breeding sites for seabirds (Brothers, Pemberton, Pryor, & Halley, 2001). West Moncoeur

Island holds an important breeding colony of Australian fur seals and is a nature reserve (Coastcare, 2000).

- White Beach Conservation Area
- Wright Rock Nature Reserve
- Wybalenna Island Conservation Area.

#### *A.1.1.9.2.3 NEW SOUTH WALES (SEE FIGURE A-11):*

- Barunguba Montague Island Nature Reserve
- Belowla Island Nature Reserve
- Beowa Formerly Ben Boyd National Park
- Bermaguee Nature Reserve
- Biamanga National Park
- Bournda National Park
    - Bournda has been a special place for the Dhurga and Yuin people for thousands of years and its name means 'place of tea tree and kangaroos'. The estuarine wetlands provide roosting and feeding areas for a large variety of waders and waterfowl including threatened species such as little tern, hooded plover and pied oystercatcher (NPWS, n.d.)(a).
- Broulee Island Nature Reserve
    - Broulee Island Nature Reserve is located on the south coast of NSW and covers the entire 43ha of Broulee Island to mean high water mark. Broulee Island Nature Reserve contains a vegetation succession from mangroves on the shoreline rock platforms to an open forest dominated by southern mahogany on the plateau. The shoreline and adjacent waters are utilised by a number of seabird species, none of which are known to breed on Broulee Island; these include shearwaters, cormorants, gulls (NPWS, 2008).
- Brush Island Nature Reserve
- Conjola National Park
    - Located in the mid coast of NSW the Conjola National Park covers 11,060ha including forests, woodlands, rainforest, coastal scrub and wetlands and four endangered ecological communities: coastal saltmarsh; swamp sclerophyll forest (important feeding; swamp oak floodplain forest (*Casuarina glauca - Melaleuca ericifolia*) and Bangalay sand forest. There are 429 plant species represented, five of which are threatened. Twenty-five species of threatened fauna occur in the park. Of these the regent honeyeater (*Anthochaera phrygia*), swift parrot, little tern, hooded plover and green and the golden bell frog are endangered. High diversity and occurrence of Aboriginal sites including middens, campsites, rock shelters and grinding grooves. A number of heritage features are located in the park including a burial and monument for the 1870 shipwreck of the *Walter Hood* (NPWS, n.d.)(b).
- Cullendulla Creek Nature Reserve
- Eagles Claw Nature Reserve
- Eurobodalla National Park
    - Eurobodalla National Park contains a range of aquatic environments including lagoons, lakes, estuaries, sheltered and wild beaches that protect a wide variety of plants and animals. The national park provides an important habitat for a wide variety of birds with 131 bird species having been recorded in the park. Estuaries and headlands are important over-wintering areas for migratory birds, including 17 species of waders, and the hooded plover and little tern nest on the sand islands, sand spits and dunes. Water based activities such as boating, fishing and swimming are all popular in the park (NPWS, n.d.)(c).
- Five Islands Nature Reserve
    - Five Islands Nature Reserve includes five small islands clustered off the coast of Port Kembla, immediately south of the city of Wollongong within the Wollongong Local Government Area. The islands are clustered between approximately 0.5km and 3.5km off the coast. The main values of the islands include evidence of geological and geomorphologic processes related to the formation of

the Sydney Basin and subsequent landscape evolution, habitat and breeding sites for the sooty oystercatcher, breeding sites for the wedge-tailed shearwater, the short-tailed shearwater and habitat for the white-bellied sea eagle importance to the Aboriginal community due to continuing cultural associations and past occupation of the area, listed NIW.

- Jervis Bay National Park
- Kamay Botany Bay National Park
    - Located within the Sydney metropolitan area, Kamay Botany Bay National Park (or Botany Bay National Park) covers approximately 456ha of the northern and southern headlands of the entrance to Botany Bay and includes over 13km of coastline. As discussed in the Section on National heritage (refer to Section A.1.1.2.2) the park includes the Kurnell Peninsula and Botany Bay botanical sites, listed National Heritage Places. It is also renowned for the place of arrival of the French expedition under the command of Jean-Francois de Galaup, Comte de Laperouse in 1788 before the departure of the first fleet. Laperouse stayed in Botany Bay for six weeks and built a stockade, observatory and a garden for fresh produce on the La Perouse peninsula before leaving and not seen again. The association of the park with the history of the European exploration and the botanical collection of native plants by Banks and Solander are the two most prominent values, however, together with those is the symbolism of the meeting of the Indigenous and European cultures and the historical social issues that have developed from that and the opportunity to further explore current social issues such as reconciliation (NPWS, 2016). The retention of the largest remnants of the original vegetation communities of the Kurnell Peninsula and eastern suburbs and prominent scenic coastal headlands at the entrance to Botany Bay are also defined as core values of the park. The park is also part of a broader network of conservation areas in the region that provide secure protection for native plants and animals, sites of Aboriginal and historic heritage value and recreational opportunities for a growing population. On the southern Headland, the park abuts the Caltex fuel import terminal on the inland side of the park (NPWS, 2018).
- Lord Howe Island Permanent Park Preserve
    - Lord Howe Island Permanent Park Preserve includes a major part of the Lord Howe Island Group but excludes the settlement areas of the island (residential and tourist accommodation and agricultural lands). Whereas a national park does not allow any harvesting, the management of the preserve allows for sustainable harvesting of some natural resources, in this case mainly palm seeds. Lord Howe is listed as World heritage (refer to Section A.1.1.1.1) for its exceptional natural beauty and for a place which has habitats where populations of rare or endangered species of plants and animals still survive. The Lord Howe Island Group forms one of the major seabird breeding sites in the Tasman Sea and is thought to be home to the most diverse and largest number of seabirds in Australia, 34 bird species regularly breed on the island. The summit and slopes of Mt Lidgbird and Mt Gower support almost the entire breeding population of the marine bird, providence petrel (*Pterodroma solandri*); the only known breeding locality in Australasia of the grey ternlet (*Procelsterna cerulea*) and vulnerable Kermadec petrel (*Pterodroma neglecta*); and the southernmost breeding locality in the world for the threatened masked booby (*Sula dactylatra tasmani*), sooty tern (*Sterna fuscata*) and common noddy (*Anous stolidus*) (Lord Howe Island Board, 2010).
- Meroo National Park
    - Meroo National Park is 3731ha of coastline, coastal lakes and inland forested areas located 5km south of Ulladulla on the NSW South Coast. High conservation values are attributed to the coastal lakes included in the park (Termeil and Tabourie) and the foreshores and fringing wetlands of the adjoining lakes s (Meroo, Burrill and Willinga Lakes). As per the Narrawallee Creek Nature Reserve it includes endangered ecological communities swamp oak floodplain forest (*Casuarina glauca – Melaleuca ericifolia*), coastal saltmarsh, littoral rainforest, Bangalay sand forest (*Eucalyptus. botryoides – Banksia serrata*) and themeda grassland on seacliffs and coastal headlands. At least 12 threatened fauna species including significant populations of the nationally endangered green bell frog and golden bell frog have been recorded here. The national park also has Indigenous and recreational values due to mythological sites and a range of bush camping locations (NPWS, n.d.)(d).

- Mimosa Rocks National Park
    - Mimosa Rocks National Park takes its name from the Paddle Steamer Mimosa that wrecked in 1863 after running aground on rocks at the northern end of the park. The rocks of the park have distinctive castle-like features that are the result of geological folds, faults and intrusions. The national park provides important habitat for many migratory birds, including hooded plovers and pied oystercatchers that nest along the coastline. The bar-tailed godwit (*Limosa lapponica*) rests briefly here in summer months during its migration from Alaska to New Zealand. The national park is popular for fishing, surfing, snorkelling and birdwatching. From May to November, the headlands are excellent whale watching vantage points (NPWS, n.d.)(e).
- Murramarang National Park
    - Murramurang National Park spans 44km of coastline on the NSW South Coast and supports more than 90 species of bird including gannets, shearwaters, white-faced storm petrels *(Pelagodroma marina),* sooty oystercatchers and little penguins. The forest of spotted gums stretches right to the ocean (NPWS, n.d.)(f). The national park includes four offshore Islands and encompasses Brush Island Nature Reserve, Belowla Island Nature Reserve and Tollgate Islands Nature Reserve.
- Murramarang Aboriginal Area
- Nadgee Nature Reserve
- Narrawallee Creek Nature Reserve
    - Narrawallee Creek Nature Reserve is located on the mid-south coast of NSW approximately 7km north of Ulladulla and covers an area of 878ha. It includes five endangered ecological communities being coastal saltmarsh, swamp sclerophyll forest (dominated by swamp mahogany, an important food source for several threatened fauna including the yellow-bellied glider *(Petaurus australis)* and grey-headed flying fox (*Pteropus poliocephalus*)), swamp oak floodplain forest, littoral rainforest and Bangalay sand forest). Eleven species of threatened fauna recorded, including breeding sites for the little tern, hooded plover and pied oystercatcher. Both Indigenous and historical values are placed on the reserve (NPWS, n.d.)(g).
- Royal National Park
    - Royal National Park is a 15,068ha park situated on the coast of NSW, adjacent to the southern fringe of metropolitan Sydney and about 30km north of Wollongong. Royal National Park adjoins Heathcote National Park (2251ha) to the west and Garawarra State Recreation Area (900ha) to the southwest. These adjoining parks do not include coastal areas. The parks are significant for many reasons, and these can be partially attributed to their accessibility to suburban Sydney combined with the parks' diversity of natural and cultural heritage which makes for high public profile and visitation rates for recreation, scientific and educational purposes (NPWS, 2000).
- Tollgate Islands Nature Reserve

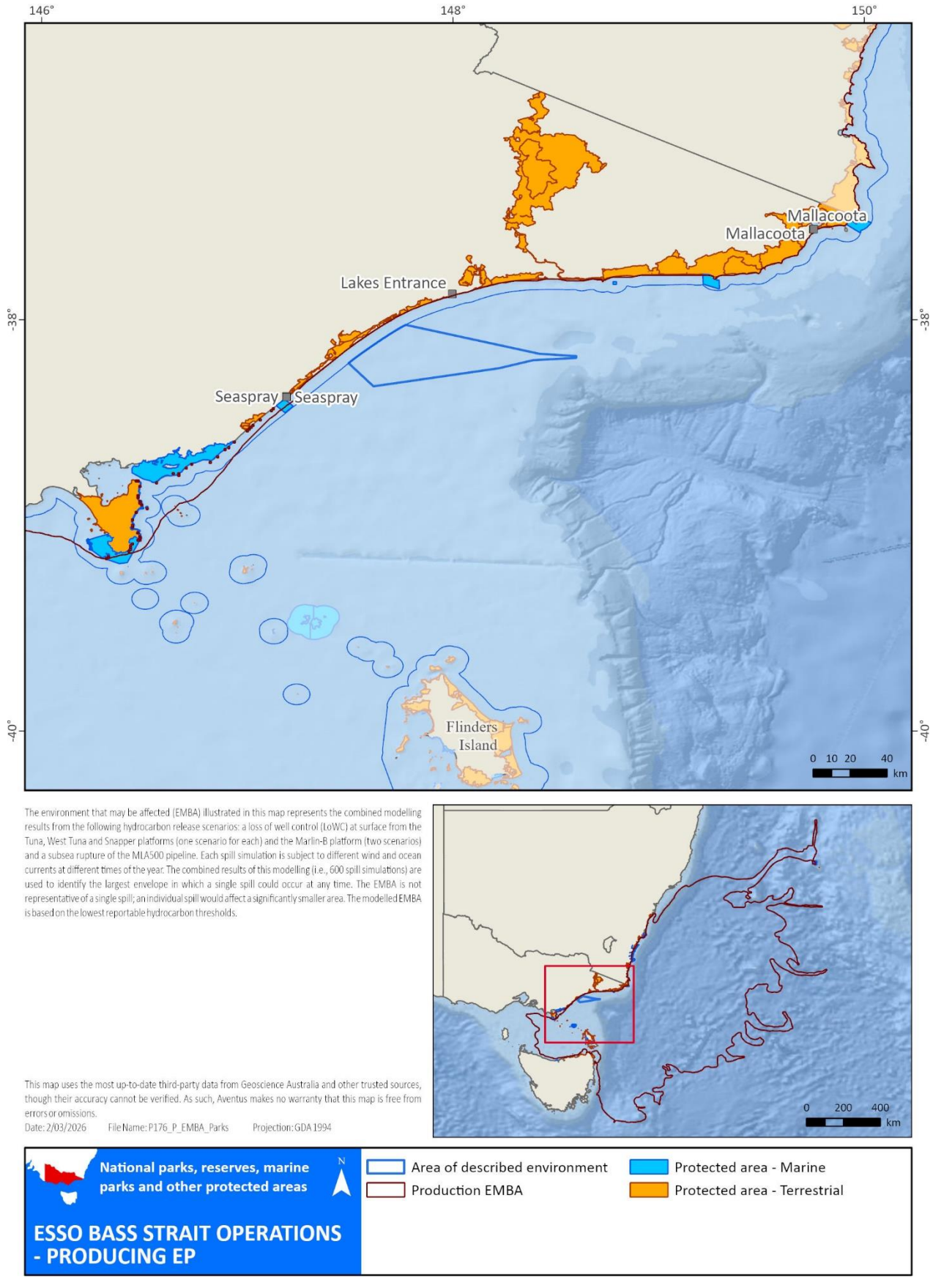



**Figure A-9 Victorian protected areas intersected by the EMBA**

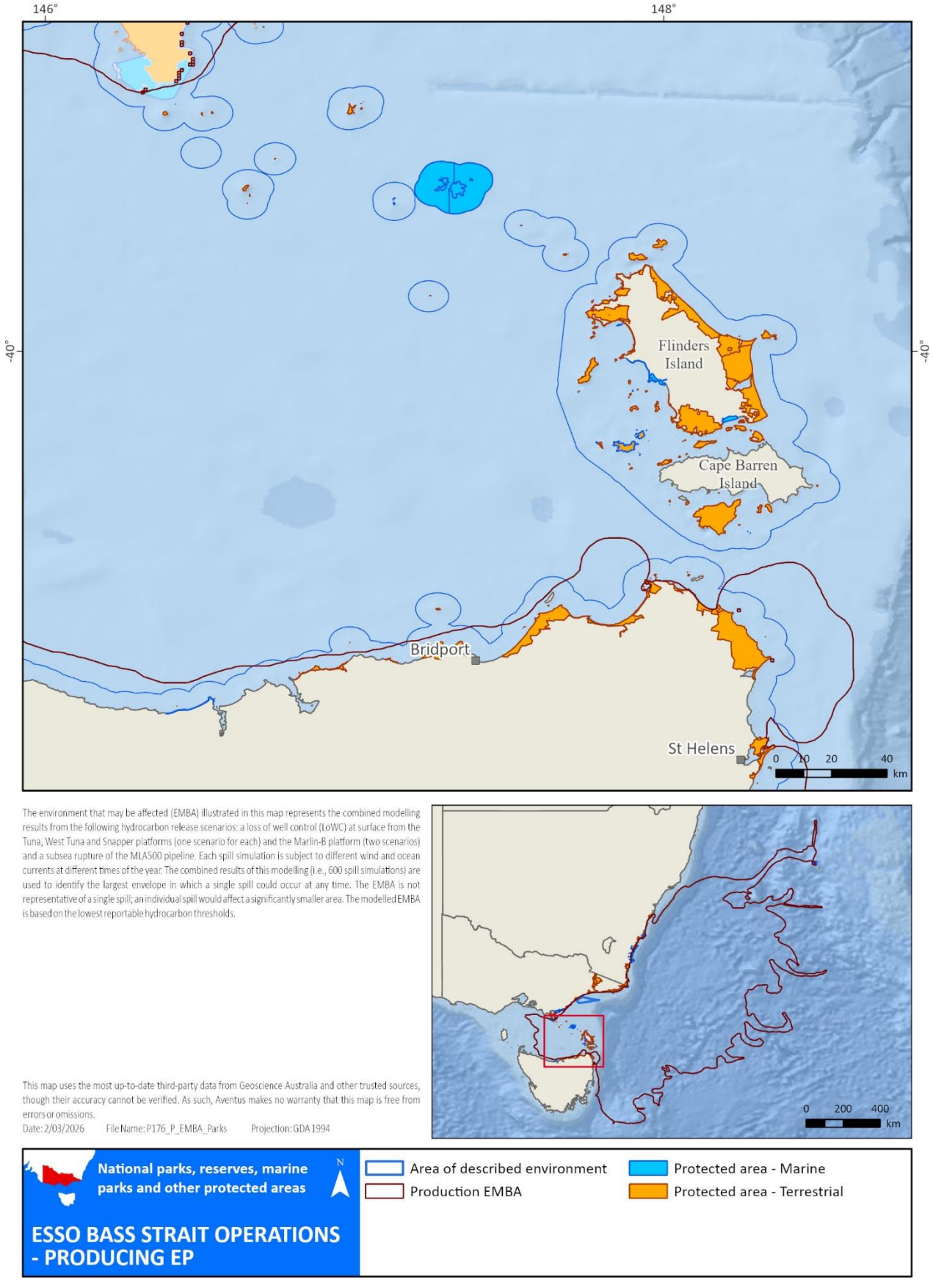



**Figure A-10 Tasmanian protected areas intersected by the EMBA**

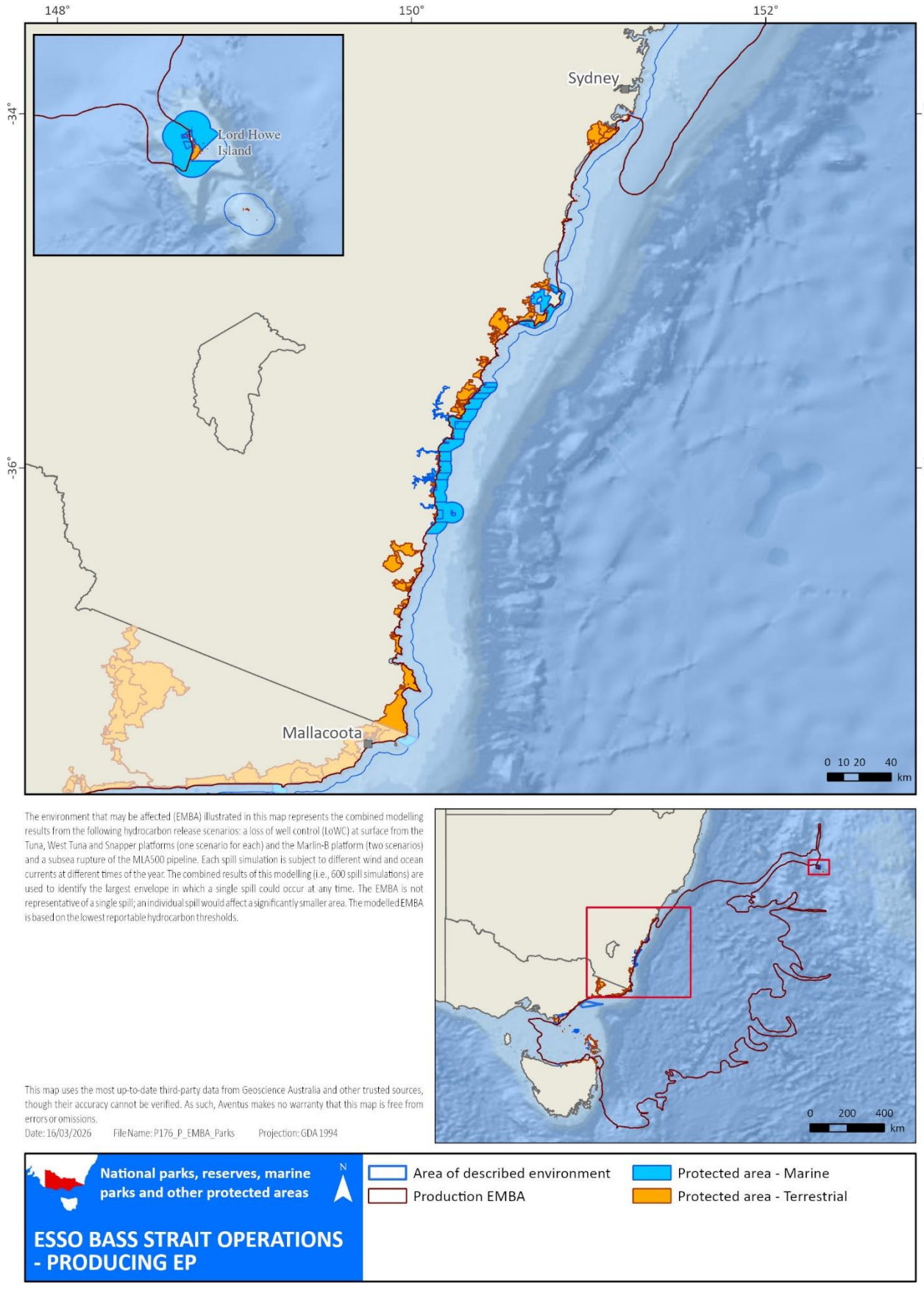



**Figure A-11 NSW protected areas intersected by the EMBA**

## A.1.2 Regional context

The regional context of the EMBA is described in this Section.

### *A.1.2.1 Southeast Marine Region*

Six marine regions have been identified in Commonwealth waters around Australia. Australia has one of the largest marine jurisdictions of any nation in the world. Australian waters cover 14,700,000km$^2$, including waters around the external territories of Cocos (Keeling), Christmas, Heard and McDonald Islands as well as waters adjacent to Australia's Antarctic Territory.

The EMBA lies within two marine bioregions; the Southeast Marine Region which is described here and the Temperate East Region which is described in the following Section.

The key conservation values of the Southeast Marine Region are (Commonwealth of Australia, 2015a):

- features with high biodiversity and productivity, such as the east Tasmania Subtropical Convergence Zone, Bass Cascade, Upwelling East of Eden, Seamounts South and East of Tasmania and Bonney Coast Upwelling
- breeding and resting areas for SRW
- migration areas for blue, fin, sei, SRW and humpback whales
- foraging areas for Australian sea lion (*Neophoca cinerea*), great white shark, Harrison's dogfish (*Centrophorus harrissoni*), killer and sei whales (*Balaenoptera borealis*), Australasian gannet, fairy prion, black-faced cormorant, little penguin, crested tern, and several species of seal, penguin, albatross, petrel, shearwater and gulls
- wrecks of MV *City of Rayville*, SS *Cambridge* and ketch *Eliza Davies*
- 10 provincial bioregions and 17 seabed types are represented in the network.

### *A.1.2.2 Temperate East Marine Region*

The Temperate East Marine Region spans an area of approximately 1,400,000km$^2$ from the southern boundary of the Great Barrier Reef in Queensland to Bermagui in southern NSW. The key conservation values of the Temperate East Marine Region are (DSEWPAC, 2012a):

- features with high biodiversity and productivity such as the Canyons of the Eastern Continental Slope and Shelf Rocky Reefs
- nesting sites for listed seabirds on islands along the NSW coast, including Montague Island (short-tailed shearwater, sooty shearwater (*Ardenna grisea*))
- breeding sites for little penguin, shearwater, Wilson's storm petrel *(Oceanites oceanicus),* crested tern
- migration areas for humpback whale
- breeding sites for Indo-Pacific bottlenose dolphin *(Tursiops aduncus)*
- foraging sites for several species of petrel, albatross, shearwater
- three provincial bioregions.

### *A.1.2.3 Provincial bioregions*

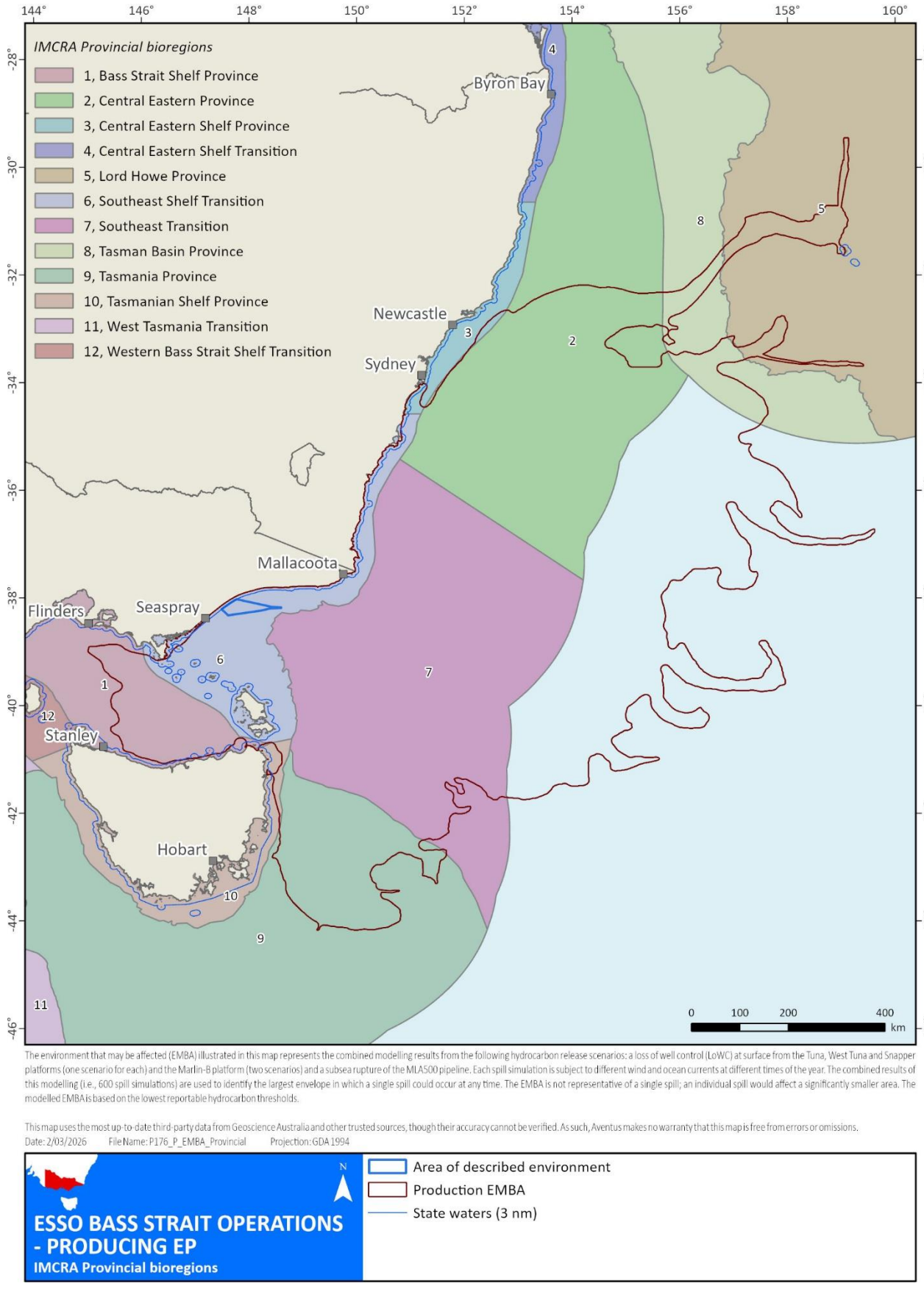
Based on the Integrated Marine and Coastal Regionalisation of Australia (IMCRA) Version 4.0 (Commonwealth of Australia, 2006), the EMBA is situated within the following provincial bioregions (see Figure A-12):

- Bass Strait Shelf Province
- Central Eastern Province
- Central Eastern Shelf Province
- Central Eastern Shelf Transition
- Lord Howe Province
- Southeast Shelf Transition
- Southeast Transition
- Tasman Basin Province
- Tasmania Province
- Tasmanian Shelf Province
- West Tasmania Transition
- Western Bass Strait Shelf Transition.

### *A.1.2.4 Mesoscale bioregions*

Based on the IMCRA Version 4.0 (Commonwealth of Australia, 2006), the EMBA is situated within the within the following mesoscale bioregions (Figure A-13):

- Batemans Shelf
- Boags
- Bruny
- Central Bass Strait
- Central Victoria
- Davey
- Flinders
- Franklin
- Freycinet
- Hawkesbury Shelf
- Manning Shelf
- Otway
- Tweed-Moreton
- Twofold Shelf
- Victorian Embayments.

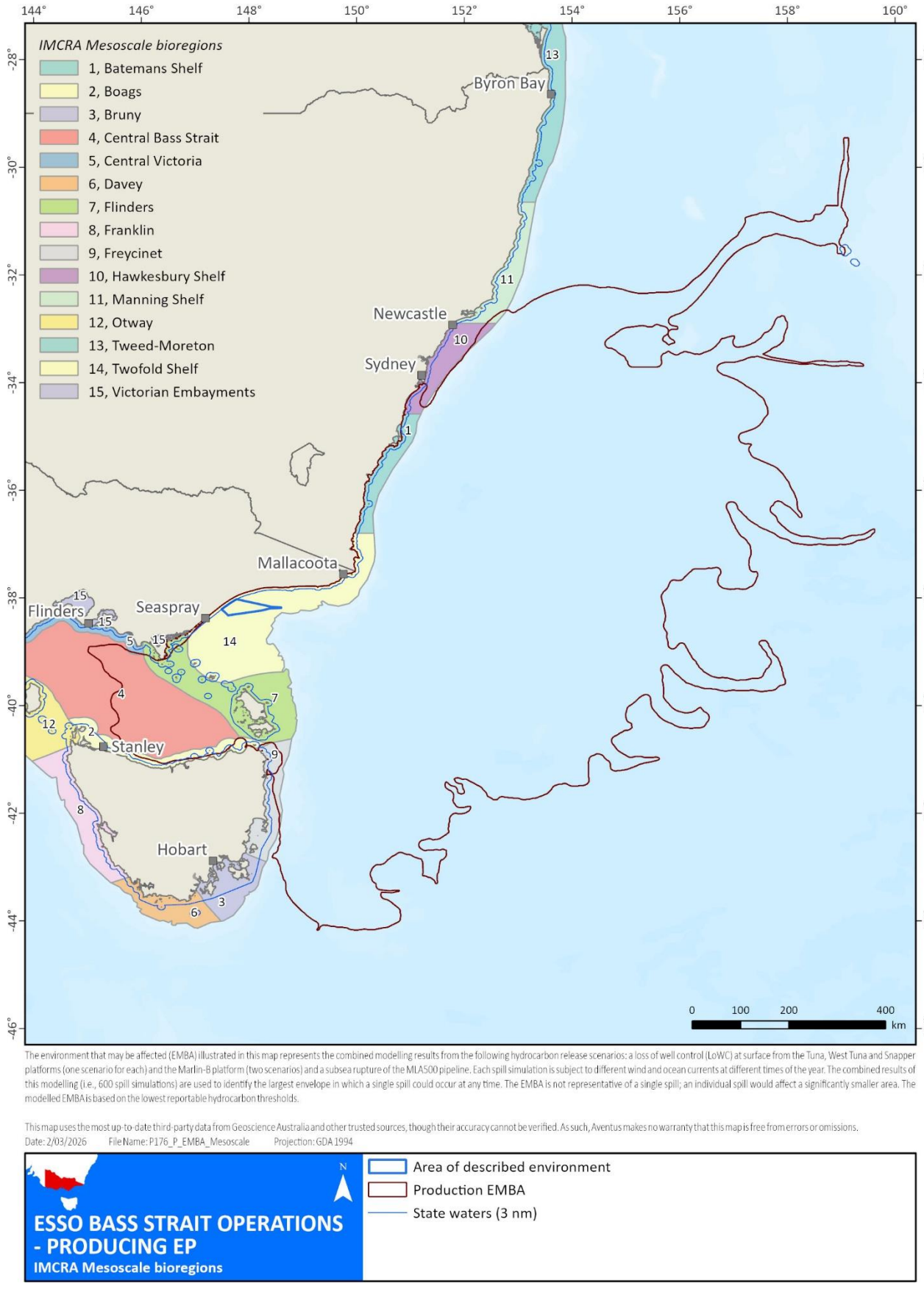



The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_Provincial Projection: GDA 1994



**Figure A-12 Provincial bioregions within the EMBA**




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

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Date: 2/03/2026 File Name: P176_P_EMBA_Mesoscale Projection: GDA 1994



**Figure A-13 Mesoscale bioregions within the EMBA**

## A.1.3 Physical environment

### *A.1.3.1 Climate and meteorology*

Average summer air temperatures between 2007 - 2025 in coastal Victoria (Yarram Airport) range from early morning lows of 11 - 13°C, to afternoon highs of 23 - 26°C (BOM, 2025). Average winter temperatures range from minimums of 5°C to maximums of close to 15°C in the afternoons. Offshore (on Deal Island in central Bass Strait between), milder conditions occur with an average summer range of 13 - 21°C and an average winter range of 9 - 14°C (BOM, 2025).

Average monthly rainfall along the Gippsland coast (Yarram Airport between 2007 - 2025) ranges from 47mm in January (highest 137mm) to 57.8mm in June (highest 174mm). Offshore (on Deal Island in central Bass Strait between 1871 - 2025) monthly rainfall ranges from 41mm in January (highest 162mm) to 78mm in June (highest 247mm) and shows a similar pattern to the coastal region (Lakes Entrance between 2006 - 2025) with slightly higher winter rainfall: 47mm in January (highest 107mm) to 86mm in June (highest 298mm) (BOM, 2025).

Wind speeds are in the range of 10 - 20km/hour, with maximum gusts reaching 100km/hour at Yarram Airport between 2007 - 2025. The wind direction is predominately westerly during winter, westerly and easterly during spring and autumn (when wind speeds are highest) and easterly during summer. Strong southeasterly winds can be generated by low pressure systems known as east coast lows. Although these occur relatively infrequently (once or twice per year), the longer fetch of these winds increases their potential for generating extreme wave conditions (BOM, 2025).

There are three main and one minor types of storms which can generate severe wave conditions in the study area of Bass Strait. These are (Esso, 1989) (Cardno, 2017):

- Southeast storms: Generally associated with what has become known as an 'east-coast low'. East-coast lows are generally associated with very strong east to southeast winds (speeds in excess of 80kn have been measured off the NSW coastline) and high rainfall. Southeast storms resulting from east-coast lows occur relatively infrequently (on average one to two per year), and not all travel far enough south to cause concern in Bass Strait. The waves they generate are however, unrestricted by fetch or water depth. As such they have the greatest potential for generating extreme wave conditions in eastern Bass Strait.
- Southwest storms: Occur relatively frequently (typically several severe storms per year). Due to fetch and depth limitation, it is unlikely that extreme design-wave conditions will occur during a southwest storm.
- South storms: Generally associated with low-pressure systems in the western part of the Tasman Sea. During the peak of the storm the Tasman Sea lows generate very strong south southeast through to south southwest winds in Bass Strait. During storm development however, the wind can have a significant southeast or southwest component, depending on the origin of the low. Southerly storms occur at about the same frequency as southeast storms. Southerly storms are considered to have a greater potential than the southwest storms for generating extreme wave conditions.
- Small-scale Bass Strait Lows: Can generate southeast, south, or southwest waves, depending on their origin and location. These storms can be quite severe (e.g. the January 1986 storm), but due to fetch limitations are unlikely to be the cause of extreme design-wave conditions.

### *A.1.3.2 Oceanography*

#### A.1.3.2.1 Currents and tides

Currents in the Gippsland Basin are tide and wind driven. Tidal movements predominantly have a northeast–southwest orientation. Tidal flows come from the east and west during a rising (flood) tide, and flow out to the east and west during a falling (ebb) tide. Tidal streams are dominated by the lunar tidal constituent, which has a period of 12.4 hours. The main tidal components vary in phase by about three to four hours from east to west. Most of this phase change occurs between Lakes Entrance and Wilsons Promontory. Timing of the high tide, for example, can vary by up to three hours across this region. Tides in the area from Lakes Entrance to Gabo Island are, however, relatively weak in comparison to other areas of Bass Strait (Global Environmental Modelling System, 2005).

Bass Strait is characterised by shallow water and tidal currents. While there is a slow easterly flow of waters in Bass Strait, there is also a large anticlockwise circulation. The shallowness of the water means that these waters more rapidly warm in summer and cool in winter than other waters of the region.

Wind driven currents in Gippsland Basin can be caused by the direct influence of weather systems passing over Bass Strait (wind and pressure driven currents) and the indirect effects of weather systems passing over the Great Australian Bight (Global Environmental Modelling System, 2005).

The eastern parts of the region are strongly influenced by the EAC that flows southward adjacent to the east coast of NSW, Victoria and Tasmania, carrying warm equatorial waters (Refer Figure A-14 and Figure A-15). The EAC is up to 500m deep and 100km wide and is strongest in summer when it can flow at up to 5kn. In winter it flows at 2 – 3kn as the oceanographic and climatic drivers in the Coral Sea diminish. The EAC tends to form ocean eddies that rotate around warm, central cores that can be up to 200km across and may persist for months. Eddies form more frequently off the south coast of NSW than other areas but are also common along the east coast of Tasmania. The eddies can cross the continental shelf, and when mixing with shelf break waters, create upwellings that form isolated areas of enhanced productivity 200 – 300km in diameter. Seasonal and transient upwellings are important ecological features of the region. The EAC also affects sea surface temperatures on the eastern Tasmanian shelf, which can vary substantially among years depending on the relative influence of subtropical waters.

At the shelf break east of Bass Strait, nutrient-rich waters rise to the surface in winter as part of the processes of the Bass Strait water cascade, where the eastward flushing of the shallow waters that are more saline and slightly warmer than surrounding Tasman Sea waters form an undercurrent that cascades down the continental slope. The cascading water has a displacing effect causing nutrient rich waters to rise which in turn leads to increased primary productivity in those areas. The cascading water also concentrates nutrients, and some fish and whales are known to aggregate along its leading edge.

Further offshore, in the southeast, currents are driven by two parameters, the Sub-Antarctic Water movement, coming from the south, and the Bass Strait Water movement from the west (Tomczak, 1985 ) (Gibbs, 1991). The presence of deepwater currents is documented in the *Blackback Oceanographic Measurement Program* (Lawson and Treloar, 1996), *Prediction of Bass Strait Cascade Currents* (Lawson and Treloar, 1998) and *Metocean Design Criteria for Bass Strait fixed platforms* (Esso, 1989).

Esso undertook a comprehensive current measurement program in the Blackback study area using seven current meters moored 3m above the seabed over a 12 month period (Lawson and Treloar, 1996) to provide an understanding of the regional oceanography of the Bass Strait shelf and continental slope, particularly the relative importance of tidal, wind-driven and density-generated currents and the influence of regional topography on currents in the study area.

Tidal current analysis indicated general seabed current alignment normal to the bathymetry, at speeds of around 0.2 - 0.3m/s. The dominance of the bathymetry was most evident at the current meter sites located within a clearly defined valley.

Analysis of residual, non-tidal current vectors during significant storm periods has confirmed that wind driven currents are the strongest currents in the continental shelf areas but are of progressively lesser significance lower down the continental slope. The study has also provided evidence of flow of water from the continental shelf down the continental slope, conforming to the Bass Strait water cascade, as evidenced by high easterly currents and minimum vertical variation in temperature from the shelf to depths of 500m. Currents during these cascade flows were stronger than background tidal currents and were the strongest currents recorded lower down the continental slope.

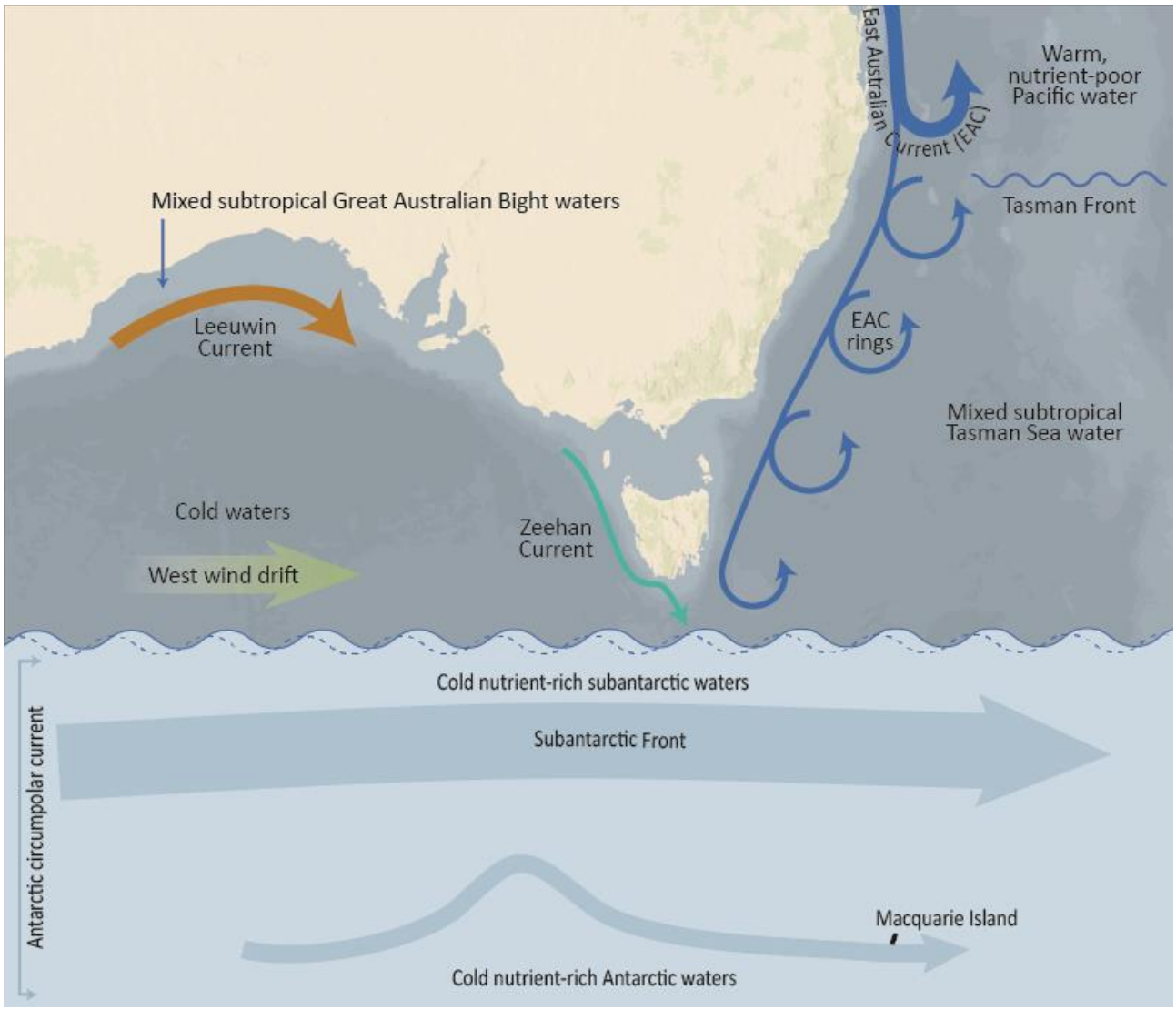



**Figure A-14 Major ocean currents in southeastern Australian waters summer**

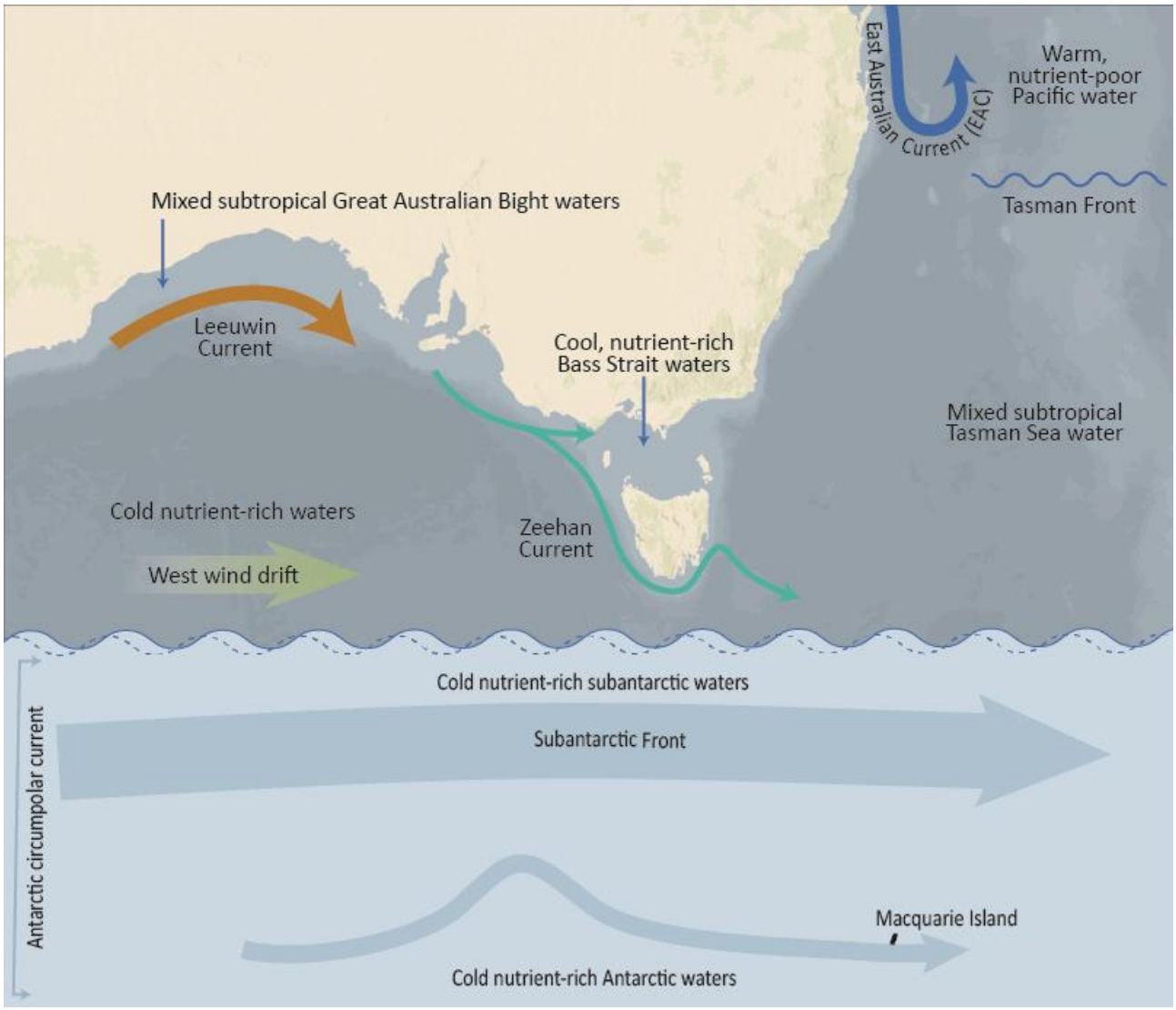



**Figure A-15 Major ocean currents in southeastern Australian waters winter**

### A.1.3.2.2 Water temperatures and density stratification

Temperatures in the subsurface waters of Bass Strait range from about 13°C in August/September to 16°C in February/March. Surface temperatures can exceed 20°C at times in late summer due to the warmer waters of the EAC entering the strait. Water temperatures within the EMBA are expected to follow this pattern (Jones I. S., 1980). Table A-4 shows the monthly average sea surface temperatures and salinity as obtained from the World Ocean Atlas 2013 database which shows the same range of temperatures as those previously recorded. Monthly average sea surface temperatures were shown to range from 12.7°C (September) and 20.7°C (February). Salinity remained consistent throughout the year ranging from 35 - 36psu (RPS, 2025).

**Table A-4 Average monthly sea surface temperature and salinity nearby all platforms and pipeline locations**

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature (°C) | 19.1 | 20.7 | 20.4 | 18.3 | 16.5 | 15.2 | 13.9 | 13.1 | 12.7 | 13.8 | 15.8 | 16.5 |
| Salinity (psu) | 35.4 | 35.4 | 35.5 | 35.5 | 35.5 | 35.6 | 35.5 | 35.4 | 35.4 | 35.4 | 35.4 | 35.4 |

Waters are generally well mixed, but surface warming sometimes causes weak stratification in calm summer conditions. During these times, mixing and interaction between varying water masses leads to variations in horizontal water temperature and a thermocline (temperature profile) develops. The thermocline acts as a low

friction layer separating the wind driven motions of the upper well mixed layer from the bottom well mixed layer. As a result, upwelling of cold water on the northern shores of Bass Strait can occur (Jones I. S., 1980).

Information on density and temperature profiles of the deeper area of the Blackback field has been obtained (Lawson and Treloar, 1996). Temperatures measured at the seabed confirmed a decrease in temperature with depth of measurement. The survey also showed a period (July to September) of uniformity of temperature at all measured depths, indicating flow down the continental slope (Bass Strait Cascade). The range of water temperatures observed at the seabed is from a maximum of 17°C at 93m to a minimum of 7°C at 480m. The minimum temperatures at depth were recorded in summer, possibly because of stronger stabilising stratification and absence of the cascade of relatively warmer water during winter.

#### A.1.3.2.3 Waves

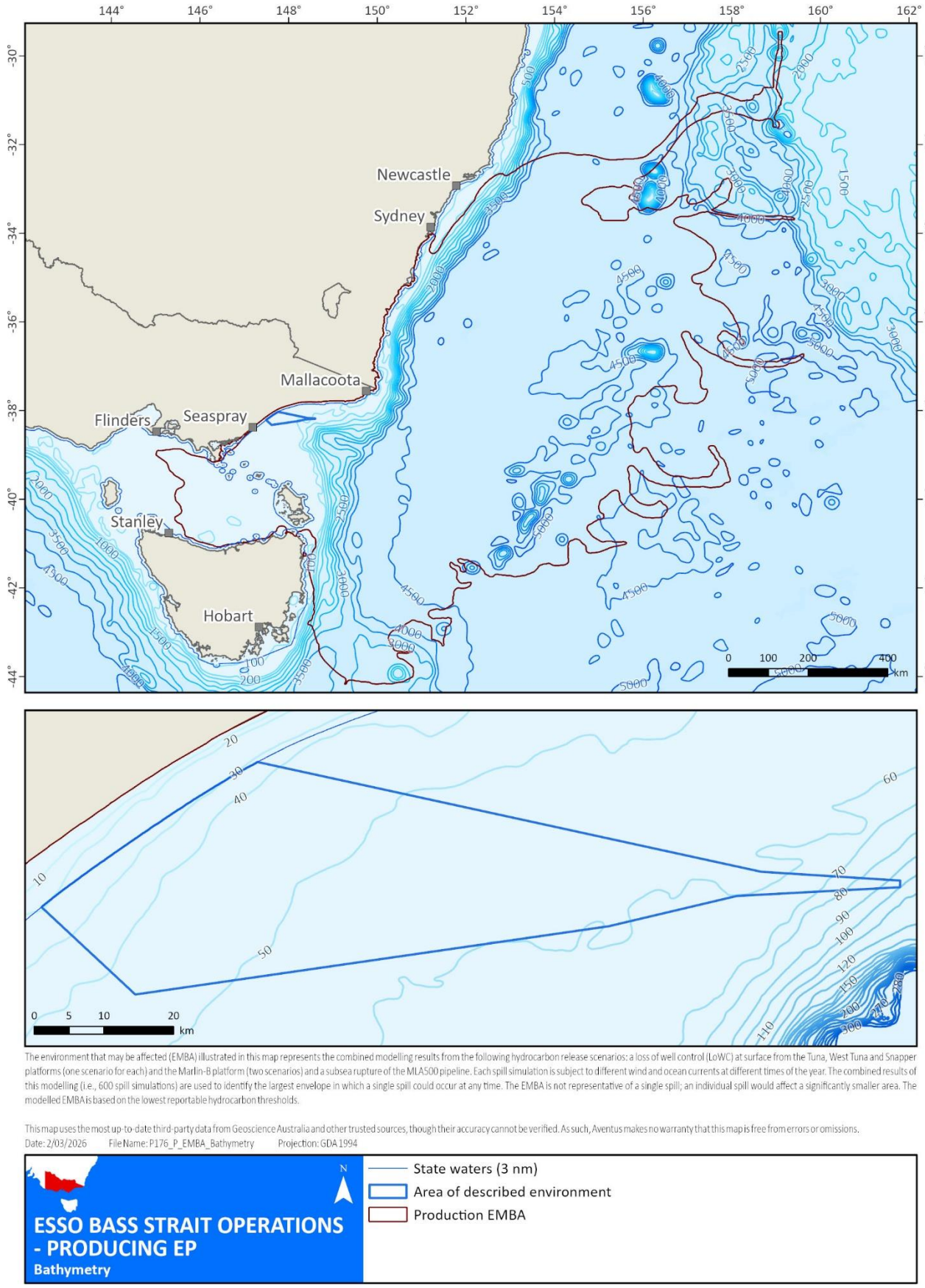
Bass Strait is a high energy environment exposed to frequent storms and significant wave heights. High wave conditions are generally associated with strong west to southwest winds caused by the eastward passage of low-pressure systems across Bass Strait. Storms may occur several times a month resulting in wave heights of 3 - 4m or more. In severe cases, southwest storms can result in significant wave heights of greater than 6m (Jones 1980).

Wave data have been analysed for the 10-year period from 1977 to 1987 (Lawson & Treloar, 1987). Wave conditions at Blackback exhibit an increased wave climate, in excess of those experienced at further inshore facilities due to the increased fetch length of waves approaching from the southwest. Higher wave conditions are generally associated with strong west to southwest winds caused by the eastward passage of low-pressure systems across Bass Strait. These may occur several times per month and can result in significant wave heights of 3 - 4m or more. In severe cases, southwest storms can result in significant wave heights of up to 6 - 7m.

Extreme design wave conditions are associated with east coast low pressure systems. These can result in very strong east to southeast winds in eastern Bass Strait. *Metocean Design Criteria for Bass Strait fixed platforms* (Esso, 1989) gives a design significant wave height of 9.0m and a corresponding maximum wave height of 17.5m.

#### A.1.3.2.4 Bathymetry

The seabed bathymetry across the region is highly variable. Majority of the EMBA lies within water past the shelf in depths greater than 300m up to 5000m (see Figure A-16). The bathymetry contours along the coast where the EMBA lies ranges from 0 - 300m deep.




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

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Date: 2/03/2026 File Name: P176_P_EMBA_Bathymetry Projection: GDA 1994

**Figure A-16 Bathymetry within the EMBA**

## A.1.4 Biological environment

### *A.1.4.1 Benthic habitat*

#### A.1.4.1.1 Bare substrate

Esso has been operating in the Gippsland Basin for over 50 years and has conducted numerous studies of the seafloor and benthic habitat.

The following studies have been used to inform this Section:

- *Fish and benthic communities of subsea pipelines, platforms, and natural habitats of the Bass Strait: informing decommissioning* (McLean, et al., 2025)
- *In-Situ Sediment Quality and Infauna Sampling Program Report for Esso Australia Pty Ltd* (Cardno, 2019)
- *Esso West Barracouta Geophysical Survey* (Dive Works Subsea Solutions, 2018)
- *West Barracouta Environmental Baseline Survey* (Marine Solutions, 2018)
- *Snapper platform seabed survey- January 2010* (Coffey, 2010)
- *Blackback Seabed Monitoring Programme* (URS Corporation, 2000).

The Gippsland Basin is composed of a series of massive sediment flats (comprised predominately of calcium carbonate) interspersed with small patches of reef, bedrock and consolidated sediment. The sandy plains are only occasionally broken by low ribbons of reef; however, these reefs do not support the large brown seaweeds characteristic of many Victorian reefs but instead are inhabited by resilient red seaweeds and encrusting animals that can survive the sandy environment (Esso, 2009).

Studies at Snapper, West Barracouta, West Kingfish, Tuna and Blackback (Coffey, 2010); (Dive Works Subsea Solutions, 2018); (Cardno, 2019) concluded that the seabed surrounding the infrastructure comprises of soft sediments, fine to coarse calcerous sand with shells, slightly muddy, gravelly and muddy sand, dense fine to medium grained siliceous carbonate sand with some silt and shell debris (i.e. featureless with no areas of hard substrate or rocky reef).

AIMS (McLean, et al., 2025) also found that the benthic surrounds and reference sites surveyed comprised predominately of sand/mud and pebble/gravel/biogenic material (as outlined in Figure A-17) indicating that the regional seafloor remains relatively bare. However, the substrate types varied greatly at West Tuna where a plethora of sponges, anemones, and macroalgae were recorded. The pipelines also hosted a range of sponges, ascidians and coral. The difference in substrate types observed by AIMS (McLean, et al., 2025) is representative of the infrastructure at West Tuna and the pipelines becoming hosts for marine life to thrive, compared to the benthic surrounds.

A study of the seascape of the southeastern Australian continental shelf conducted in 2001 found that 89% of the seabed was sediment flats/bare substrate with prominent hard grounds making up the remaining 11% of the seabed (Bax & Williams, 2001).

The benthic fauna present on the soft sediment can be broadly divided into two groupings:

- the epibenthos which includes sessile species such as sponges and bryozoans, hydroids, ascidians, poriferans and mobile fauna including hermit crabs *(Birgus latro),* sea stars and octopus
- the infauna which includes a diverse range of species such as amphipods, shrimps, bivalves, tubeworms, small crustaceans, nematodes *(Stonogobiops nematodes),* nemerteans, seapens, polychaetes and molluscs (Parry, 1990).

A remotely operated vehicle seabed survey was conducted following drilling at Snapper in 2009 (Coffey, 2010) and a seabed monitoring program conducted near West Tuna in 1999 (URS Corporation, 2000) confirmed that polychaetes and crustaceans were the most abundant infaunal taxa present in the seabed sediments. These results were further supported by (Cardno, 2019) that found polychaetes, crustaceans, and molluscs were the most abundant groups of taxa at all the sampled locations at West Kingfish and Tuna (including reference locations) as outlined in Figure A-18 and Figure A-19.

The 2018 Esso baseline study for the West Barracouta project (Marine Solutions, 2018) found similarities in the dominant taxa throughout the survey locations which included annelids (polychaetes), crustaceans (amphipoda, isopoda and decapoda) and molluscs (gastropods and bivalves) as outlined in Figure A-20. This study also found

that there was dissimilarity between infauna groups and these were variable throughout the survey area, likely reflecting the heterogeneous nature of the survey area (Marine Solutions, 2018).

AIMS (McLean, et al., 2025) detected a range of benthic fauna during the study including; crabs (carrier, hermit, red rock), sea cucumber, cuttlefish, squid, octopus, seastars (firebrick and eleven-armed), urchins, scallops and gastropods (e.g., snails).

The studies outlined in this Section suggest there is a consistent variation in the types and abundance of benthic infaunal species forming assemblages across the across Bass Strait. Though the benthic infauna taxa collected during these studies are similar to those previously recorded, the contribution of each one to the overall assemblage was different in the majority of cases. The differences in the contribution of individual taxa to the overall assemblage between studies could have resulted from a number of natural factors including habitat heterogeneity (mirco and macro-scale), depth and sediment characteristics (URS Corporation, 2000) and temporal differences between sampling periods (Cardno, 2017). This is consistent with the 2004 study *Sediments and Benthic Biota of Bass Strait: an Approach to Benthic Habitat Mapping* (Geoiscience Australia, 2004), which concluded that it is not possible to classify the biological assemblages into a scheme that can be mapped across Bass Strait. The study emphasized that assemblages could have different distribution patterns to species and that environmental gradients rather than discrete bioregions or habitats better explain the biotic patterns observed in the seabed of Bass Strait. Analysis of physical variables, derived from data collected on previous surveys by Geoscience Australia and supplemented by more recent data, show that longitude and depth are also important factors in explaining the biological diversity (Geoiscience Australia, 2004).

##### *A.1.4.1.1.1 NEARSHORE*

Scientific surveys have shown that some shallow Victorian sandy environments have the highest levels of animal diversity in the sea ever recorded (ParksVic, 2025). In the area around the Ninety Mile Beach Gippsland more than 600 different marine animal species, many of them very small, have been found within an area of $10m^2$ (ParksVic, 2025). This high species richness was a major factor in the creation of a marine national park on the Ninety Mile Beach (ParksVic, 2017c). The subtidal sand invertebrate fauna is dominated by small animals, mostly crustaceans, molluscs, echinoderms and polychaetes (Plummer, Morris, Blake, & Ball, 2003) (Bax & Williams, 2001).

(Parry, 1990) found high diversity and patchiness of benthos sampled off Lakes Entrance, where a total of 353 species of infauna was recorded. Crustaceans (53%), polychaetes (32%) and molluscs (9%) dominated sample results. A significant site for the listed opistobranch mollusc (sea slug) (*Platydoris galbana*) is located off Delray Beach, 2km southwest of Golden Beach on the shoreline (O'Hara, 2000).

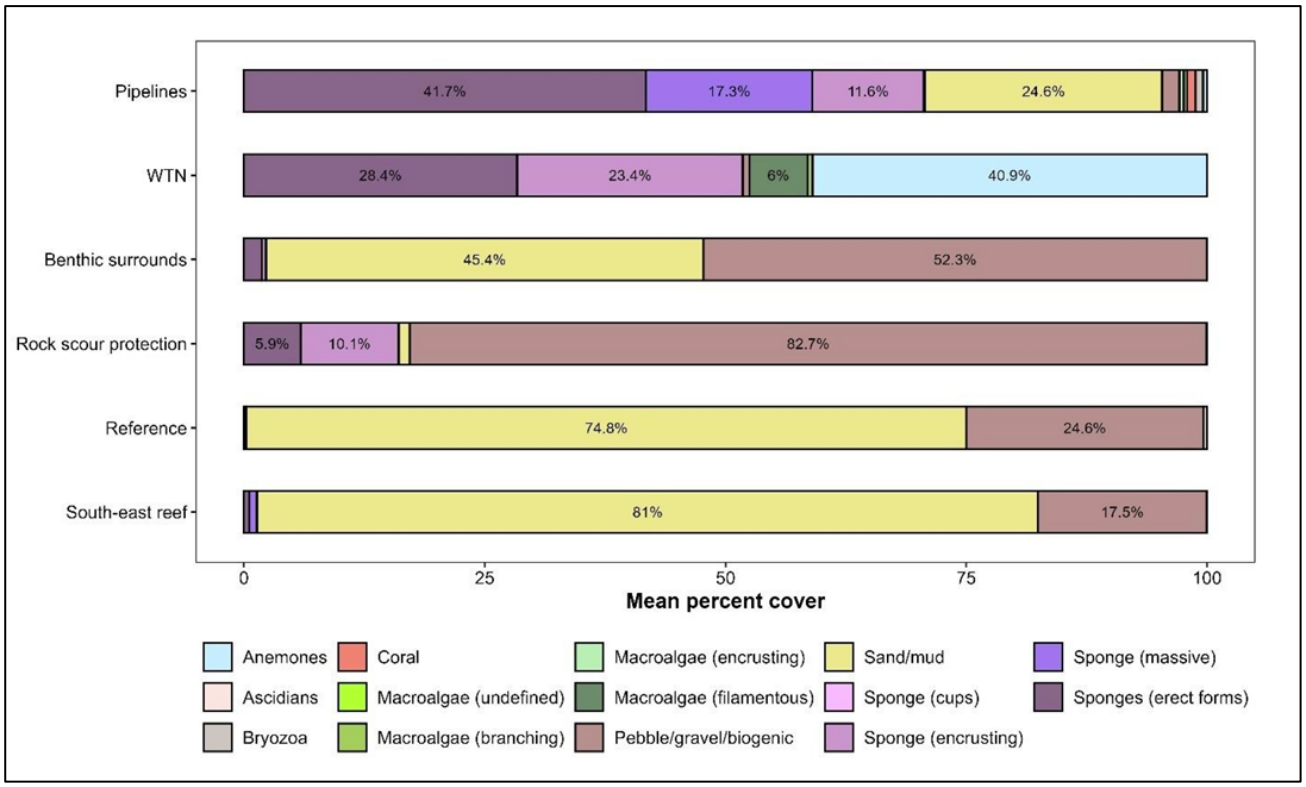



**Figure A-17 Mean percent cover of all benthic biota and substrate types from imagery on the pipelines, West Tuna platform, on West Tuna rock scour protection, in benthic surrounds, at reference sites and south-east reef locations during the day and night in December 2023**

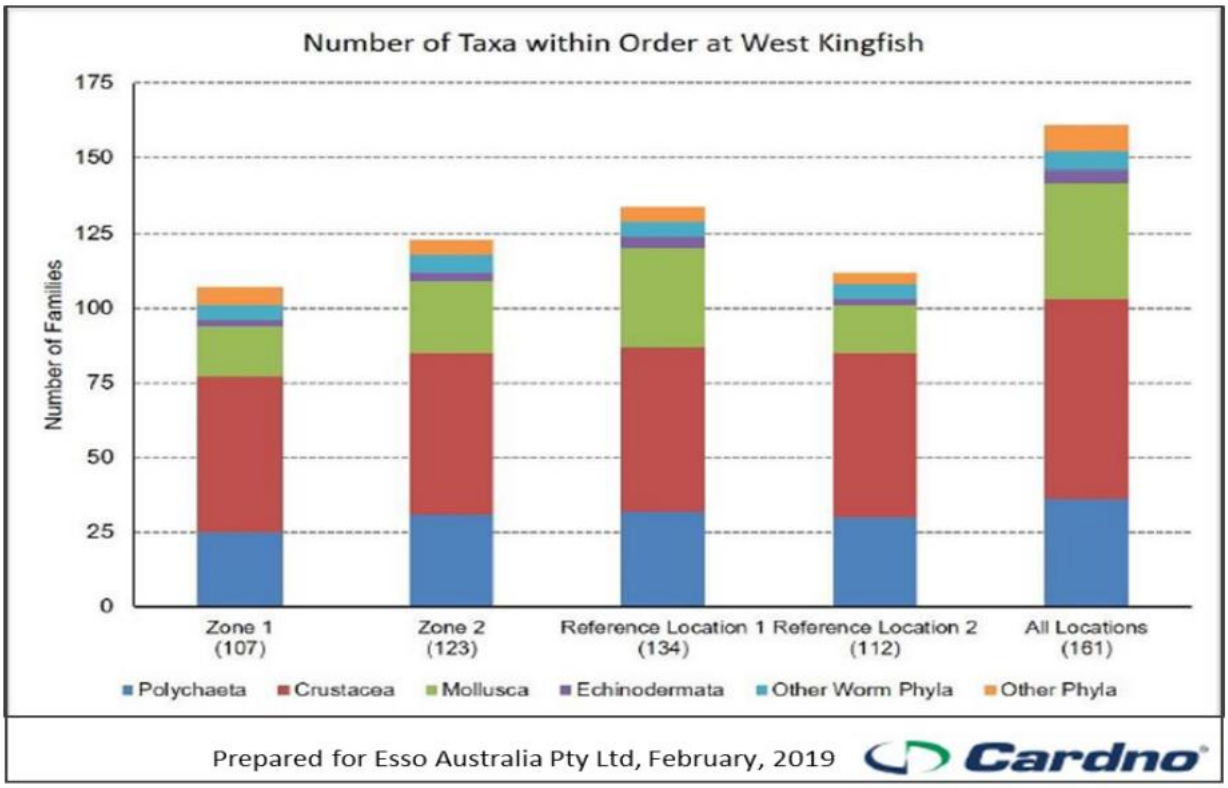



**Figure A-18 Number of taxa sampled at West Kingfish platform (Zones 1 and 2) and reference locations (Locations 1 and 2). Values in parentheses indicate the total number of taxa sampled**

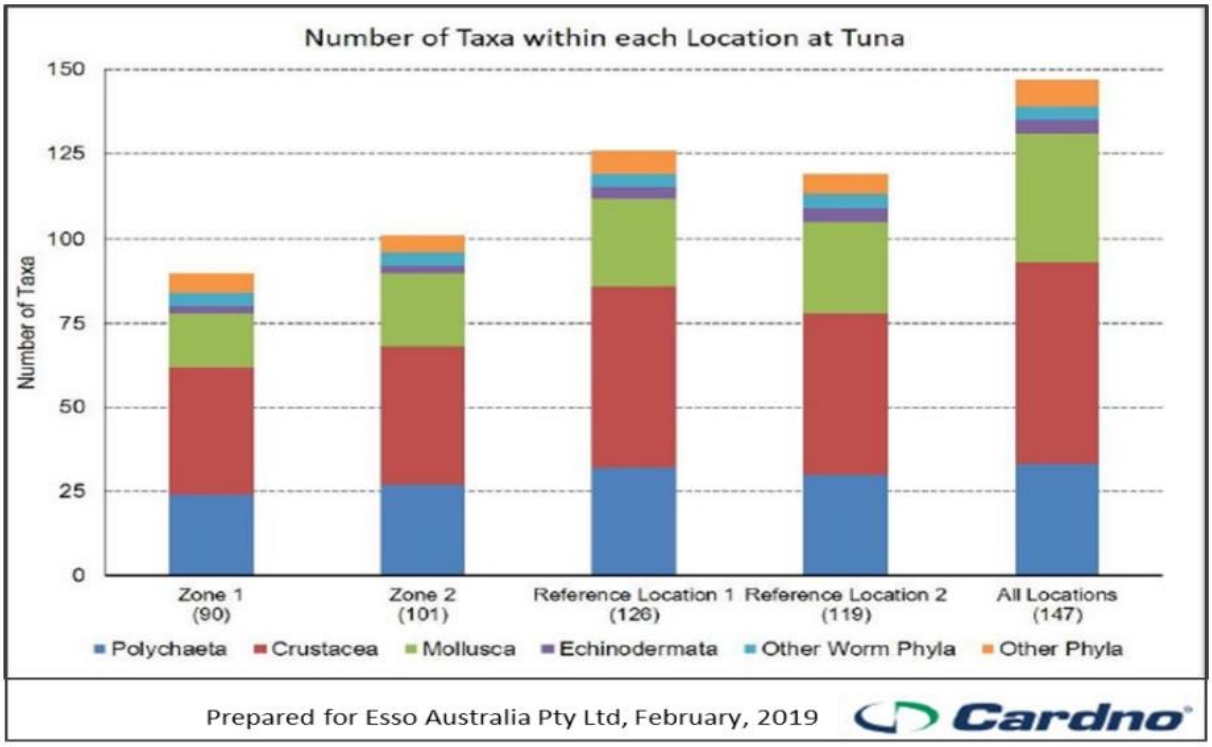



**Figure A-19 Number of taxa sampled at Tuna platform (Zones 1 and 2) and reference locations (Locations 1 and 2). Values in parentheses indicate the total number of taxa sampled**

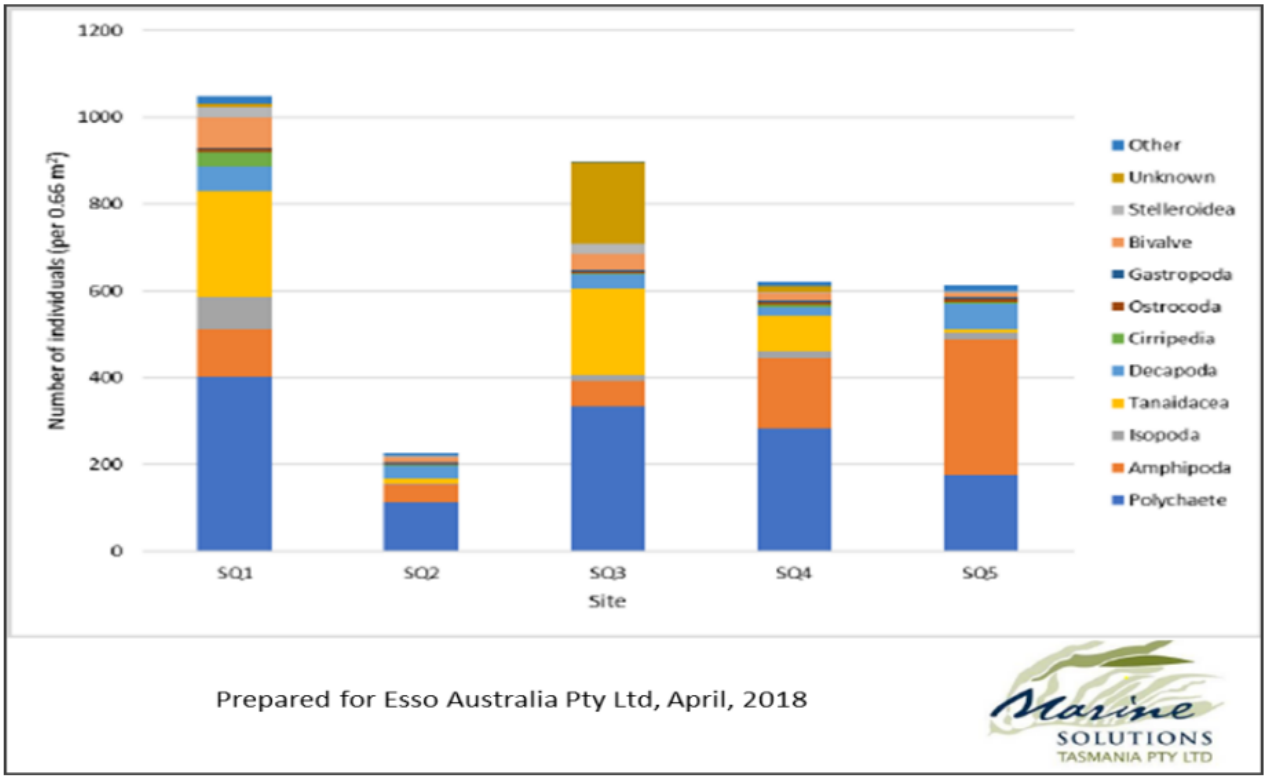



**Figure A-20 Taxa classed abundance of infauna at West Barracouta monitoring**

#### A.1.4.1.2 Seagrass

Seagrasses are marine flowering plants, with about 30 species found in Australian waters (Huisman, 2000). There is a distinction between tropical and temperate seagrasses, and the approximate latitude for the change occurs at Moreton Bay (southern Queensland). The dominant temperate species in the EMBA are wire weed

(*Amphibolis antarctica),* paddle weed *(Halophila australis),* strapweed*,* narrow-leaf tapeweed *(Posidonia angustifolia),* paddle grass *(Halophila decipiens),* broad-leafed seagrass*,* widgeon grass *(Ruppia maritima),* dwarf grass-wrack *(Zostera muelleri) and* eelgrass *(Zostera tasmanica)* (Waycott, McMahon, & Lavery, 2013). Seagrasses generally grow in sediments in intertidal and shallow subtidal waters where there is sufficient light and are common in sheltered coastal areas such as bays, lees of island and fringing coastal reefs (DEWR, 2006) (McLeay, Sorokin, Rogers, & Ward, 2003) (Rogers, et al., 2013) (McClatchie, Middleton, Pattiaratchi, Currie, & Kendrick, 2006).

Seagrass meadows are important in trapping and stabilising sediments, as seagrass leaves baffle wave action and reduce water movement to the extent that fine suspended particles settle out and are trapped (Edyvane, 1998). Seagrass meadows also provide habitat and nursery grounds for juvenile fish and invertebrates, enhance biodiversity, and promote primary production (Huisman, 2000), (Rogers, et al., 2013), (Kirkham, 1997).

Known areas of seagrass within the EMBA include Corner Inlet and Lakes Entrance in Victoria, and numerous inlets and estuaries along the NSW coast (Butler, Lucieer, Walsh, Flukes, & Johnson, 2017). While seagrass meadows are present throughout this region, the proportion of seagrass habitat is not high compared to the rest of Australia, in particular with parts of South Australia and Western Australia (Kirkham, 1997).

Seagrasses are highly productive habitats that occur on intertidal flats and in shallow coastal waters worldwide from arctic to tropical climates. Water temperature, light penetration, sediment type, salinity, and wave or current energy control seagrass distribution. Seagrasses provide breeding and nursery grounds for fish and wildlife. Seagrasses are used by fish and shellfish as nursery areas.

#### A.1.4.1.3 Reefs

Figure A-21 shows Parks Australia's natural values ecosystems, which is underpinned by a controlled, common language that was developed to articulate what ecosystems, habitats, communities and species occur within the provincial bioregions (Hayes, et al., 2021).

Natural values are defined at three levels:

- ecosystem complexes
- ecosystems
- ecosystem components.

Ecosystems are delineated by habitat, depth, and other biological and/or spatial features. Table A-5 outlines the ecosystems within the EMBA.

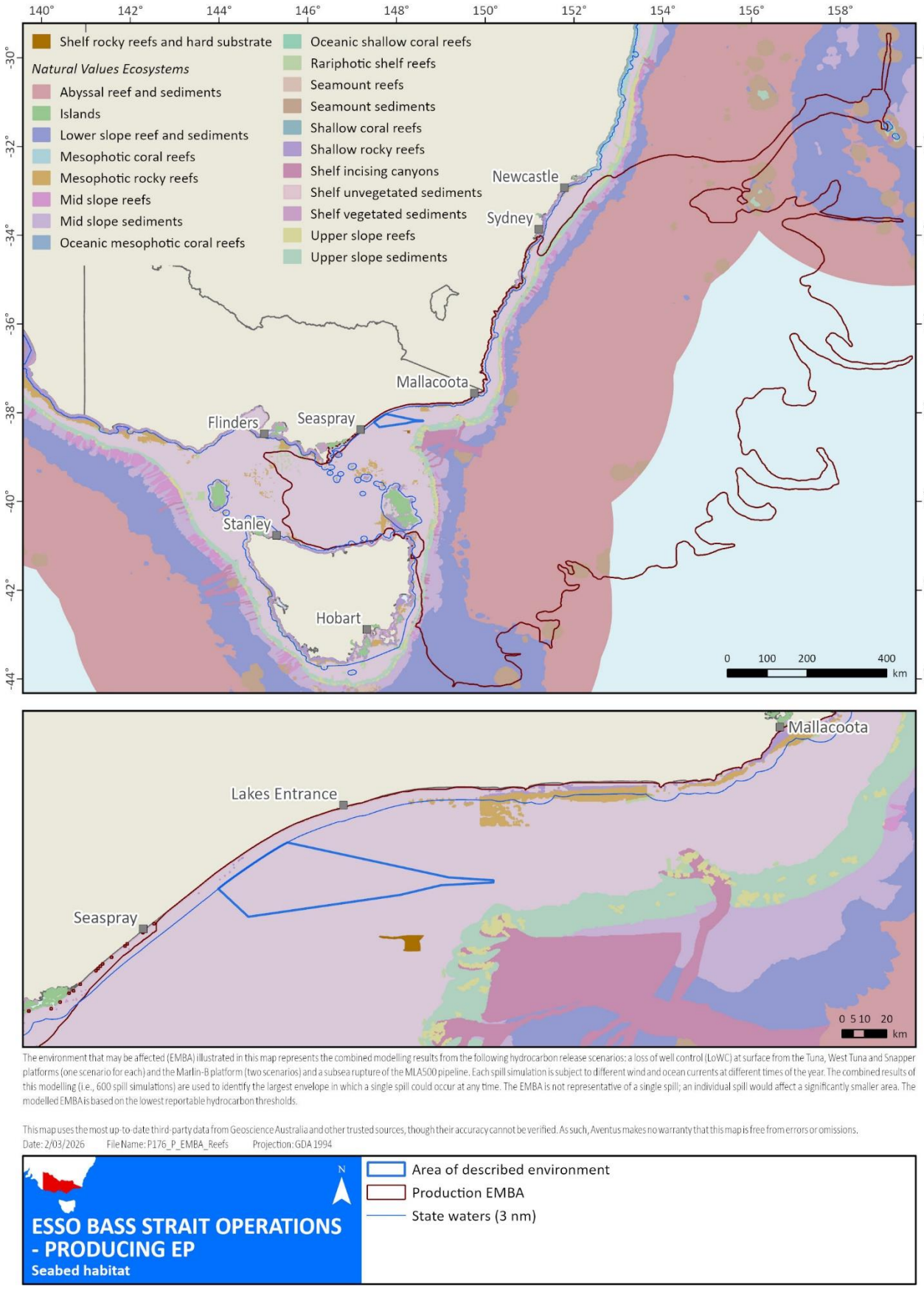
**Table A-5 Reef and sediment ecosystems within the EMBA**

| Ecosystem | Ecosystem components | Ecosystem complexes |
|---|---|---|
| Mesophotic coral reefs | • Benthic and cryptic fish demersal fish<br>• Macroalgae<br>• Marine reptiles<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | Deep shelf reefs |
| Mesophotic rocky reefs | • Benthic and cryptic fish demersal fish<br>• Macroalgae<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Rariphotic shelf reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Abyssal reef and sediments | • Benthic and cryptic fish<br>• Demersal fish | |

| Ecosystem | Ecosystem components | Ecosystem complexes |
|---|---|---|
| | • Infauna<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | Lower-slope and abyssal reef and sediments |
| Lower-slope reef and sediments | • Benthic and cryptic fish<br>• Demersal fish<br>• Infauna<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Oceanic mesophotic coral reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Macroalgae<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | Oceanic coral reefs |
| Oceanic shallow coral reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Macroalgae<br>• Mobile macroinvertebrates<br>• Seagrass<br>• Sessile invertebrates | |
| Seamount reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | Seamounts (including guyots) |
| Seamount sediments | • Benthic and cryptic fish<br>• Demersal fish<br>• Infauna<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Shallow coral reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Macroalgae<br>• Mobile macroinvertebrates<br>• Seagrass<br>• Sessile invertebrates | Shallow reefs |
| Shallow rocky reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Macroalgae<br>• Mobile macroinvertebrates<br>• Seagrass<br>• Sessile invertebrates | |
| Shelf vegetated sediments | • Benthic and cryptic fish<br>• Demersal fish<br>• Infauna<br>• Macroalgae<br>• Mobile macroinvertebrates | Shelf vegetated sediments |

| Ecosystem | Ecosystem components | Ecosystem complexes |
|---|---|---|
| | • Seagrass | |
| Mid-slope sediments | • Benthic and cryptic fish<br>• Demersal fish<br>• Infauna<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | Shelf, upper and mid-slope unvegetated sediments |
| Shelf unvegetated sediments | • Benthic and cryptic fish<br>• Demersal fish<br>• Infauna<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Upper-slope sediments | • Benthic and cryptic fish<br>• Demersal fish<br>• Infauna<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Mid-slope reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | Upper and mid-slope reefs (including canyons) |
| Shelf-incising canyons | • Benthic and cryptic fish<br>• Demersal fish<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Upper-slope reefs | • Benthic and cryptic fish<br>• Demersal fish<br>• Mobile macroinvertebrates<br>• Sessile invertebrates | |
| Islands (including cays and islets) | • Forest<br>• Grassland<br>• Herb field<br>• Marine reptiles<br>• Seabirds<br>• Shorebirds and waterbirds<br>• Shrubland | Islands (including cays and islets) |

Source: (Hayes, et al., 2021)




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_Reefs Projection: GDA 1994

**Figure A-21 Natural values ecosystems in the EMBA**

#### A.1.4.1.4 Macroalgae

Macroalgae are multicellular, marine algae, commonly known as seaweed. Macroalgae communities are generally found on intertidal and shallow subtidal rocky substrates as they require a surface to attach themselves to and can occur throughout Australian nearshore waters. Macroalgae are divided into three groups: brown algae *(Phaeophyceae)*, red algae *(Rhodophyta)*, and green algae *(Chlorophyta)*.

Brown algae are typically the most visually dominant and form canopy layers (McClatchie, Middleton, Pattiaratchi, Currie, & Kendrick, 2006). Macroalgae assemblages vary, but golden kelp (*Ecklonia radiata)* and *Sargassum sp.* are typically common in deeper areas. The principal physical factors affecting the presence and growth of macroalgae include temperature, nutrients, water motion, light, salinity, substratum, sedimentation and pollution (Sanderson, 1997). Macroalgal systems are an important source of food and shelter for many ocean species, including in their unattached drift or wrack forms (McClatchie, Middleton, Pattiaratchi, Currie, & Kendrick, 2006).

Kelps are very large brown algae that grow on hard sub tidal substrates in cold temperate regions. Kelps have a holdfast that attaches to the substrate, a stem-like or trunk-like stipe, and large, flattened, leaf-like blades called fronds. The giant kelp marine forests are classed as TECs. Refer to Section A.1.1.6.3 for information on giant kelp marine forests.

Known areas containing macroalgae within the EMBA include around Gabo Island and within the Bemm River estuary (Butler, Lucieer, Walsh, Flukes, & Johnson, 2017).

#### A.1.4.1.5 Coral

Corals are generally divided into two broad groups: the zooxanthellate ('reef-building', 'hermatypic' or 'hard') corals, which contain symbiotic microalgae (zooxanthellae) that enhance growth and allow the coral to secrete large amounts of calcium carbonate; and the azooxanthellate ('ahermatypic' or 'soft') corals, which are generally smaller and often solitary (Keable, 2007). Hard corals are generally found in shallower (<50m) waters, while soft corals are found at most depths, including in deeper waters throughout the continental shelf, slope and off-slope regions, to well below the limit of light penetration.

There are three factors that appear to drive the spawning of warm water corals a gradual rise in sea temperature (this triggers the gametes to mature), the lunar cycle, and the daylight cycle. As such, the timing of coral spawning events varies around Australia. Large spawning events for Great Barrier Reef corals typically occur four to five days after the full moon in October or November (and occasionally into December). Reproduction methods for cold water corals are not as well understood, but it is likely that some are still broadcast spawners (like their tropical counterparts), while others brood and release formed larvae (Roberts, Wheeler, Freiwald, & Carins, 2009).

While corals may not occur as a dominant habitat type within the Gippsland sector, their presence has been recorded within the region (e.g. Kent Group Marine Reserve, Freycinet Marine Park, and around Wilsons Promontory) all of which are within the EMBA. Soft corals are typically present in deeper waters throughout the continental shelf, slope and off-slope regions, to well below the limit of light penetration.

The cauliflower soft coral (*Dendronephthya australis*) (see Appendix B) is considered an endangered species and may occur within the EMBA. The species is predominantly found in estuarine environments in NSW at depths of 1 - 15m, however, it occasionally occurs offshore to depths of 30m and provides habitat for a variety of fish and invertebrates, including the endangered white seahorse (*Hippocampus whitei*) and juvenile snapper (TSSC, 2020a).

#### A.1.4.1.6 Submarine canyons

Submarine canyons are abundant features along continental and oceanic island margins that connect continental shelves to deep ocean basins. Because of the physical complexity of canyon habitats, predictions concerning the effects of canyons on diversity are not straightforward since a variety of environmental and physical characteristics interact in canyon habitats. The most important driver affecting biodiversity and biomass/abundance patterns in canyons is organic matter input and is mostly related to coastal detrital inputs or pelagic productivity regimes (De Leo, Smith, Rowden, Bowden, & Clark, 2010).

Seafloor terrain and substrate heterogeneity account for the second most important driver of benthic biodiversity in submarine canyons. One of these factors, sediment grain size, can be considered as a 'super-parameter' (Etter & Grassle, 1992) since it directly or indirectly reflects local physical energy and sedimentation

patterns. At moderate rates of flow and sediment deposition, suspension and deposit feeding, macrobenthos can be enhanced in abundance and/or diversity in canyons (Vetter & Dayton, 1999), whereas at high rates of flow and sediment accumulation, canyon fauna can become impoverished, yielding low species richness and high dominance by a few tolerant species (Rowe, Polloni, & Haedrich, 1982) (Gage, Lamont, & Tyler, 1995) (Vetter & Dayton, 1999).

While some studies have reported levels of megafaunal biodiversity in canyons rivalling seamounts (Schlacher, et al., 2007), in other cases high disturbance rates (Rowe, Polloni, & Haedrich, 1982) and absence of stable habitat collection led to faunal impoverishment compared to adjacent slope environments (Vetter & Dayton, 1999).

### *A.1.4.2 Coastal environment*

A range of shoreline types are represented along the coastal areas within the EMBA, including sandy shoreline, rocky shoreline, cliffs, intertidal flats, and saltmarsh (Griffin, Hazelwood, Nicholas, & Xu, 2012).

The coastline, from Wilsons Promontory in the west to Cape Howe in the east near the NSW border consists mainly of steep sandy beaches and rocky outcrops.

The NSW coast consists primarily rocky outcrops with sections of sandy beaches and rocky cliffs. The offshore islands in Bass Strait are characterised by their steep cliffs and rocky shores. These shoreline types are also dominant along the north and east coast of Tasmania.

#### A.1.4.2.1 Sandy shorelines

This shoreline type has been defined as beaches dominated by sand-sized (0.063 - 2mm) particles and also includes mixed sandy beaches (i.e. sediments may include muds or gravel, but sand is the dominant particle size).

Sandy beaches are dynamic environments, naturally fluctuating in response to external forcing factors (e.g. waves, currents etc.). Sandy beaches can support a variety of infauna and provide nesting and/or foraging habitat to shorebirds and seabirds and pinnipeds. Sand particles vary in size, structure, and mineral content; this in turn affects the shape, colour, and inhabitants, of the beach.

This shoreline type is the most common along the entire Victorian coast, including Ninety Mile Beach (Gippsland, Victoria) located within the EMBA.

#### A.1.4.2.2 Rocky shorelines

Sheltered rocky shores are characterized by a rocky substrate that can vary widely in permeability. This shoreline type has been defined as hard and soft, rocky shores, including bedrock outcrops, platforms, low cliffs (<5m in height), and scarps. Depending on exposure, rocky shores can be host to a diverse range of flora and fauna, including barnacles, mussels, tube building worms, sea squirts (cunjevoi) (*Pyura stolonifera*),sea anemones, sponges, sea snails, starfish, and algae. Australian fur seals are also known to use rocky shores for haul-out and/or breeding. Most animals on the intertidal rocky shores are herbivorous molluscs, grazing algae off rock surfaces.

This is a common shoreline type along the southern NSW coast, the islands of Bass Strait, and for smaller areas of Victoria's coast (e.g. Wilsons Promontory). Intertidal rocky shores occur at Bastion Point, Quarry Beach, Shipwreck Creek, Little Rame Head, Sandpatch Point, Petrel Point, Thurra River, Clinton Rocks, Cloke Rock and Tamboon Inlet (all of which are within the EMBA).

#### A.1.4.2.3 Sea cliffs

The intertidal zone is steep (>30° slope) and narrow with very little width. Sediment accumulations are uncommon because waves remove debris that has slumped from the eroding cliffs. There is strong vertical zonation of intertidal biological communities. Species density and diversity vary greatly, but barnacles, snails, mussels, polychaetes, and macroalgae can be abundant (NOAA, 2010).

This environment occurs behind Betka Beach and Secret Beach through to Little Rame Head, Sandpatch Point, Wingan Point, The Skerries, Rame Head, Petrel Point, Point Hicks, Clinton Rocks, Tamboon Inlet, Pearl Point, Cape Conran (Needle Rocks, Irvine Rocks, Quincy Rocks Salmon Rocks), and at Ricardo Point (all of which are within the EMBA). This is a common shoreline type for the Furneaux Group in Bass Strait (also within the EMBA).

#### A.1.4.2.4 Inter-tidal flats

This shoreline type has been defined as areas with predominantly mud-sized (<0.063mm) particles, and also includes mixed sediments (e.g. sands, shell or gravel), where the mud fraction is dominant. These areas are also exposed to high tidal variation, including tidal flats, and are often associated with mangrove or saltmarsh environments.

Sheltered intertidal flats are composed primarily of mud with minor amounts of sand and shell. They are usually present in calm-water habitats, sheltered from major wave activity, and frequently backed by marshes like estuaries or bays. The sediments are very soft and cannot support even light foot traffic in many areas. There can be large concentrations of bivalves, worms, and other invertebrates in the sediments. They are heavily used by birds for feeding (NOAA, 2010).

Sheltered intertidal flats occur at Corner Inlet and Nooramunga Marine and Coastal Parks. Bare sediment occurs at Mallacoota Inlet, Wingan Inlet, Sydenham Inlet - Bemm River and Mud Lake.

#### A.1.4.2.5 Mangroves

Along the Gippsland coast, mangroves can be found in Corner Inlet and Nooramunga Marine and Coastal Parks and more recently have also been found in Cunningham Arm at Lakes Entrance (Butler, Lucieer, Walsh, Flukes, & Johnson, 2017).

The roots and trunks are intertidal, with only the lowest leaves inundated by high tide. The width of the forest can range from one tree to many kilometres. The substrate can be sand, mud, leaf litter, or peat, often as a veneer over bedrock. They are highly productive, serve as nursery habitat, and support a great diversity and abundance of animal and plant species (NOAA, 2010).

#### A.1.4.2.6 Saltmarsh

Saltmarshes are terrestrial halophytic (salt-adapted) ecosystems that mostly occur in the upper-intertidal zone and are widespread along the coast of Victoria and NSW. They are typically dominated by dense stands of halophytic plants such as herbs, grasses, and low shrubs. Depending on location and inter-annual variations in rainfall and runoff, associated vegetation may include species tolerant or adapted to salt, brackish, or even tidal freshwater conditions. The diversity of saltmarsh plant species increases with increasing latitude (in contrast to mangroves). The vegetation in these environments is essential to the stability of the saltmarsh, as they trap and bind sediments. The sediments are generally sandy silts and clays and can often have high organic material content. Saltmarshes provide a habitat for a wide range of both marine and terrestrial fauna, including infauna and epifaunal invertebrates, fish, and birds (NOAA, 2010).

Saltmarsh is found along the coast throughout the EMBA, although is most extensive behind the sand dunes of Ninety Mile Beach in Gippsland (Boon, et al., 2011).

Salt marshes can be found behind Mallacoota Entrance to Lake Barracouta, Wingan Inlet, inside Cann River Estuary, Tamboon Inlet, Sydenham Inlet (Bemm River Estuary and Mud Lake), Dock Inlet, inside Snowy River Estuary, Lake Tyers Estuary, and inside Lakes Entrance - Gippsland Lakes Ramsar Site. In southern NSW between Towradgi Creek about 40km north of the Victorian border there are approximately 12km$^2$ of saltmarsh spread over 62 estuaries (Daly, 2013). These include the areas of Shoalhaven River, Carama Creek, Clyde River, Tomaga River and Moruya River, Tuross Lake, Wapengo Lake, Bega River, Merimbula Lake and Wonboyn River (Creese, Glasby, West, & Gallen, 2009).

### *A.1.4.3 Plankton*

Plankton species, including both phytoplankton and zooplankton, are key components in the oceanic food chain.

Phytoplankton are autotrophic planktonic organisms living within the photic zone that spend either part or all of their lifecycle drifting with the ocean currents. Phytoplankton communities are largely comprised of protists, including green algae, diatoms, and dinoflagellates (McClatchie, Middleton, Pattiaratchi, Currie, & Kendrick, 2006). There are three size classes of phytoplankton: microplankton (20 - 200µm), nanoplankton (2 - 20µm) and picoplankton (0.2 - 2µm).

Diatoms and dinoflagellates are the most abundant of the micro and nanoplankton size classes and are generally responsible for the majority of oceanic primary production (McClatchie, Middleton, Pattiaratchi, Currie, & Kendrick, 2006). Phytoplankton are dependent on oceanographic processes (e.g. currents and vertical mixing),

that supply nutrients needed for photosynthesis. Thus, phytoplankton biomass is typically variable (spatially and temporally), but greatest in areas of upwelling, or in shallow waters where nutrient levels are high.

Average primary productivity hotspots from 2002 - 2014 based on chlorophyll-a concentrations from MODIS satellites can be seen in Figure A-22. The lowest ocean productivity is shown in dark blue and the most productive areas in red. Figure A-22 indicates that the Area of Described Environment overlaps low productivity whilst the EMBA overlaps high productivity in areas along the coast and where the Upwelling East of Eden lies.

Phytoplankton biomass ranges across Bass Strait (integrated over 0 - 100m depth), from about 1.6µg/L chlorophyll from shallow to 0.1µg/L in deeper waters (Gibbs, 1991). Phytoplankton biomass rapidly drops off with water depth, to about 0.1µg/L below 100m, due to diminishing light penetration.

Zooplankton is the faunal component of plankton, comprised of small protozoa, crustaceans (such as krill) and the eggs and larvae from larger animals. More than 170 species of zooplankton have been recorded in eastern and central Bass Strait, but it has been found that seven dominant species make up 80% of individuals (Esso, 2009). Zooplankton biomass is higher in shallow waters of Bass Strait (16.1mg/$m^3$ dry weight off Mallacoota and 15.5mg/$m^3$ off Seaspray), dropping to between 1.2 - 2.1mg/$m^3$ further offshore (integrated over the top 50m of the water column), near the deeper regions (Gibbs, 1991). As with phytoplankton, zooplankton biomass appears to be higher in the shallow waters of the shelf. Copepods dominate the species encountered (Chaloupka & Watson, 1982).

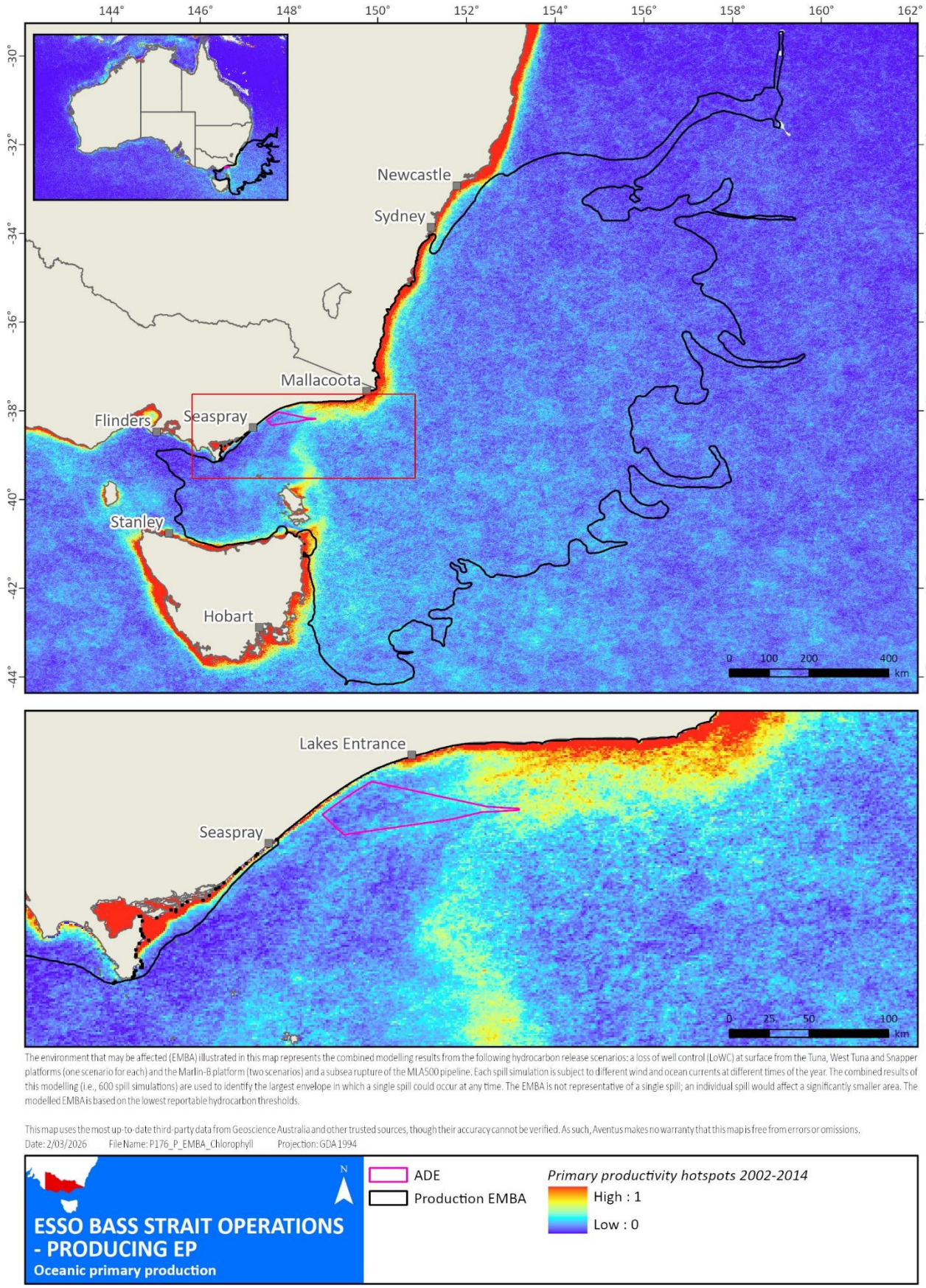



**Figure A-22 Primary productivity hotspots from 2002 - 2014 (Huang Z. , 2018)**

### *A.1.4.4 Fish, sharks and rays*

Fish species detected by the PMST within the EMBA are listed in Appendix B. Only fish, sharks and ray species that are threatened are discussed further within this Section. The full PMST report for the EMBA can be found in Appendix D.

It is estimated that there are over 500 species of fish found in the waters of Bass Strait, including a number of species of importance to commercial and recreational fisheries (LCC, 1993). Fish species commercially fished within the EMBA are listed in Sections A.1.6.1.1, A.1.6.1.2, A.1.6.1.3, and A.1.6.1.4.

The most common fish species detected by the AIMS (McLean, et al., 2025) study were butterfly perch, common bellowsfish (*Macroramphosus scolopax*), scorpion fish (*Scopaena spp*) and Australian anchovy (*Engraulis australis*). Bluefin leatherjackets (*Thamnaconus degeni*) and jackass morwong were also sighted, as well as a gummy shark (*Mustelus antarcticus*) and broadnose seven gill shark (*Notorynchus cepedianus*).

There are 66 marine fish species listed under the EPBC Act with potential to occur within the EMBA (see Appendix B and Appendix D). Forty-two of the 66 fish species identified in the EPBC Act PMST (64%) are Syngnathids, which includes seahorses, seadragon, pipehorse and pipefish. Sygnathidae are mostly benthic on coastal reefs, amongst marine algae, seagrass beds, or on sandy and rubble substrates and in caves and crevices. A few species are found offshore amongst floating gulfweed (*Sargassum* algae) (Bray, Seahorses, pipefishes, SYNGNATHIDAE, 2021) they can be found in waters <50m deep and are sometimes recorded in deeper offshore waters. It is likely that Syngnathidae species will occur in coastal reefs, marine algae, seagrass beds, sandy and rubble substrates and caves and crevices sites throughout the EMBA.

#### A.1.4.4.1 Handfish

One species of handfish was detected by the PMST: the red handfsh (*Thymichthys politus*) which is listed a critically endangered under the EPBC Act and has a known distribution in Tasmania only.

The red handfish is a small, slow moving benthic fish that is known to inhabit a small geographic area in the coastal waters of southeast Tasmania. It appears that the red handfish has undergone a recent marked decline in both distribution and abundance (DSEWPAC, 2012d). No specimens were recorded during surveys in 2005 and efforts to locate red handfish at sites where they were previously known in southeast Tasmania to exist are reported to have failed (DSEWPAC, 2012d). The most recent sightings of the species were made in Primrose Sands (outside of the EMBA) in 2010 (DSEWPAC, 2012d). Given this species habitat and presence, it may occur in the areas where the EMBA interprets the eastern and northern coast of Tasmania.

The main identified threat applies to the red handfish, being habitat degradation resulting from one or a combination of impacts including introduced species, pollution and siltation, increasing water temperatures and the proliferation of other native species as a result of human activities (DSEWPAC, 2012d).

#### A.1.4.4.2 Black rock cod

The black rockcod (*Epinephelus daemelii*) is listed as vulnerable under the EPBC Act. The black rockcod is a large cod species distributed in warm temperate to temperate marine waters of southeastern Australia, from southern Queensland to Mallacoota in Victoria, and rarely south of this point (DSEWPAC, 2012b).

The species inhabits caves, gutters, and crevices generally to depths of 50m, with juveniles found inshore. Individuals are highly territorial and have small home ranges (DSEWPAC, 2012b). The black rockcod is a protogynous hermaphrodite, meaning it changes sex from female to male during its life cycle. The species has declined in number due to angling and spearfishing (DSEWPAC, 2012b). Given their known distribution, the black rockcod may occur in suitable habitat within the EMBA (north of Mallacoota) and are likely to be present within the Elizabeth and Middleton Reefs Marine National Nature Reserve (within the EMBA) which supports an abundant population of black cod (DSEWPAC, 2012b).

#### A.1.4.4.3 Whitesnout anemonefish

The whitesnout anemonefish (*Amphiprion mccullochi*) became listed as critically endangered under the EPBC Act in 2024. Whitesnout anemonefish are dark brown to black with a whitish snout, reaching a total length of 120mm (TSSC, 2024a).

The species is endemic to Australia and are only found associated with the bubbletip anemone (*Entacmaea quadricolor*). Whitesnout anemonefish have a very limited distribution, occurring in the lagoon and inshore waters of Lord Howe Island, and within the Ramsar listed Middleton Reef and Elizabeth Reef (TSSC, 2024a). The

key threat to this species is climate change as coral bleaching leads to a substantial decline in the abundance of host anemones. Other threats include habitat degradation and illegal harvest (TSSC, 2024a).

The whitesnout anemonefish may be present in the EMBA.

#### A.1.4.4.4 Eastern dwarf galaxias

The eastern dwarf galaxias (*Galaxiella pusilla*) is listed as vulnerable under the EPBC Act. Habitat suitable to the dwarf galaxias is slow flowing and still, shallow, permanent, and temporary freshwater habitats such as swamps, drains and the backwaters of streams and creeks, often (but not always) containing dense aquatic macrophytes and emergent plants (Saddlier, Jackson, & Hammer, 2010) (DELWP, 2015).

There are 46 rivers and wetlands that are listed in the Dwarf Galaxias Action Statement (DELWP, 2015) as being important to the species, the only listed waterway within the EMBA is the Merriman Creek Therefore, the eastern dwarf galaxias may be encountered in the EMBA if the Merriman Creek is open to the ocean at the time of the spill.

#### A.1.4.4.5 White's seahorse

The White's seahorse (*Hippocampus whitei*) is listed as endangered under the EPBC Act and is endemic to NSW and Queensland in eastern Australia (TSSC, 2020b). White's seahorse is a small (maximum length approximately 16cm), long snouted seahorse *(Hippocampus guttulatus)* which is highly variable in colour with their colouration known to change depending on the habitat they are found in. The species is known to live in the wild for up to five to six years (TSSC, 2020b).

White's seahorses are known to occur in water depths between 1 - 15m and are known to occur in estuaries from Saint Georges Basin, NSW (in proximity to the EMBA) to Hervey Bay, Queensland (outside of the EMBA). The White's seahorse is found utilising a wide range of habitat types (both natural and artificial). They prefer more complex habitats, believed to provide better protection and more available food resources (TSSC, 2020b). The species displays strong site fidelity, with tagged males occurring on the same site for up to 56 months and females 49 months, with no seahorse ever recorded moving between sites. Individuals are not known to move far, as the largest distance a tagged animal was found to travel was only 70m (TSSC, 2020b).

The major threat to the White's seahorse is loss habitat across its range followed by cleaning of artificial habitats (protective swimming nets) within the Sydney region (TSSC, 2020b). Due to the known habitat preferences of the White's seahorse, the species may be encountered by the EMBA within the coastal regions of NSW from Saint Georges Basin to Port Macquarie.

#### A.1.4.4.6 Orange roughy

The orange roughy (*Hoplostethus atlanticus*) was listed as conservation dependent under the EPBC Act in 2006, within Australian waters with most stocks reported to be well below 20% of estimated pre-fishing equilibrium biomass and closed to targeted fishing (DCCEEW, 2023b).

The orange roughy is a commercially important demersal fish species that is found in ridge and slope waters 180 – 1800m deep (DCCEEW, 2023b). Orange roughy are very long lived, very slow to mature and have low fertility relative to other bony fishes. Ageing studies show that they do not mature until their mid-20's to mid-30's and may live to 150 years of age.

Although widespread, orange roughy migrate hundreds of kilometres to form spawning aggregations over seamounts between June and August in the southern hemisphere (DCCEEW, 2023b). They are synchronous spawners and form dense spawning and feeding aggregations. Recovery of the species is threatened by commercial trawl fishing. Given its habitat preferences, the orange roughy may occur in deep waters of the EMBA.

#### A.1.4.4.7 Australian grayling

The Australian grayling (*Prototroctes maraena*) is listed as vulnerable under the EPBC Act. The Australian grayling is a dark brown to olive-green fish that is approximately 19cm in length. The species typically inhabits the coastal streams of NSW, Victoria, and Tasmania, migrating between streams and the ocean (Backhouse, Jackson, & O'Connor, 2008). The species spends most of its life in freshwater (DEECA, 2023), and migrates to lower reaches of rivers to spawn in autumn (Gomon & Bray, 2020), though timing is dependent on many variables including latitude and varying temperature regimes (Backhouse, Jackson, & O'Connor, 2008), with increased stream flows also thought to initiate migration (DEECA, 2023).

Threatening processes to this species include barriers to movement, river regulation, poor water quality, siltation, introduced fish, climate change, diseases, and fishing (Backhouse, Jackson, & O'Connor, 2008). Several rivers intersected by the EMBA (at their mouths, when open) are listed as important locations for the species (DEECA, 2023). The species may therefore be present in the EMBA in the relatively rare event that creek and river mouths are open, and the species is spawning.

#### A.1.4.4.8 Eastern gemfish

The eastern gemfish (*Rexea solandri*) is listed as conservation dependent under the EPBC Act. Gemfish are found throughout southern Australian temperate waters. In Australia, the eastern gemfish are distributed from Cape Moreton, southern Queensland, along the east coast to Bass Strait and the waters off Tasmania.

Eastern gemfish are mesopelagic and inhabit deeper continental shelf habitats and upper slope waters from 100 - 700m (down to 1254m) but are generally found in waters about 250 - 500m deep. Historical and ongoing commercial fishing is the highest threat to the eastern gemfish. This species is generally caught close to the seabed, but the fish are likely to move into mid-water at times, larvae occur in shallow to very shallow waters. Gemfish are carnivorous and feed close to the ocean floor on other fish, primarily Macrouridae deepwater cod-like fishes. Due to the deep water distribution of this species, it may be present with the eastern sections of the EMBA.

#### A.1.4.4.9 Blue warehou

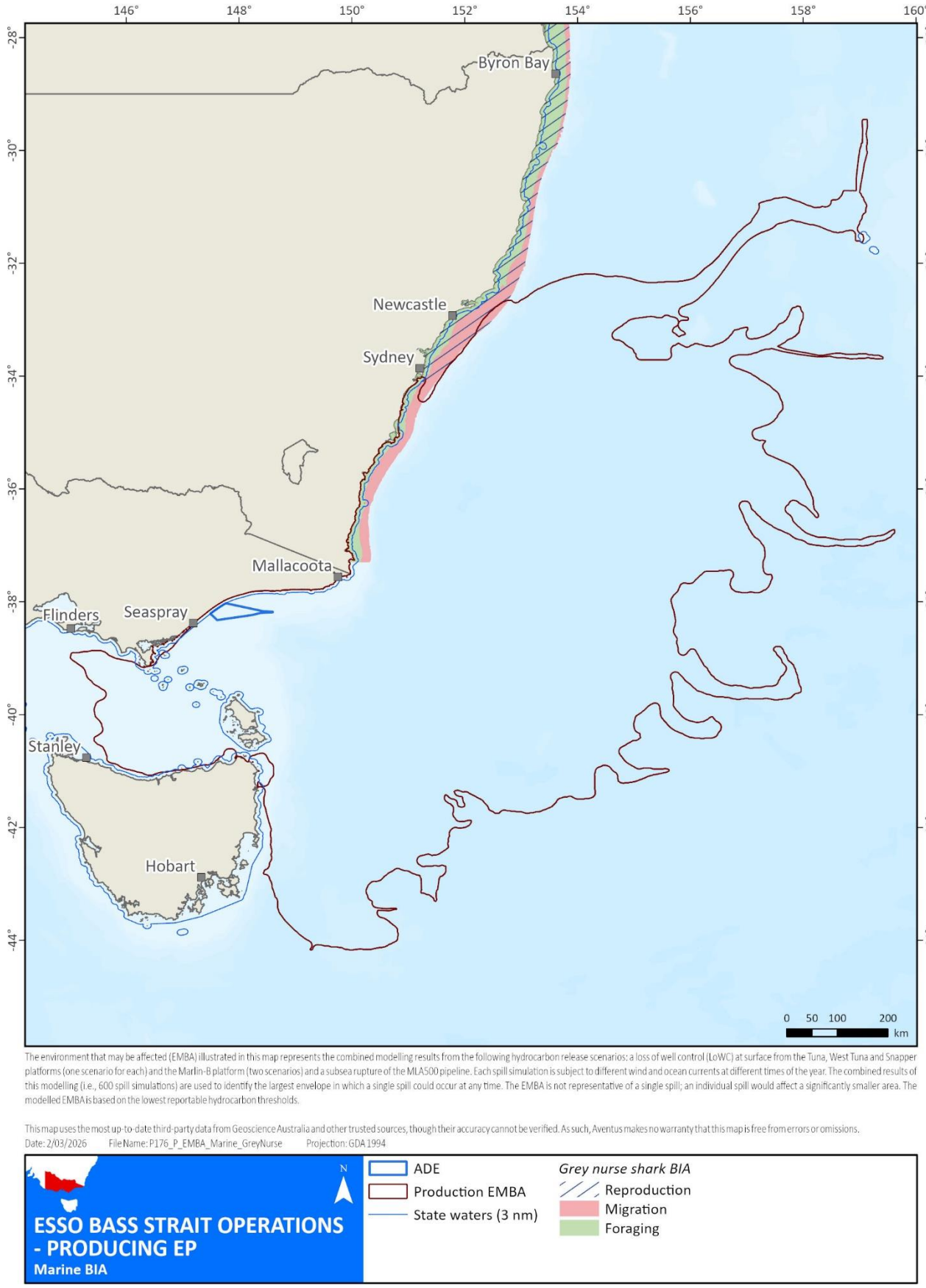
The blue warehou is listed as conservation dependent under the EPBC Act. Blue warehou is a bentho-pelagic species found in southern Australia where it inhabits continental shelf and slope waters. Adults can be found at depths from 50 - 300m. Blue warehou are schooling fish and usually aggregate close to the seabed and juveniles can sometimes be found schooling close to the surface in estuaries, often in association with jellyfish. This species is commercially important and formally managed under the Blue Warehou Stock Rebuilding Strategy (AFMA, 2022). Blue warehou may occur in the EMBA.

#### A.1.4.4.10 Grey nurse shark (east coast population)

The grey nurse shark (eastern population) is listed as critically endangered under the EPBC Act due to commercial fishing, spearfishing, and protective beach meshing (TSSC, 2001). The grey nurse shark was historically widespread in sub-tropical and warm temperate seas and previously recorded from all Australian States except Tasmania (TSSC, 2001).

The species currently has a broad inshore distribution throughout sub-tropical to cool temperate waters on the continental shelf, with separate east coast and west coast populations (DoE, 2014). The east coast population extends from central Queensland to southern NSW, occasionally as far south as the NSW/Victoria border (DoE, 2014), which coincides with the Biologically Important Area (BIA) for their distribution and breeding (October to November) which is intercepted by the EMBA and shown in Figure A-23.

Preferred habitat for grey nurse sharks is inshore rocky reefs or islands, generally aggregating near the seabed in water depths of 10 - 40m in deep sandy or gravel filled gutters, or in rocky caves border (DoE, 2014). There are no known aggregation sites located off the Victorian coast border (DoE, 2014) however, the EMBA does intersect with the breeding BIA (October to November) within the coastal waters of Sydney and Newcastle (Figure A-23). Given the current distribution of the grey nurse shark and the known breeding sites, the species may occur within the EMBA.




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_Marine_GreyNurse Projection: GDA 1994

**Figure A-23 Grey nurse shark BIAs intersected by the EMBA**

#### A.1.4.4.11 Great white shark

The great white shark is listed as vulnerable under the EPBC Act. The great white shark is widely distributed and located throughout temperate and sub-tropical waters, with their known range in Australian waters including all coastal areas except the Northern Territory (DSEWPAC, 2013b). Studies of great white sharks indicate that they are usually solitary animals, largely transient and only temporarily resident (e.g. days to weeks) in areas it inhabits (DSE, 2003) (DSEWPAC, 2013b). However, individuals are known to return to feeding grounds on a seasonal basis (Klimley & Anderson, 1996).

The species moves seasonally along the south and east Australian coasts, moving northerly along the coast during autumn and winter and returning to southern Australian waters by early summer. Observations of adult sharks are more frequent around fur seal and sea lion colonies, including Wilsons Promontory and The Skerries (both within the EMBA and is also reflected by the foraging BIA see Figure A-24) (DSE, 2003). Juveniles are known to congregate in certain key areas including the Ninety Mile Beach, Lakes Entrance, Gippsland Lakes and Corner Inlet where a BIA for breeding is overlapped by the EMBA (Figure A-24). Bray (2023) indicates that Corner Inlet may be an important nursery area for the eastern population of great white sharks, mostly from mid-summer through to autumn (DSEWPAC, 2013b).

Key threats to the species, as listed in the Recovery Plan (DSEWPAC, 2013b) and Action Statement (DSE, 2003) are mortality from targeted fishing, accidental fishing bycatch and illegal fishing, and mortality from shark control activities (such as beach meshing and drum lining), none of which will take place during the activity. Similarly, the activity will have no impact on the 10 objectives for protection listed in the plan. Given their transitory nature and the proximity of known congregation areas, great white sharks may occur within the EMBA.

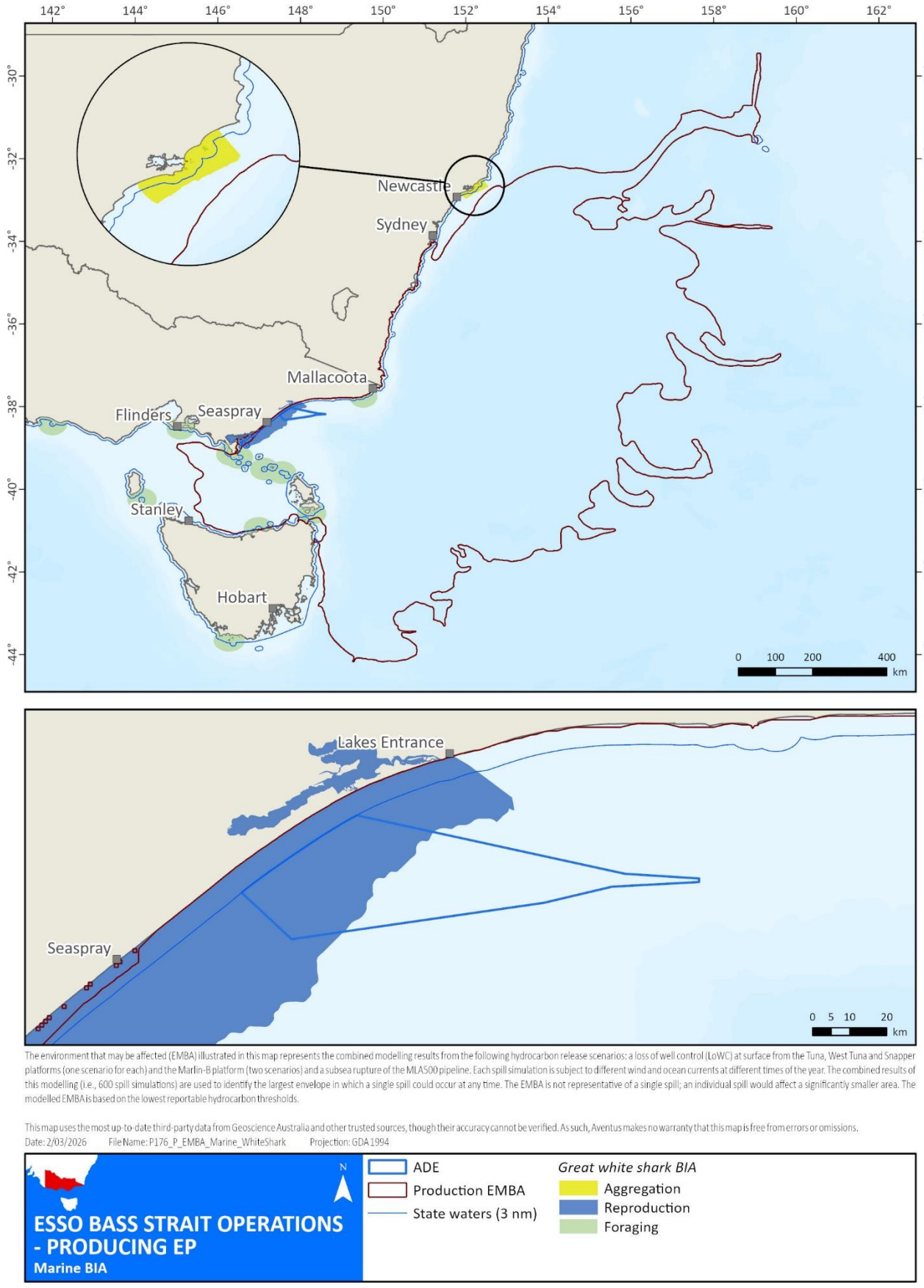



**Figure A-24 Great white shark BIAs intersected by the EMBA**

#### A.1.4.4.12 Harrisson's dogfish

Harrison's dogfish is listed as conservation dependent under the EPBC Act. In Australian waters, Harrisson's dogfish is distributed off the Clarence River, NSW, to off South East Cape, Tasmania, and from Fraser Seamount, Queensland, to Taupo Seamount, NSW (DCCEEW, 2023b). The species prefers water depth ranges from 200 – 1050m.

The main threat to southern dogfish in Australian waters was population reduction caused by past fishing pressure in both State and Commonwealth-managed commercial fisheries operating on the upper-slope (TSSC, 2013a) Harrisson's dogfish populations are estimated to have declined by more than 90% in parts of their range off southern NSW and eastern Victoria. As a result, the species was listed as conservation dependent in June 2013. This species habitat preferences indicates that it is likely to occur in the EMBA.

#### A.1.4.4.13 Little gulper shark

The little gulper shark (*Centrophorus uyato*) is listed as conservation dependent under the EPBC Act. The little gulper shark is distributed along the continental slope of southern Australia from off Forster (NSW) to Bunbury (West Australia), including Tasmania, in depths of 200 - 700m, but usually in depths below 400m (DCCEEW, 2023b).

Little gulper sharks undertake day-night migrations across their depth range from relatively deep daytime residence depths (1000m) to shallower night-time feeding depths (to 200m). This species feeds mainly on fish, crustaceans and squid. It migrates up gullies on the continental slope to feed at night on mesopelagic fish that have migrated from deeper waters. The main threat to the little gulper shark in Australian waters is population reduction caused by past fishing pressure in both State and Commonwealth-managed commercial fisheries operating on the upper-slope (TSSC, 2013b). Species in genus *Centrophorus* are vulnerable to over-exploitation due to the fact that they are long-lived, late to mature and have small litters (DCCEEW, 2023b). This species habitat preferences indicates that it is likely to occur in the EMBA.

#### A.1.4.4.14 Whale shark

The whale shark (*Rhincodon typus*) is listed as vulnerable under the EPBC Act and is the world's largest fish and one of the only three filter feeding shark species (TSSC, 2015). They have a broad distribution in warm and tropical waters of the world, and in Australia are known only to occur on the west coast of Western Australia, with a feeding aggregation occurring off the Ningaloo Reef between March and July each year (TSSC, 2015). Isolated records exist of whale sharks off NSW, Victoria and South Australia. Because this species is not known to migrate through Bass Strait, and the lack of known distribution in Victoria, Tasmania, and NSW, it is highly unlikely to occur within the EMBA.

#### A.1.4.4.15 Scalloped hammerhead

The scalloped hammerhead (*Sphyrna lewini*) is listed as conservation dependent under the EPBC Act but is currently under a threatened listing assessment which was due 30 April 2022 but has not been updated since. The scalloped hammerhead is a relatively large, fusiform-bodied, moderately slender shark with a circum-global distribution in tropical and sub-tropical waters. This species has a strong genetic population structuring across ocean basins as it rarely ventures into or across deep ocean waters but ranges quite widely over shallow coastal shelf waters (TSSC, 2024b).

Within Australian waters the scalloped hammerhead extends from NSW (around Wollongong, where it is less abundant), around the north of the continent and then south into Western Australia. Due to the species distribution, the scalloped hammerhead may be encountered within the area of the EMBA that extends up to Sydney.

#### A.1.4.4.16 School shark

The school shark (*Galeorhinus galeus*) is listed as conservation dependent under the EPBC Act. The species is a widespread mainly coastal and bottom associated shark found in temperate areas over the continental shelf to about 800m on the continental slope (DCCEEW, 2023b). Juveniles are often found in shallow, inshore bays of Victoria and Tasmania. School sharks also occur well offshore in the Tasman Sea. Although usually found near the bottom, the species ranges through the water column even into the pelagic zone (DCCEEW, 2023b).

The species feeds on bony fishes (bottom-dwelling and pelagic species), squid and octopus. Small juveniles feed on crustaceans, polychaete worms, gastropods, and echinoderms. The species was fished throughout its range

and heavily exploited due to the excellent quality of its flesh for eating and its oil (DCCEEW, 2023b). In addition, targeted fishing of juveniles and degradation of nearshore nursery sites has been linked to population declines (DCCEEW, 2023b). The species is currently the focus of the School Shark Rebuilding Strategy (AFMA, 2015), which aims to rebuild the species to 40% of its pre-exploitation levels within a biologically relevant timeline, by closing areas to protect pups and breeding age school sharks as well as preventing targeted fishing of the species. School sharks are likely to be present in the EMBA.

### *A.1.4.5 Cetaceans*

Cetaceans are a widely distributed and diverse group of carnivorous, finned, aquatic marine mammals. They comprise whales, dolphins and porpoises. Cetaceans are generally found in the ocean but can also inhabit river systems.

There are 25 whale, and 15 dolphin species (or species habitat) that may occur within the EMBA see Appendix B . A list of the conservation advice and/or recovery plans, with relevant key threats and management actions, is shown in Table A-6. Only cetacean species that are threatened and/or are migratory or have known BIAs within the EMBA and are discussed further.

There are several pelagic dolphins that may occur in the EMBA. The population size of these species is not known however none are considered to be rare. No specific conservation or listing advice exists and their distribution has not been specifically defined. All species feed on pelagic fish, squids, octopus, shrimps, and other marine fauna taken at depths exceeding 250m. The extent of occurrence is large in all cases, estimated to be greater than 20,000km$^2$. All are tropical to subtropical species (occasionally temperate) with distribution varying depending on water temperature and flow of warm currents.

#### A.1.4.5.1 Southern right whale

The southern right whale *(Eubalaena australis)* (SRW) generally occurs along the southern coast of Australia; they migrate annually along the eastern coastline from high latitude feeding grounds to lower latitudes for calving between mid-May and October (DCCEEW, 2023b). Known resting and feeding sites in the southwest Victoria are in coastal and bay areas from Port Campbell, including Warnambool (particularly Logans Beach) (DCCEEW, 2024d). There has been an increase in the number of SRW sightings along the Gippsland coast (east from Wilsons Promontory) and the southeast coast of Tasmania (DCCEEW, 2024d).

Nursery grounds are occupied from May to October, with female-calf pairs generally staying in the area for two to three months (Charlton, 2017). Calving itself usually occurs in very shallow (<10m depth) waters. Other population classes stay in the nursery grounds for shorter and variable periods of time; there is typically a lot of movement along the coast, and thus habitat connectivity is important for this species. The summer offshore distribution and migration routes of SRW largely is unknown but is known to include directly southern and western migration pathways but may include offshore habitat where mating (Mackay, et al., 2015).

AMSIS (2024) now identifies two BIAs for the SRW reproduction (May to September) and migration (April to October), both of which are overlapped by the EMBA (Figure A-25). Reproduction is spatially defined along the entire coast of Victoria including Port Phillip Bay and Western Port Bay and along the entire coastline of Tasmania as well as majority of the NSW coastline up to Burnett Heads in Queensland. Reproduction also occurs in areas along the South Australian and West Australian coast. Migration for the SRW covers all Commonwealth waters in southern Australia from Naturaliste, Western Australia to the Victorian/NSW border, including the Great Australian Bight and all of Bass Strait. Migration also mirrors the reproduction BIA along the coast in NSW and Queensland and exists along the west coast of Western Australia. According to the BIA Protocol (DCCEEW, 2023e) category definitions, reproduction BIAs are areas known or likely to be regularly or repeatedly used by individuals or aggregations of a species for reproduction or to provide refuge, or other advantage to young. Migration BIAs are areas known or likely to be regularly or repeatedly used by individuals or aggregations of a species for undertaking seasonal or other temporal movements which contribute to connectivity with other functionally important areas (DCCEEW, 2023e). Both BIAs are within the EMBA (Figure A-25).

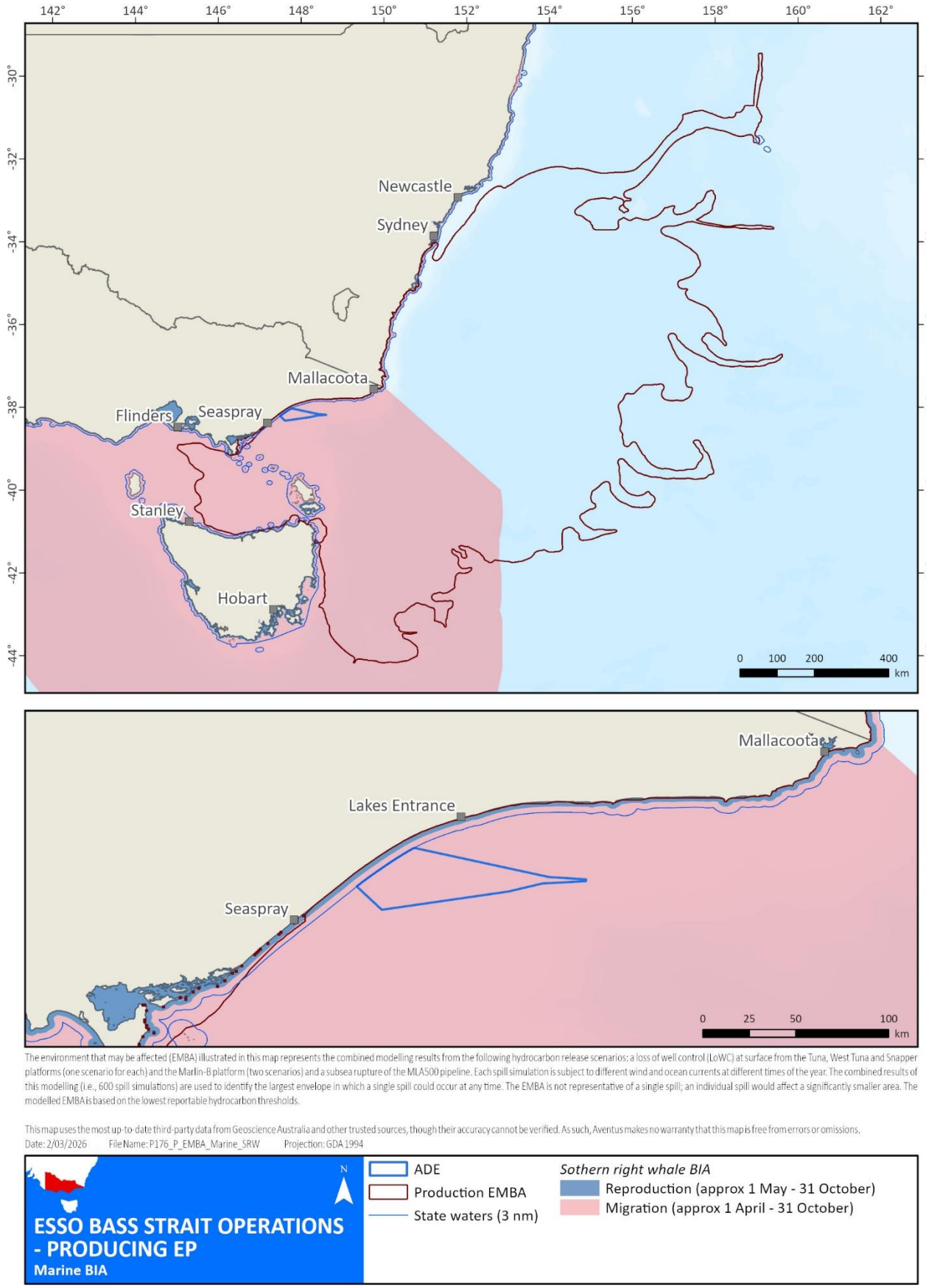



**Figure A-25 SRW BIAs intersected by the EMBA**

#### A.1.4.5.2 Blue whales

The blue whale has four subspecies, two of which occur within Australian waters, including the Antarctic blue whale (*Balaenoptera musculus intermedia*) and the pygmy blue whale (*Balaenoptera musculus brevicauda*) (PBW) (Rice 1998, in (Department of the Environment, 2023).

The PBW has five population groups, two of which are found in the Southern Hemisphere. Figure A-25 summarises the known and predicted ranges of the species and populations around Australia and New Zealand and their likely presence in Esso's areas of operation in eastern Bass Strait.

*Distribution*

Long term passive acoustic recorders set by McCauley et al. (2018) found Antarctic blue whale calls along the entire southern Australian coast, while calls from the New Zealand PBW population occur predominantly eastward of Bass Strait, and calls from the Indo-Australian PBW population were heard west of Bass Strait. The Indo-Australian PBW population wasn't recorded on the east Australian coast or east of Bass Strait and the New Zealand PBW population was always heard in the Bass Strait recordings, and only ever heard as far west as Portland in Victoria. The Antarctic blue whale was recorded at all sites south of 19°S (McCauley, Gavrilov, Jolliffe, Ward, & Gill, 2018).

(Balcazar, et al., 2015) suggests that the Australian continent acts as a geographic boundary, separating Indo-Australian and New Zealand PBW acoustic populations at the junction of the Indian and Pacific Ocean basins (Balcazar, et al., 2015). The distribution of PBW in the Australian region is illustrated in Figure A-27. There are few contemporary records of blue whales in the Gippsland region. However, recent scientific literature suggests that PBW populations are capable of travelling great distances far beyond their expected range (Barlow, Klinck, Ponirakis, Colberg, & Torres, 2023). This concept that blue whales can extend beyond their current range is corroborated by Branch et al. (2023), who modelled the predicted detection range for the Antarctic blue whale and PBW populations. Findings from Branch et al. (2023) and (Barlow, Klinck, Ponirakis, Colberg, & Torres, 2023) are discussed further within the population sub-headings in this Section.

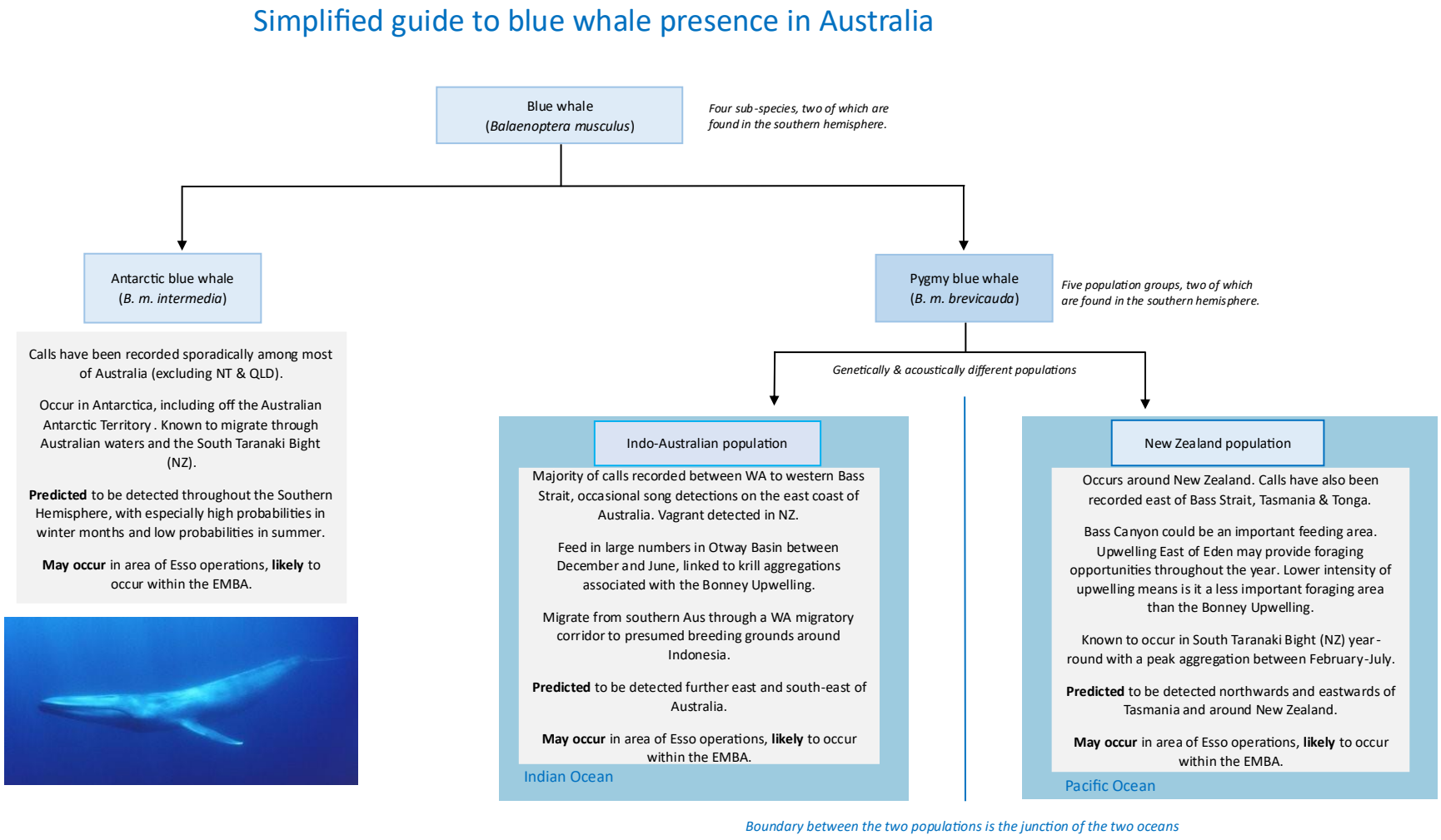



**Figure A-26 Simplified guide to blue whale presence in Australia**

*Diet*

Blue whales have the highest known prey requirements, consuming up to two tonnes of krill per day (DoE, 2015b). Krill is the key to understanding the ecology and behaviour of blue whales. Krill is sensitive to temperature and migrates vertically and horizontally to maintain optimal positioning with respect to nutrients, often being found along thermal fronts and thermoclines. Krill abundance in a given season may be linked to oceanographic conditions of the previous year. The southern Australian krill (*Nyctiphanes australis)* frequently swarm at or near the surface, making it easily available to foraging blue whales. It can also be found at depth, where blue whales must dive to search and consume it. Foraging is energetically expensive for blue whales, which must regularly find sufficient food to balance their enormous energy requirements (Gill., 2020). There are two important seasonal feeding aggregations areas known in Australia where large numbers of PBW have been recorded: the Bonney Coast Upwelling KEF and adjacent waters off South Australia and Victoria (located 230km west of the EMBA); and the Perth Canyon KEF and adjacent waters off Western Australia (located over 2800km west of the EMBA). Prominent surface upwelling commonly occurs west of Portland where the shelf is narrow (the Bonney Upwelling); whereas on the broader shelf between Portland and King Island, upwelling is usually subsurface, with cooler upwelled water beneath a warmer surface layer (Gill., 2020).

*Antarctic blue whale*

The Antarctic blue whale subspecies consists of one or more populations that feed off Antarctica during summer, and limited evidence suggests that some proportion migrate to subtropical latitudes of the Pacific and Indian Ocean to breed. They have been acoustically detected off the West and North coasts of Tasmania predominately from May to December. Based on the seasonality of recordings, these areas possibly form part of their migratory route, breeding habitat or a combination of the two (Commonwealth of Australia, 2015a).

Results of continuous acoustic recordings that took place from January 2016 to February 2018 in the South Taranaki Bight in New Zealand (Barlow, Klinck, Ponirakis, Colberg, & Torres, 2023) noted that the South Taranaki Bight could be a migratory corridor for the Antarctic blue whale. The Antarctic blue whale is predicted to remain consistently within the Southern Hemisphere, with especially high probabilities in winter months (May-August), and low probabilities in summer (December-March) (Branch, et al., 2023).

In light of the findings of Barlow et al. (2023) and Branch et al. (2023), it is likely the Antarctic blue whale will be present within the EMBA.

*Indo-Australian pygmy blue whale*

The distribution and migration patterns of Indo-Australian PBW are relatively well understood in areas further west of the EMBA. Satellite tagging of Indo-Australian PBW by Double et al. (2014) and Möller, et al. (2020) has revealed that the Indo-Australian population migrates from southern Australian foraging grounds through a Western Australian migratory corridor to (presumed) breeding grounds in waters around Indonesia.

In July 2024, revised BIA spatial data became publicly available via the Australian Marine Spatial Information System website. Based on the revised BIA data, the EMBA overlaps with 58.74% of the foraging BIA for the PBW as seen in Figure A-27.

The time and location of the appearance of Indo-Australian PBW generally coincides with the upwelling of cold water in summer and autumn along the Bonney Upwelling and the associated aggregations of krill that they feed on (Gill. & Morrice, 2003). The Bonney Upwelling generally starts in the eastern part of the Great Australian Bight in November or December and spreads eastwards to the Otway Basin around February as southward migration of the subtropical high-pressure cell creates upwelling favourable winds. Sighting data indicates that blue whales are seasonally distributed (Gill, et al., 2011) (McCauley, Gavrilov, Jolliffe, Ward, & Gill, 2018).

Barlow et al. (2023) detected the Indo-Australian PBW song during a 10-day period in January 2017, implying a rare vagrant occurrence. The modelling predicts that the distribution of the Australian PBW is further westward of Western Australia, further south along the Great Australian Bight and Indian Ocean, south eastward towards the Bass Strait and Tasmania and even as far as New Zealand (Branch, et al., 2023).

In light of the findings of Barlow et al. (2023) and Branch et al. (2023), it is likely the Indo-Australian PBW will be present within the EMBA.

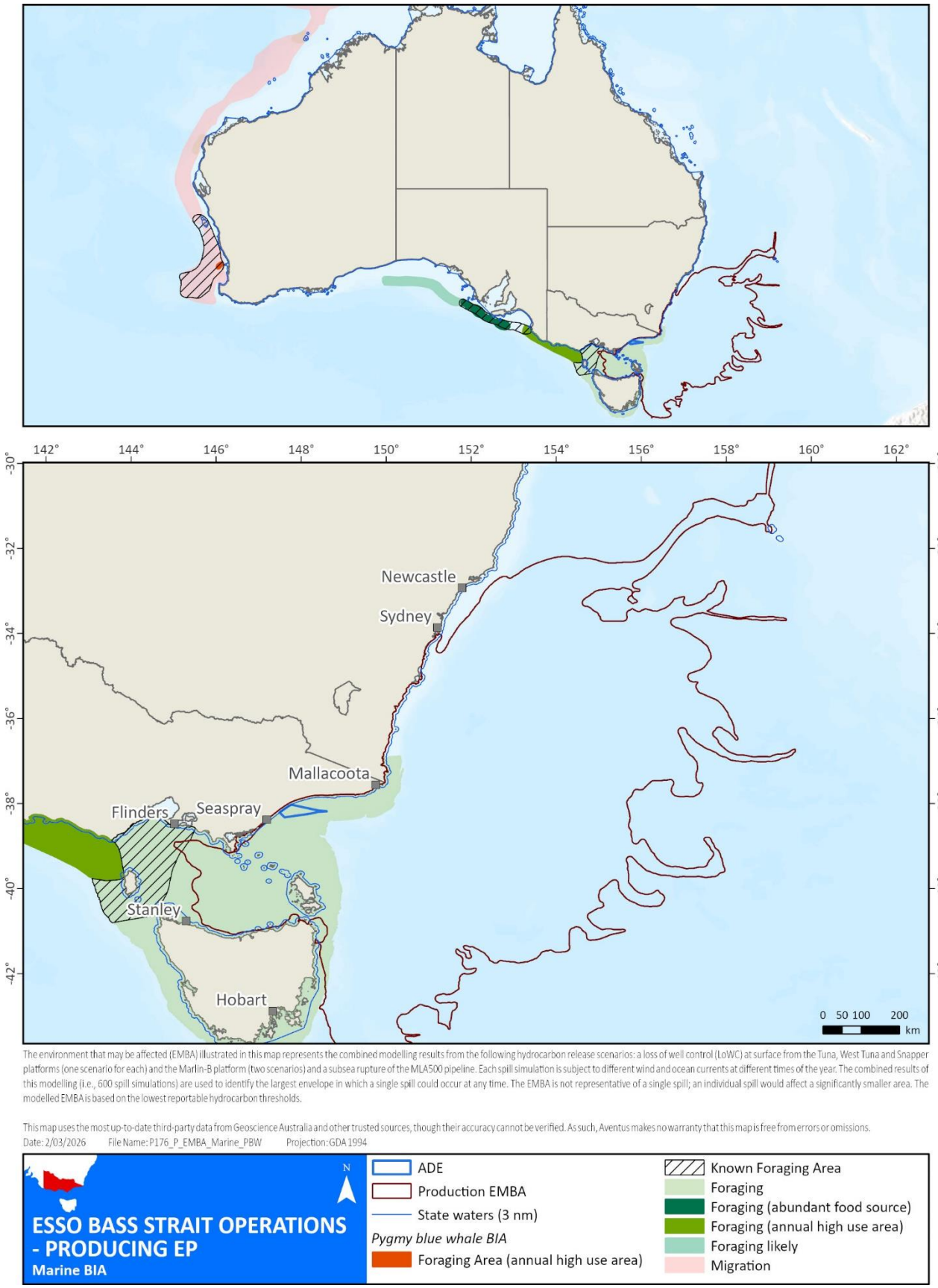



**Figure A-27 PBW foraging BIAs intersected by the EMBA**

#### A.1.4.5.3 New Zealand pygmy blue whale

Relatively little is known about New Zealand PBW. Antarctic blue whales are known to co-occur with PBW around New Zealand. Antarctic blue whale detections peaked during austral winter and spring, indicating that New Zealand, and the South Taranaki Bight in particular, is a migratory corridor for them. Some Antarctic blue whale calls were also detected during the breeding season (September and October). PBW calls were highly concentrated in the South Taranaki Bight, particularly between March and May, suggesting that an aggregation may occur here (Warren, McPherson, Giorli, Goetz, & Radford, 2021).

The Upwelling East of Eden KEF is located within the EMBA and is a recognised upwelling system. Upwelling influence areas were mapped between September and May (austral spring, summer and autumn) each year for a period of 14 years (September 2002 to May 2016) along 4500km of the southeastern coast of Australia using monthly MODIS sea surface temperature data (Huang & Hua Wang, 2019).

The study confirmed that there were three seasonal/semi-seasonal upwelling centres: the Bonney Upwelling; the Kangaroo Island Upwelling; and the Eyre Peninsula Upwelling, in the western Victorian and South Australian coastal upwelling system. The NSW coastal upwelling system is a persistent/semi-persistent system occurring continuously from austral spring to autumn, although during mid to late autumn the upwelling may be either lacking or isolated and restricted to the coast. The intensity of the southern NSW/eastern Victorian upwelling system, centred on the Eden upwelling, has a less distinct seasonal pattern (Figure A-28) (Huang & Hua Wang, 2019).

Barlow et al. (2023) states that despite extensive acoustic recordings in eastern Australia, Bass Strait and Tonga, the New Zealand population has rarely been being detected in these locations. The New Zealand PBW is anticipated to be distributed northwards and eastwards of Tasmania (including Bass Strait and the eastern coast of Australia), and around New Zealand (Branch, et al., 2023).

In light of the findings of Barlow et al. (2023) and Branch et al. (2023), it is likely the New Zealand PBW is present within the EMBA.

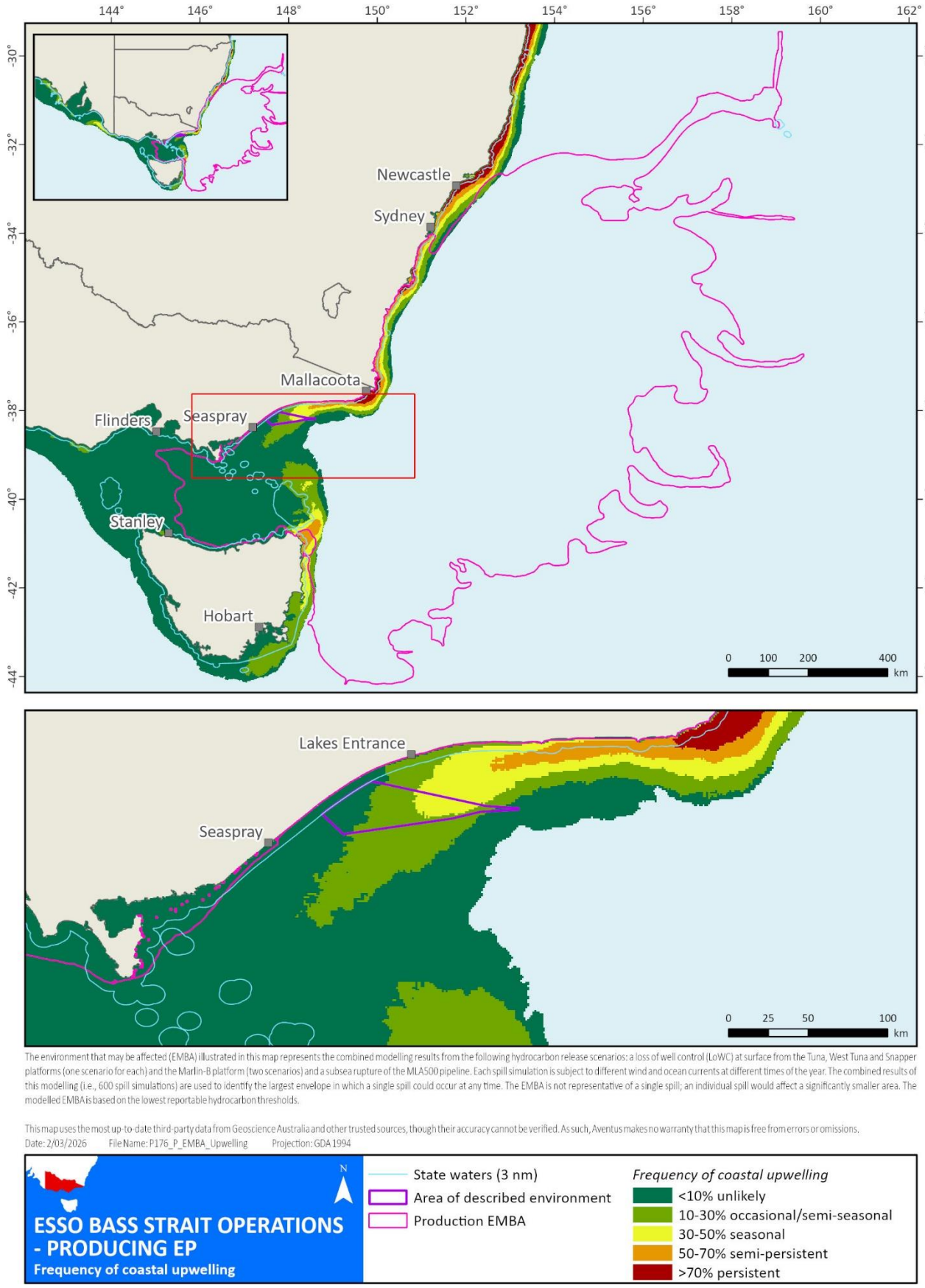



**Figure A-28 Upwelling frequency (Huang & Hua Wang, 2019)**

#### A.1.4.5.4 Humpback whales

Humpback whales undergo a northbound (June-July) and southbound migration (August-October) route every year along the east coast. North-bound migration leads to tropical calving grounds, with high numbers occurring from June to October. The EMBA overlaps the north and south migration route. While the main migration route of this species is along the east coast of Australia along the continental shelf to the east of Bass Strait, some animals migrate through Bass Strait. Humpback whales do not feed, breed, or rest in Bass Strait and the Victorian coastal waters are not a key location for this whale species (Bannister, 1996).

Most feeding grounds are south of Australian waters (TSSC, 2022). A BIA for migration has been identified along the east coast of Australia which is overlapped by the EMBA (Figure A-29). Humpback whales in the Southern Hemisphere primarily feed on Antarctic krill (*Euphausia superba*). While most feeding grounds are south of Australian waters, there are some feeding grounds that are regularly used on the southern migration in Australian coastal waters: off the coast of Eden in NSW, and east coast of Tasmania (TSSC, 2022).

In late February 2022, the humpback whale *(Megaptera novaeangliae)* was removed from the vulnerable category and now holds no threatened status under the EPBC Act. The Department of Agriculture, Water and the Environment (DAWE) listing advice (DAWE, 2022) states that humpback whales have been recovering strongly for the past five decades, since their severe decline due to commercial whaling which ceased in 1963. However, they remain a Matters of National Environmental Significance under the EPBC Act as a listed migratory species, and the species remains listed as a cetacean, where it is an offence to kill, injure, take, trade, keep, move, or interfere with a cetacean (DAWE, 2022).

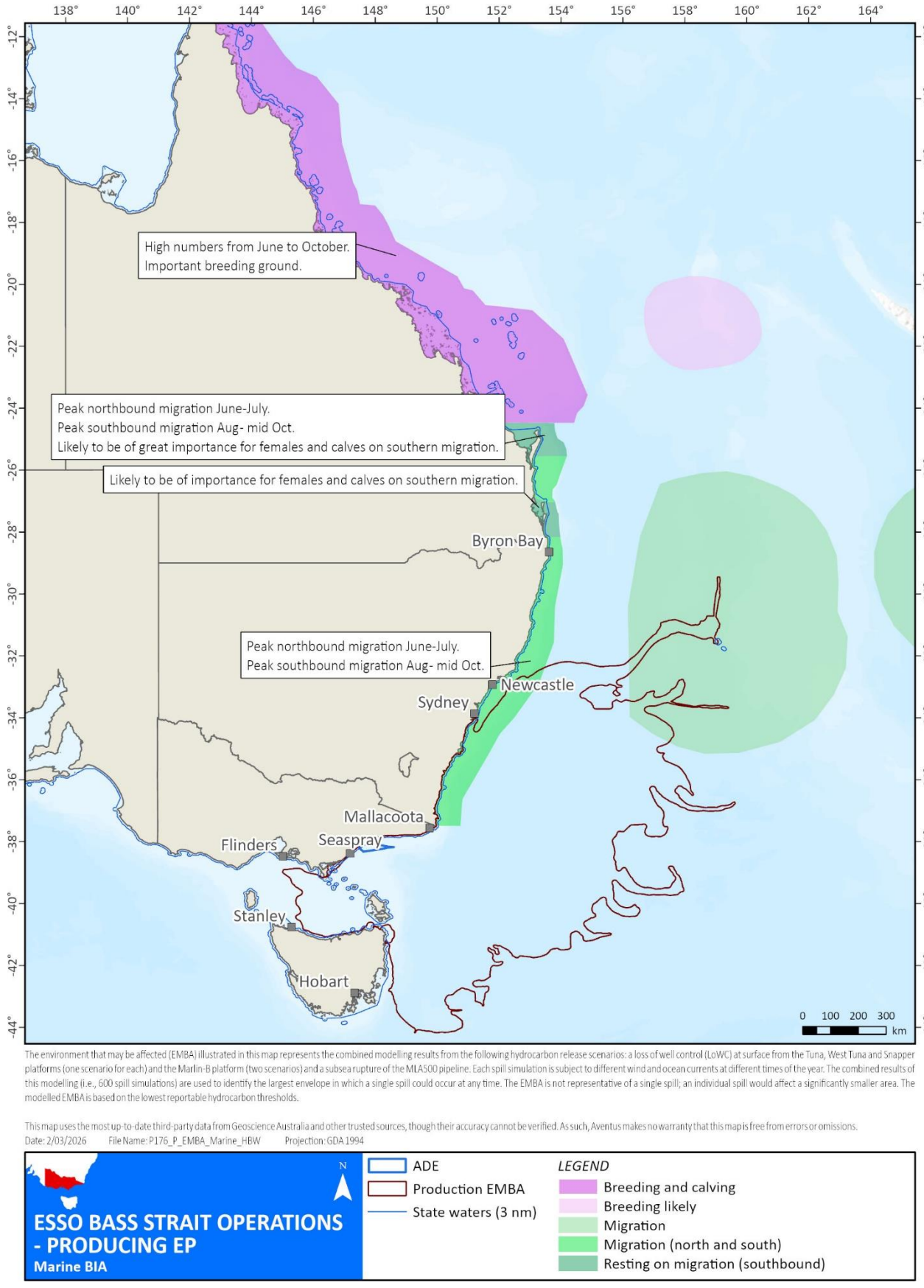



**Figure A-29 Humpback whale BIAs intersected by the EMBA**

#### A.1.4.5.5 Pygmy right whale

Records of pygmy right whales (*Caperea mariginata* ) in Australian waters are distributed between 32° S and 47° S but are not uniformly spread around the coast (DCCEEW, 2023b). Areas of coastal upwelling events appear to be an important component regulating pygmy right whale distribution. Pygmy right whales have primarily been recorded in areas associated with upwellings and with high zooplankton abundance, which constitute their main prey. There is some evidence to indicate that the area south of 41°S is important for weaned pygmy right whales, possibly because of the higher prey abundance in these waters (DCCEEW, 2023b).

#### A.1.4.5.6 Sperm whale

Sperm whales (*Physeter macrocephalus*) are the largest of the toothed whales and are generally found in pods of up to 50 individuals (DCCEEW, 2023b). Sperm whales have a global distribution. They generally inhabit deeper oceanic waters with a water depth of 600m or more and are uncommon in waters less than 300m (DCCEEW, 2023b). The PMST indicates that the species may occur within the EMBA. No BIAs for the species are recorded in the EMBA.

#### A.1.4.5.7 Antarctic minke whale

The Antarctic minke whale *(Balaenoptera bonaerensis)* is more robust than the other large baleen whales. The maximum length of Antarctic minke whales appears to be around 9.8m. Antarctic minke whales are not gregarious and tend to swim alone or in pairs, although large feeding groups of up to 400 individuals may form in the higher latitudes (DCCEEW, 2023b). Minke whales are known to be curious, often approaching boats from a distance.

Antarctic minke whales have been recorded in all Australian States but not in the Northern Territory. The paucity of records obscures the determination of the range of Antarctic minke whales along the Australian coast, although they are known to occur north to 21°S off the east coast. The distribution up the west coast of Australia is currently unknown. The current extent of occurrence for Antarctic minke whales is estimated to be greater than 20,000km$^2$ (based on the Australian Economic Exclusion Zone) (DCCEEW, 2023b).

#### A.1.4.5.8 Bryde's whale

The Bryde's whale (*Balaenoptera brydei*) is restricted to tropical and temperate waters and has been recorded off all Australian States with exception of the Northern Territory (Bannister, 1996). Bryde's whales can be found in both oceanic (500 to 1000m isobath) and inshore waters (<200m isobath) (DCCEEW, 2023b). Population estimates are not available for Bryde's whales, globally or in Australia, and no migration patterns have been documented in Australian waters (DCCEEW, 2023b). Bryde's whale is considered to be a fairly opportunistic feeder and it appears that the coastal and offshore forms may be distinguished by their prey preferences, with the smaller coastal form feeding on schooling fishes, such as Australian pilchard *(Sardinops sagax),* anchovy, mackerel *(Scomberomorus commerson)*, herring and others. In contrast, the larger offshore form appears to feed on small crustaceans, such as euphausids, copepods, pelagic red crabs *(Pleuroncodes planipes)* and cephalopods.

#### A.1.4.5.9 Sei whale

Sei whales have been infrequently recorded in Australian waters; however occasional sightings have been recorded off Tasmania, NSW, Queensland and within the Great Australian Bight (DCCEEW, 2023b). Sei whales typically feed between the Antarctic and Subtropical convergences, and their diet is planktonic crustacea, in particular copepods and amphipods. However, they have also been observed feeding on the continental shelf in the Bonney upwelling region during November and May, suggesting the area may be used for opportunistic feeding (DCCEEW, 2023b).

#### A.1.4.5.10 Fin whale

The distribution of fin whales *(Balaenoptera physalus)* in Australian waters is uncertain, but they have been recorded in Commonwealth waters off most States (the species is rarely found in inshore waters) (DCCEEW, 2023b). Fin whales frequently lunge or skim feed, at or near the surface, feeding on planktonic crustacea, some fish and cephalopods (DCCEEW, 2023b). Fin whales generally feed in high latitudes, however depending upon prey availability and locality, it may also feed in lower latitudes. Fin whales have been observed in waters off the Bonney Upwelling during November and May, suggesting the region may be used for opportunistic feeding (DCCEEW, 2023b). Fin whales have also been detected acoustically south of Portland, Victoria (Erbe, McCauley, Gavrilov, Madhusudhana, & Verma, 2016).

Table A-6 lists the relevant threats (as identified by relevant management plans/listing advice/conservation advice) to threatened whale species that may occur within the EMBA.

**Table A-6 Key threats to threatened whale species relevant to the activity**

| Common name | Conservation advice or management plan | Key threats (relevant to the activity) |
|---|---|---|
| Sei whale | Approved Conservation Advice for sei whale (*Balaenoptera borealis*) (DAWE, 2015b) | • Anthropogenic noise and acoustic disturbance<br>• Habitat degradation including pollution<br>• Pollution (persistent toxic pollutants)<br>• Vessel strike |
| Blue whale | *Conservation Management Plan for the Blue Whale* (Commonwealth of Australia, 2015b) | • Noise interference<br>• Habitat modification from marine debris or chemical discharge<br>• Vessel strike |
| Fin whale | Approved Conservation Advice for fin whale (*Balaenoptera physalus)* (DAWE, 2015a) | • Anthropogenic noise and acoustic disturbance<br>• Pollution (persistent toxic pollutants)<br>• Vessel strike |
| SRW | *National Recovery Plan of the Southern Right Whale (Eubalaena australis)* (DCCEEW, 2024c) | • Entanglement<br>• Vessel strike<br>• Noise Interference<br>• Habitat modification |
| Humpback whale | Approved Listing Advice for humpback whale (*Megaptera novaeangliae)* (DAWE, 2022) | • Noise interference<br>• Vessel disturbance and strike<br>• Habitat degradation |

#### A.1.4.5.11 Killer whale

The killer whale (the largest member of the dolphin family) is thought to be the most cosmopolitan of all cetaceans and appear to be more common in cold, deep waters, though they have often been observed along the continental slope and shelf particularly near seal colonies (Bannister, 1996). The killer whale is widely distributed from polar to equatorial regions and has been recorded in all Australian waters with concentrations around Tasmania. The only recognised key locality in Australia is Macquarie Island and Heard Island in the Southern Ocean (outside the EMBA) (Bannister, 1996).

The habitat of killer whales includes oceanic, pelagic and neritic (relatively shallow waters over the continental shelf) regions, in both warm and cold waters (DCCEEW, 2023b). The breeding season is variable, and the species moves seasonally to areas of food supply (Bannister, 1996) (Morrice, 2004).

#### A.1.4.5.12 Dusky dolphin

The dusky dolphin (*Lagenorhynchus obscurus*) is rare in Australian waters and is primarily found from approximately 55°S to 26°S, though sometimes further north associated with cold currents. They are considered to be primarily an inshore species but can also be oceanic when cold currents are present (Gill & Wapstra, 2000).

Only 13 reports of the dusky dolphin have been made in Australia since 1828 (the very first described specimen of the species by French naturalists was from off the coast of Tasmania in 1826 and key locations are yet to be identified (Bannister, 1996). The dusky dolphin occurs across southern Australia from Western Australia to Tasmania and there are confirmed sightings near Kangaroo Island, South Australia, and off Tasmania. No key localities or critical habitats in Australian waters have been identified (Bannister, 1996).

#### A.1.4.5.13 Indo-Pacific bottlenose dolphin

The Indo-Pacific bottlenose dolphin is distributed continuously around Australia (DCCEEW, 2023b). The Indo-Pacific bottlenose dolphin occurs mainly in riverine and shallow coastal waters (on the shelf or around oceanic islands) (DSEWPAC, 2012e). Known populations include Jervis Bay, Twofold Bay, and Phillip Bay (DSEWPAC, 2012e)(all of which are within the EMBA). Calving peaks occur in spring and summer or spring and autumn (DCCEEW, 2023b). Gestation lasts approximately 12 months, so peak mating period coincides with peak calving period in each location (DCCEEW, 2023b). A BIA for reproduction for the Indo-Pacific bottlenose dolphin has been identified within NSW coastal waters (within the EMBA). A BIA for foraging also exists within the EMBA around Newcastle (Figure A-30) (DCCEEW, 2024b).




**Figure A-30 Indo-Pacific bottlenose dolphin BIAs intersected by the EMBA**

### *A.1.4.6 Sirenia*

The dugong is the only species in the Dugongidae family and one of four species in the Order Sirenia. It is most closely related to Steller's sea cow (*Hydrodamalis gigas*), which is extinct (Marsh, Penrose, Eros, & Hugues, 2002).

The dugong or its habitat may occur along the coast of NSW in the EMBA. BIAs for the dugong are in the northwest of Australia and do not occur in the EMBA.

Dugongs occur in coastal and inland waters from Shark Bay in Western Australia (25°S) across the northern coastline to Moreton Bay in Queensland (27°S) (Marsh, O'Shea, & Reynolds, Ecology and Conservation of the Sirenia: Dugongs and Manatees, 2011) (Marsh, Penrose, Eros, & Hugues, 2002). The winter range includes about 24,000km of Australia's coast, which represents about 19% of the global extent of occurrence along coastline habitats (Marsh, O'Shea, & Reynolds, Ecology and Conservation of the Sirenia: Dugongs and Manatees, 2011). Stranded dugongs have been recorded as far south as approximately 36.5°S on the east coast, with occasional sightings south to 32 - 33.5°S (Newcastle region) in summer. In NSW the dugongs were sighted in coastal and estuarine waters around Wallis Lake, Port Stephens, Lake Macquarie and Brisbane Water in the summer of 2002/2003 (Allen, Marsh, & Hodgson, 2004). These areas are associated with some of the largest seagrass beds in NSW, some of which contain the *Halophila* seagrass species. The presence of dugongs in these areas at this time coincided with warm water temperatures (>18°C).

### *A.1.4.7 Pinnipeds*

Two species of pinnipeds were detected by the PMST as potentially occurring in the EMBA. Neither of which are threatened or migratory.

Several sightings of fur seals were reported by AIMS (McLean, et al., 2025) during the study. Both species are described here.

#### A.1.4.7.1 Australian fur seal

Australian fur seals are known to utilise Esso's subsea structures (such as pipelines) and platform steel jackets above the water.

A study that assessed the spatial habitat area-use, foraging success and prey consumption of nine adult female Australian fur seals from Kanowna Island (Arnould & Mathews, 2024) found that all individuals displayed hot-spots of habitat area-use in relatively proximity to sea floor infrastructure (platforms, wells, pipelines). However, not all hot spot activity resulted in higher foraging effort, meaning that high-use areas may reflect where individuals were resting at the surface rather than in active foraging (Arnould & Mathews, 2024).

Australian fur seals are endemic to southeastern Australian waters and have a relatively restricted distribution around the rocky islands of Bass Strait (Figure A-31). It is estimated that there are 60,000 Australian fur-seals in Bass Strait and the waters around Tasmania. The species has been recorded in the waters off South Australia, Victoria, Tasmania, and NSW and are the only species of seal known to breed on Victorian and Tasmanian islands in Bass Strait (Kirkwood, Warneke, & Arnould, Recolonization of Bass Strait, Australia, by the New Zealand fur seal, Arctocephalus forsteri, 2009).

There are 10 established breeding colonies of the Australian fur seal that are restricted to islands in the Bass Strait; six occurring off the coast of Victoria and four off the coast of Tasmania (Kirkwood, Warneke, & Arnould, Recolonization of Bass Strait, Australia, by the New Zealand fur seal, Arctocephalus forsteri, 2009). The largest of the established colonies occur at Lady Julia Percy Island (26% of the breeding population and 220km west of the EMBA). Not within the EMBA.

Seal Rocks adjacent Phillip Island 25% of the breeding population, in Victoria is within the EMBA.

Other Australian fur seal breeding colonies in Bass Strait and within the EMBA include (Figure A-31):

- Rag Island (1000 adults and 270 pups in 2007)
- Kanowna Island (15,000 adults and 3000 pups)
- The Skerries (11,500 adults and 3000 pups in 2002)
- Judgment Rock in the Kent Group (approximately 2500 pups per year) (Kirkwood, Warneke, & Arnould, Recolonization of Bass Strait, Australia, by the New Zealand fur seal, Arctocephalus forsteri, 2009) (Shaughnessy, 1999) (OSRA, 2015).

Barton (2012), Carlyon (2011) and OSRA (2015) list the haul-out sites known in Bass Strait all of which are within the EMBA (Figure A-31):

- Beware Reef (a haul-out site where the seals are present most of year)
- Gabo Island (30 - 50 individuals)
- The Hogan Group (approximately 300 individuals).

Australian fur seals have a relatively restricted distribution around the islands of Bass Strait where it is the most common seal (Kirkwood, et al., 2006). Adult tagged seals have shown travel paths from Flinders Island to King Island presumably passing through central Bass Strait. Their preferred habitat, especially for breeding, is a rocky island with boulder or pebble beaches and gradually sloping rocky ledges.

During the summer months Australian fur seals are observed repeatedly travelling between northern Bass Strait islands and southern Tasmania waters following the Tasmanian east coast. Lactating female fur seals and some territorial males are restricted to foraging ranges within Bass Strait waters. Lactating female Australian fur-seals forage primarily within the shallow continental shelf of Bass Strait.

Australian fur seals forage on benthos at depths of between 60m and 80m according to Hume (2003) Kirkwood (2007) Robinson (2008) and generally within 100 - 200km of the breeding colony for up to five days at a time (Hume, Hindell, Pemberton, & Gales, 2003). The lactation period lasts for between 10 and 11 months and some females may nurse pups for up to three years (Arnould & Hindell, Dive behaviour, foraging locations, and maternal-attendance patterns of Australian fur seals (arctocephalus pusillus doriferus), 2001).

Male Australian fur seals are bound to colonies during the breeding season from late October to late December. Outside the breeding season they forage up to several hundred kilometres and are away for long periods even up to nine days (Kirkwood, et al., 2006). The sexes generally forage in the same environment with Kirkwood (2006) suggesting that males target different prey than females as observed in similar New Zealand fur seals where males prey on larger fish and seabird species compared to females. Considering the locations of known breeding and haul-out sites within the EMBA, it is likely the species will be encountered.

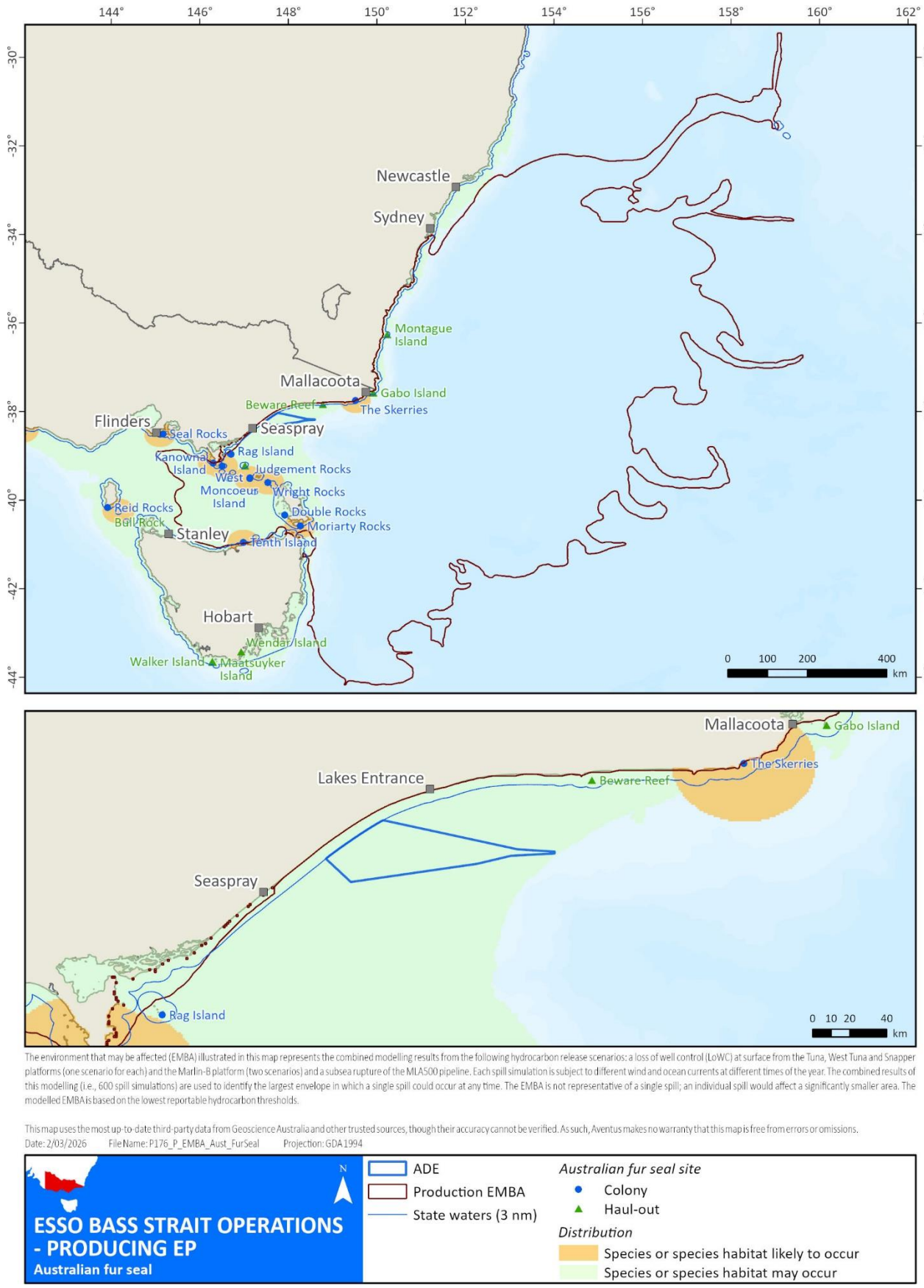



**Figure A-31 Australian fur seal distribution, breeding colonies and haul-out sites within the EMBA**

#### A.1.4.7.2 New Zealand fur seal

New Zealand fur seals also sometimes referred to as long nosed fur seals) are mostly found in central south Australian waters (Kangaroo Island to South Eyre Peninsula), with 77% of their population found here (outside the EMBA) (Shaughnessy, 1999).

There are 51 known breeding sites for New Zealand fur seals in Australia, with most of these outside of Victoria (47 in South Australia and Western Australia) as outlined in Kirkwood (2007), with lower density breeding areas occurring in Victoria (Shaughnessy, 1999). Breeding locations in Victoria occur at Kanowna Island, off Wilsons Promontory and The Skerries both are located within the EMBA (Kirkwood, Warneke, & Arnould, Recolonization of Bass Strait, Australia, by the New Zealand fur seal, Arctocephalus forsteri, 2009). Lady Julia Percy Island is also a known breeding site for the New Zealand fur seal (267km west of the EMBA) (Figure A-32).

During the non-breeding season (November to January) the breeding sites are occupied by pups/young juveniles, whilst adult females alternate between the breeding sites and foraging at sea (Shaughnessy, 1999).

New Zealand fur seals feed on small pelagic fish, squid, and seabirds, including little penguins (Shaughnessy, 1999). Juvenile seals feed primarily in oceanic waters beyond the continental shelf. Lactating females feed in mid-outer shelf waters (50 - 100km from the colony) and adult males forage in deeper waters.

In 2005 - 2006, New Zealand fur seal pup production at the 40 known Australian breeding colonies was estimated at 17,600 pups, equivalent to approximately 35,000 breeding females (Chilvers & Goldsworthy, 2015). The population has been slow to recover from the previous intense sealing operations from 1798 to 1820, partially as the species are slow reproducers, producing one pup per year when they reach sexual maturity at four years. Up to 15% of pups die before they reach two months of age, primarily because of fishing net and other marine debris entanglements.

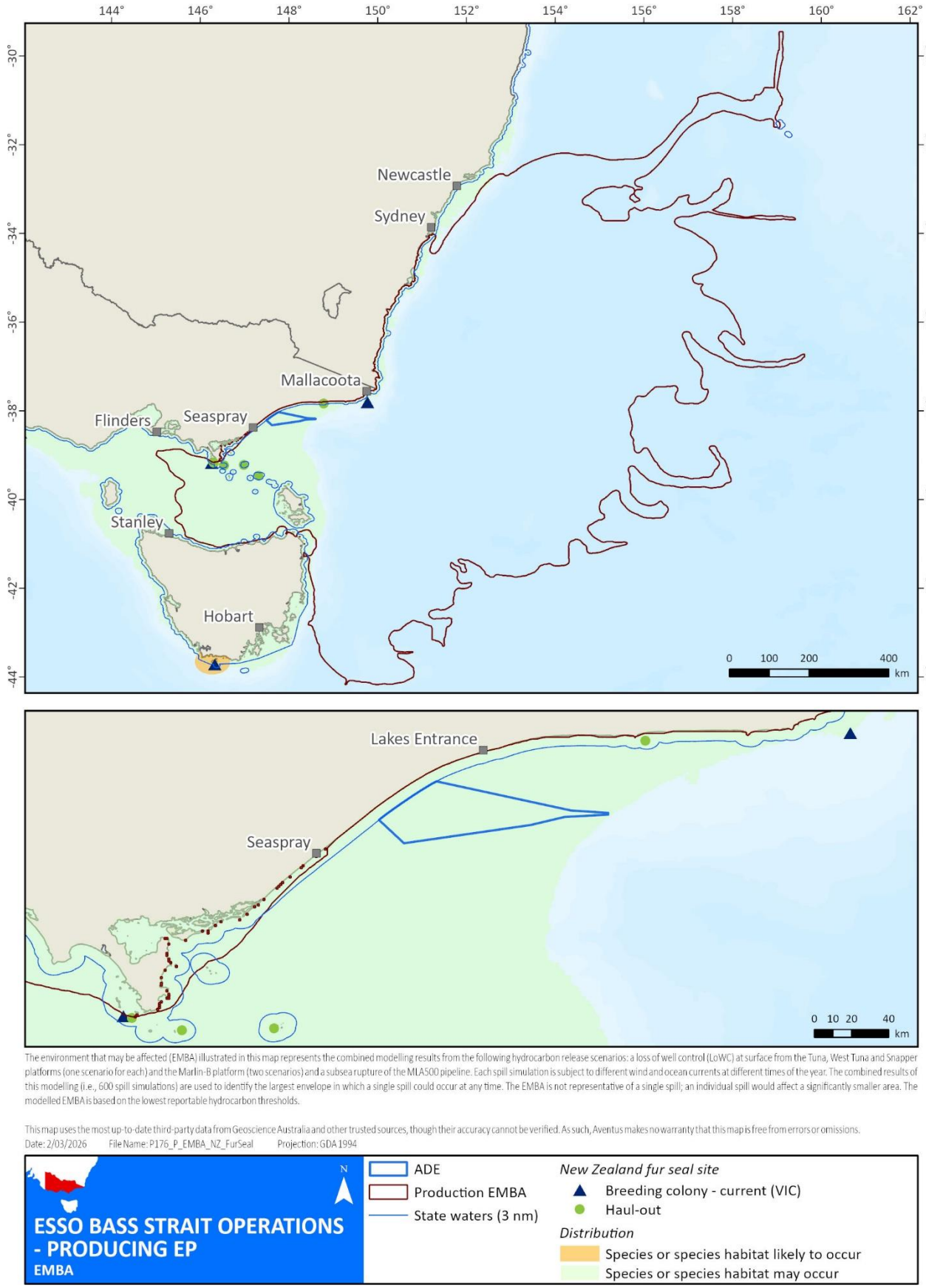
Haul-out sites in Bass Strait, as reported by (Barton, Pope, & Howe, 2012) and (OSRA, 2015), all of which are within the EMBA, (Figure A-32) are:

- Beware Reef
- Kanowna Island
- The Hogan Islands Group
- West Moncoeur Island.

The species prefers the rocky parts of islands with jumbled terrain and boulders and prefers smoother igneous rocks to rough limestone. Breeding colonies in Bass Strait recorded by Shaughnessy P (1999) and Oil Spill Response Atlas mapping, all of which are within the EMBA, (Figure A-32) are:

- Rag Island (1000 adults and 235 pups in 2006)
- Kanowna Island (10,700 adults and 2700 pups)
- The Skerries (300 adults and 78 pups in 2002)
- Judgment Rock in the Kent Group (approximately 2500 pups per year) (Kirkwood, Warneke, & Arnould, Recolonization of Bass Strait, Australia, by the New Zealand fur seal, Arctocephalus forsteri, 2009).

There is no BIAs for the New Zealand fur-seal in Bass Strait. Considering the locations of known breeding and haul-out sites within the EMBA, it is likely the species will be encountered.




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_NZ_FurSeal Projection: GDA 1994

**Figure A-32 New Zealand fur seal distribution, breeding colonies and haul-out sites within the EMBA**

### *A.1.4.8 Turtles*

Adult marine turtles spend the majority of their lives in the ocean, typically only coming onshore to nest. Females can lay (on average) between two and six clutches per season: with the period between clutches known as the inter-nesting period. Female turtles typically remain close to the same nesting site during an inter-nesting period. Egg incubation varies between species but is typically two months (DoEE, 2017). Hatchlings disperse into oceanic currents, and the juveniles will stay in pelagic waters until large enough to settle into coastal feeding habitats. Leatherback turtles *(Dermochelys coriacea)* are an exception to these general patterns, often exhibiting larger inter-nesting zones, and travelling vast distances to forage rather than settling in a coastal habitat (DoEE, 2017). Flatback turtles *(Natator depressus)* also lack an oceanic phase and remain in the surface waters of the continental shelf.

There are five marine turtle species (or species habitat) that may occur within the EMBA. All of which are described below. Table A-7 shows the key threats (as identified in the *Recovery Plan for Marine Turtles in Australia* (DoEE, 2017)) relevant to the activity for threatened turtles that may occur within the EMBA.

**Table A-7 Key threats to threatened turtle species relevant to the activity**

| Common name | Recovery plan | Key threats (relevant to the activity) |
|---|---|---|
| Loggerhead turtle | *Recovery Plan for Marine Turtles in Australia* (DoEE, 2017). | • Marine debris<br>• Chemical discharge<br>• Light pollution<br>• Habitat modification<br>• Vessel disturbance<br>• Noise interference |
| Green turtle | | |
| Leatherback turtle | | |
| Hawksbill turtle | | |
| Flatback turtle | | |

#### A.1.4.8.1 Loggerhead turtle

The loggerhead turtle *(Caretta caretta)* has a global distribution throughout tropical, sub-tropical and temperate waters; and in Australia typically occurs in the waters of coral and rocky reefs, seagrass beds, or muddy bays throughout eastern, northern, and western Australia (DCCEEW, 2023b). Loggerhead turtles are carnivorous, feeding primarily on benthic invertebrates. While the species has a broad foraging range throughout Australian waters, nesting is known to occur (from two different genetic stocks) on sandy beaches on the central western and eastern coasts (DCCEEW, 2023b) . The eastern Australian population is smaller than the western Australian population; and has also undergone a decline from approximately 3500 nesting females in 1977, to approximately 500 nesting females in 2000 (DCCEEW, 2023b). No nesting or inter-nesting, critical habitat, or BIAs have been identified for the loggerhead turtle within the EMBA.

#### A.1.4.8.2 Green turtle

Green turtles are found in tropical and subtropical waters throughout the world; usually occurring within the 20°C isotherms, although individuals can stray into temperate waters (DCCEEW, 2023b). Within Australia, green turtles typically nest, forage and migrate across tropical northern Australia (DCCEEW, 2023b). The total Australian population of green turtles is approximately 70,000 individuals, with approximately 8000 of these found in the southern Great Barrier Reef area. Adult green turtles consume mainly seagrass and algae, although they will occasionally eat mangroves, fish-egg cases, jellyfish, and sponges; juvenile green turtles are typically more carnivorous and will also consume plankton during their pelagic stage (DCCEEW, 2023b). No nesting or inter-nesting, critical habitat, or BIAs, have been identified for the green turtle within the EMBA.

#### A.1.4.8.3 Leatherback turtle

The leatherback turtle has the widest distribution of any marine turtle, occurring in tropical to sub-polar oceans (TSSC, 2008). In Australia, the leatherback turtle has been recorded foraging in all Australian States, but no large nesting populations have been recorded (TSSC, 2008). The leatherback turtle is a highly pelagic species, venturing close to shore mainly during the nesting season (DCCEEW, 2023b). Adults feed mainly on pelagic soft-

bodied creatures such as jellyfish, tunicates, salps, squid (DCCEEW, 2023b). No nesting or inter-nesting, critical habitat, or BIAs, have been identified for the leatherback turtle within the EMBA.

#### A.1.4.8.4 Hawksbill turtle

The hawksbill turtle is found in tropical, subtropical, and temperate waters all around the world (DCCEEW, 2023b). hawksbill turtles are omnivorous, feeding on sponges, hydroids, cephalopods (octopus and squid), gastropods (marine snails), cnidarians (jellyfish), seagrass and algae (DCCEEW, 2023b). During their pelagic phase (while drifting on ocean currents), young hawksbill turtles will feed on plankton. Hawksbill turtles that forage on the Great Barrier Reef migrate to neighbouring countries including Papua New Guinea, Vanuatu, and the Solomon Islands; it is not known from which stock hawksbill turtles foraging in NSW originate (DCCEEW, 2023b). No nesting or inter-nesting, critical habitat, or BIAs, have been identified for the hawksbill turtle within the EMBA.

#### A.1.4.8.5 Flatback turtle

The flatback turtle is found in tropical waters of northern Australia and is one of only two species of sea turtle without a global distribution (DCCEEW, 2023b). All known nesting locations for this species are within Australia (DCCEEW, 2023b). Flatback turtles are primarily carnivorous, feeding on soft-bodied invertebrates; juveniles eat gastropod molluscs, squid, siphonophores *(Physalia utriculus).* Limited data also indicate that cuttlefish, hydroids, soft corals, crinoids, molluscs and jellyfish may also form part of their diet (DCCEEW, 2023b). No nesting or inter-nesting, critical habitat, or BIAs, have been identified for the flatback turtle within the EMBA.

### *A.1.4.9 Birds*

Birds in the marine environment can include both seabirds and shorebirds.

Seabirds refers to those species of bird whose regular habitat and food sources are derived from the ocean (both coastal and pelagic); seabirds include such species as pelicans, gannets, cormorants, albatrosses, and petrels. Seabirds spend much of their lives at sea in search of prey only to return for a short time to breed and raise chicks. Most species tend to forage on their own, though large feeding flocks will gather at rich or passing food sources. Squid, fish, and krill are common sources of food.

Shorebirds (sometimes referred to as wading birds) refers to those species of bird commonly found along sandy or rocky shorelines, mudflats, and shallow waters; shorebirds include such species as plovers and sandpipers. Shorebirds spend most of their time (nesting, feeding, and breeding) on the shoreline and don't swim.

There are 138 seabird and shorebird species (or species habitat) that may occur within the EMBA; this includes species classified as threatened and migratory (See Appendix B and Appendix D for the full PMST report).

The coast and neighbouring islands within the EMBA provide feeding and nesting habitats for many coastal and migratory bird species.

Many of the birds listed in Appendix B are listed in the following international conventions that aim to protect the birds themselves and their habitat:

- Republic of Korea Migratory Birds Agreement 2006
- Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment 1986
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979
- Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment 1974
- Convention on Wetlands of International Important especially as Waterfowl Habitat 1971 (Ramsar Convention).

#### A.1.4.9.1 Albatrosses and petrels

The PMST report detected 16 albatross and 16 petrel species (see Appendix B) that have the potential to occur within the EMBA. BIAs for several albatross and petrel species are shown in Figure A-33, Figure A-34, Figure A-35, Figure A-36 and Figure A-37.

Albatrosses and petrels are mostly surface capturing, pelagic predators that feed on live and dying prey. Their ability to dive varies across species and involves either surface plunge dives or shallow dives to catch prey (generally <15m deep). Both species are wide-ranging, opportunistic predators, individuals will forage singly and

will then aggregate in larger numbers where there is a rich food source. They prefer to feed during the day or at night (often by moonlight) (Commonwealth of Australia, 2022).

Albatrosses and petrels have a diverse diet, depending on the availability of food, including cephalopods, crustaceans, cyclostomes, fish, and tunicates, although diet is not well known for several species. Both species have a tendency to follow fishing vessels. Competition for fishers discards and baited hooks can be intense with smaller birds subject to secondary attacks by other larger birds (Commonwealth of Australia, 2022).

Albatross and petrel species occurring in Australia's jurisdiction predominantly breed on remote, offshore islands in the higher latitudes, apart from the northern royal albatross (detected in the PMST), westland petrel *(Procellaria westlandica)* (not detected in the PMST) that breed on the south island of New Zealand and the white-faced storm petrel which overlaps the EMBA as shown in Figure A-37 (Commonwealth of Australia, 2022).

Albatrosses and petrels are extremely site faithful. The remote offshore islands (Table A-8) should be regarded as habitat that is potentially critical to the survival of albatrosses and petrels in Australia.

**Table A-8 Albatross and petrel breeding site locations in Australia's jurisdiction**

| Site | Species | Distance to the EMBA | Size (ha) |
|---|---|---|---|
| Albatross Island | Shy albatross. | 67km west | 33 |
| Mewstone | Shy albatross. | 197km southwest | 13 |
| Pedra Branca | Shy albatross. | 148km south | 2.5 |
| Macquarie Island | Black-browed albatross, grey-headed albatross *(Thalassarche chrysostoma),* grey petrel *(Procellaria cinerea),* light-mantled albatross *(Phoebetria palpebrate),* wandering albatross, northern giant petrel, southern giant petrel *(Macronectes giganteus).* | 1310km southeast | 13,000 |
| Bishop and Clerk Islets | Black-browed albatross. | 1354km southeast | 60 |
| Heard Island | Black-browed albatross, light-mantled albatross, southern giant petrel. | 5407km southwest | 36,800 |
| McDonald Islands | Black-browed albatross, light-mantled albatross, southern giant petrel. | 5463km southwest | 360 |
| Giganteus Island | Southern giant petrel. | 5436km southwest | 16 |
| Hawker Island | Southern giant petrel. | 4788km southwest | 190 |
| Frazier Islands | Southern giant petrel. | 3394km southwest | 60 |

Source: (Commonwealth of Australia, 2022)

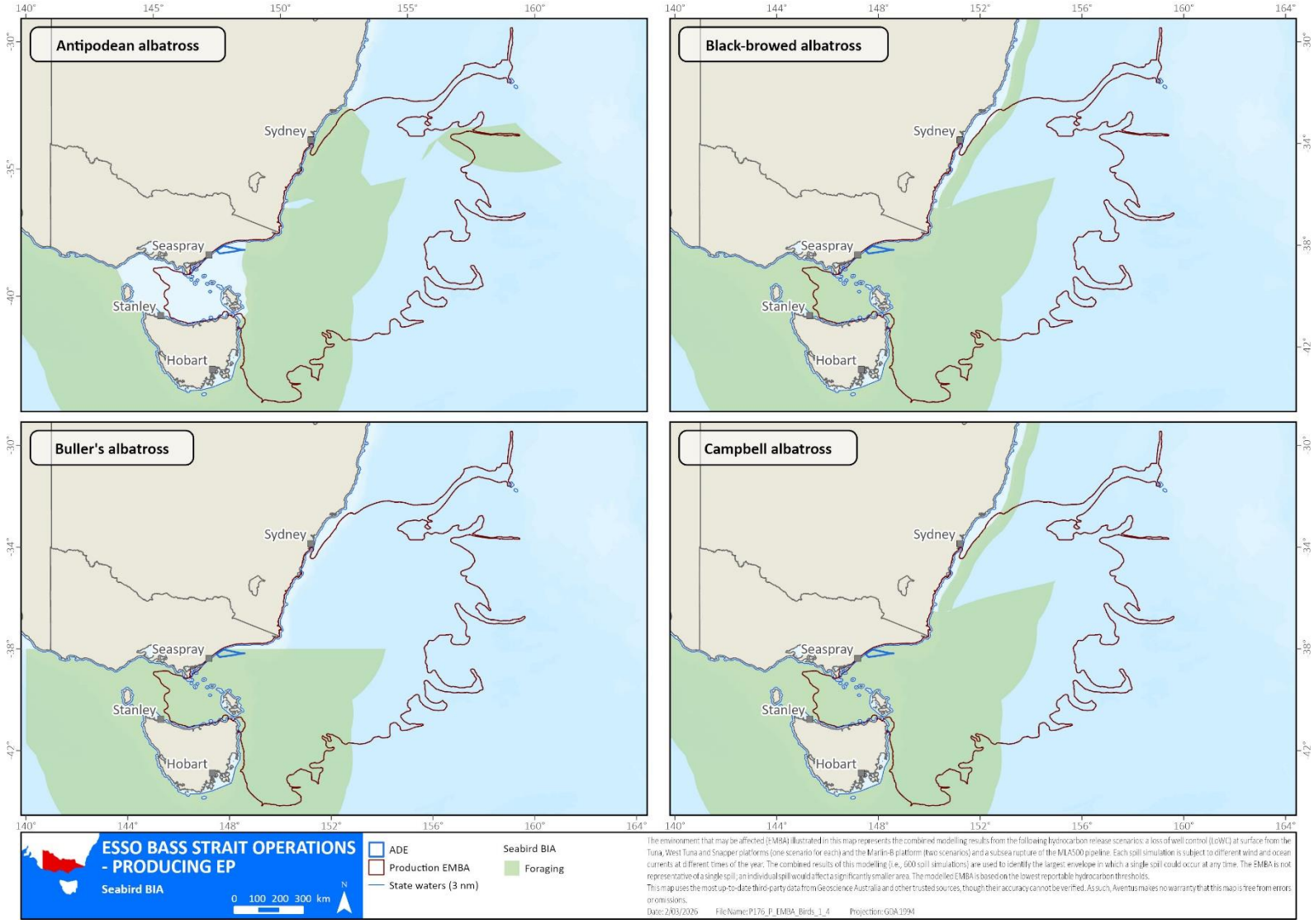



**Figure A-33 BIAs for the antipodean albatross (*Diomedea antipodensis*), black-browed albatross (*Thalassarche melanophris*), Buller's albatross (*Thalassarche bulleri*) and Campbell albatross (*Thalassarche impavida*) intersected by the EMBA**

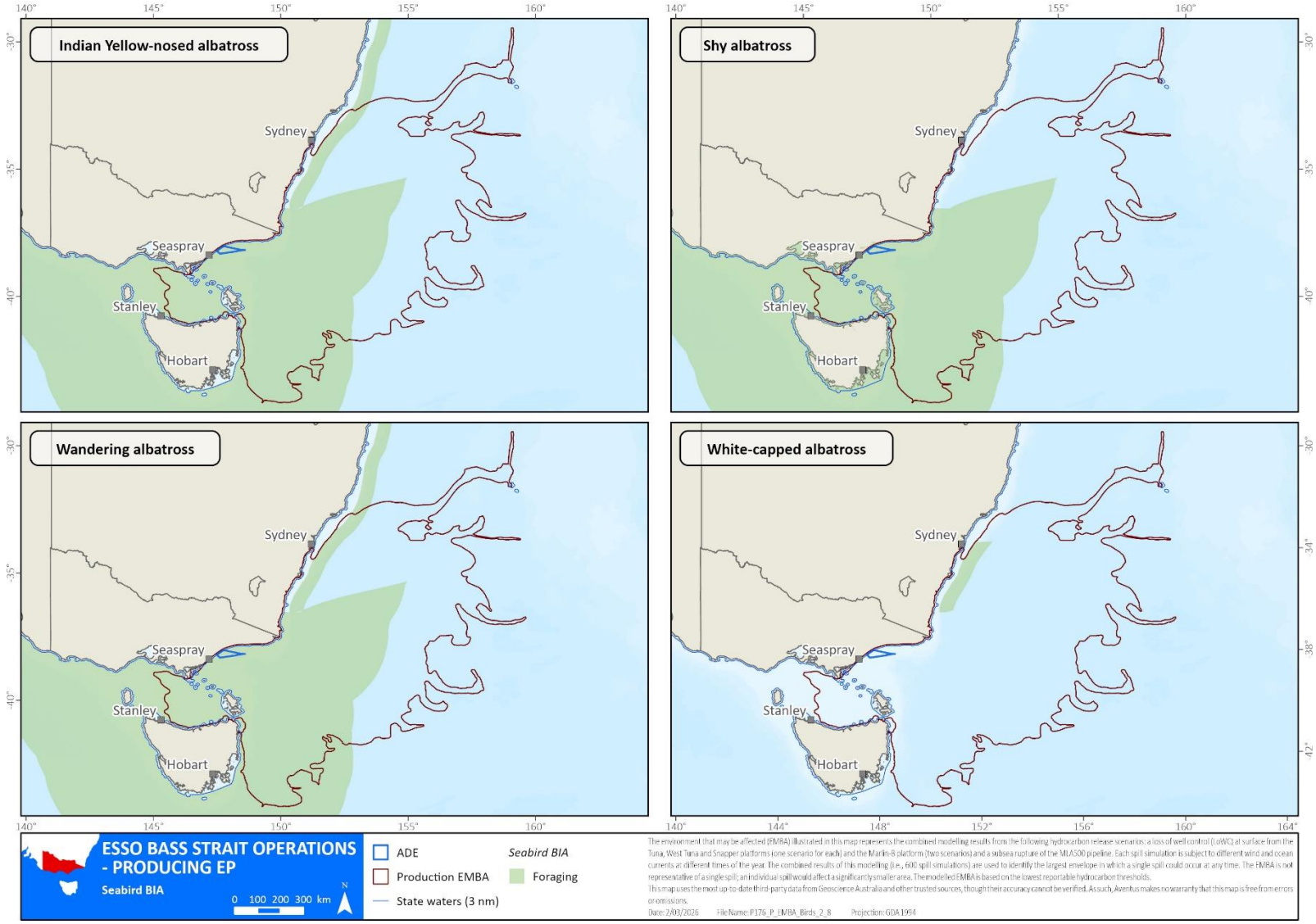



**Figure A-34 BIAs for the Indian yellow-nosed albatross (*Thalassarche carteri*), shy albatross (*Thalassarche cauta*), wandering albatross (*Diomedea exulans*) and white-capped albatross (*Thalassarche cauta steadi*) intersected by the EMBA**

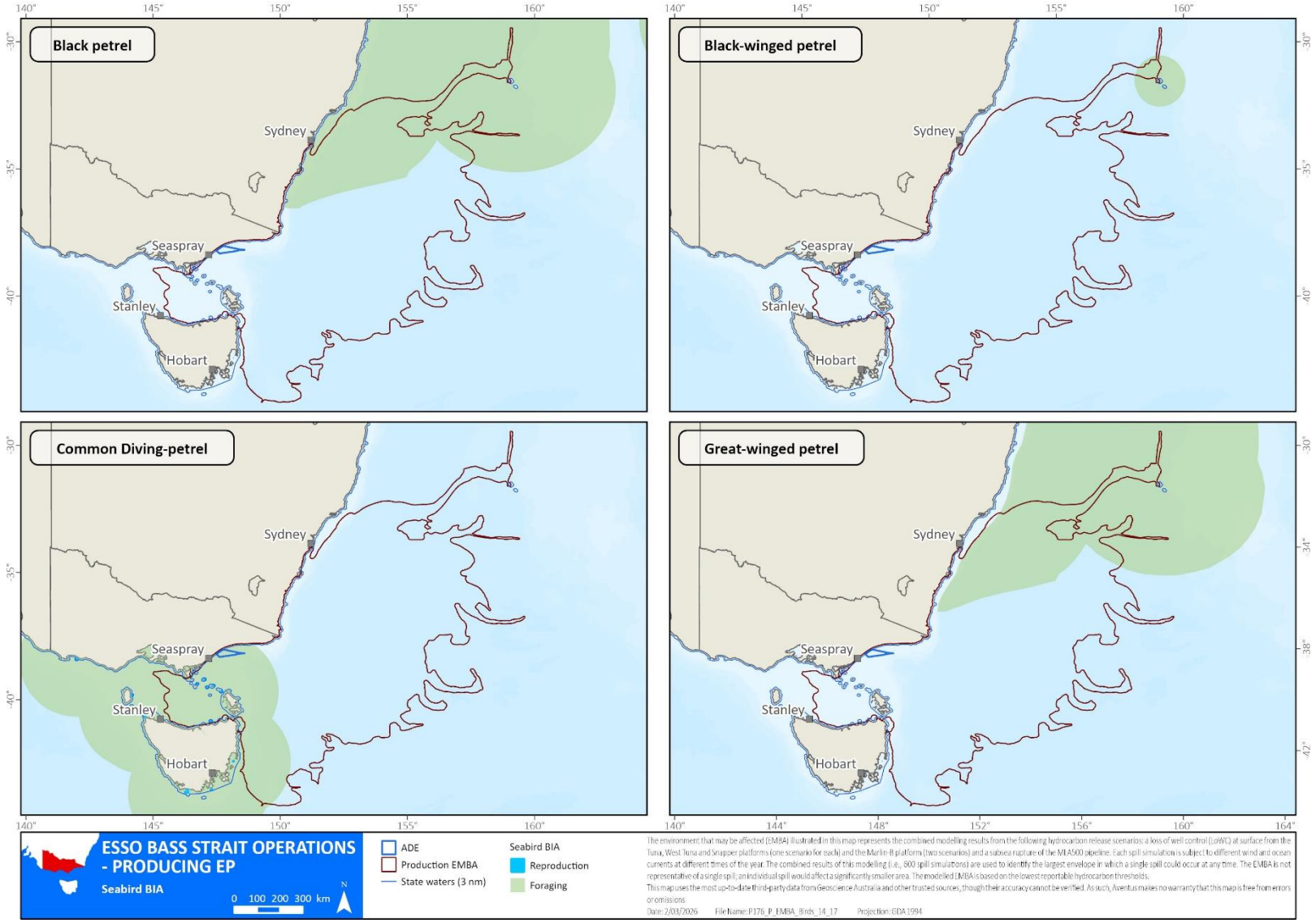



**Figure A-35 BIAs for the black petrel black-winged petrel, common diving petrel and the great-winged petrel intersected by the EMBA**

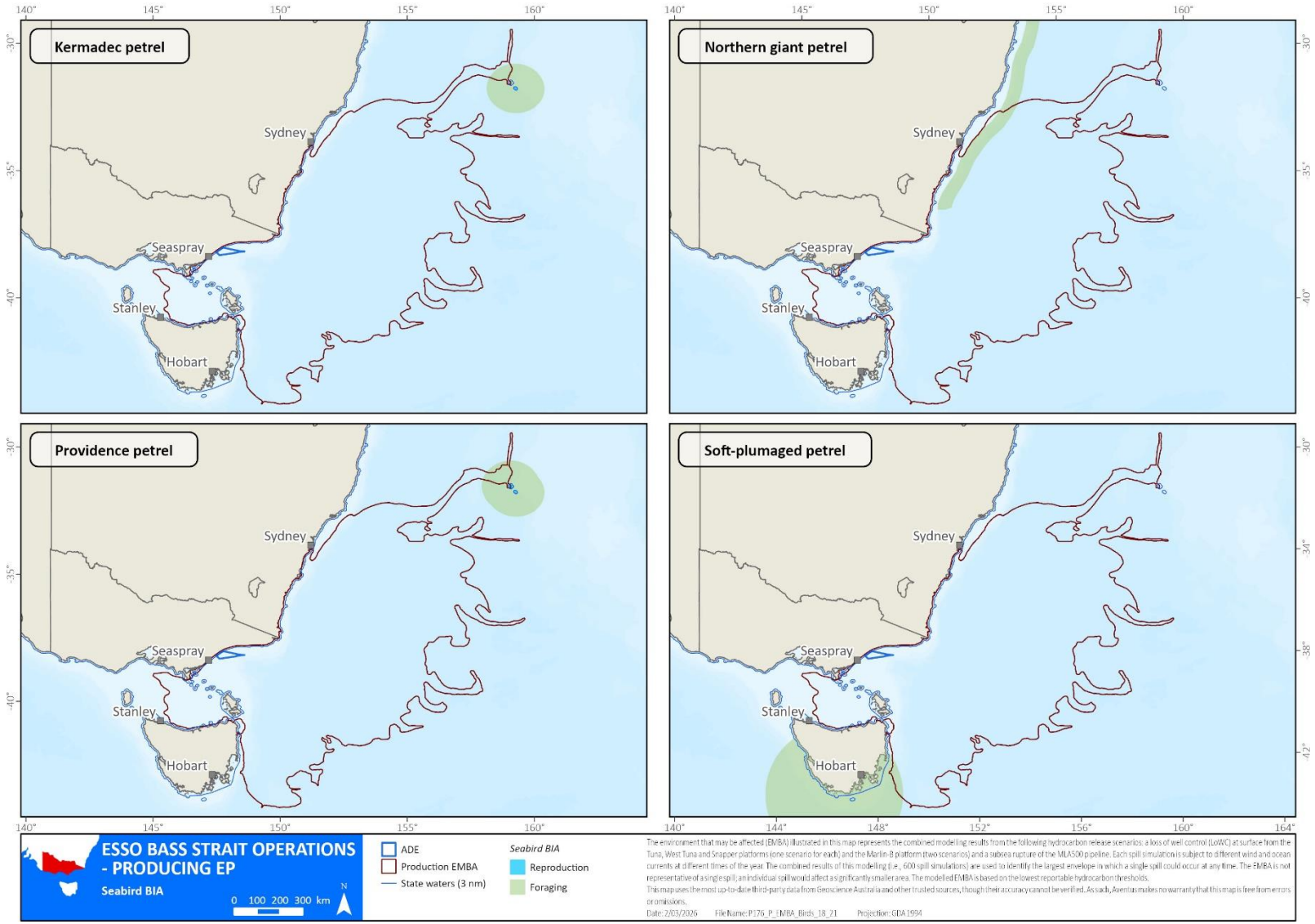



**Figure A-36 BIAs for the Kermadec petrel , northern giant petrel , providence petrel and the soft-plumaged petrel intersected by the EMBA**

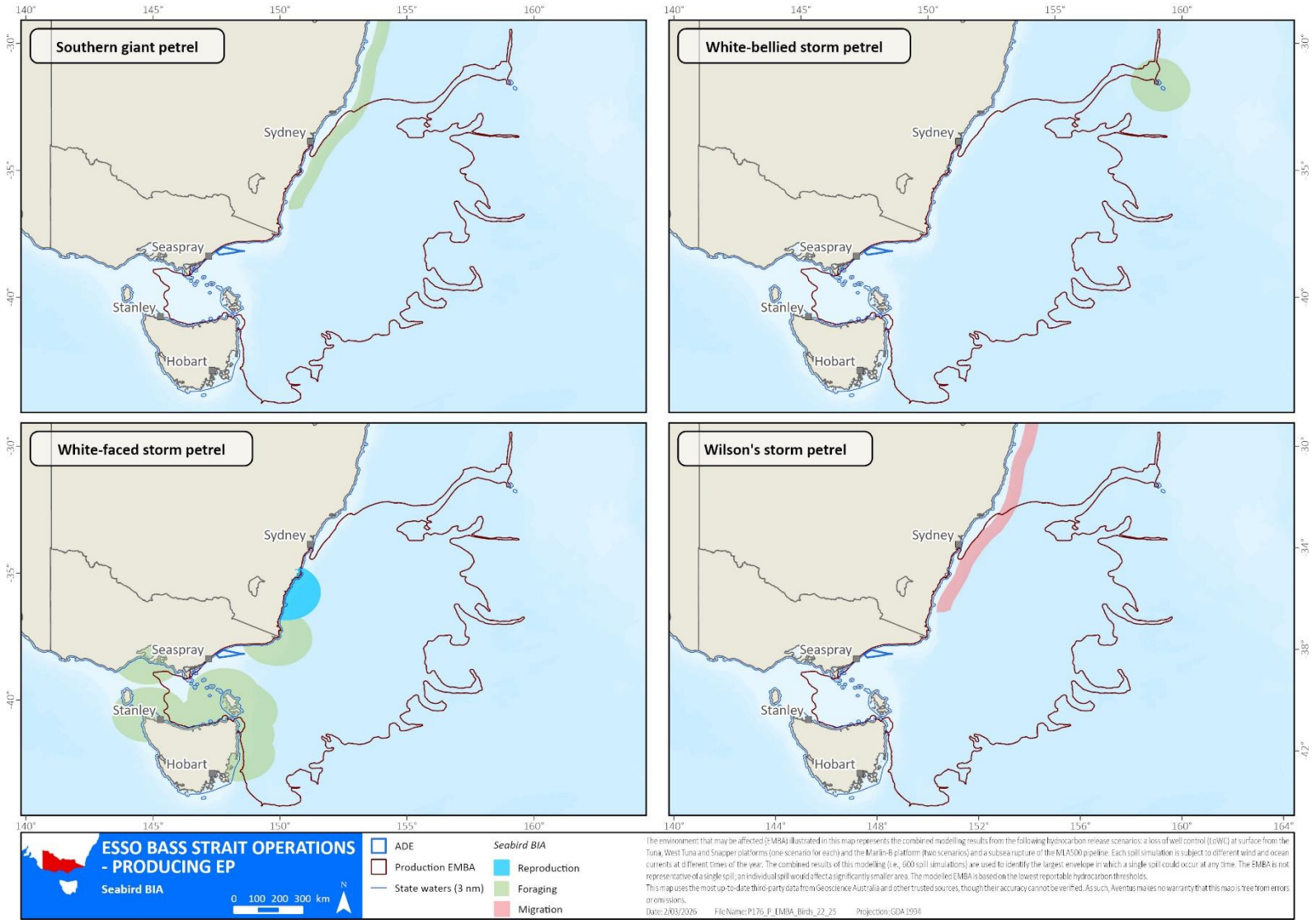



**Figure A-37 BIAs for the southern giant petrel , white-bellied storm petrel , white-faced storm petrel and Wilson's storm petrel intersected by the EMBA**

#### A.1.4.9.2 Shearwaters

Six species of shearwaters were detected by the PMST. Shearwaters represent the most abundant seabird in Australia they are typically pelagic, except during breeding seasons where they are found on remote islands or coastal headlands. Shearwaters are medium-size long-winged seabirds that are most common in temperate and cold waters. They spend most of their time foraging in the ocean and return to coastal cliffs and offshore islands only to breed. Shearwaters feed on fish, squid, cephalopod molluscs (squid, cuttlefish, nautilus and argonauts), crustaceans (barnacles and shrimp) and other soft-bodied pelagic prey. Food is usually taken by pursuit-plunging, surface plunging or surface-seizing (DCCEEW, 2023b). Some shearwaters, such as the sooty shearwater and flesh-footed shearwater (*Ardenna carneipes*), are trans-equatorial migrants and are widely distributed across the Pacific Ocean.

Known breeding locations for the sooty shearwater and wedge-tailed shearwater include oceanic islands in NSW (such as Solitary Islands, Cabbage Tree Island, Muttonbird Island, Bird Island) (Bird Island being the only one within the EMBA) (DCCEEW, 2023b). Breeding season in southeastern Australia for shearwaters is typically over summer; late-August/early September to May. Shearwater nests are usually in burrows or rock crevices. Due to their expansive ranges, it is likely that shearwaters may overfly, forage, breed or rest in the EMBA. BIAs for five shearwater species are shown in Figure A-38 and Figure A-39.

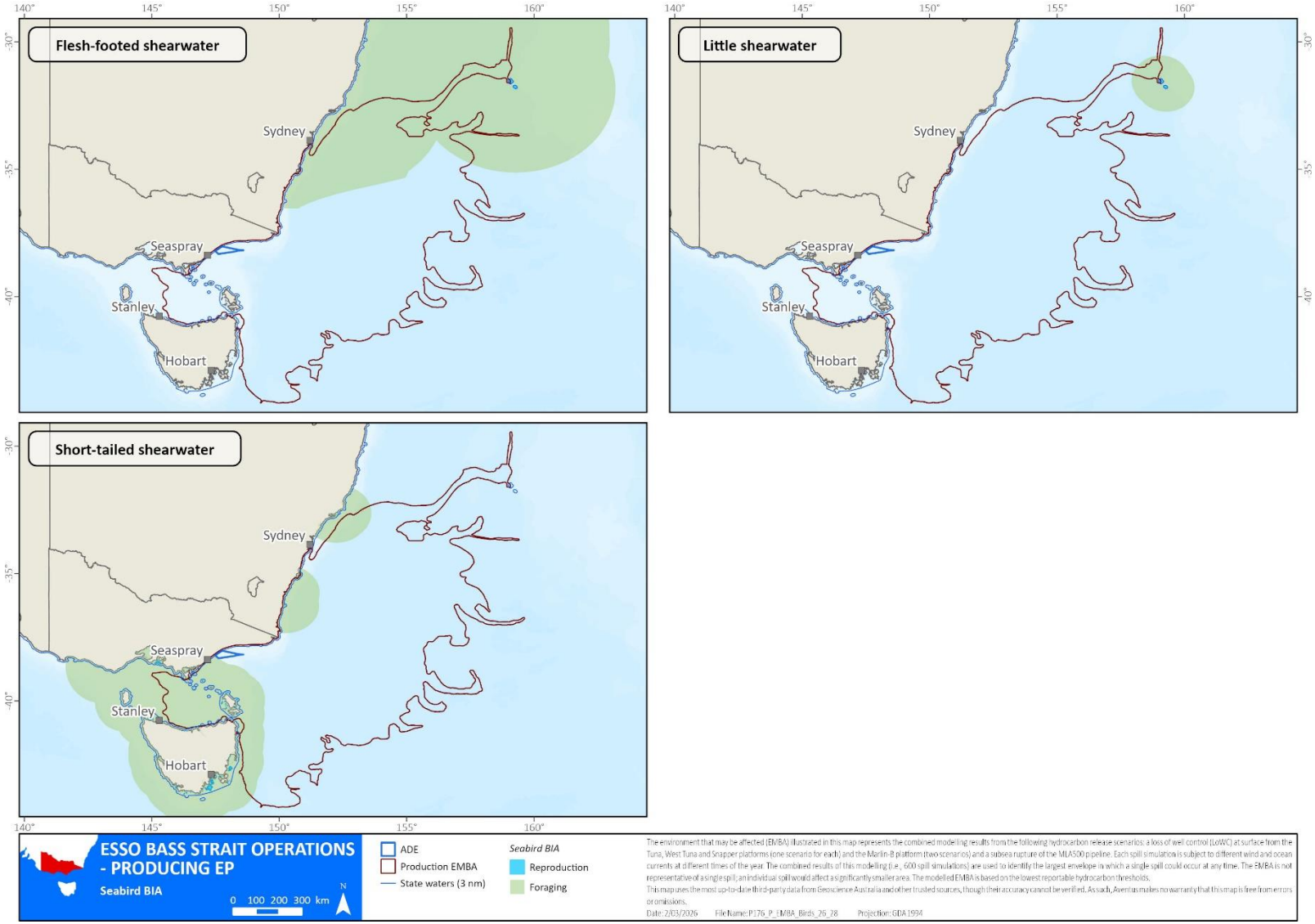



**Figure A-38 BIAs for the flesh-footed shearwater , little shearwater and short-tailed shearwater intersected by the EMBA**

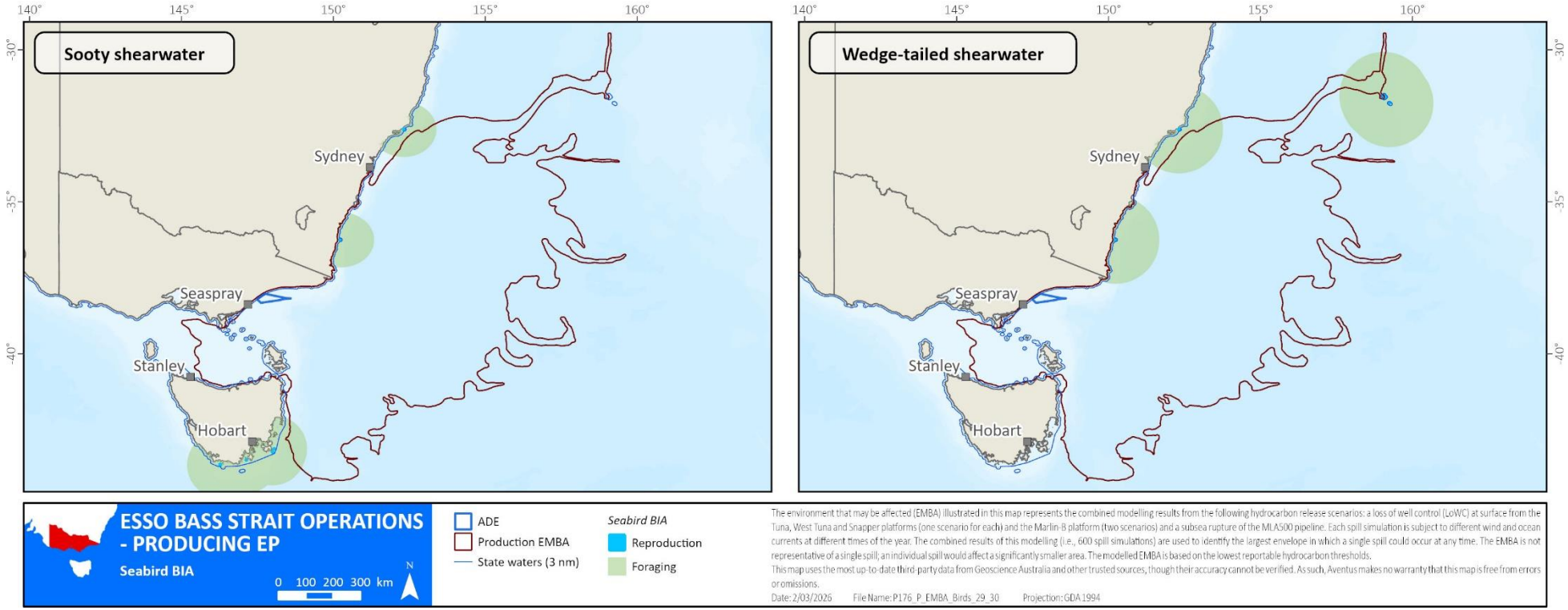



**Figure A-39 BIAs for the sooty and wedge-tailed shearwaters intersected by the EMBA**

#### A.1.4.9.3 Other seabirds

Other seabirds listed in the PMST that may occur within EMBA are described here:

- Fork-tailed swift (*Apus pacificus*) - Is a medium-sized bird has a large global distribution and population, occurring throughout much of Australia. In Victoria, it is widespread but sparsely scattered, occurring over cliffs, beaches and sometimes well out to sea (Birdlife Australia, 2025). This species is almost exclusively aerial, feeding on insects in flight. As a migratory species, it arrives in Australia from September to October, leaving southern Australia from mid-April (Birdlife Australia, 2025). As a common species, the fork-tailed swift may flyover the EMBA from September to April.
- Great skua (*Catharacta skua*) - Is a large migratory seabird distributed throughout all southern Australian waters (though not listed as migratory under the EPBC Act). This species breeds in summer on nested elevated grasslands or sheltered rocky areas on sub-Antarctic islands, with most adult birds leaving their colonies in winter. Great skuas feed on other seabirds, fish, molluscs, and crustaceans, and may be present in EMBA (though scarce) during winter (Flegg, 2002).
- Fairy prion - Is the most common prion found in southeast Australia. The species is found mainly offshore but may move inshore during stormy weather. Their diet consists of primarily krill but may include some fish and squid. Surface-seizing and dipping are their primary feeding methods, but they can also surface-plunge and use pattering (BirdLife International, n.d.).
- Southern fairy prion (*Pachyptila turtur subantarctica*) - Is mainly found offshore. The species diet is comprised mostly of crustaceans (especially krill) but occasionally includes some fish and squid. It feeds mainly by surface-seizing and dipping but can also catch prey by surface-plunging or pattering birdlife (Australia, 2023). In Australia, it is known to breed only on Macquarie Island and on the nearby Bishop and Clerk Islands (Birdlife Australia, 2025).
- White-bellied sea eagle - Is distributed along the coastline in coastal lowlands with breeding sites from Queensland to Victoria in coastal habitats and terrestrial wetlands in temperate regions. The breeding season is from June to January with nests built in tall trees, bushes, cliffs, or rock outcrops. Breeding pairs are generally widely dispersed (Birdlife Australia, 2025). The species forages over open water (coastal and terrestrial) and feeds on fish, birds, reptiles, mammals, and crustaceans and normally launches into a glide to snatch its prey, usually with one foot, from the ground or water surface. The species is widespread and makes long-distance movements (Birdlife Australia, 2025). This species may be present along the adjacent coastline of the EMBA.
- Osprey - Is a common, medium-sized raptor that is present around the entire Australian coastline, with the breeding range restricted to the north coast of Australia (including many offshore islands) and an isolated breeding population in South Australia (Birdlife Australia, 2025). Breeding occurs from April to February. Ospreys occur mostly in coastal areas but occasionally travel inland along waterways, where they feed on fish, molluscs, crustaceans, reptiles, birds, and mammals. They are mostly resident or sedentary around breeding territories, and forage more widely and make intermittent visits to their breeding grounds in the non-breeding season (Birdlife Australia, 2025). Due to their broad habitat, osprey may be present in the coastal areas of the EMBA.
- Terns - Several EPBC Act-listed tern species may occur within the EMBA. Terns are slender, lightly built birds with long, forked tails, narrow wings, long bills, and relatively short legs. Many of the tern species present along the southern Australian coastline are widespread and occupy beach, wetland, and grassland habitats. Terns rarely swim; they hunt for prey in flight, dipping to the water surface or plunge-diving for prey (Flegg, 2002) usually within sight of land for fish, squid, jellyfish and sometimes crustaceans. Fairy terns feed by plunge diving on small baitfish in coastal waters, usually close to land (Birdlife Australia, 2025). The total number of Australian fairy terns is estimated to be 5000 mature individuals that utilise offshore, estuarine, lacustrine, wetland, beach, and spit habitats (DSEWPAC, 2011). The species nests above the high-water mark in clear view of the water and on sites where the substrate is sandy and the vegetation low and sparse (DSEWPAC, 2011). Fairy terns are threatened by predation from introduced mammals, disturbance by humans, dogs, and vehicles (DSEWPAC, 2011). BIAs for the crested tern, sooty tern, whit tern and white-fronted tern (*Sterna striata*) intercepted by the EMBA can be seen in Figure A-42.
- noddies – Three EPBC Act-listed noddy species (common, black, and grey) may occur within the EMBA. Noddies are part of the same family as terns. The common noddy is a tropical seabird with a worldwide distribution, occurring around isolated, bare, or vegetated, inshore, or oceanic islands or coral reefs with rocky cliffs or offshore stacks and coral or sand beaches (Commonwealth of Australia, 2020). Their diet

consists predominantly of small fish as well as squid, pelagic molluscs, medusae and insects. The black noddy (*Anous minutus)* also has a worldwide distribution inhabiting tropical and subtropical island. They feed by hover-dipping and contact-dipping. The grey noddy *(Anous albivittus)* breeds on Lord Howe (within the EMBA) and Norfolk Islands and on Kermadec Island, New Zealand. The grey noddy eats very small fish (average length 17mm), squid, crustaceans (Commonwealth of Australia, 2020). BIAs for the three species of noddy intercepted by the EMBA can be seen in Figure A-41.

- Black-faced cormorant - Is endemic to southern Australia (Commonwealth of Australia, 2020); and favours rocky coasts. The species feeds in coastal waters on a variety of fish, typically catching prey by pursuit-diving. There are 40 significant breeding sites (defined as more than 10 breeding pairs) known for the species in southern Australia. Breeding usually occurs on rocky islands, but also on stacks, slopes, and sea cliffs in colonies of up to 2500 individuals (Commonwealth of Australia, 2020). Breeding and foraging BIAs for the black-faced cormorant that intersect with the EMBA can be seen in Figure A-42
- Masked booby - Is a large, EPBC Act-listed marine and migratory species that has a breeding population on Lord Howe Island (within the EMBA) (Mutton Bird Point, King Point, Roach Island, South Island, Sugarloaf Island, Mutton Bird Island, Gower Island, Sail Rocks and Ball's Pyramid) that is the most southerly known breeding colony in the world (DCCEEW, 2023b). The masked booby nests in small colonies, laying on sandy beaches and feeds by plunge diving on the ocean (DCCEEW, 2023b). Breeding and foraging BIAs for the masked booby that intersect with the EMBA can be seen in Figure A-41.
- Red-tailed tropicbird *(Phaethon rubricauda)* - Is a medium sized (45 - 55cm) seabird and is EPBC Act-listed marine and migratory. The species exists in tropical Pacific and Indian oceans (DCCEEW, 2023b). It nests on cliffs by the water's edge, and less so inland on smaller islands and has been identified as a conservation value in the Temperate East Marine Region. The red-tailed tropicbird is mostly a plunge-diver, diving anywhere from an above-water height 6 - 50m to a depth of about 4.5m (AOLA, 2019). No specific conservation plans exist for this species. Breeding and foraging BIAs for the red-tailed tropic bird that intersect with the EMBA can be seen in Figure A-42.

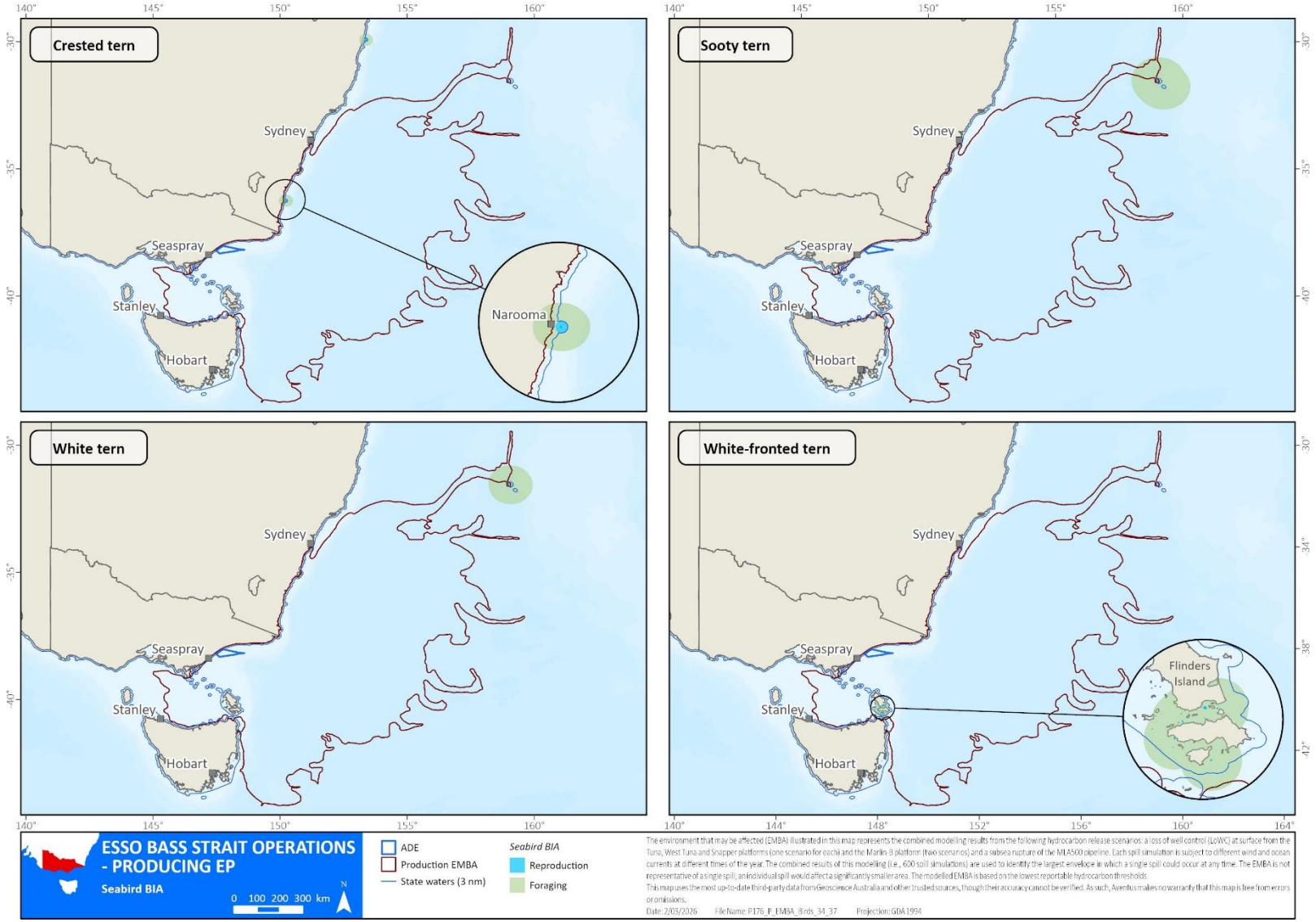



**Figure A-40 BIAs for the crested, sooty, white and white-fronted tern intersected by the EMBA**

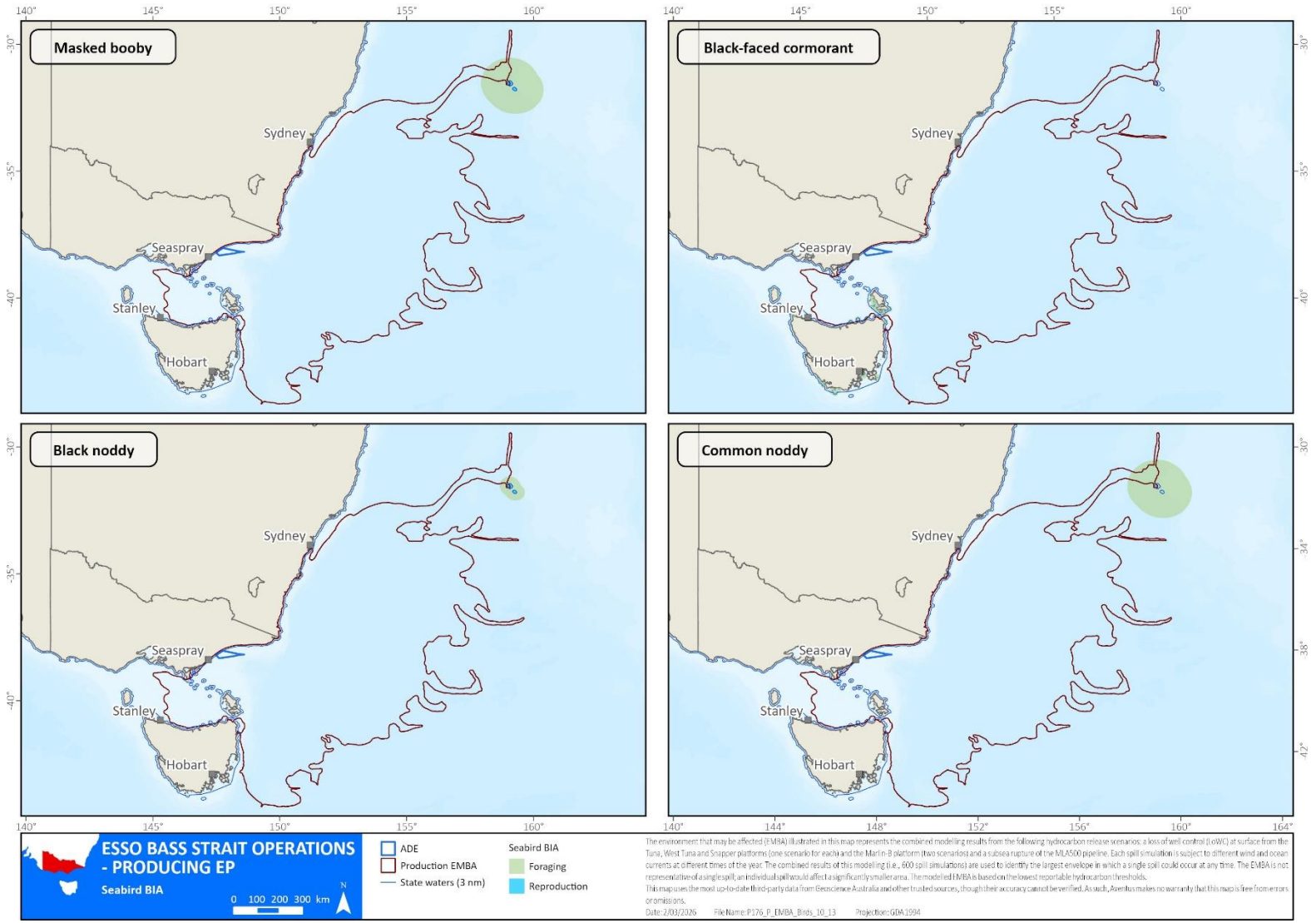



**Figure A-41 BIAs for the masked booby, black-faced, black and common noddy intersected by the EMBA**

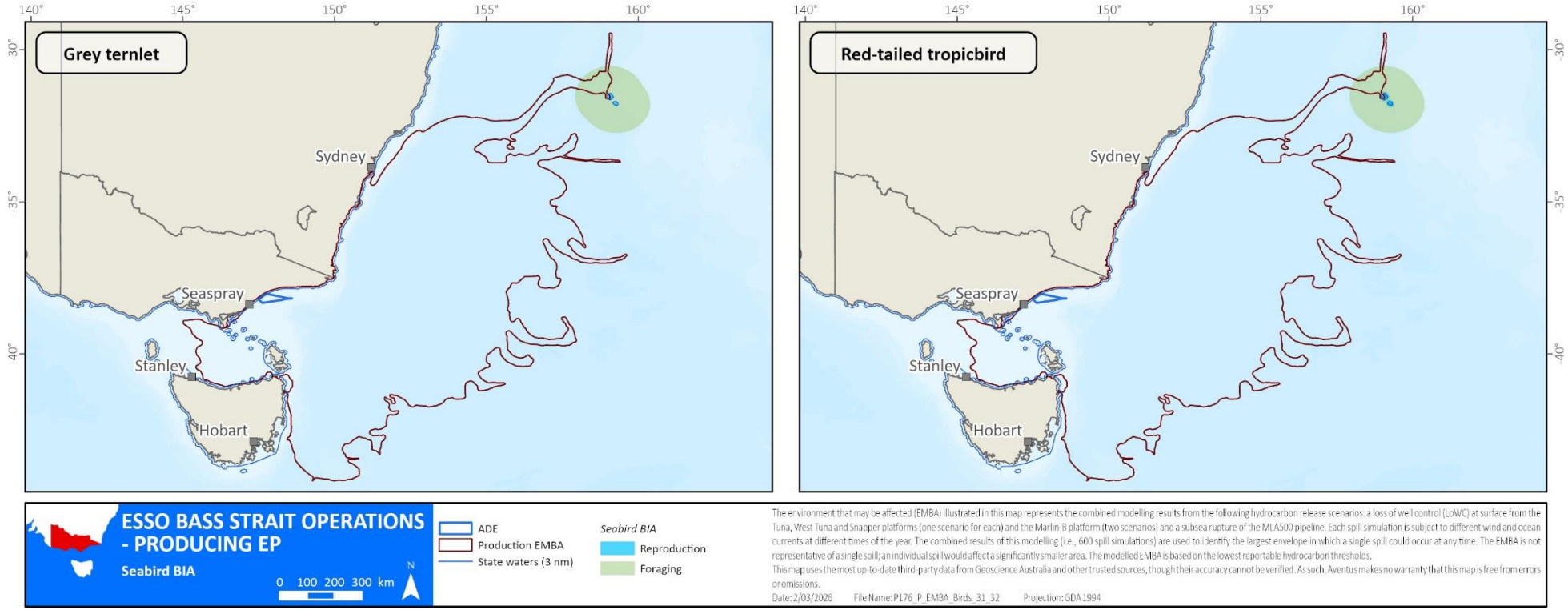



**Figure A-42 BIAs for the grey ternlet and red-tailed tropicbird intersected by the EMBA**

#### A.1.4.9.4 Little penguin

The little penguin is a seabird that does not fly and is the smallest of the 17 penguin species in the world. Little penguins occur from Western Australia (Carnac Island) to NSW (Broughton Island) and Tasmania. Their distribution is not continuous, with sections of the southern coast of Australia lacking breeding colonies (Commonwealth of Australia, 2020). They are permanent residents of the coastal and offshore islands of parts of the Victorian and Tasmanian coast and Bass Strait islands, with the Southeast Marine Region representing about 60% of the species known breeding population (Commonwealth of Australia, 2015a).

Individuals exhibit strong site fidelity, returning to the same breeding colony each year to breed in the winter and spring months. While on land, penguins remain in burrows to rest, nest, and moult. Nest building (in sand dunes or in rock crevices) occurs from June to December, breeding occurs from August to October, egg laying occurs from August to December, chick raising occurs from August to March and moulting occurs between February and April (during which time they must remain on land).

During winter, little penguins spend most of their time at sea, returning to the burrows to rest and attend to their burrows (DELWP, 2017). Little penguins dive on average between 10m and 30m in depth, with their preferred food sources being young barracouta, anchovies, red cod *(Pseudophycis bachus)*, warehou, pilchards and, squid (Penguin Foundation, 2025). They forage mostly from dawn to an hour before dusk, returning to their burrows at dusk (Birdlife Australia, 2025). During the breeding season, little penguins forage within 5 - 25km of the coast, and at other times, foraging can occur up to 75km from the coast (Wiebkin, 2011).

Based on Oil Spill Response Atlas mapping, little penguin colonies in the Gippsland region that are within the EMBA are listed below and can be seen in Figure A-43:

- Shellback Island (400 breeding pairs)
- Norman Island (1000 breeding pairs)
- Glennie Group Islands (3400 breeding pairs)
- Anser Group of Islands (500 breeding pairs)
- Wattle Island (400 breeding pairs)
- Seal Island (1000 breeding pairs)
- Notch Island (1000 breeding pairs)
- Rag Island (400 breeding pairs)
- Rabbit Island (8000 breeding pairs)
- Rabbit Rock (200 breeding pairs)
- Tullaberga Island (900 breeding pairs)
- Gabo Island (35,000 breeding pairs) (50% of Victorian population).

Other Bass Strait islands with known populations of little penguins within the EMBA are listed below and can be seen in Figure A-43:

- Babel Island (20,000 pairs)
- Curtis Group (2000 individuals)
- Hogan Group (10,000 individuals)
- Furneaux Group (>40,000 pairs)
- Forsyth, Passage and Gull Islands (80,000 pairs)
- Phillip Island (32,000 individuals).

Additionally, Betsy Island (Tasmania) has a population of 15,000 pairs, which is outside of the EMBA.

According to the NSW Department of Planning and Environment (NSW Government, 2019) approximately 25,000 pairs of little penguin nest on islands off the coast of NSW. The largest colonies are on the following islands, all of which are within the EMBA can be seen in Figure A-43.

- Montague Island
- Tollgate Island
- Brush Island.

The only known mainland breeding colony in NSW is in a secluded cove in the Manly area of Sydney Harbour which is also in the EMBA (NSW Government, 2019). The BIAs for little penguins within the EMBA is presented in Figure A-43.

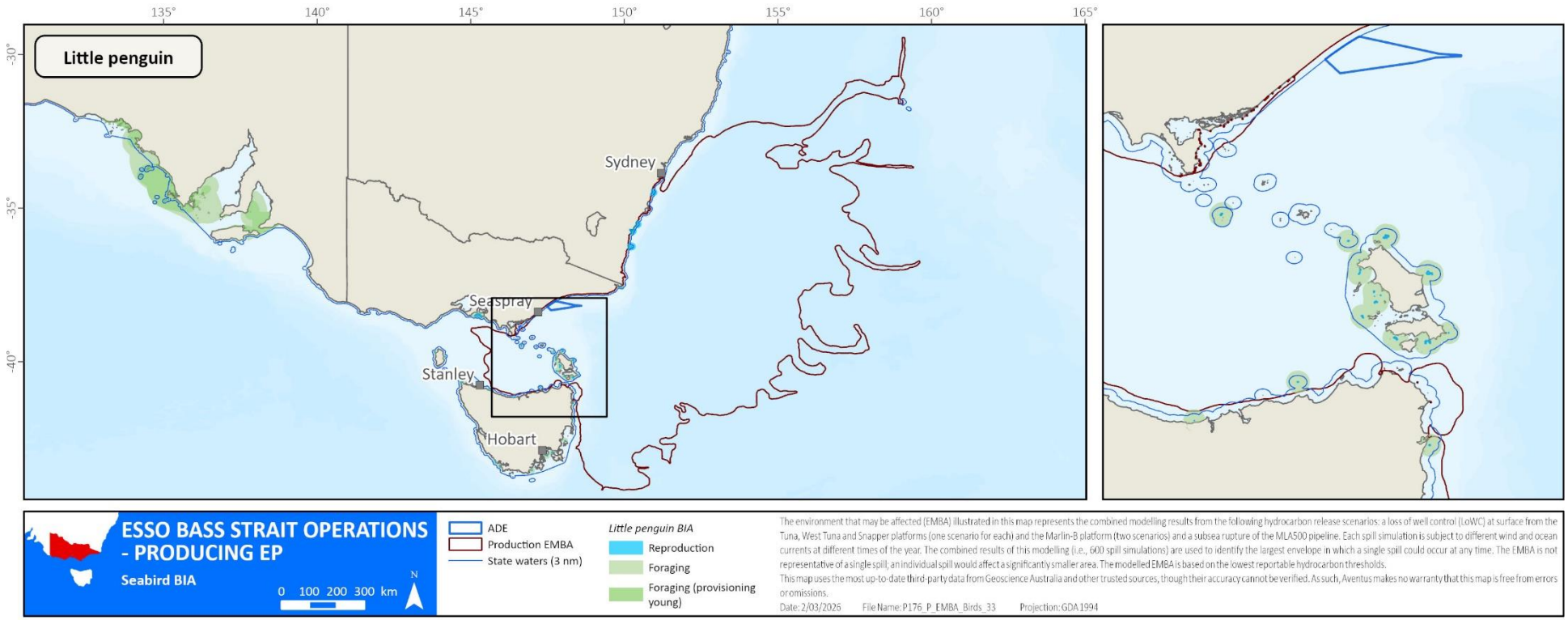



**Figure A-43 Little penguin BIAs intersected by the EMBA**

#### A.1.4.9.5 Orange-bellied parrot

The orange-bellied parrot is listed as critically endangered under the EPBC Act.

The orange-bellied parrot breeds in south-west Tasmania between November and March and spends the winter on the coast of south-east mainland Australia between April and October (DELWP, 2016).

The migration route follows the west coast of Tasmania, with some birds stopping on King Island during the northward migration in autumn. Records of non-breeding birds in the last 10 years are limited to between Goolwa, South Australia and Corner Inlet, Victoria. Non-breeding birds feed on the seeds and flowers of low shrubs or prostrate vegetation, and roost in dense shrubs, usually within 10km of the coast (DELWP, 2016).

In Victoria, the orange-bellied parrot mostly occurs in sheltered coastal habitats, such as bays, lagoons and estuaries. The range and migration route of the orange-bellied parrot are shown in Figure A-44 indicating that they may over-fly the EMBA or be present in coastal areas where they could be foraging.

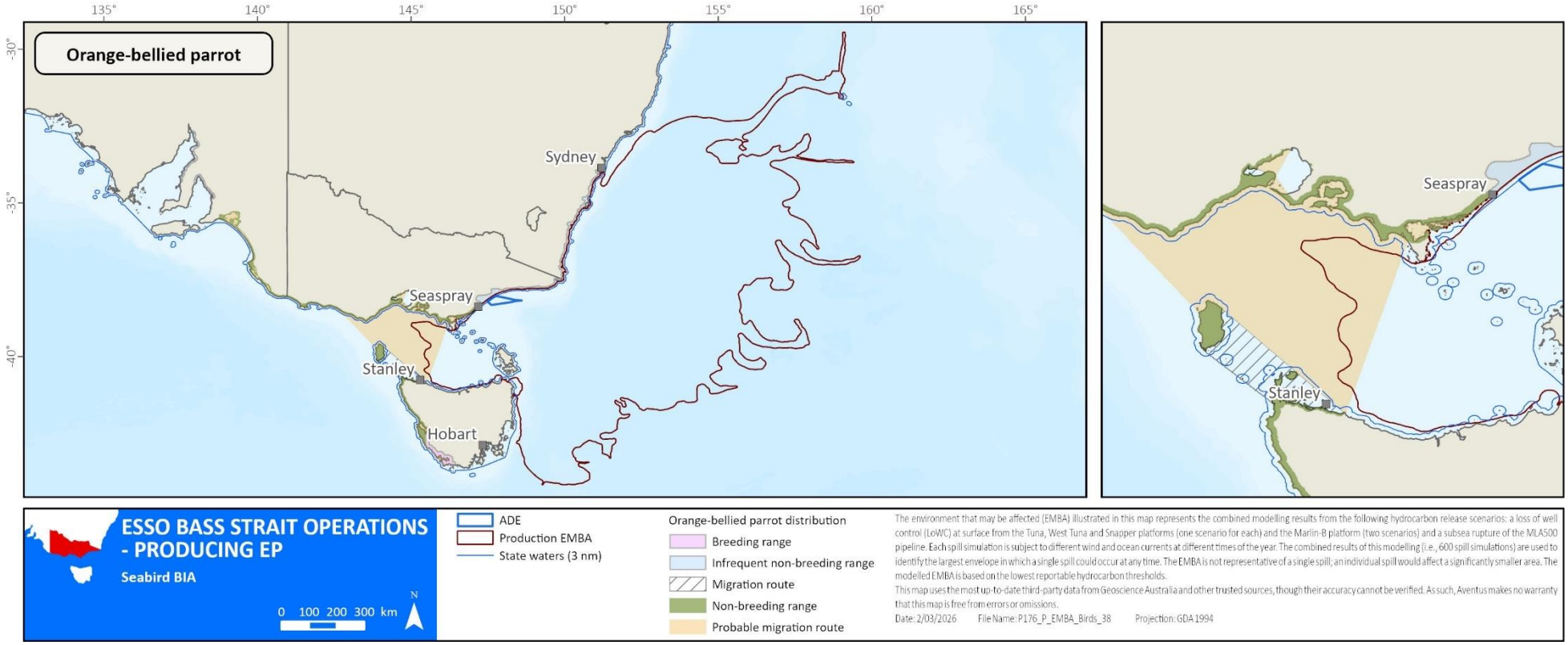



**Figure A-44 The range and migration route of the orange-bellied parrot intersected by the EMBA**

#### A.1.4.9.6 Shorebirds

This Section describes the shorebirds species detected by the PMST, see Appendix B for the extensive list:

- Plovers - There are several EPBC Act-listed plovers that may occur within the EMBA. Plovers are medium sized wading birds that have wide-ranging coastal habitats comprising estuaries, bays, mangroves, damp grasslands, sandy beaches, sand dunes, mudflats, and lagoons (Flegg, 2002), with roosting also taking place on sand bars and spits. Plovers feed on a range of molluscs, worms, crustaceans, and insects. Plovers (with the exception of the hooded and red-capped lovers) breed in Asia and the Arctic region and are more likely to be present in Australia during summer, depending on the species. The hooded plover breeds in Australia and builds its nests in sandy oceanic beaches. The location of these nests presents the greatest threat to this species' population, as nests, eggs and chicks are vulnerable to predation and trampling (Birdlife Australia, 2025).
- Sandpipers - There are several EPBC Act-listed sandpiper species that may occur within the EMBA sandpipers breed in Europe and Asia and migrate to Australia during the southern summer. Sandpipers are small wader species found in coastal and inland wetlands, particularly in muddy estuaries, feeding on small marine invertebrates. Up to 3000 sharp-tailed sandpiper and up to 1800 curlew sandpipers are known to congregate to feed at the Gippsland Lakes. Curlew sandpipers breed in Siberia and migrate to Australia, arriving around September each year (DCCEEW, 2023a). The species forages mainly on invertebrates, including worms, molluscs, crustaceans, and insects. Curlew sandpipers usually forage in water, near the shore or on bare wet mud at the edge of wetlands. The species is threatened by the sustained loss of intertidal mudflat habitat at key migration staging sites in the Yellow Sea (DCCEEW, 2023a).
- Snipes - There are four EPBC Act-listed snipe species that may occur within the EMBA. These snipe species (other than the Australian painted-snipe, which is endemic to Australia) are present during the southern hemisphere summer (breeding in Asia and Russia in the northern hemisphere summer). They are medium-sized waders that roost among dense vegetation around the edge of wetlands during the day and feed at dusk, dawn and during the night on seeds, plants, worms, insects, and molluscs (Birdlife Australia, 2025). There are few records of the pin-tailed snipe *(Gallinago stenura)* and Swinhoe's snipe *(Gallinago megala)* in Victoria, while the Australian painted-snipe is known to occur at Mallacoota Inlet (outside of the EMBA). The nest of the Australian painted-snipe is usually a scrape in the ground lined with twigs and stalks of grass. The species is threatened by the loss and degradation of wetlands, through drainage and diversion of water for agriculture and reservoirs (Birdlife Australia, 2025). Snipes are likely to be present within the EMBA during the summer.
- Godwits - There are three EPBC Act-listed godwit species that may occur within the EMBA. Godwits are large waders that are found around all coastal regions of Australia during the southern hemisphere summer (breeding in Europe during the northern hemisphere summer), though the largest numbers remain in northern Australia. Godwits are commonly found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats, or spits and banks of mud, sand, or shell-grit where they forage on intertidal mudflats or sandflats, in soft mud or shallow water and occasionally in shallow estuaries (Birdlife Australia, 2025). They have been recorded eating annelids, crustaceans, arachnids, fish eggs and spawn and tadpoles of frogs, and occasionally seeds. The Nooramunga Marine and Coastal Park (within the EMBA) has recorded the largest concentrations of bar tailed godwit in southeastern Australia. Godwits are likely to be present within the EMBA during the summer.
- Knots - The red knot *(Calidris canutus)* and great knot *(Calidris tenuirostris)* are EPBC Act-listed species that may occur within EMBA. Both the red knot and great knot have a coastal distribution around the entire Australian coastline when it is present during the southern hemisphere summer (breeding in eastern Siberia in the northern hemisphere summer). The red knot is a medium-sized wader that prefers sandy beach, tidal mudflats and estuary habitats, where they feed on bivalve molluscs, snails, worms and crustaceans (Birdlife Australia, 2025). Lake Reeve has supported the largest concentration (5000) of red knot recorded in Victoria.
- Curlews - Two curlews (eastern curlew (*Numenius madagascariensis*) and little curlew (*Numenius minutus*)) are listed under the EPBC Act. Curlews are medium-sized migratory birds that breed in the far north of Siberia and winters in Australasia. The eastern curlew is the world's largest shorebird and is widespread in coastal regions in the northeast and south of Australia, including Tasmania. It is commonly found on intertidal mudflats and sandflats where it uses its long beak to pick the surface and probes for crabs. Curlews are also found on sheltered coasts, especially estuaries, mangrove swamps,

bays, harbours, and lagoons (DoE, 2015c). The status of the eastern curlew was amended from endangered to critically endangered in 2015 because research shows population decline potentially caused by wetland reclamation in some areas of Asia. In Victoria, the main strongholds are in Corner Inlet (within the EMBA) and Western Port Bay (outside the EMBA), with smaller populations in Port Phillip Bay and scattered elsewhere along the coast. Eastern curlews are found on islands in Bass Strait and along the northwest, northeast, east and southeast coasts of Tasmania. Historically, sightings have been recorded in Bass Strait and depending on the time of year, curlews may be present in the EMBA (DCCEEW, 2023a). The little curlew breeds in Siberia and is seen on passage through Mongolia, China, Japan, Indonesia and New Guinea. In Australia, the little curlew is a bird of coastal and inland plains of the north where it often occurs around wetlands and flooded ground. They often form large flocks, occasionally comprising thousands of birds and sometimes associate with other insectivorous migratory shorebirds.

### *A.1.4.10 Marine pests*

Marine pests are highly invasive, non-native animals and plants that can cause significant harm to the marine environment (Agriculture Victoria, 2025). Australia has over 400 introduced and unknown origin marine species.

Marine pests can arrive into waters from other parts of the world or even other Australian waters. Marine pests can be accidentally introduced through aquarium trade, can be attached to the hulls of ships or as larvae in ballast water.

Marine pests are problematic for the following reasons (Agriculture Victoria, 2025):

- once introduced, marine pests reproduce quickly, often producing large numbers of offspring that can rapidly spread to new areas
- they compete with native species by preying upon them, and outcompeting them for space, light, food, or overgrowing them
- they can also introduce diseases and parasites to our native species.

Marine pests pose a significant threat to marine biodiversity and the economy, as once they become established; it is nearly impossible to eradicate them (Agriculture Victoria, 2025).

The introduced New Zealand screw shell (*Maoricolpus roseus*) is present in eastern Bass Strait and is known to form extensive and dense beds on the sandy seafloor spreading to the 80m isobath off eastern Victoria and NSW (Patil, Gunasekera, McEnnulty, & Bax, 2004). Larger animals found in these soft sediment environments in Victoria have included smooth stingray (*Dasyatis brevicaudata*), pipi (*Plebidonax deltoids*), dumpling squid (*Euprymna tasmanica*), common stargazer (*Kathetostoma laeve*) and heart urchin (*Echinocardium cordatum*) (ParksVic, 2025). Soft sediment habitat is the dominant habitat within the EMBA.

A notorious marine pest the Northern Pacific seastar (*Asterias amurensis*) was suspected in several locations along the BKA200 pipeline during the AIMS (McLean, et al., 2025) survey, however, the sightings could not be confirmed as further analysis was recommended. The invasive long-spined sea urchin (*Centrostephanus rodgersii*) was also observed in low abundance (McLean, et al., 2025).

Based on the observations undertaken by AIMS (McLean, et al., 2025) the Northern Pacific seastar and long-spined sea urchin are likely to be present in the EMBA.

In the Southeast Marine Region, 115 invasive marine species have been introduced and 11 have been recognised as pests (NOO, 2002a). In NSW waters, six listed marine pest species occur (DSEWPAC, 2012a). Several introduced species have become pests either by displacing native species, dominating habitats, or causing algal blooms. The following marine pests are found within the waters of the EMBA:

- Caulerpa (*Caulerpa taxifolia*)
- European shore crab (*Carcinus maenas*)
- European fan worm (*Sabella spallanzanii*)
- Japanese goby (*Tridentiger trigonocephalus*)
- New Zealand screw shell
- Pacific oyster (*Crassostrea gigas*)
- Northern Pacific seastar
- dead man's fingers (*Codium fragile ssp. fragile*)
- cord grass (*Spartina anglica* and Spartina x townsendii sp.).

## A.1.5 Cultural heritage values

Cultural heritage includes both tangible and intangible values, the definition of cultural heritage has evolved in recent decades as non-tangible cultural heritage continues to develop. Non-tangible cultural heritage includes oral traditions, performing arts, social practices, rituals, festive events, knowledge, and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts (UNESCO, n.d.). Tangible cultural heritage includes artefacts, monuments, a group of buildings and sites and museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific, and social significance. Cultural heritage also captures natural heritage such as culturally significant landscapes (UNESCO, 2009).

This Section discusses Indigenous and Maritime heritage. World, National and Commonwealth heritage sites relevant to the EMBA can be seen in Sections A.1.1.1, A.1.1.2 and A.1.1.3.

### *A.1.5.1 Indigenous*

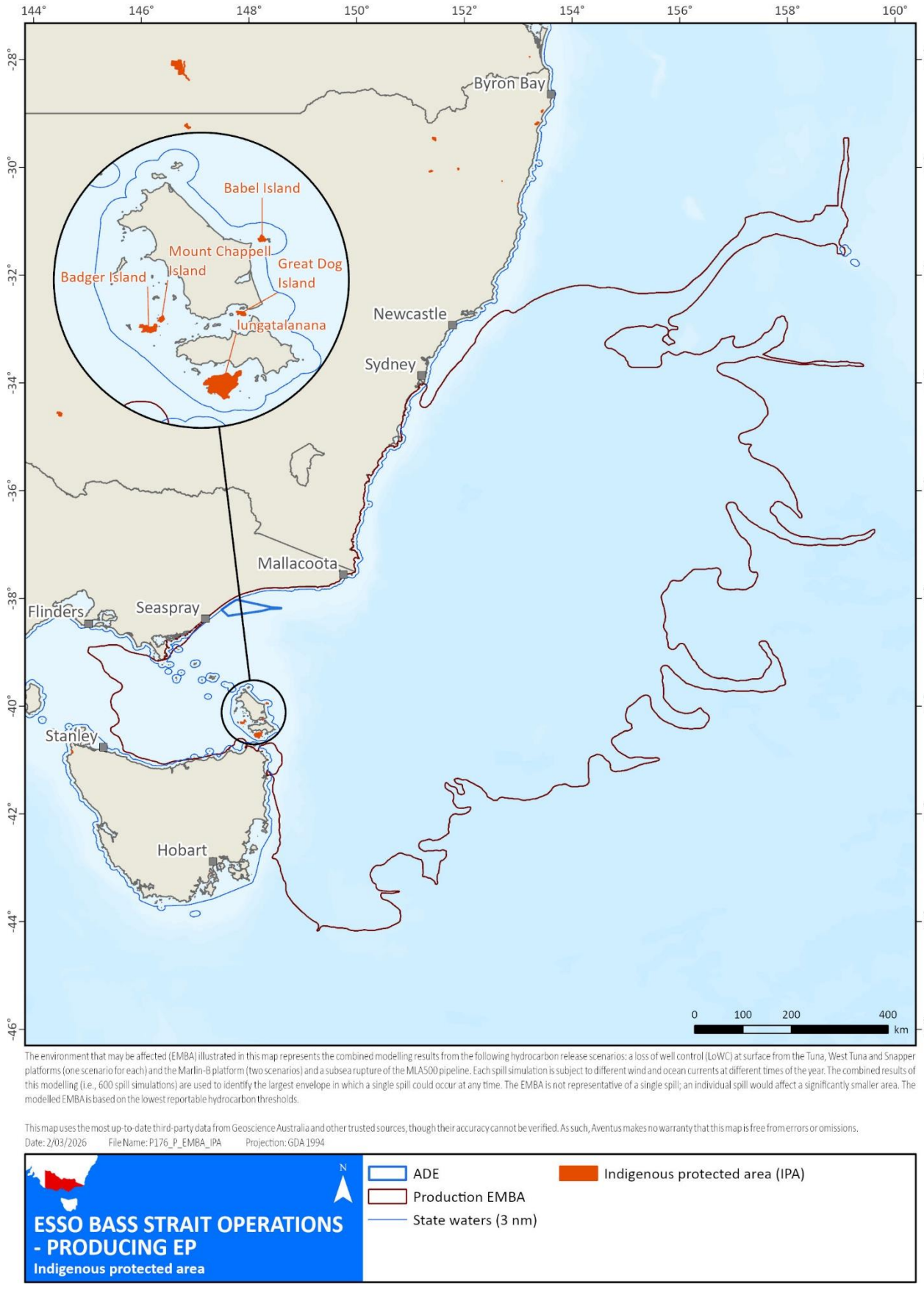
'Gunai/Kurnai' is the name of the Indigenous group who have inhabited the Gippsland region for at least 18,000 years (Ramahyuck, 2023). The Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) (GLaWAC, 2023) describe their Country as:

*"The land, the rivers and the ocean, the people, and the stories, the past and the future. All of it is connected. All of it is important to us. Country heals us and connects us to our ancestors, our culture, and our history".*

According to the Gunaikurnai Whole-of-Country Plan (GLaWAC, 2015) the Gunaikurnai people are recognised as Traditional Owners over approximately 1,330,000ha in Gippsland extending from west Gippsland near Warragul, east to the Snowy River, and north to the Great Dividing Range, and including 200m of offshore sea territory. The Gunaikurnai people also have interests and ancestral and historical connections to other places beyond this recognised area. They also describe Sea Country is equally important, with a huge diversity of marine life that supports rich tourism and fishing industries. Sea Country is discussed further in Section A.1.5.1.2.

#### A.1.5.1.1 Indigenous Protected Areas

Indigenous Protected Areas (IPAs) are an essential component of Australia's National Reserve System, which is the network of formally recognised parks, reserves, and protected areas across Australia, designed to protect the nation's biodiversity. IPAs protect cultural heritage into the future, and provide employment, education, and training opportunities for Indigenous people in remote areas. There are five IPAs that occur within the EMBA, on and around Flinders Island to the southwest as seen in Figure A-45. They are all important rookeries for mutton birds and important cultural resources for Tasmanian Aboriginal people.




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_IPA Projection: GDA 1994

**Figure A-45 IPAs within the EMBA**

#### A.1.5.1.2 Sea Country

Country is the term often used by Indigenous people to describe the lands, waterways, and seas to which they are connected. The term contains complex ideas about law, place, custom, language, spiritual belief, cultural practice, material sustenance, family, and identity (AIATSIS, 2022). Sea Country, also known as Saltwater Country, is of particular importance for this activity, as the EMBA may extend into areas of known Sea Country.

Smyth and Isherwood (2016) describe Sea Country as all estuaries, beaches, bays, and marine areas collectively, within a traditional estate. Sea Country contains evidence of the ancient mystical events by which all geographic features, animals, plants, and people were created. Sea Country contains sacred sites and contains tracks (or song lines) along which mythological beings travelled during the creation period (Smyth & Isherwood, 2016). The sea, like the land, is integral to the identity of First Nations groups. Connection to Sea Country is accompanied by a complexity of cultural rights and responsibilities. Formal recognition of Sea Country rights lags considerably compared to land rights; this could be for a range of reasons including conflicting perspectives and opinions on traditional custodianship of land and how far it extends (Smyth & Isherwood, 2016).

First Nations people see themselves as having responsibilities and rights across the land and sea boundaries that have been put in place over the last 200 years, this includes land that was once inundated by sea, and land that now lies beneath the sea (NOO, 2002b). Tasmania was connected to mainland Australia by a land bridge formed around 30,000 years ago during an ice age where seawater froze in ice sheets and glaciers, and sea levels dropped by about 120m. The land bridge (now known as the Bassian Plain) was home to many First Nation people and allowed for easy travel between Victoria and Tasmania for thousands of years (National Museum Australia , 2025).

About 12,000 years ago, the ice melted and sea levels rose, creating the Bass Strait, which separated Tasmania from the Australian mainland (National Museum Australia , 2025).

In April 2021, the Australian Government committed funding to the Sea Country IPA Program, under which grants will be provided to Indigenous organisations to expand existing IPAs and create new IPAs (DCCEEW, 2025). The program seeks to increase the area of sea within IPAs in Australia. Ten Sea Country IPA consultation projects were announced in May 2022, including the Nanjit to Mallacoota Sea Country IPA consultation project, which extends from Corner Inlet to the Victoria/NSW border (Figure A-46) which is overlaps with the coastal waters of the EMBA. The GLaWAC has signed an agreement with the Australian Government to start the process of establishing the Sea Country IPA and is currently undertaking engagement with families and clans who may have an interest in participating in the development of the IPA (GLaWAC, 2023). The proposed Sea Country IPA area is illustrated in Figure A-46 and is located in coastal waters along the eastern coast of Victoria from east of Wilsons Promontory to Mallacoota, including the Gippsland Lakes and estuaries around Mallacoota (within the EMBA).

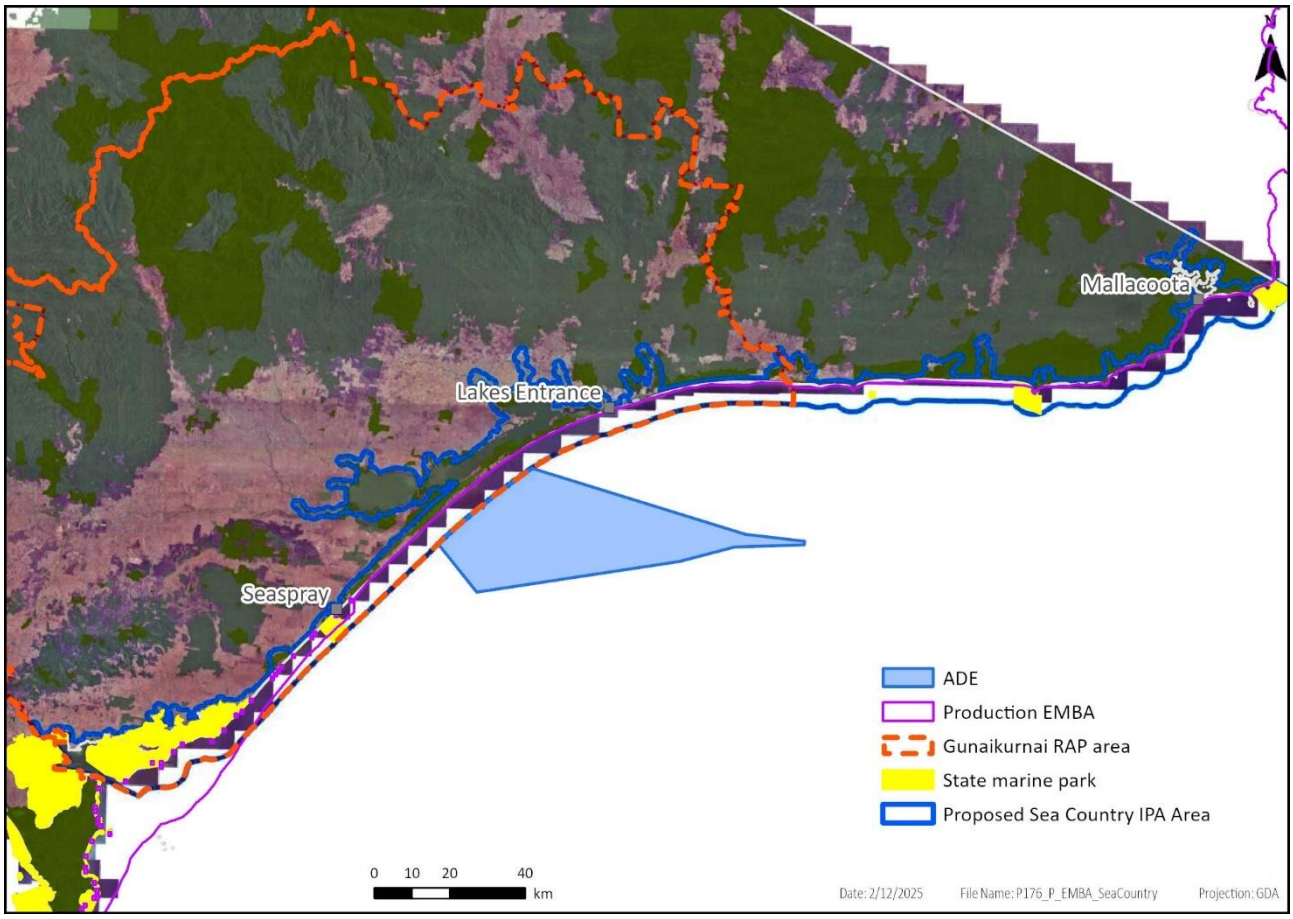



**Figure A-46 Proposed Nanjit to Mallacoota Sea Country IPA**

#### A.1.5.1.3 Native Title

Native Title is the recognition in Australian law that some Aboriginal and Torres Strait Islander people continue to hold rights and interests in land and water (Stantec Australia, 2024). Native Title is recognised through a determination made by the Federal Court of Australia.

The *Native Title Act 1993* provides a process through which Indigenous Australians can lodge an application to seek a determination of native title.

A message from the South-east Saltwater Council (2025) emphasises that "*Traditional Owners have never surrendered rights and authority to Country, including Sea Country. All Country was protected and cared for by our Ancestors for thousands and thousands of years and is cared for by our descendants today*."

Non-exclusive Native Title rights and interests that exist over land and water in the determination area include:

- rights of access
- rights to use and enjoy the land
- rights to take resources from the land for non-commercial purposes
- rights to protect and maintain sites of importance within the determination area, and
- rights to engage in certain activities on the land (including camping, cultural activities, rituals, ceremonies, meetings, gatherings, and teaching about the sites of significance within the determination area).

These rights do not confer exclusive rights of possession, use and enjoyment of the land or waters. Native Title does not exist in minerals, petroleum, or groundwater.

The Gunaikurnai people hold Native Title over much of Gippsland. The Native Title determination area (Tribunal file no. VCD2010/001) covers approximately 45,000ha and extends from west Gippsland near Warragul, east to the Snowy River, and north to the Great Dividing Range, (Figure A-47). It also includes 200m of offshore sea territory between Lakes Entrance and Marlo. The area includes 10 parks and reserves that are jointly managed

by the Victorian government and the Gunaikurnai people (NNTT, 2010). The Gunaikurnai people have occupied, used, and managed the coastal land and sea environment along the coastline adjacent to the EMBA for many thousands of years. These include areas that were dry land before the current sea level stabilised about 5000 years ago. During the last Ice Age approximately 25,000 years ago, coastlines were on average 125m lower than the present day (Umwelt, 2022). The Gunaikurnai peoples cultural and spiritual connection with these landscapes continues, even where evidence of previous occupation now lies beneath the ocean (GLaWAC, 2015).

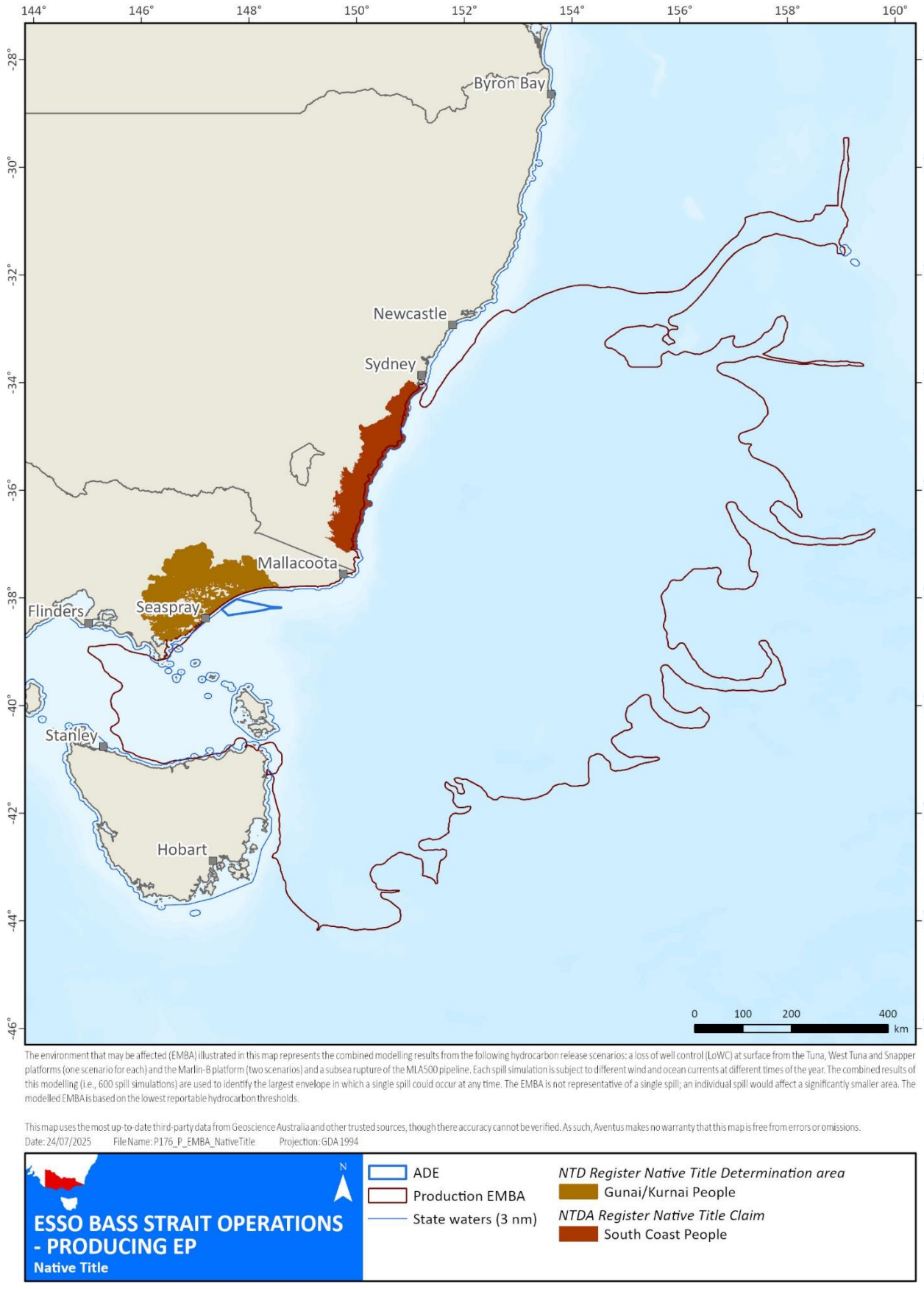
In the past, coastal wetlands were highly productive areas for hunter-gatherer people, having a variety of habitats and species, so the majority of archaeological sites in Victoria are found within 1km of the coast (LCC, 1993). Along the Gippsland coast, stone artefacts that have been found were mostly made from silcrete and quartz from the hinterland. Middens on offshore islands indicate that in the past, Aboriginal people from the area now known as Wilsons Promontory were likely to have visited (Jones & Allen, 1979).

The Gunaikurnai people see no distinction between the land and the sea – it is all part of Country (GLaWAC, 2023). Sea Country can include parts of open ocean, beaches, land and freshwater on the coast. It encompasses all living things, beliefs, values, creation spirits and cultural obligations connected to an area (The University of Adelaide, n.d.). Water is of particular cultural significance to First Nations people as an integral part of songs, ceremonies, hunting and collecting, and other activities that bind people to their country and each other, including fishing (Smyth, Egan, & Kennett, 2018).

Coastal environments are an integrated cultural landscape/seascape that is conceptually very different from the broader Australian view of land and sea. Protecting this cultural heritage is a major concern for First Nation people (NOO, 2002b).

There are no Native Title determinations in NSW within the EMBA, however a Native Title Claimant Application was registered by the South Coast People (NSD1331/2017) for an area covering the NSW South Coast from the south of Sydney to Eden, including the coastal waters (NNTT, 2018) (Figure A-47). Indigenous places along the southern NSW coast include Barlings Beach, Ten Pelican Lake BrouBarunguba Aboriginal Place, Mystery Bay Fish Trap, Merriman Island and Bermagui Waterhole (OEH, 2019).

There are no Native Title determinations in Tasmania, although there are areas of Indigenous cultural significance and IPAs including Mt Chappell Island, Badger Island, Babel Island, Great Dog Island in the Ferneaux Group (DPMC, 2019).




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though there accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 24/07/2025 File Name: P176_P_EMBA_NativeTitle Projection: GDA 1994

**Figure A-47 Native Title claims and determinations intersected by the EMBA**

#### A.1.5.1.4 Indigenous Land Use Agreements

According to the National Native Title Tribunal website (2025) an Indigenous Land Use Agreements (ILUA) is a voluntary agreement between native title parties and other people or bodies about the use and management of areas of land and/or waters. An ILUA can be made over areas where:

- native title has been determined to exist in at least part of the area
- a native title claim has been made
- no native title claim has been made.

The EMBA overlaps a section of the Twofold Bay (NI2001/003) ILUA in waters surrounding Whale Beach, Brierly Point, Fisheries Beach, Bilgalera Point and Honey Suckle Point. Figure A-48 shows the ILUAs adjacent to the EMBA.

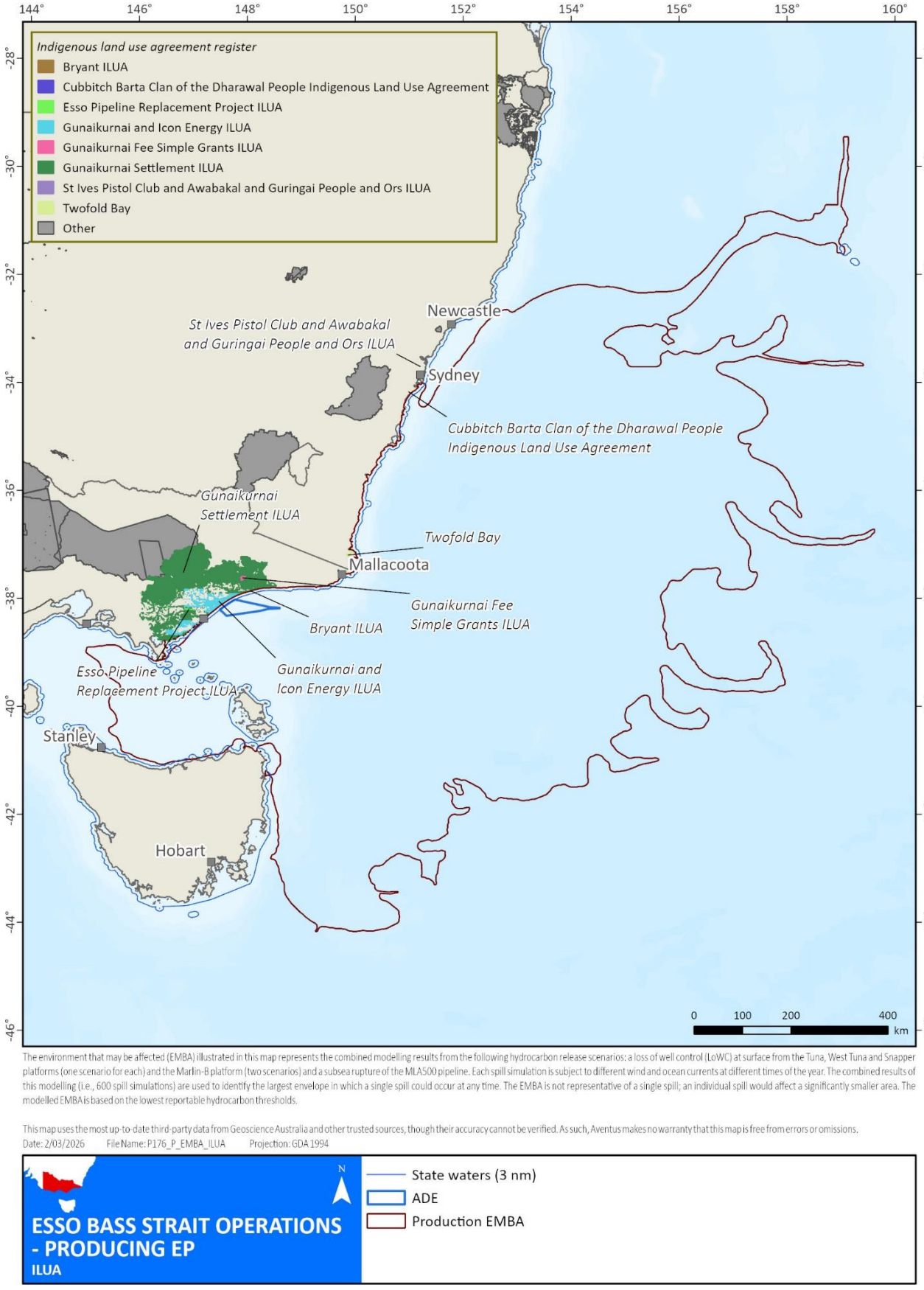



**Figure A-48 ILUAs overlapped and in proximity to the EMBA**

### *A.1.5.2 Maritime*

A search of the Australasian Underwater Cultural Heritage Database (2025a)which includes all known shipwrecks in Australian waters, identified hundreds of historic shipwrecks within the EMBA. Shipwrecks over 75 years old are protected within Commonwealth waters under the *Underwater Cultural Heritage Act 2018* (Cth).

In addition to the general protection provided to underwater heritage sites, the *Underwater Cultural Heritage Act 2018* (Cth) also provides that an area containing protected underwater heritage may be declared to be a protected zone. These zones may be established for several reasons including conservation, management or public safety considerations. There are 28 shipwrecks across Australia that have a protection zone in place. The three protection zones within the EMBA are listed below and shown in Figure A-49:

- *Clonmel* (1841) – Victoria
- SS *Glenelg* (1900) – Victoria
- SS *Federal* (1901) – Victoria.

Figure A-49 maps the location of known shipwrecks within the EMBA.

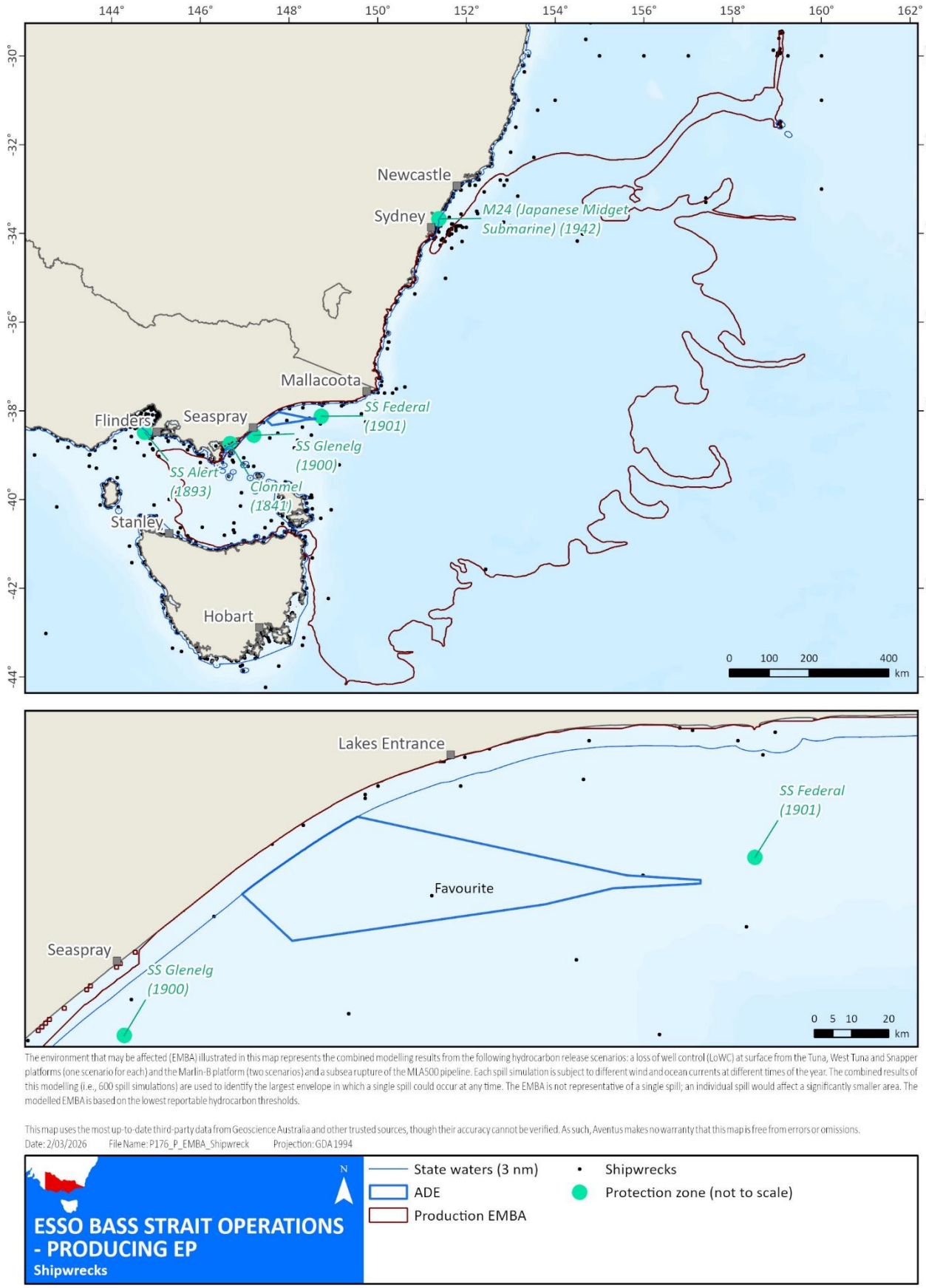



**Figure A-49 Shipwrecks within the EMBA**

## A.1.6 Socio-economic environment

The social values of the environment can be defined in many ways, and the relative importance of the values will vary depending on the perspective and interests of the people, groups or organisations affected (or otherwise). Social values, therefore, can be described in terms of conservation and biodiversity values, economic drivers, or cultural significance. This Section describes the values of the socio-economic and recreational activities in the EMBA.

### *A.1.6.1 Commercial fishing*

Several Commonwealth, Victorian, Tasmanian and NSW commercial fisheries are licensed to operate in and around the EMBA. These are described in the following Sections.

#### A.1.6.1.1 Commonwealth fisheries

There are 22 Commonwealth fisheries that operate within Australian waters. Commonwealth fisheries are managed by the Australian Fisheries Management Authority under the *Fisheries Management Act 1991* (Cth). Their jurisdiction covers the area of ocean from 3nm from the coast out to the 200nm limit (the extent of the Australian Fishing Zone). Table A-9 summarises the Commonwealth fisheries with jurisdiction to fish within the EMBA based on the latest fishery status reports (Butler I. P., 2024); (Woodhams, et al., 2025)and latest pooled fishing intensity over varying years (where GIS data is available)

**Table A-9 Commonwealth fisheries within the EMBA**

| Commonwealth fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Bass Strait Central Zone Scallop Fishery (BSCZSF) | Commercial scallop (*Pecten fumatus*). | The BSCZSF operates in the central area of Bass Strait between the Victorian and Tasmanian scallop fisheries (see below sections). In 2023, fishing was permitted throughout the area of the fishery, except in four scallop beds that were closed under the BSCZSF harvest strategy. The EMBA overlaps fishing intensity from 2019 - 2024 that was concentrated on beds northeast of Flinders Island (Figure A-50).<br>The 2024 fishing season attained a catch of 1106t valued at AUD$2.64M. Thirty-seven fishing permits and eight fishing vessels were in active in 2024 and the primary landing ports were Beauty Point, Devonport, and Stanley (Tasmania); Apollo Bay, Lakes Entrance, Melbourne, Port Welshpool, Queenscliff, and San Remo (Victoria). Scallop dredges are the fishing method used in this fishery. | 52.63% |
| Eastern Tuna and Billfish Fishery (ETBF) | Albacore (*Thunnus alalunga*), bigeye tuna, yellowfin tuna (*Thunnus albacares*), striped marlin (*Kajikia audax*) and swordfish. | The ETBF operates in the exclusive economic zone and adjacent high seas, from Cape York Queensland to the Victoria – South Australian border, including waters around Tasmania and the high seas of the Pacific Ocean. Most of the catch in the fishery is taken with pelagic longlines, although a small quantity is taken using minor-line methods. The EMBA overlaps fishing intensity from 2019 - 2024 that was concentrated around offshore waters off NSW (Vic) (Figure A-51).<br>Catch for the 2024 fishing season was 4862t valued at $38.6M, with 48 active vessels. The primary landing ports are Bermagui, Coffs Harbour and Ulladulla (NSW), Cairns, Mooloolaba and Southport (Queensland). | 16.89% |
| Small Pelagic Fishery (SPF)* | Blue mackerel (*Scomber australasicus*), jack mackerel (*Trachurus declivis*), redbait (*Emmelichthys nitidus*) and Australian sardine (*sardinops sagax*). | The SPF extends from southern Queensland to southern Western Australia. The fishery includes purse-seine and midwater trawl fishing methods. The maximum area fished for the 2023 - 2024 season was along the far eastern coast of Victoria and some areas along the NSW and South Australian coast. (Figure A-52).<br>Catch for the 2023 - 2024 fishing season was 23t with no value available. 28 fishing permits and five vessels were active in the 2023 - 2024 fishing season, with the primary landing ports being Eden and Ulladulla (NSW). | 18.35% |

| Commonwealth fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Commonwealth Trawl Sector (CTS)* | Blue grenadier (*Macruronus novaezelandiae*), tiger flathead (*Neoplatycephalus richardsoni*), orange roughy, pink ling and eastern school whiting *(Sillago flindersi).*<br>(Based on main species landed in 2022 - 2023 fishing season). | The CTS extends south from Barrenjoey Point in northern NSW to east of Kangaroo Island, South Australia. The CTS and the Scalefish Hook Sectors (SHSs) are major domestic sources of fresh fish for the Sydney and Melbourne markets. The CTS predominantly uses demersal otter trawl (Figure A-53). The EMBA overlaps fishing intensity from 2019 - 2023 which was saturated along the shelf waters in NSW, eastern Victoria and eastern Tasmania. The EMBA overlaps fishing intensity from 2019 - 2023 for the Danish-seine sector (Figure A-54)which had fishing intensity saturated along eastern Victoria and in waters surrounding Flinders Island (Tasmania).<br>Features and statistics for the CTS and the SHS are combined, during the 2023 - 2024 fishing season the sectors attained a total catch of 12,919t, however, at the time of the publication the value of the catch was not available. There were 24 trawl vessels and 18 Danish-seine active vessels during the 2023 - 2024 fishing season. Eden, Sydney and Ulladulla (NSW), Hobart (Tasmania), Lakes Entrance and Portland (Victoria) are the primary landing ports. | 42.85% |
| SHS* | Blue grenadier, tiger flathead, orange roughy, pink ling and eastern school whiting.<br>(Based on main species landed in 2022 - 2023 fishing season). | The SHS extends around southeastern Australia to the border between South Australia and Western Australia (Figure A-55). The SHS uses a variety of longline and dropline hook fishing methods, some of which are automated. The EMBA overlaps low fishing intensity from 2019 - 2021 in patches along the eastern coast of Tasmania (Figure A-55).<br>See the CTS for the catch and value information during the 2023 - 2024 fishing season. There were 13 scalefish hook active vessels during the 2023 - 2024 fishing season. Eden, Sydney and Ulladulla (NSW), Hobart (Tasmania), Lakes Entrance and Portland (Victoria) are the primary landing ports. | 20.53% |
| Shark Gillnet and Shark Hook Sectors (SGSHS)* | Gummy shark. | Most fishing in the SGSHS using nets occurs in Bass Strait, while most fishing using hooks occurs off South Australia. The SGSHS uses demersal gillnet and demersal longline to target gummy shark although, sawsharks (*Pristiophorus cirratus and Pristiophorus nudipinnis*) and elephantfish (*Callorhinchus milii*) are caught as byproducts.<br>The EMBA overlaps 2019 - 2023 fishing intensity for the shark gillnet sector – which was prevalent in eastern Victoria, central Bass Strait and the waters surrounding northern Tasmania (including King and Flinders Island) (Figure A-56). | 20.46% |

| Commonwealth fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| | | The EMBA overlaps fishing intensity from 2019 - 2023 of the shark hook sector in pockets located southwest of Flinders Island (Tasmania) and around Robbins Island (Tas) Figure A-57.<br><br>During the 2023 - 2024 fishing season the SGSHS attained a total catch of 2116t, however, at the time of the publication the value of the catch was not available. | |
| Southern Bluefin Tuna Fishery (SBTF) | Southern bluefin tuna *(Thunnus maccoyii).* | The SBTF spans the Australian Fishing Zone. Young fish (1 – 4 years of age) move from the spawning ground in the northeast Indian Ocean into the Australian Exclusive Economic Zone and southwards along the West Australian coast. Since 1992, most of the Australian catch has been taken by purse seine, targeting juvenile southern bluefin tuna (2 – 4 years of age) in the Great Australian Bight. This catch is transferred to aquaculture farming operations off the coast of Port Lincoln, South Australia, where the fish are grown to a larger size to achieve higher market prices. The fishing methods used by the SBTF include purse seine, pelagic longline and minor line. The EMBA overlaps fishing intensity from 2020 - 2024 which was saturated offshore in the southeastern coast of NSW around Eden and Merimbula (Figure A-58).<br><br>During the 2023 - 2024 fishing season attained 6325t of catch valued at $46.8 million and 85 fishing permits were present along with 32 active vessels. The primary landing port is Port Lincoln (South Australia). | 8.08% |
| Southern Squid Jig Fishery (SSJF) | Gould's squid (*Nototodarus gouldi*). | The SSJF is located off NSW, Victoria, Tasmania and South Australia, and in a small area of oceanic waters off southern Queensland. The fishery typically operates at night in continental-shelf waters between depths of 60m and 120m using a single-method (jigging). The EMBA overlaps low level fishing intensity from 2020 - 2024 which occurred off the eastern coast of Tasmania (Figure A-59).<br><br>During the 2024 fishing season the SSJF had eight active vessels attaining 1052t of catch valued at $3.42 million. The primary landing ports were Portland, Apollo Bay, Port Fairy, Geelong and Queenscliff (Victoria), Stanley and Triabunna (Tasmania). | 22.71% |

Sources: (Butler I. P., 2024); (Woodhams, et al., 2025)

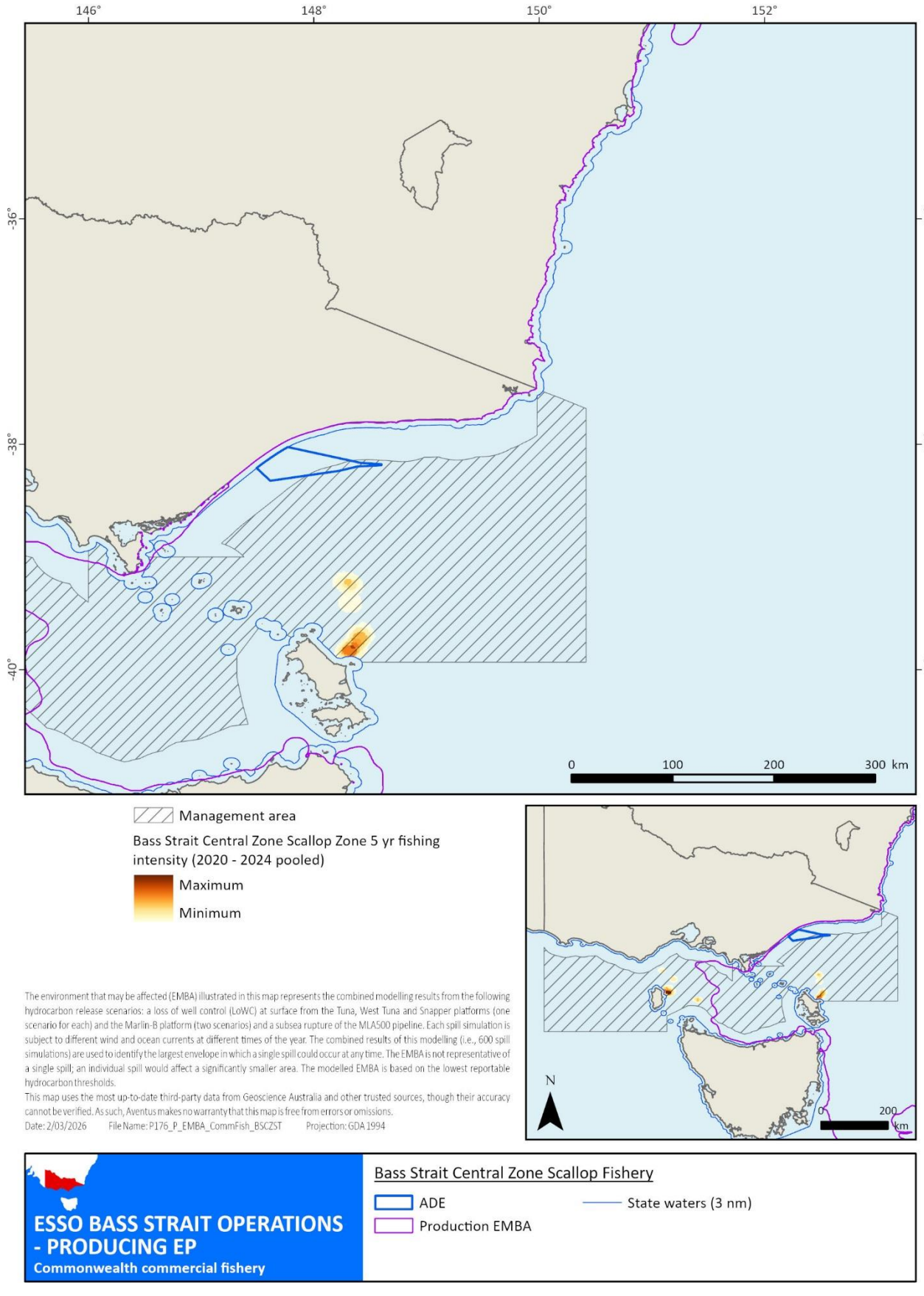



**Figure A-50 BSCZSF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA**

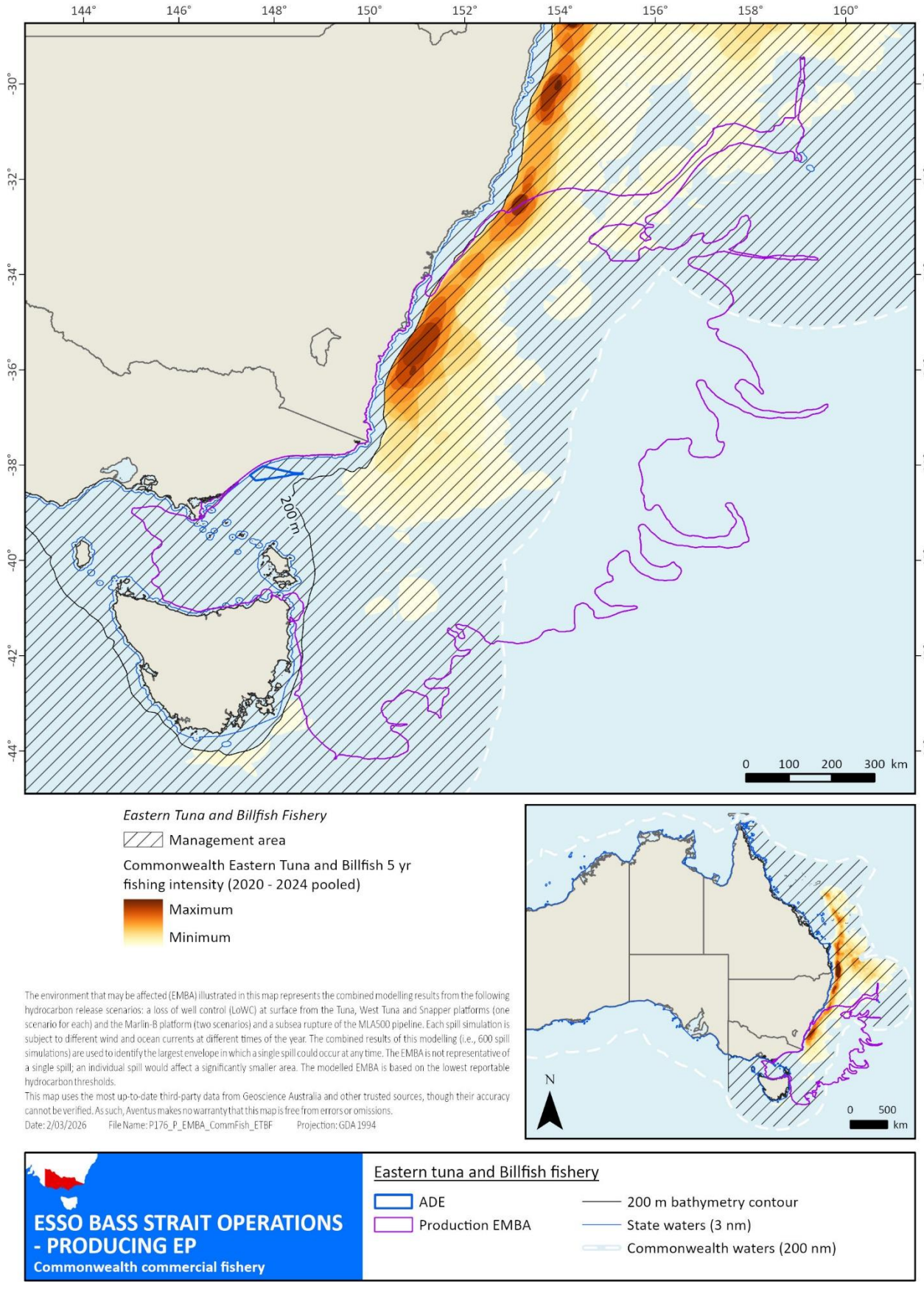



**Figure A-51 ETBF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA**

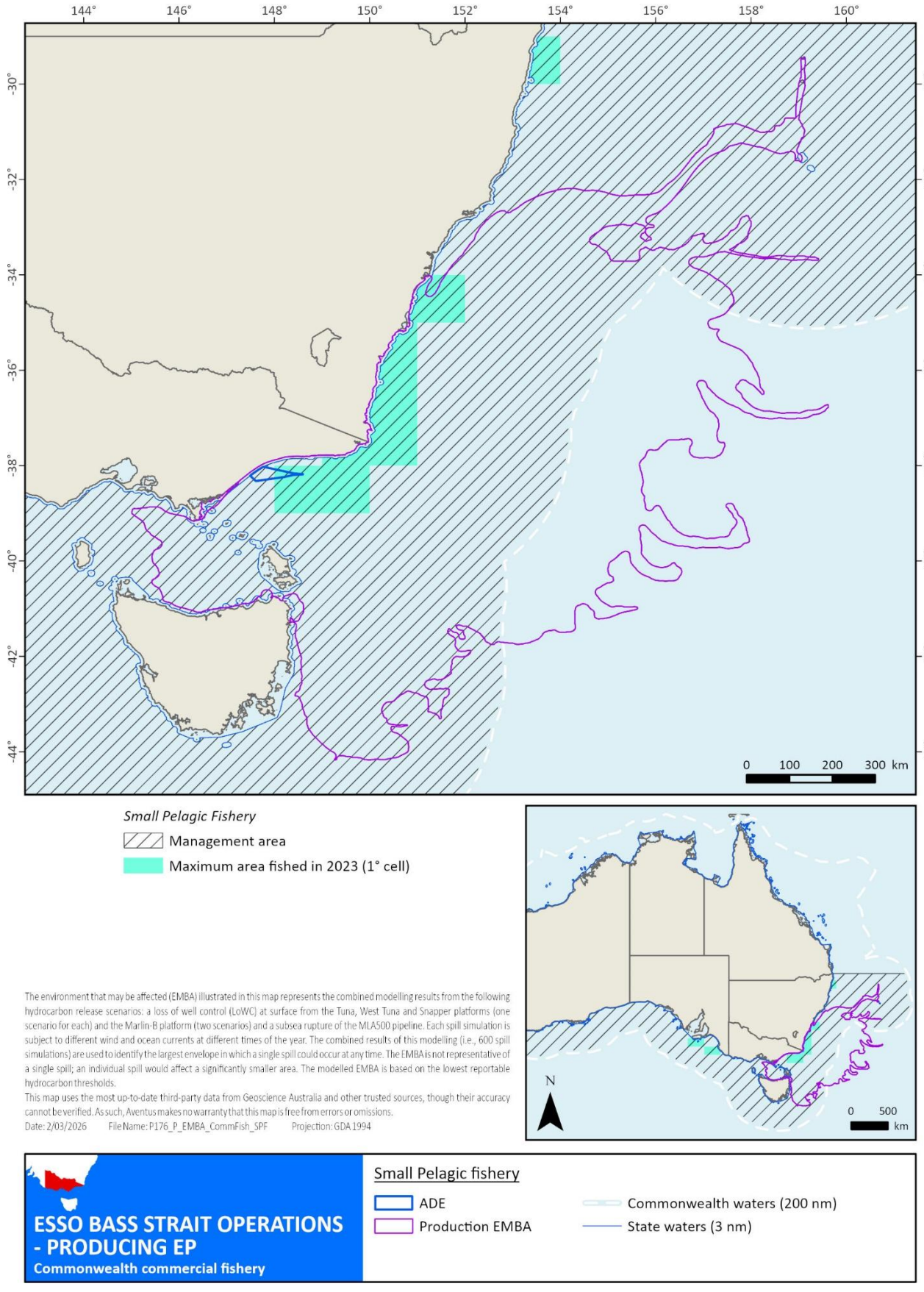



**Figure A-52 SPF maximum area fished (2023 season) intersected by the EMBA**

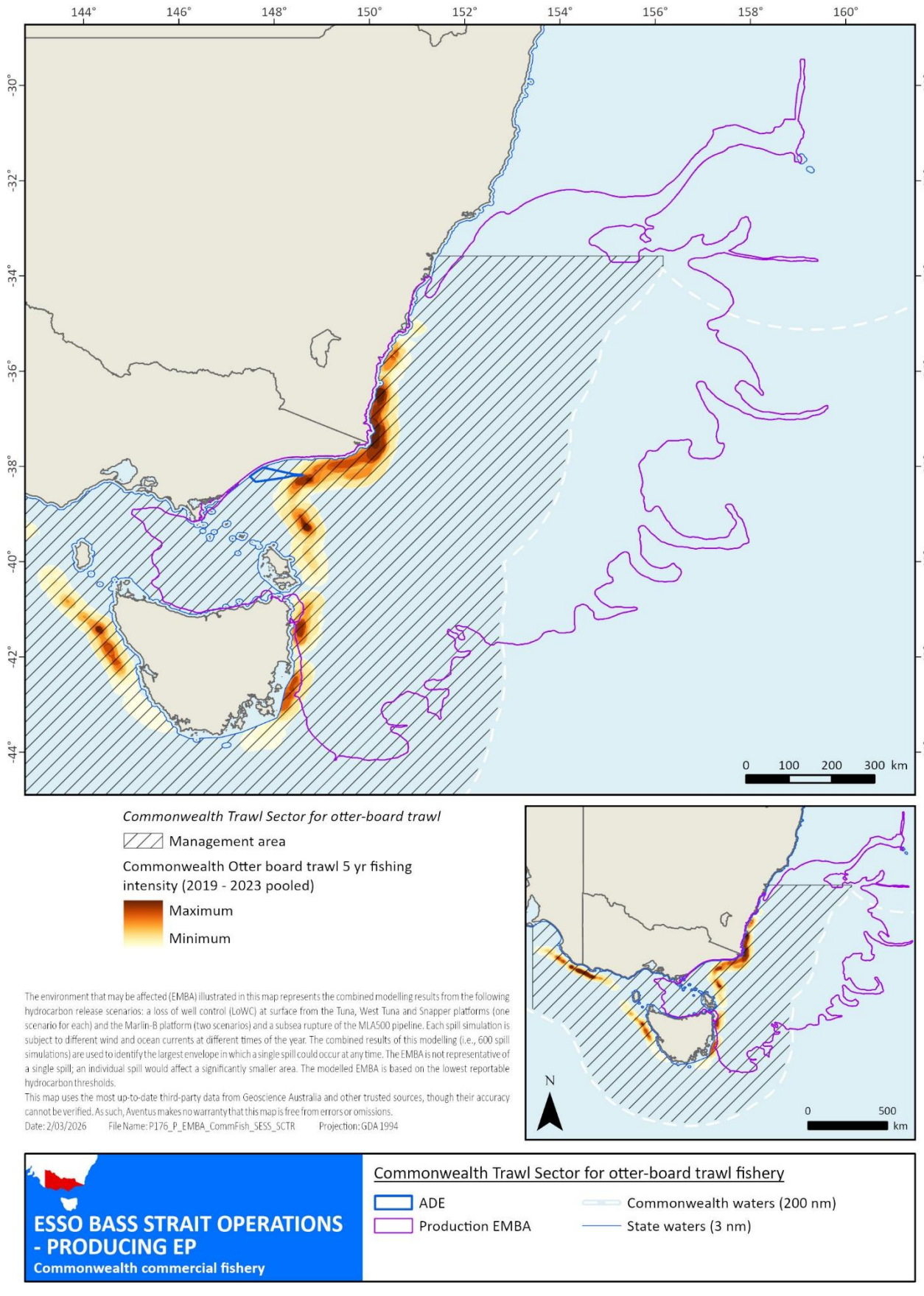



**Figure A-53 Southern and Eastern Scalefish and Shark Fishery (SESSF) CTS otter-board jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA**

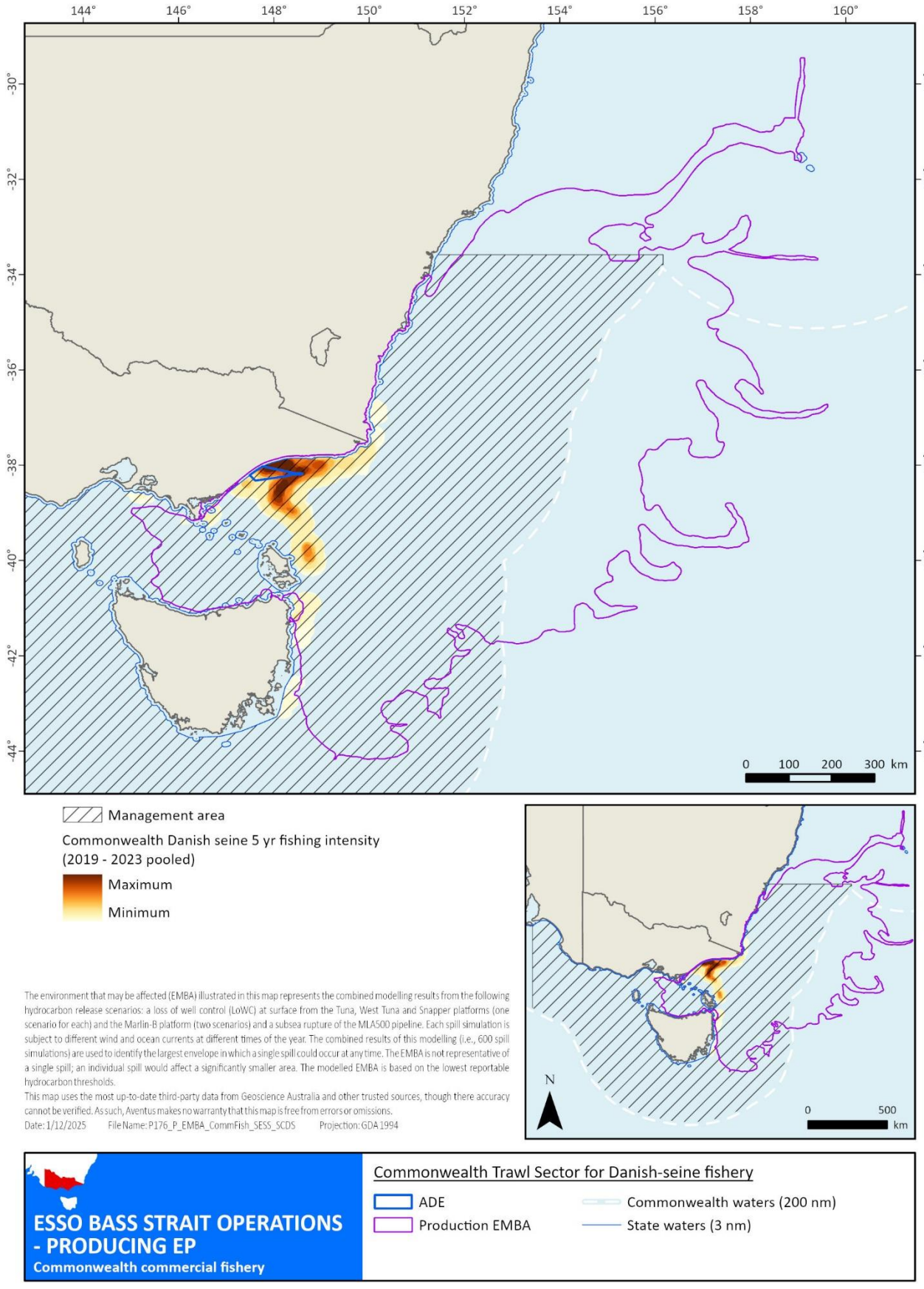



**Figure A-54 SESSF CTS Danish-seine jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA**

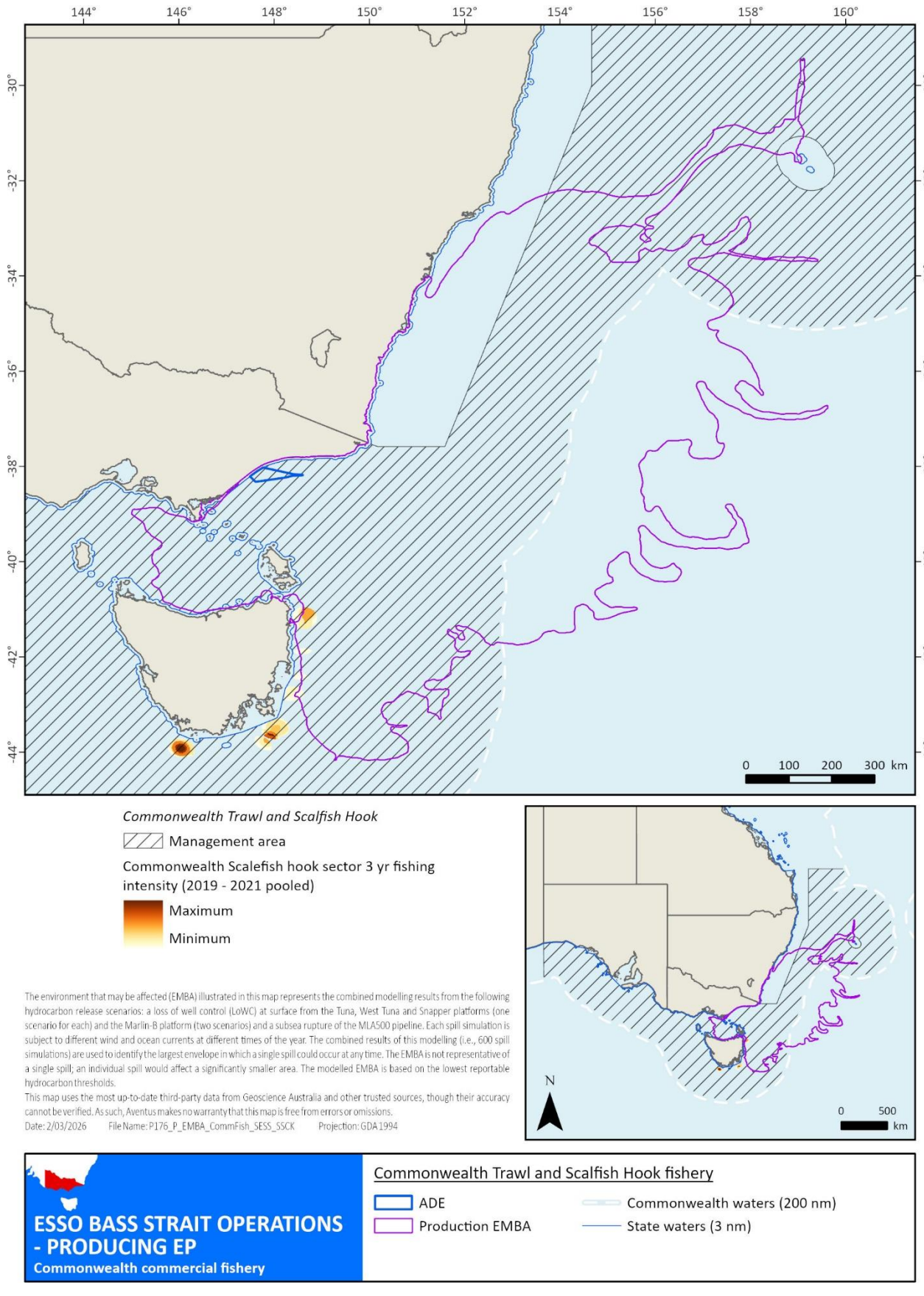



**Figure A-55 SHS jurisdiction and fishing intensity (2019 - 2021) intersected by the EMBA**

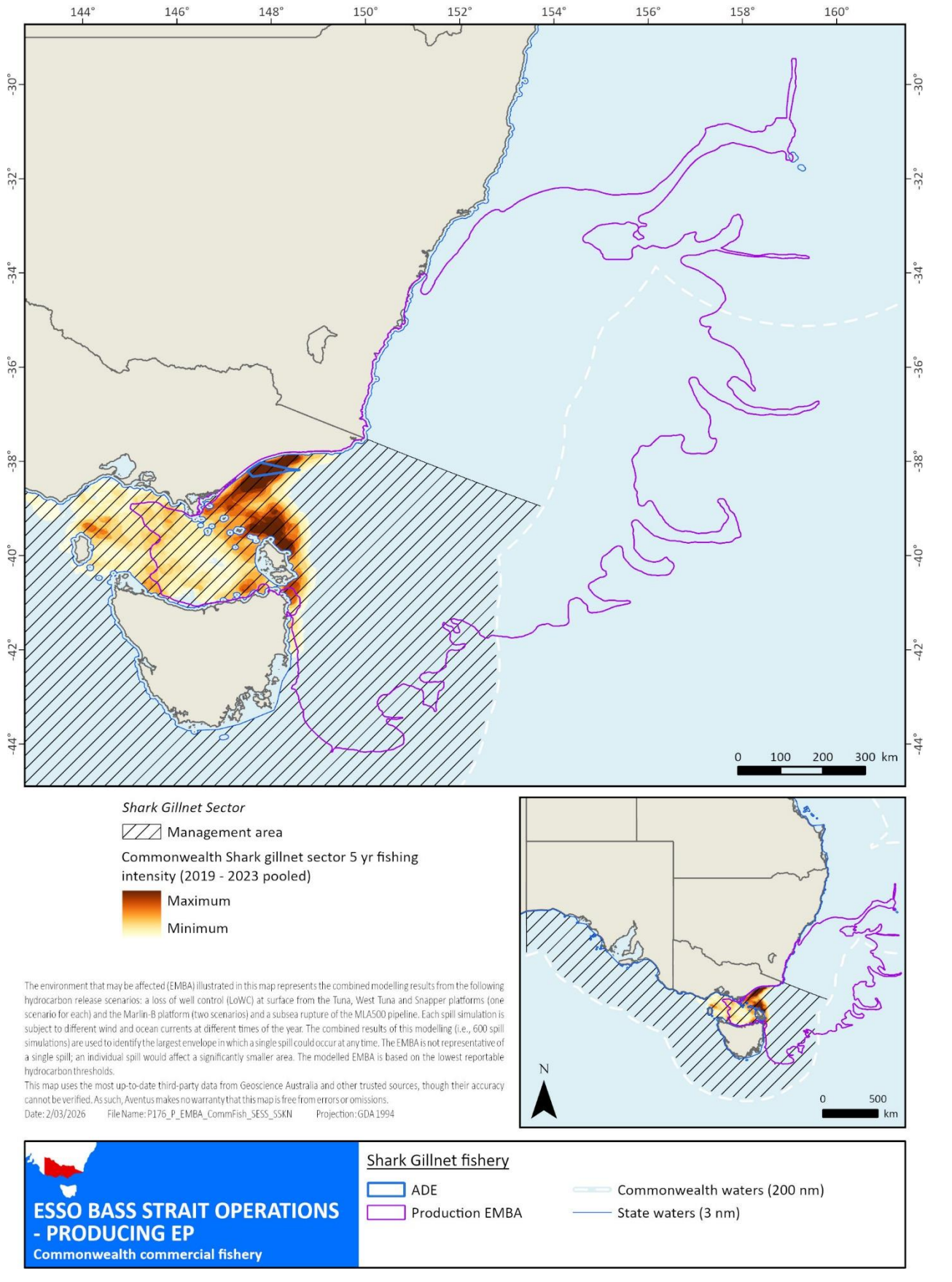
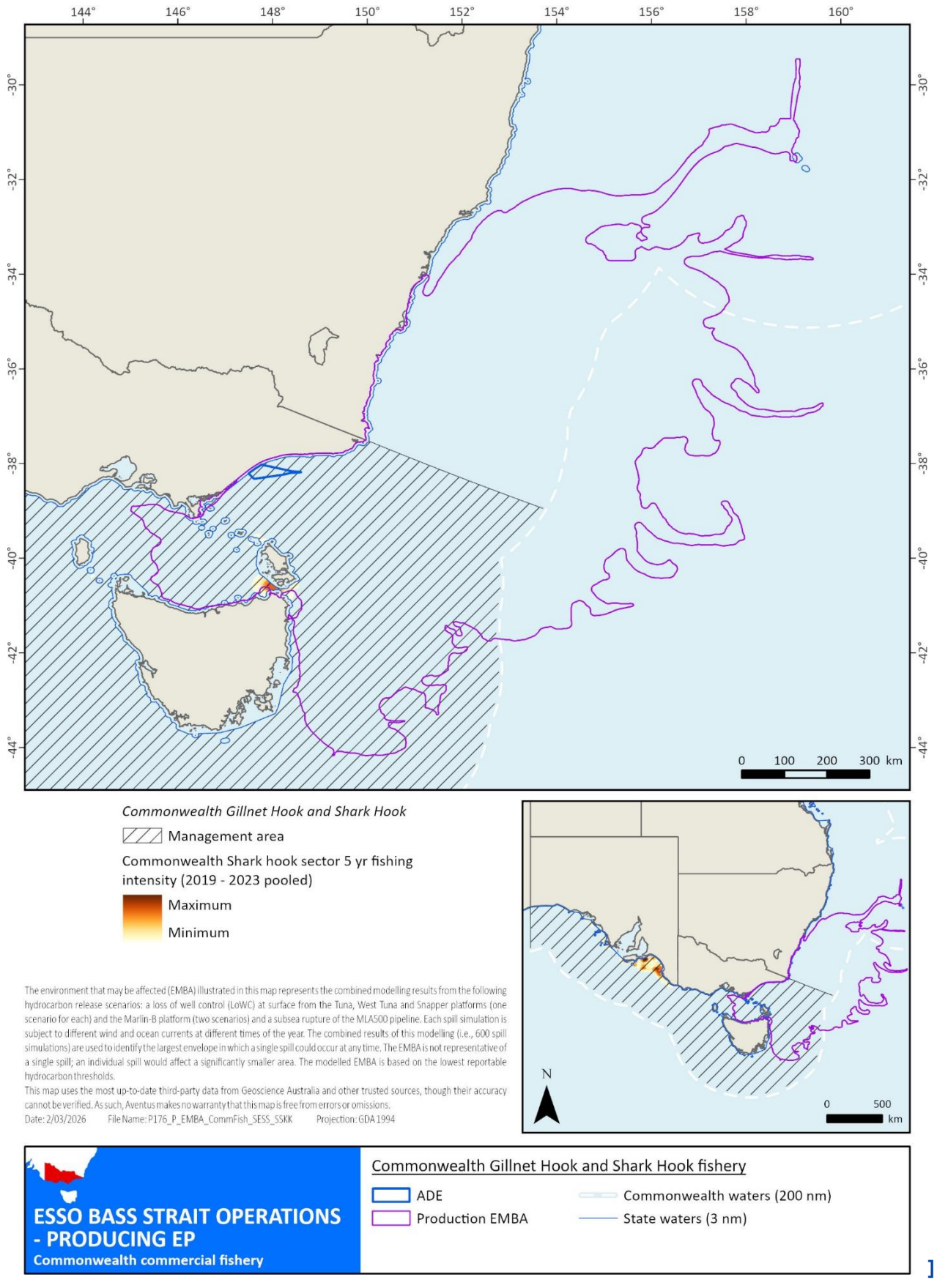



**Figure A-56 SESSF SGSHS gillnet jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA**




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**Figure A-57 SESSF SGSHS hook jurisdiction and fishing intensity (2019 - 2023) intersected by the EMBA**

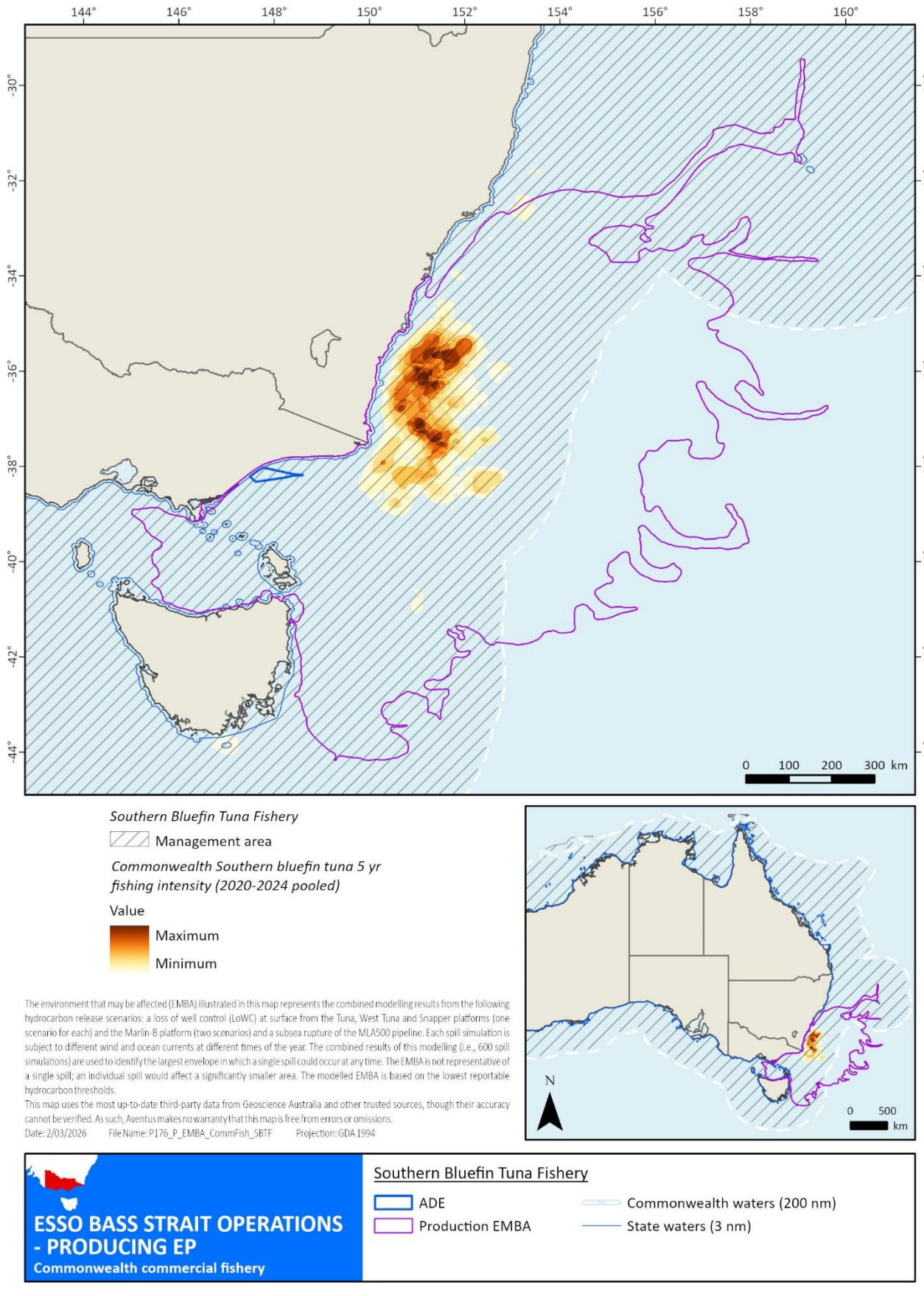



**Figure A-58 SBTF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA**

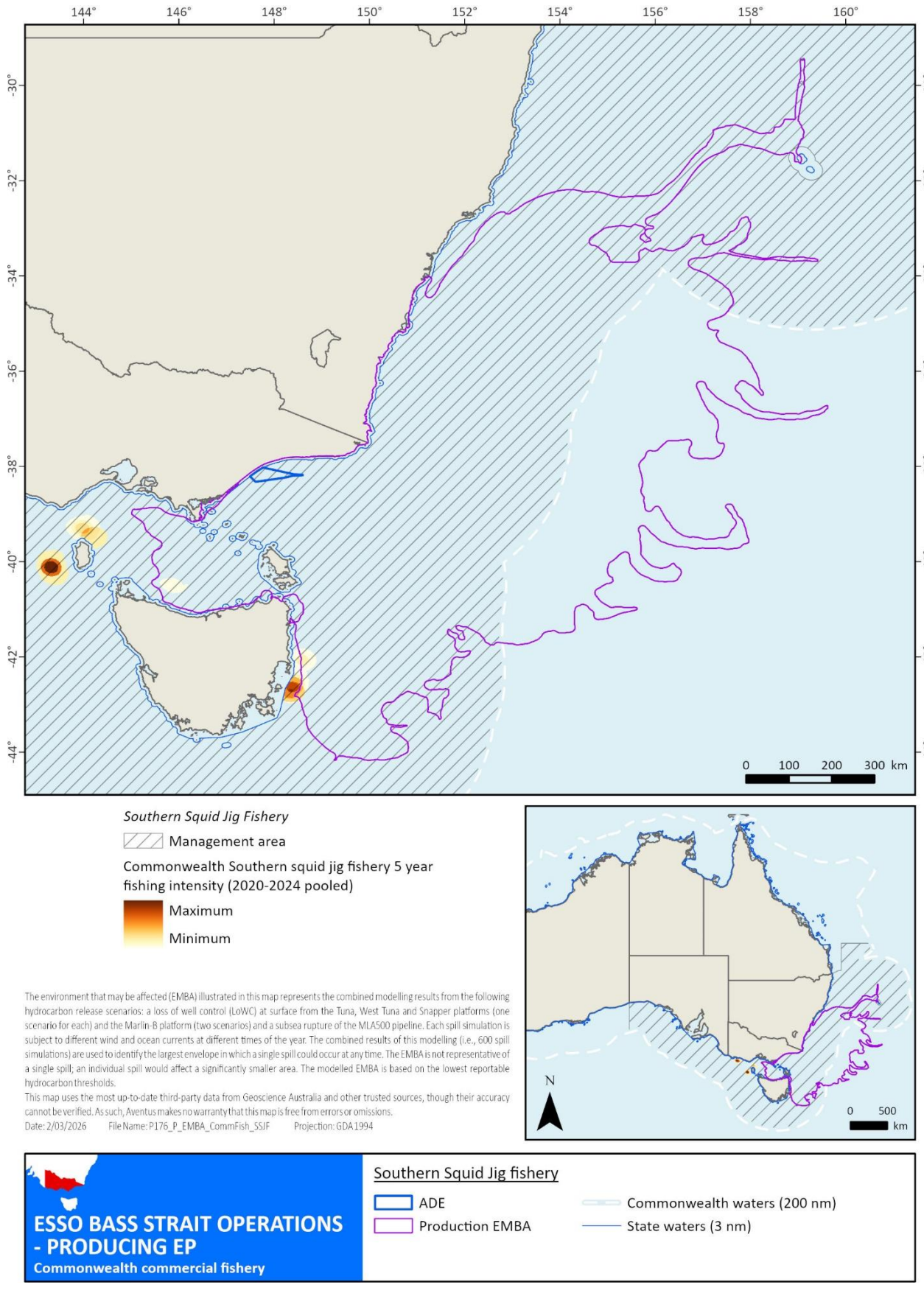



**Figure A-59 SSJF jurisdiction and fishing intensity (2020 - 2024) intersected by the EMBA**

#### A.1.6.1.2 Victorian fisheries

Victorian-managed commercial fisheries with jurisdiction to fish in the waters of the EMBA are described in Table A-10.

**Table A-10 Victorian managed fisheries within the EMBA**

| Victorian fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Abalone fishery<br>(Figure A-61) | Blacklip abalone (*Haliotis rubra*) is the primary target, with greenlip abalone (*Haliotis laevigata*) taken as a bycatch. | The abalone fishery is one of Victoria's most valuable commercial fisheries that started in 1962. Almost all catch is exported to international markets, predominately in Asia. Abalone are caught along most of the Victorian coastline. Abalone are collected by divers (generally no greater than 30m deep) who use an iron bar to prise it from the rocks. The divers can stay under water for long periods by using hookah gear.<br>There is no fishing data available for abalone fisheries. | 46.09% |
| Giant crab fishery<br>(Figure A-61) | Giant crabs (*Pseudocarcinus gigas*). | The giant crab fishery is a small, limited entry fishery affiliated with the rock lobster fishery. Fishers target giant crabs using baited rock lobster pots.<br>There were zero days fished within the EMBA between 2021 - 2025. | 45.73% |
| Pipi fishery<br>(Figure A-62) | Pipi. | The pipi fishery zone covers the entire Victorian coastline, excluding the intertidal zone of Port Phillip Bay, marine national parks, and sanctuaries where shellfish cannot be harvested. Pipis are found in habitats with high energy surf areas and sandy beaches. The known areas of harvestable quantities of pipi are beaches in Discovery Bay and surrounds in the west, and in Venus Bay and surrounds in the east.<br>There were zero days fished within the EMBA between 2021 - 2025. | 55.20% |
| Rock lobster fishery<br>(Figure A-63) | Southern rock lobster (*Jasus edwardsii*). | The fishery is divided into two separately managed zones: eastern and western. The eastern zone extends west from the NSW border to Apollo Bay; the western zone extends from Apollo Bay west to the border with South Australia. The main ports in the eastern zone are Queenscliff, San Remo and Lakes Entrance.<br>Rock lobster is Victoria's second most profitable fishery after abalone. Southern rock lobsters are found to depths of 150m, with most of the catch coming from inshore waters less than 100m deep.<br>There were less than 54 days fished within the EMBA between 2021 - 2025. | 45.73% |

| Victorian fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Scallop fishery<br>(Figure A-64) | Commercial scallop. | The Victorian scallop fishery extends 20nm from the high tide water mark of the entire Victorian coastline (excluding bays and inlets where commercial scallop fishing is prohibited). Highest fishing effort is concentrated in the eastern waters of the State, with most vessels launching from Lakes Entrance and Port Welshpool.<br>There were 0 - 88 days fished along the Victorian coastline within the EMBA between 2021 - 2025. | 43.67% |
| Octopus fishery<br>(Figure A-65) | Primary: pale octopus (*Octopus pallidus)* however, Maori octopus (*Macroctopus maorum)* and gloomy octopus (*Octopus tetricus*) may also be taken. | This fishery is the newest addition to the Victorian fisheries, commencing in 2020. The only area the fishery operates in is the eastern zone extending from Seaspray to the Victorian/NSW border and out to 20nm offshore, except for marine reserves. Octopus fishing in the central and western zones is less established and is being managed by the Victorian Fisheries Association through exploratory, temporary permits.<br>There were up to 71 days fished along the Victorian coastline within the EMBA between 2021 - 2025. | 46.77% |
| Wrasse fishery<br>(Figure A-66) | Primary: bluethroat wrasse (*Notolabrus tetricus*), purple wrasse *(Notolabrus fucicola).*<br>Other: rosy wrasse (*Pseudolabrus psittaculus*), senator wrasse, southern Maori wrasse. | The commercial fishery extends along the entire length of the Victorian coastline and out to 20nm offshore, except for marine reserves. Most wrasse is harvested by hook and line although commercial rock lobster fishers who also hold a commercial wrasse licence can keep those fish that they catch in their rock lobster pots.<br>There were 0 - 185 days fished in a small area of the Victorian coastline within the EMBA between 2021 - 2025. | 43.67% |
| Sea urchin fishery<br>(Figure A-67) | White sea urchin (*Tripneustes ventricosus*), long-spined sea urchin | The sea urchin fishery comprises of four individual management zones. The central zone covers Victorian waters from Hopkins River to Lakes Entrance. The eastern zone extends from Lakes Entrance to the NSW border. | 57.09% |

| Victorian fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| | (*Centrostephanus rodgersii*) and short-spined sea urchin (*Heliocidaris erythrogramma*) | The target species are the white sea urchin and the black, long-spined sea urchin. The sea urchin is usually collected by hand by divers. Currently, sea urchin will only be harvested in eastern Victoria, primarily out of Mallacoota, and in Port Phillip Bay.<br>There is no fishing data available for sea urchin fisheries. | |
| Ocean (general) fishery<br>(Figure A-68) | A range of fish including salmon, snapper, whiting, trevally, mackerel and gummy shark. As well as calamari and rays. | This fishery jurisdiction is the entire Victorian catch and effort cells, excluding bays and inlets. Haul seine gears, multi-filament mesh nets, non-shark monofilament mesh nets, hand lines, hand squid jigs, longlines, drop lines and troll lines are all used.<br>There was 0 - 192 days fished along the Victorian coastline within the EMBA between 2021 - 2025. | 55.63% |
| Trawl (inshore)<br>(Figure A-69) | A range of fish species including flathead, whiting and mackerel as well as eastern king prawns (*Melicertus plebejus*), eastern school pawns, bug, sand crab and octopus. | This fishery jurisdiction is also the entire Victorian catch and effort grids, excluding bays and inlets. Trawling is the primary fishing method used.<br>There was 0 - 1437 days fished along the Victorian coastline within the EMBA between 2021 - 2025. | 55.63% |

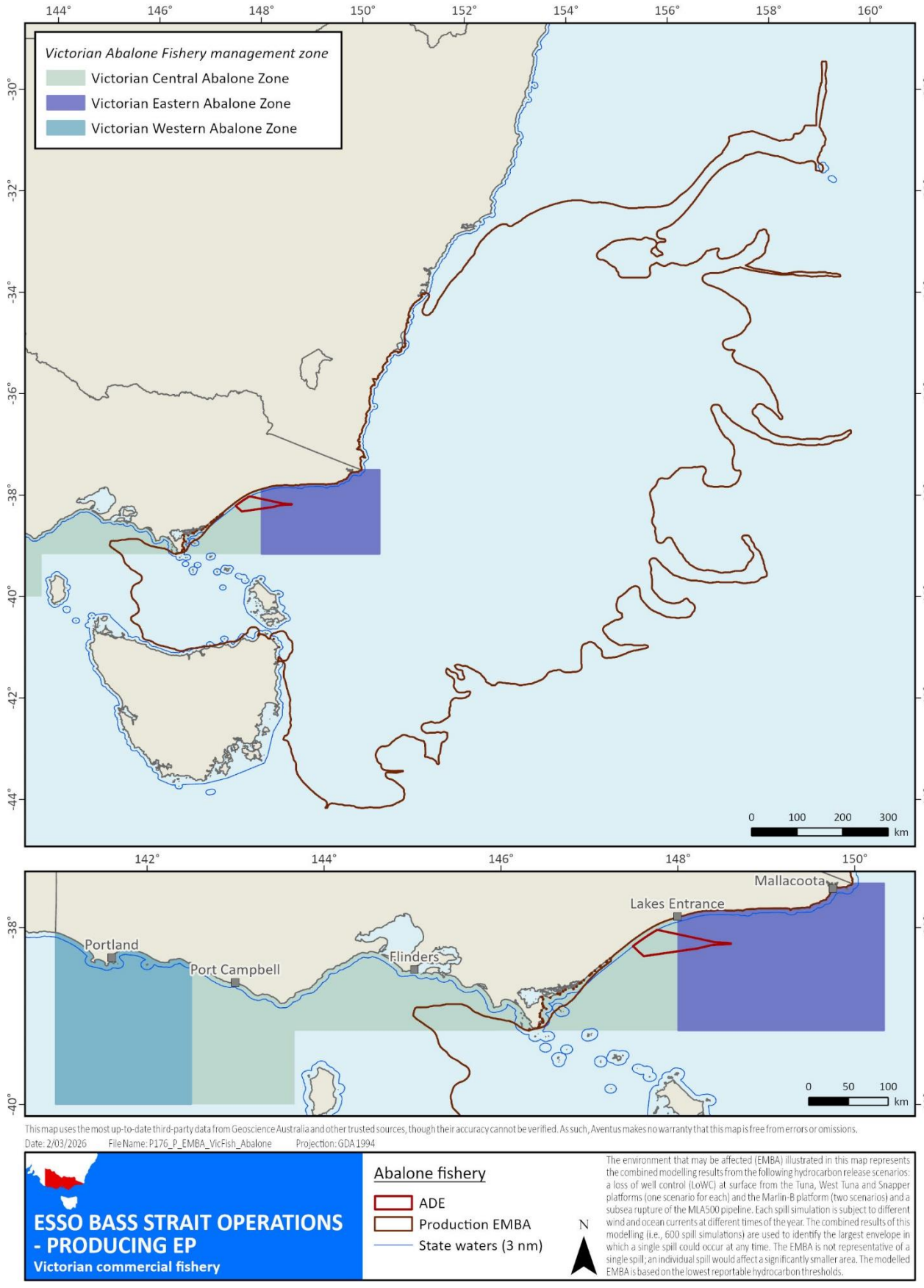



**Figure A-60 Victorian abalone fishery jurisdiction intersected by the EMBA**

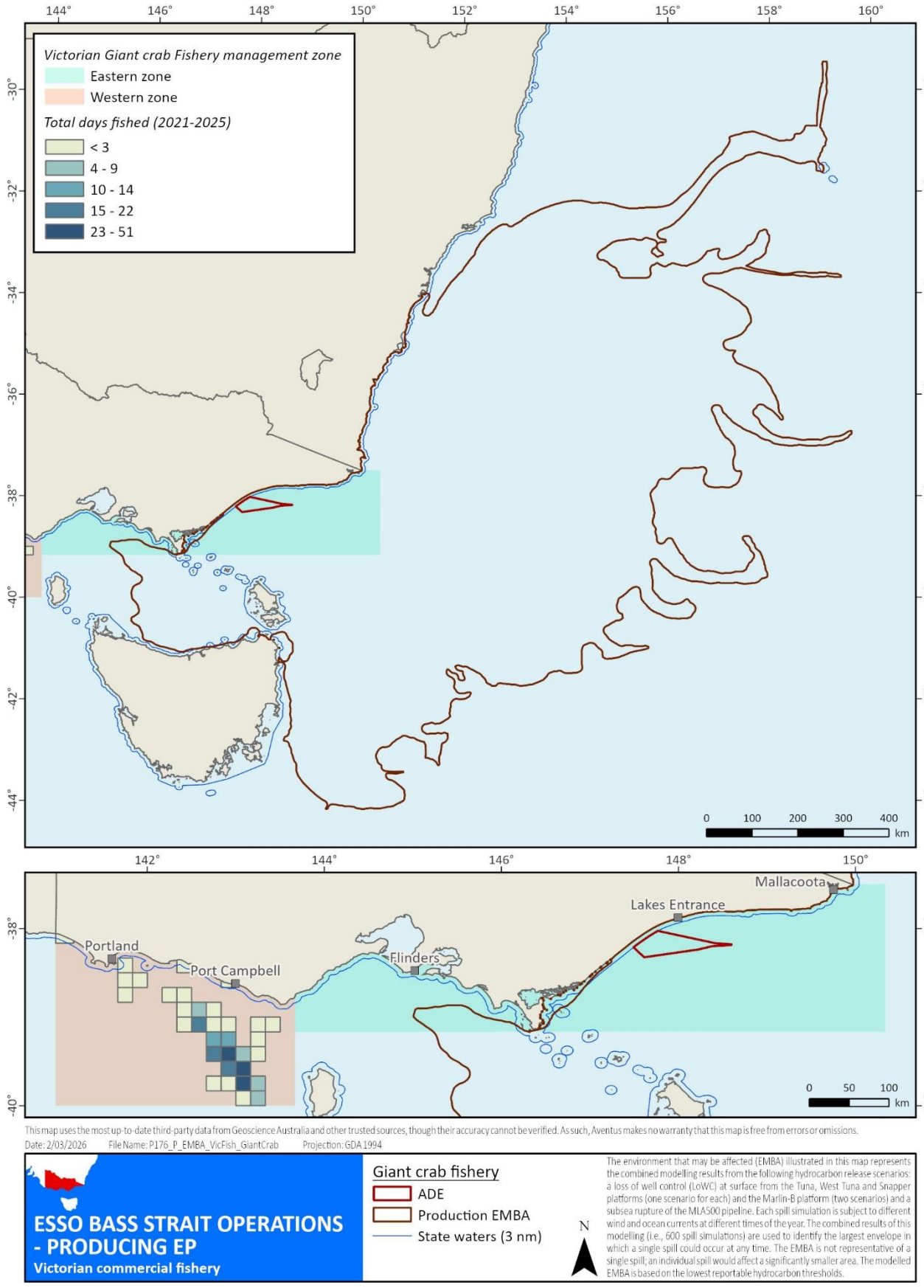



**Figure A-61 Victorian giant crab fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

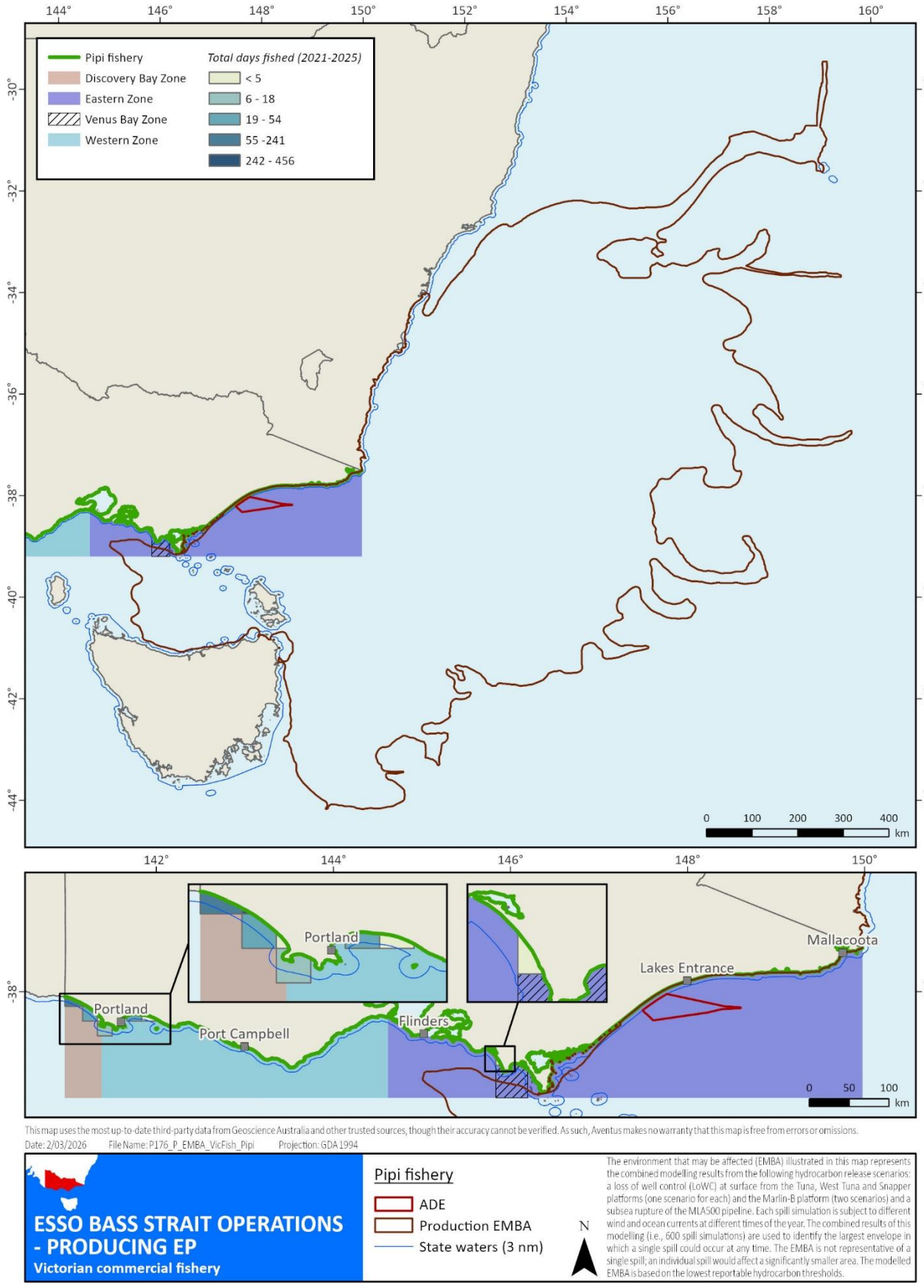



**Figure A-62 Victorian pipi fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

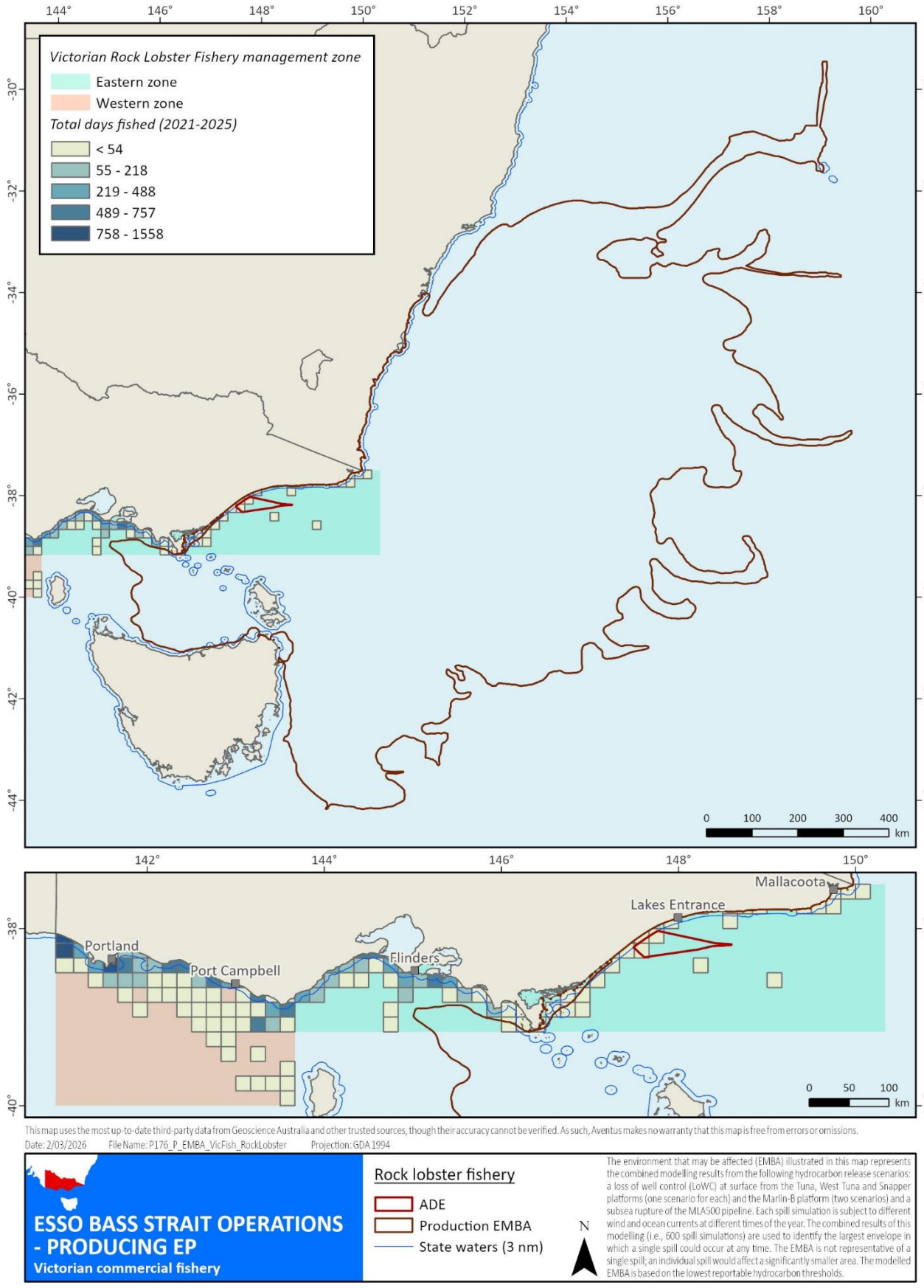



**Figure A-63 Victorian rock lobster fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

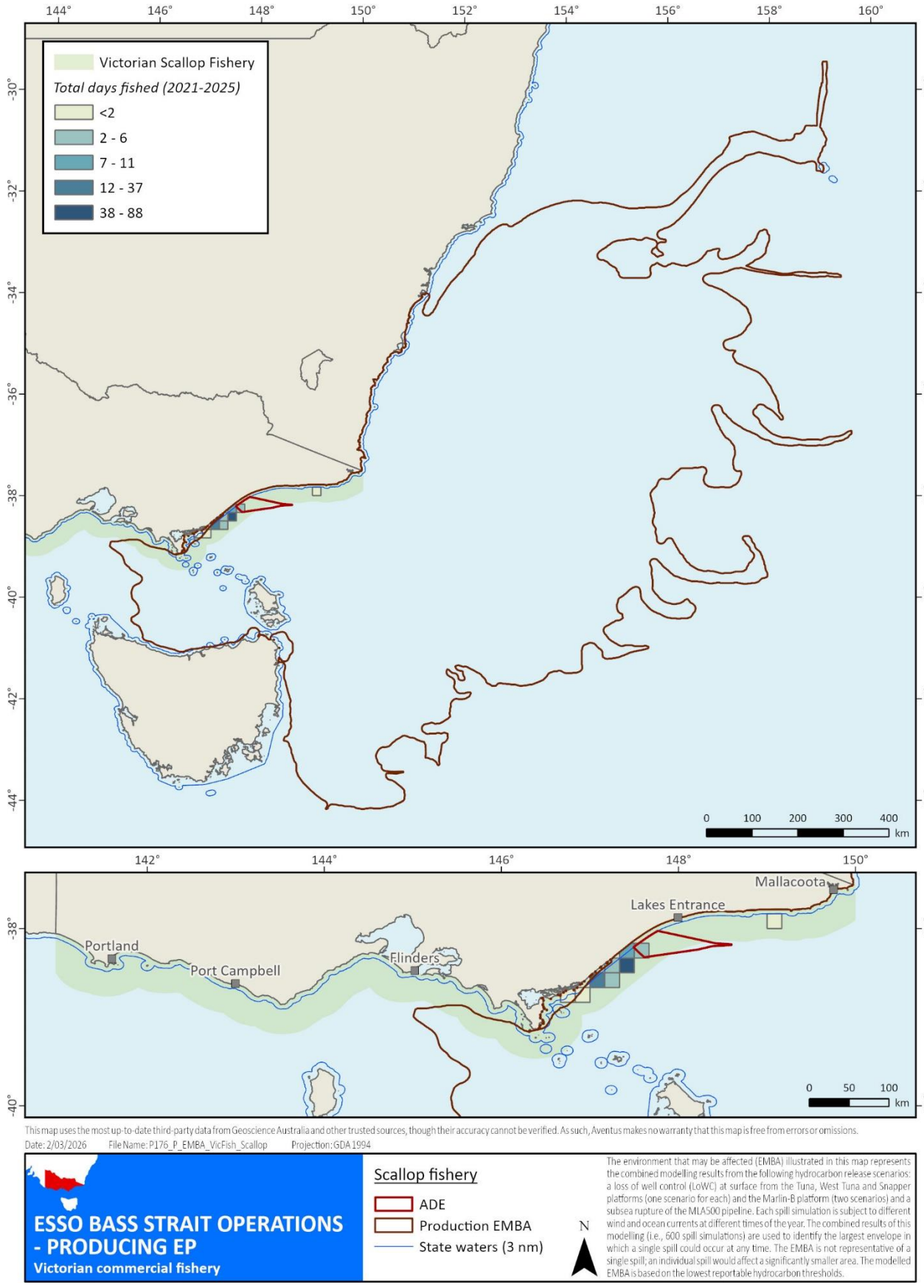



**Figure A-64 Victorian scallop fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

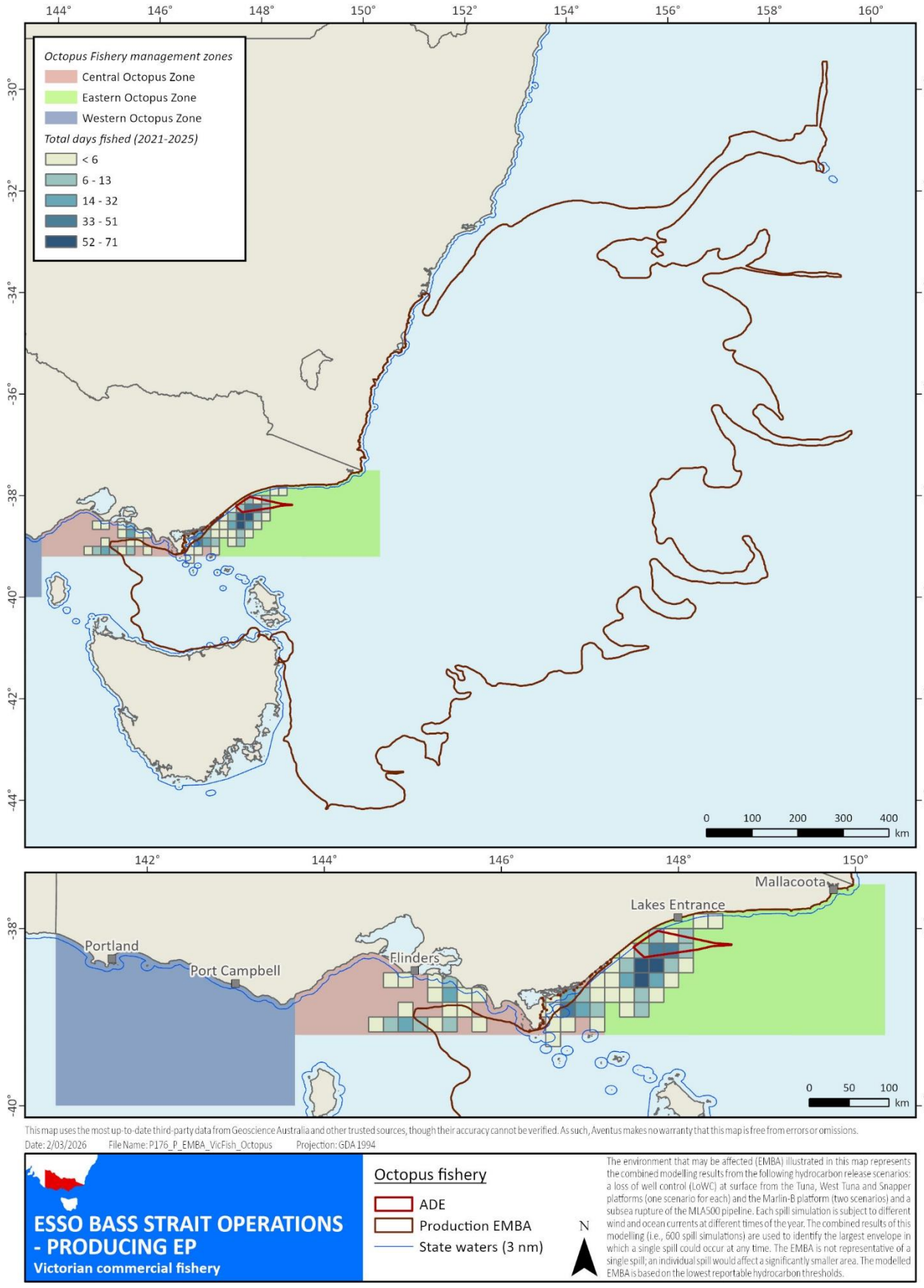



**Figure A-65 Victorian octopus fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

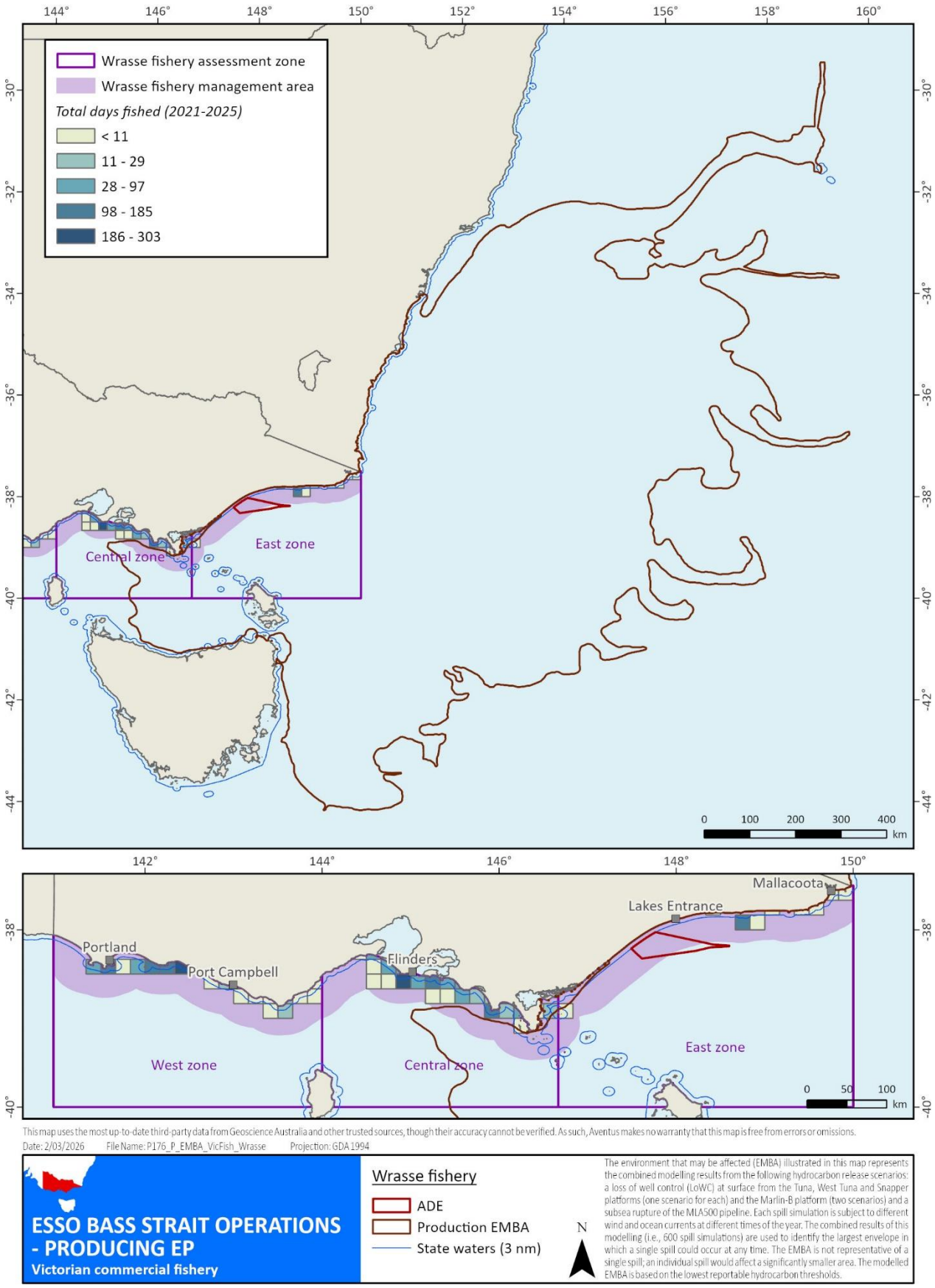



**Figure A-66 Victorian wrasse fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

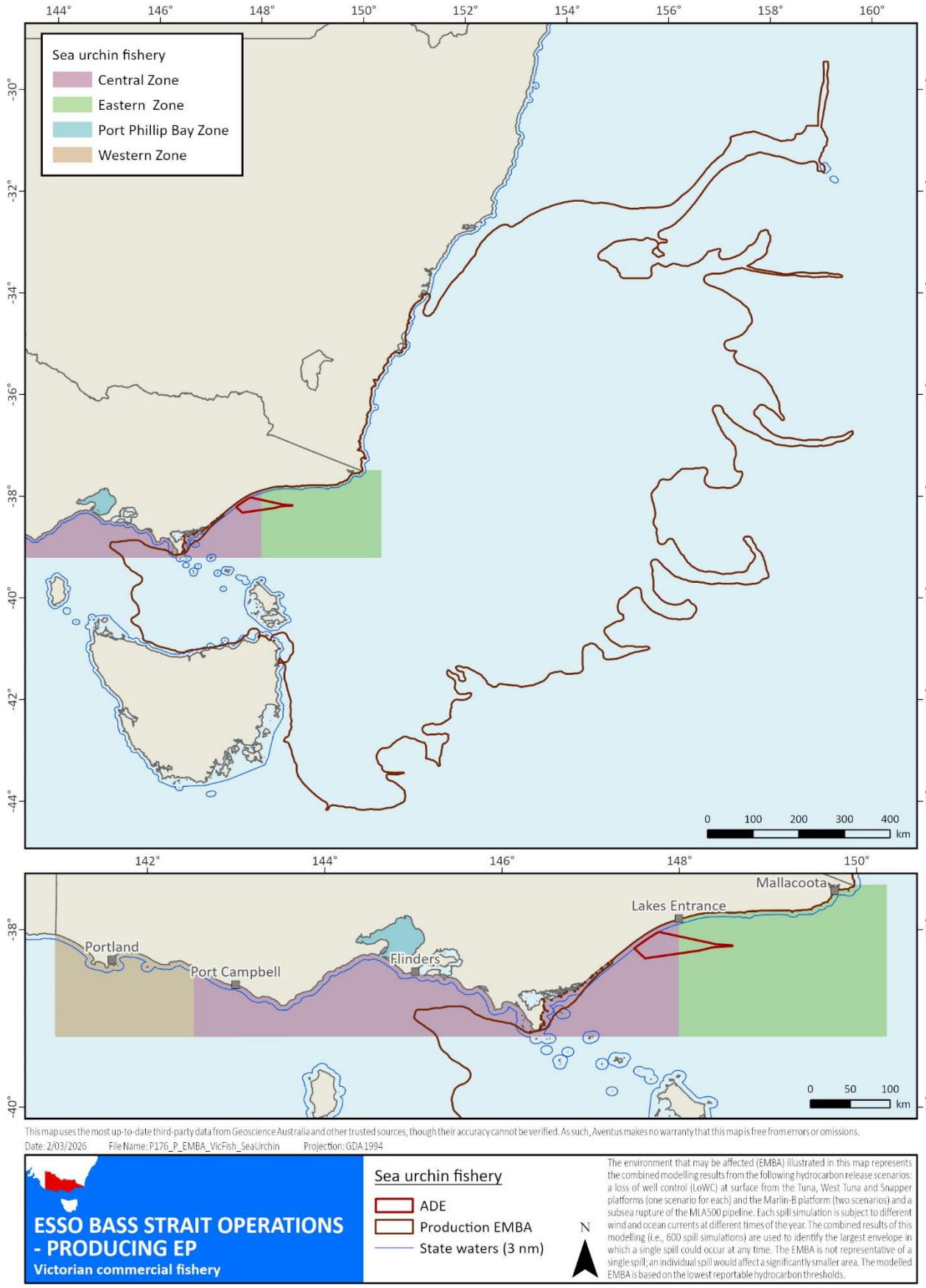



**Figure A-67 Victorian sea urchin fishery jurisdiction intersected by the EMBA**

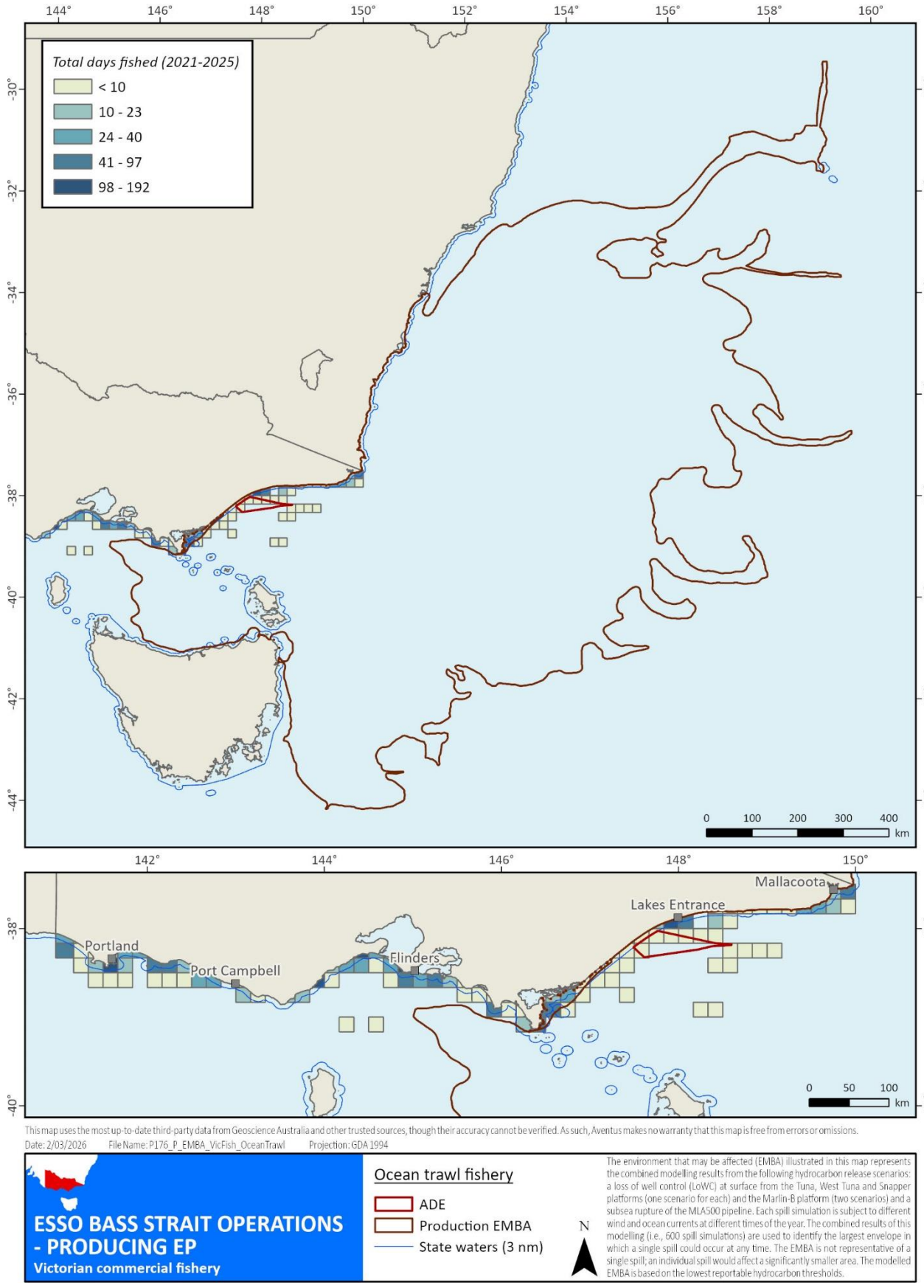



**Figure A-68 Victorian ocean trawl fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

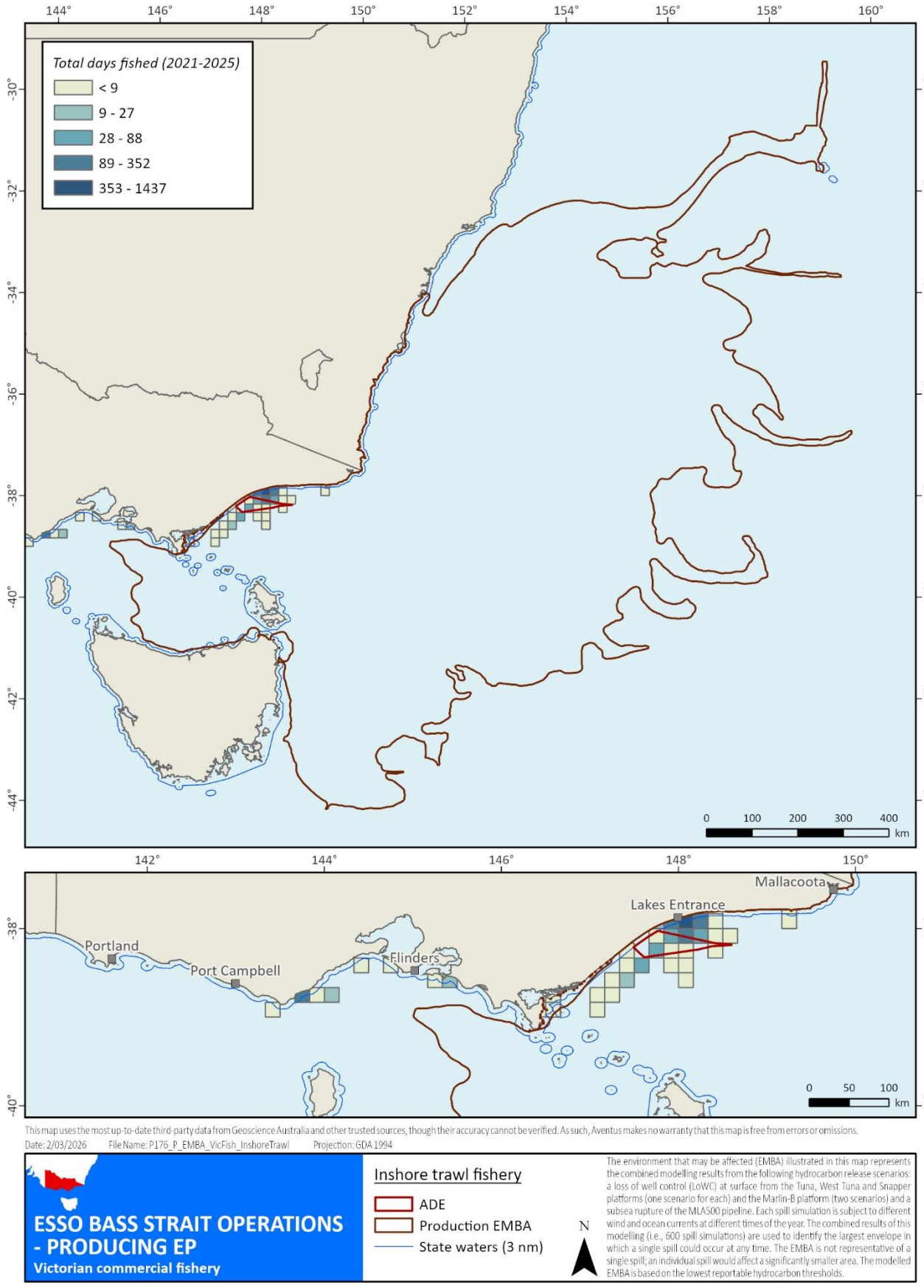



**Figure A-69 Victorian inshore trawl fishery jurisdiction and 2021 - 2025 fishing intensity intersected by the EMBA**

#### A.1.6.1.3 Tasmanian fisheries

Tasmanian-managed commercial fisheries with jurisdiction to fish in the waters of the EMBA are described in Table A-11.

**Table A-11 Tasmanian managed fisheries within the EMBA**

| Tasmanian fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Abalone fishery<br>(Figure A-70) | Blacklip abalone, greenlip. | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025a).<br>The Tasmanian wild abalone industry is a major contributor to the Tasmanian economy. It is the largest wild abalone fishery in the world, providing around 25% of the annual global harvest.<br>Commercial abalone fishing in Tasmanian waters began in the late 1950s with annual catches in the order of 2000 tons being landed by the mid-1960s. The fishery has predominantly focused on blacklip abalone with greenlip abalone typically accounting for around 5% of the total wild harvest.<br>In 2020/2021, the gross value of production of the fishery was around $50 million from a total catch of approximately 1000 tonnes. | 31.54% |
| Scalefish<br>(Figure A-71) | Wrasse, banded morwong (*Cheilodactylus spectabilis*), southern calamari (*Sepioteuthis australis*). | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025b).<br>The commercial scalefish fishery is a multi-species and multi-gear fishery predominantly made up of small owner operators.<br>Vessels vary in size and type and different fishing gears are used. Examples include gillnets, hook and line, longlines, spears, drop lines, squid jigs, automatic squid jig machines, fish traps, purse seine nets, beach seine nets, dipnets, octopus pots and Danish seine. | 37.07% |
| Rock lobster fishery<br>(Figure A-72) | Southern rock lobster. | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025c).<br>The rock lobster fishery primarily targets southern rock lobster, and small amounts of eastern rock lobster *(Sagmariasus verreauxi)* (less than 1% of the fishery). Southern rock lobster is an important commercial fishery as well as being highly valued by recreational and Aboriginal fishers. | 37.27% |

| Tasmanian fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| | | Commercial fishers use baited pots to harvest lobster all around Tasmania, including in waters surrounding major islands. Most of the commercial catch comes from the western half of the State, with fishers frequently facing rough weather and poor conditions to land their catch. The commercial fleet also harvest rock lobster from the East Coast, which is also an important area for the recreational fishery. | |
| Giant crab fishery<br>(Figure A-72) | Giant crabs. | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025d).<br>The giant crab fishery is a comparatively small fishery with the annual harvest set at 20.7t but with a high landed value of around $2 million. The fishery has been commercially targeted since the early 1990s, moving from open access to limited entry. | 37.27% |
| Scallop<br>(Figure A-72) | Commercial scallop. | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025e).<br>The Tasmanian scallop fishery targets the commercial scallop, one of three species naturally occurring in Tasmania. Scallops are commercially harvested using a benthic scallop dredge, which is towed along the sea floor.<br>A scallop dredge can't be deployed in waters less than 20m deep or in scallop dredge prohibited areas. | 37.27% |
| Commercial dive<br>(Figure A-73) | Short-spined sea urchin (*Heliocidaris erythrogramma*), wavy periwinkles (*Lunella undulata*) and longspined sea urchin (*Centrostephanus rodgersii*). | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025f).<br>The Tasmanian commercial dive fishery selectively harvests three key species by hand from small vessels. The fishery has traditionally harvested two native species - short-spined sea urchin and wavy periwinkles - but has grown exponentially in recent years by harvesting range-extending longspined sea urchin (*Centrostephanus rodgersii*).<br>The urchin fishery operates almost year-round because the two urchin species spawn at different times of year, so each can be harvested when the roe quality peaks before spawning.<br>The fishery has been operating since the mid-1980s, and was formalised with a management plan in 2005, and remains predominately owner-operated today with around 53 licences. | 31.54% |

| Tasmanian fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Shellfish fishery<br>(Figure A-74) | Clams (*Veneruptis largillierti*), native oyster (*Ostrea angasi*), sand cockles (*Katelysia scalarina*) and Pacific oyster. | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025g).<br>The commercial shellfish fishery selectively harvests pacific oysters, native oysters and venerupis clams by hand, either by diving from small vessels or wading. The harvest locations are restricted to areas that were historically identified through extensive research and permitting process, as being best able to support a fishery.<br>This low quantity fishery supplies high quality and sought after product to boutique local markets. | 29.93% |
| Marine plant fishery | Wakame (*Undaria pinnatifida*), bull kelp. | The following information was derived from the Fishing Tasmania website (Tasmanian Government, 2025h).<br>Marine plants include kelp, seaweed, seagrasses, and algae which are food and habitat for other marine species. To protect Tasmanian marine ecosystems, native marine plants cannot be harvested directly from the water or seabed.<br>Tasmanian seaweeds are used for fertiliser and mulch, and others are processed to extract bio-compounds like alginates and fucoidans for pharmaceutical and nutraceutical products. Wakame may be sold as edible Japanese wakame, and some kelps are used for crafts and other boutique businesses. | N/A |




**Figure A-70 Tasmanian abalone fishery jurisdiction intersected by the EMBA**

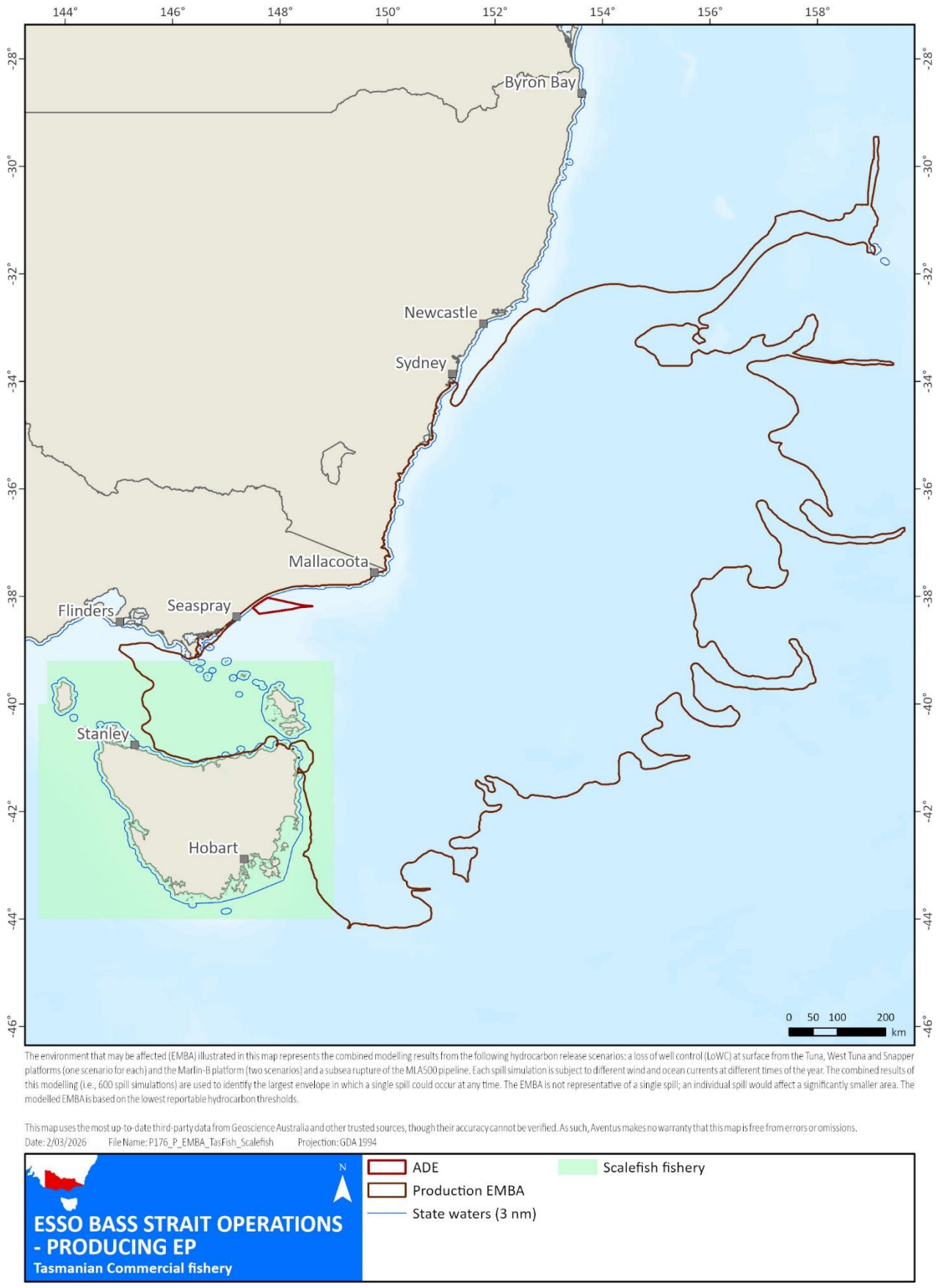



**Figure A-71 Tasmanian scalefish fishery jurisdiction intersected by the EMBA**




**Figure A-72 Rock lobster, giant crab and scallop fishery jurisdiction intersected by the EMBA**

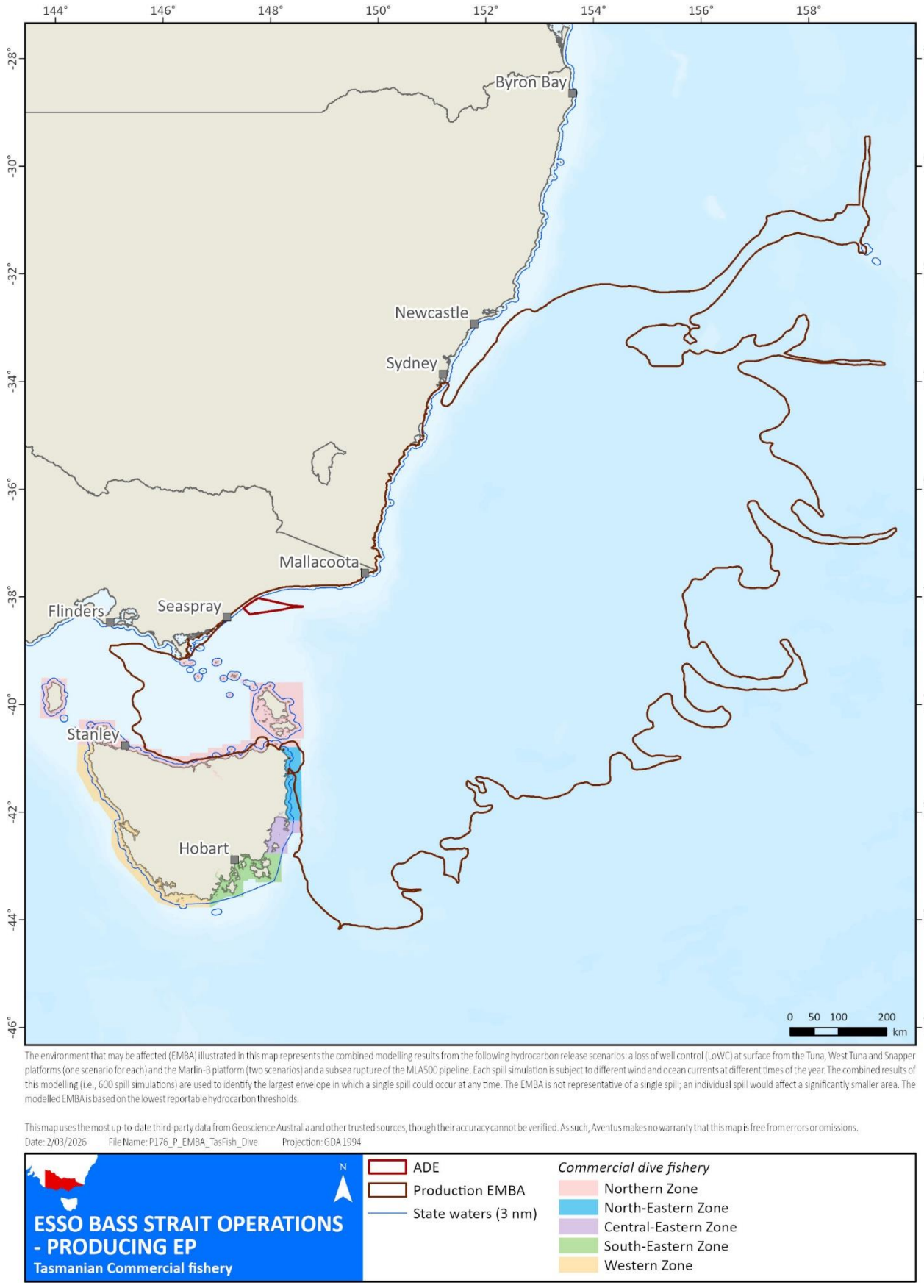



**Figure A-73 Tasmanian commercial dive fishery jurisdiction intersected by the EMBA**

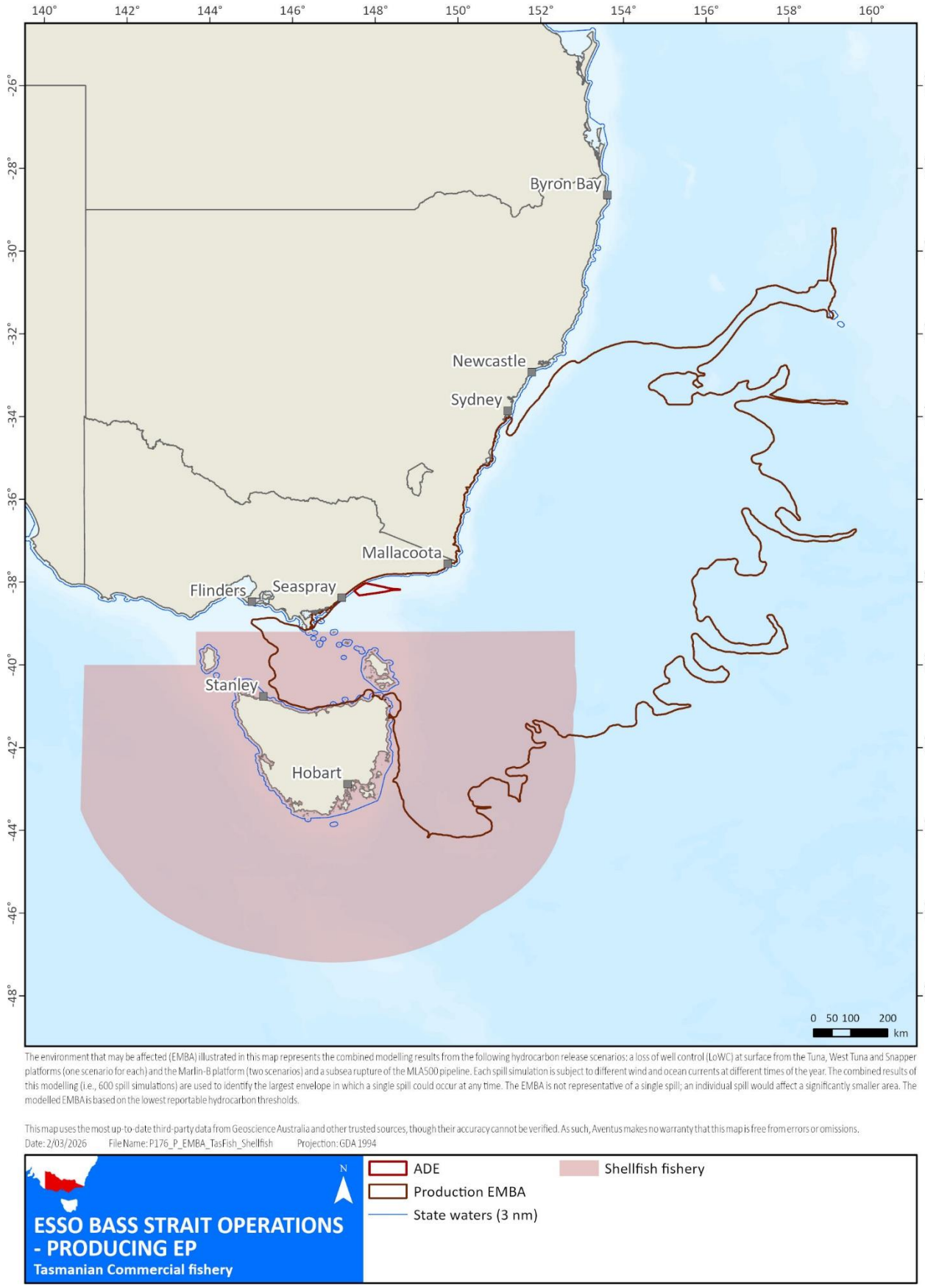



**Figure A-74 Tasmanian shellfish fishery jurisdiction intersected by the EMBA**

#### A.1.6.1.4 New South Wales fisheries

NSW managed commercial fisheries with jurisdiction to fish in the waters of the EMBA are described in Table A-12. Please note that the NSW fisheries does not have data publicly available, therefore mapping and percentage overlaps cannot be attained.

**Table A-12 NSW managed fisheries within the EMBA**

| NSW fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Abalone fishery | Blacklip abalone. | The blacklip abalone forms the basis of the abalone fishery in NSW. Abalone are commercially harvested from rocky reefs by divers typically using surface-supplied air or scuba. In practice, most commercial abalone fishing takes place on the south coast of NSW, primarily from Jervis Bay to the Victorian border, with most abalone found close to the shore. | N/A – data unavailable. |
| Estuary general fishery | Sea mullet (*Mugil cephalus*) luderick, yellowfin bream (*Acanthopagrus australis*), school prawn (*Metapenaeus macleayi*), blue swimmer crab (*Portunus pelagicus*), dusky flathead (*Platycephalus fuscus*), sand whiting (*Sillago ciliata*), pipi, mud crab (*Scylla serrata*) and silver biddy (*Gerres subfasciatus*). | The estuary general fishery is a diverse multi-species multi-method fishery that may operate in 76 of the NSW's estuarine systems. This fishery is a significant contributor to regional and State economies providing high quality seafood and bait to the community.<br>The fishery includes all forms of commercial estuarine fishing (other than estuary prawn trawling) in addition to the gathering of pipis and beachworms from ocean beaches. The most frequently used fishing methods are mesh and haul netting. Other methods used include trapping, handlining and hand-gathering. Sea mullet, luderick, yellowfin bream, school prawn, blue swimmer crab, dusky flathead, sand whiting, pipi, mud crab and silver biddy make up over 80% of the catch (DPI 2014). | N/A – data unavailable. |
| Estuary prawn trawl fishery | School prawns (*Metapenaeus macleaya*), eastern king prawns. | The fishery uses otter trawl nets in three estuaries in NSW, (the Clarence, Hawkesbury and Hunter Rivers). With the exception of the Hawkesbury River, the fishery operates for defined seasons (generally October to May) and within each estuary is confined to specific times and areas.<br>The majority of prawn catches are landed during the 'dark' of the moon, on either run out or 'slack' tides. | N/A – data unavailable. |

| NSW fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| Lobster fishery | Primary: eastern rock lobster.<br>Other: southern rock lobster, tropical rock lobster (*Panulirus longipes* and *Panulirus ornatus*). | The lobster fishery extends from the Queensland border to the Victorian border and includes all waters under jurisdiction of NSW to around 128km from the coast. It is characterised by inshore and offshore sectors. Inshore fishers use small beehive or square traps in waters up to 10m in depth, whilst offshore fishers use large rectangular traps. | N/A – data unavailable. |
| Ocean hauling fishery | Pilchards, sea mullet, Australian salmon, blue mackerel, yellowtail scad (*Trachurus novaezelandiae*), yellowfin bream. | The ocean hauling fishery is broken up into seven regions along the NSW coast and targets approximately 20 finfish species using commercial hauling and purse seine nets from sea beaches and in ocean waters within 3nm of the coast. | N/A – data unavailable. |
| Ocean trap and line fishery | Primary: snapper, yellowtail kingfish (*Seriola lalandi)*, leatherjackets (*Oligoplites saurus*), bonito (*Gymnosarda unicolor*), silver trevally (*Pseudocaranx georgianus*).<br>Other: rubberlip (grey) morwong, blue-eye trevalla *(Hyperoglyphe antarctica)*, sharks, bar cod *(Hyporthodus ergastularius),* yellowfin bream, spanner crabs *(Ranina ranina).* | The ocean trap and line fishery is a multi-method, multi species fishery targeting demersal and pelagic fish along the entire NSW coast, in continental shelf and slope waters.<br>The fishery is a share management fishery. This means that commercial fishers must hold sufficient shares to be eligible for an endorsement to operate in the fishery. An endorsement authorises the use of specific gear to take fish for sale from certain waters. | N/A – data unavailable. |
| Ocean trawl fishery | Primary: eastern king prawn, eastern school prawn (*Metapenaeus macleayi*), royal red prawn (*Haliporoides* | There are two sectors to the ocean trawl fishery: the prawn trawl sector and the fish trawl sector. Both sectors use otter trawl nets. The fishery is a share management fishery; meaning commercial fishers must hold sufficient shares to be eligible for an endorsement to operate in the fishery. An endorsement authorises the use of specific gear to take fish for | N/A – data unavailable. |

| NSW fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| | *sibogae*), balmain bug (*Ibacus spp*.), octopus spp..<br><br>Various (*octopodidae*), cuttlefish (*Sepia spp*), southern calamari, eastern school whiting, stout whiting (*Sillago robusta*), tiger flathead, bluespotted flathead *(Platycephalus caeruleopunctatus*), silver trevally, Eastern shovelnose ray (*Aptychotrema rostrata*).<br><br>Secondary: blue swimmer crab, squid spp. various (Class: *chephalopoda*) gurnard/latchet (*Pterygotrigla andertoni, Pterygotrigla polyommata, Chelidonichthys kumu*), John dory (*Zeus faber*), angel shark (*Squatina spp*), flounder spp various (*Pleuronectidae/Bothidae*), red mullet various (*Mullidae*), redfish (*Centroberyx affinis*), leatherjacket spp. various (*Oligoplites saurus* ), ocean perch (*Helicolenus barathri, Helicolenus percoides),* mirror dory (*Zenopsis nebulosus*).<br><br>Sole spp. various (*Soleidae*), Grey morwong (*Nemadactylus* | sale from certain waters. Many of the fishers endorsed for fish trawling are also endorsed for prawn trawling. | |

| NSW fishery | Target species | Description | Percentage overlap with the EMBA |
|---|---|---|---|
| | *douglasii),* Pink tilefish *(Branchiostegus wardi),* Giant boarfish (*Paristiopterus labiosus*), Shark spp. Various. | | |
| Sea urchin and turban shell restricted fishery | Sea urchin (*Echinometridae*), turban shell (*Turbinidae*). | The NSW sea urchin and turban shell restricted fishery is relatively small with few divers participating. The main constraint on development is high processing costs and limited domestic markets. Fishing for sea urchins is generally constrained to that part of the year when the roe is well developed. A number of the fishing sub regions have been closed to commercial fishing since 1994. | N/A – data unavailable. |

### *A.1.6.2 Commercial aquaculture*

The Sydney rock oyster (*Saccostrea glomerata*) is the main species grown in NSW. Commercial production in the State occurs in 41 estuaries between Eden in the south to the Tweed River in the north. Wallis Lake and the Hawkesbury River are the main producing areas however, not located within the EMBA.

The Sydney rock oyster industry in NSW is largely dependent on natural spawning. The first spawning of a Sydney rock oyster is usually as a male and subsequent spawning's as a female. During spawning, adult females disperse up to 20 million eggs and males hundreds of millions of sperms into the water when the tide and current are optimal for the widest distribution. Fertilisation takes place in the water column and development continues for up to 3 to 4 weeks as the larval stages of the oyster grow, with the 'spat' ultimately being caught on 'sticks'. Oysters are knocked off these sticks at 0.5 to 3 years of age for growing intertidally on trays until maturity in 3 to 4 years. Alternative growing systems such as baskets and tumblers are also being used, and some oysters are grown sub-tidally on rafts or on floating culture.

No commercial oyster leases exist in Victorian waters, however, a trial to culture Sydney rock oysters in the Gippsland Lakes system has been proposed. Blue mussels are grown in aquaculture fishery reserves in Port Phillip Bay and Western Port. A small number of permits have also been issued to trial native seaweed culture in aquaculture fishery reserves, but commercial licences are not yet available.

### *A.1.6.3 Recreational fishing*

One in five Australian adults participate in recreational fishing every year, improving wellbeing and contributing 100,000 jobs and $11 billion to the Australian economy (DAFF, 2024). Most recreational fishing occurs in coastal waters (DAFF, 2024).

Common recreational fish species include tiger flathead, bream, snapper, Australian salmon, and lobster. Offshore catches can include mackerel, tuna, groper, and shark.

### *A.1.6.4 Tourism*

The Australian coast and marine waters provide a diverse range of recreation and tourism opportunities, including scuba diving, charter boat cruises, cruise shipping, whale and wildlife watching, sailing, snorkelling, surfing, and kayaking.

The tourism industry in Gippsland is an important contributor to the region's economy, worth $2.4 billion in direct and indirect expenditure per annum (Invest Gippsland, 2025). Gippsland has outperformed regional Victoria for domestic and international visitation percentage growth, with 10.8 million visitors to the region annually, supporting over 3,000 businesses from overnight and daytrip visitors (Invest Gippsland, 2025).

In the year ending September 2025, NSW welcomed over 122 million domestic visitors, who spent $45.4 billion in the State. The same year saw 4,000,000 international visitors who spent $14.0 billion in the State (Destination NSW, 2025).

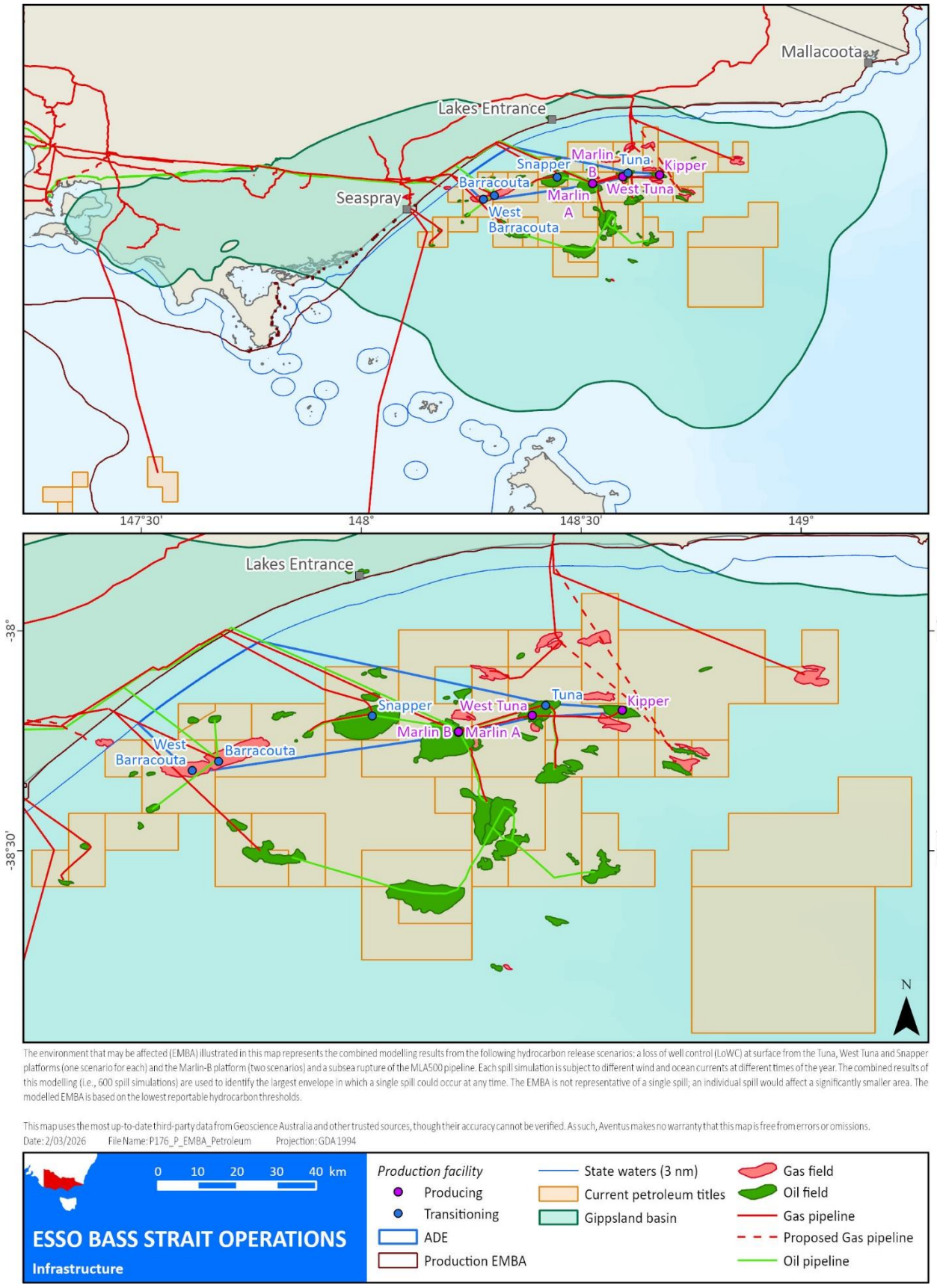
Tourism in Tasmania directly and indirectly contributes around $2.59B or about 6.7% to Tasmania's Gross Product in 2022 - 2023 (Toursim Tasmania, 2025). Tourism directly and in directly supports around 37,300 jobs in Tasmania or about 12.1% of total Tasmanian employment – the highest share in the country. Visitors spent a total of $3.853B on accommodation, attractions, tours, transport and other goods and services during this period (Toursim Tasmania, 2025).

### *A.1.6.5 Oil and gas*

Energy use statistics from 2021 – 2022 showed that oil (36.5%) and gas (27.1%) remained Australia's largest energy sources, with renewables accounting for 8.9% (AEP, 2024). Victoria's petroleum (oil and gas) exploration and production is concentrated in the offshore Commonwealth waters of the Otway and Gippsland Basins; there are a number of current exploration and offshore production permit areas within both basins (Figure A-75). Information on the production licences, exploration permits and retention leases within Gippsland Basin at the time of writing are presented in Table A-13.

The Gippsland Basin in southeastern Australia is located about 200km east of the city of Melbourne, covering about 46,000km$^2$, of which two thirds are located offshore. The Gippsland Basin is recognised as one of Australia's primary hydrocarbon provinces, having continually produced oil and gas since the late 1960s.

The most recent data available from Geoscience Australia (May 2022) indicates that the remaining reserves were estimated at 1.64Tcf (1844.5PJ) of natural gas and ethane, and 94MMbbl (552.7PJ) of oil and natural gas liquids (Geoscience Australia, 2022). Several petroleum systems operate in the basin, with the largest oil and gas fields hosted by top-Latrobe Group (Eocene) shallow marine barrier sandstones, and additional discoveries made in intra-Latrobe Group (Upper Cretaceous–Paleocene) coastal plain and deltaic channel sandstones. Despite its mature status, parts of the basin remain underexplored and offer a variety of untested resources (Geoscience Australia, 2022).




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_Petroleum Projection: GDA 1994

**Figure A-75 Petroleum exploration and production permits, oil and gas fields and petroleum production infrastructure in the Gippsland Basin**

**Table A-13 Production licenses, exploration permits and retention leases within Gippsland Basin**

| Title | Title holder/s | Field |
|---|---|---|
| **Production Licenses, Gippsland Basin** | | |
| VIC/L1 | EARPL, Woodside Energy | Barracouta/Tarwhine/Whiptail |
| VIC/L2 | EARPL, Woodside Energy | Barracouta/Whiting/Wirrah |
| VIC/L3 | EARPL, Woodside Energy | Marlin/Turrum/North Turrum |
| VIC/L4 | EARPL, Woodside Energy | Marlin/Turrum/Tuna/West Tuna/Flounder |
| VIC/L5 | EARPL, Woodside Energy | Halibut/Fortescue/Cobia/Mackerel |
| VIC/L6 | EARPL, Woodside Energy | Mackerel |
| VIC/L7-8 | EARPL, Woodside Energy | Kingfish |
| VIC/L9 | EARPL, Woodside Energy | Tuna |
| VIC/L10 | EARPL, Woodside Energy | Snapper |
| VIC/L11 | EARPL, Woodside Energy | Flounder |
| VIC/L13-14 | EARPL, Woodside Energy | Bream |
| VIC/L15 | EARPL, Woodside Energy | Dolphin |
| VIC/L16 | EARPL, Woodside Energy | Torsk |
| VIC/L17 | EARPL, Woodside Energy | Perch |
| VIC/L18 | EARPL, Woodside Energy | Seahorse |
| VIC/L19 | EARPL, Woodside Energy | West Fortescue |
| VIC/L20 | EARPL, Woodside Energy | Blackback |
| VIC/L25 | EARPL, Woodside Energy, MEPAU | Kipper |
| VIC/L29 | SGH Energy | Longtom |
| VIC/L32 | Cooper Energy | Sole |
| **Exploration Permits, Gippsland Basin** | | |
| VIC/P47 | Emperor Energy/Shelf Energy | |
| VIC/P72 | Cooper Energy (MGP) Pty. Ltd. | |
| VIC/P75 | Cooper Energy (MGP) Pty. Ltd. | |

| Title | Title holder/s | Field |
|---|---|---|
| VIC/P77 | Liberty Petroleum Corporation | |
| VIC/P78 | Liberty Petroleum Corporation | |
| VIC/P80 | Cooper Energy (MGP) Pty. Ltd. | |
| **Retention Leases, Gippsland Basin** | | |
| VIC/RL1 | EARPL, Woodside Energy | Mulloway |
| VIC/RL13 | Amplitude Energy Limited | Basker, Manta |
| VIC/RL14 | Amplitude Energy Limited | Basker, Manta, Gummy |
| VIC/RL15 | Amplitude Energy Limited | Basker, Manta, Gummy |
| VIC/RL16 | Cooper Energy (PBF) Pty. Ltd. | Patricia/Baleen |
| VIC/RL17 | Carnarvon Hibiscus Pty Ltd | West Seahorse |

### *A.1.6.6 Renewable Energy*

The EMBA overlaps Australia's first offshore declared areas available for renewable energy projects (Gippsland, Bass Strait, Illawarra and Hunter (Figure A-76). The EMBA also overlaps with the following projects that have been granted a feasibility license within the declared areas (Figure A-76):

- FL-001: Blue Mackerel North
- FL-002: High Sea Wind
- FL-004: Gippsland 01
- FL-005: Kut-Wut Brataualung Project
- FL-006: Star of the South
- FL-009: Gippsland 02
- FL-010: Great Eastern Offshore Wind Project
- FL-011: Navigator North
- FL-012: Aurora Green.

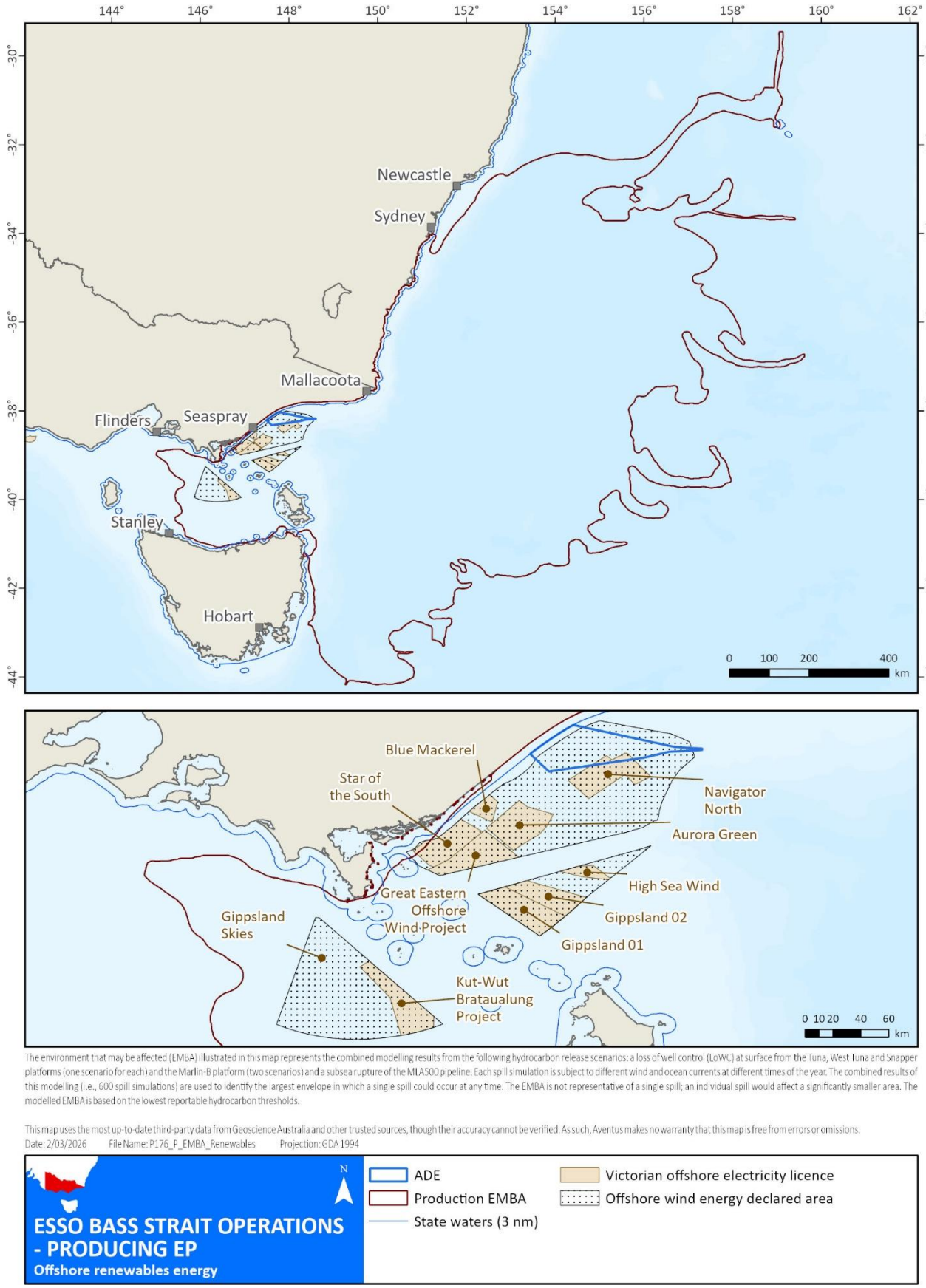



**Figure A-76 Offshore renewable energy infrastructure regions overlapped by the EMBA**

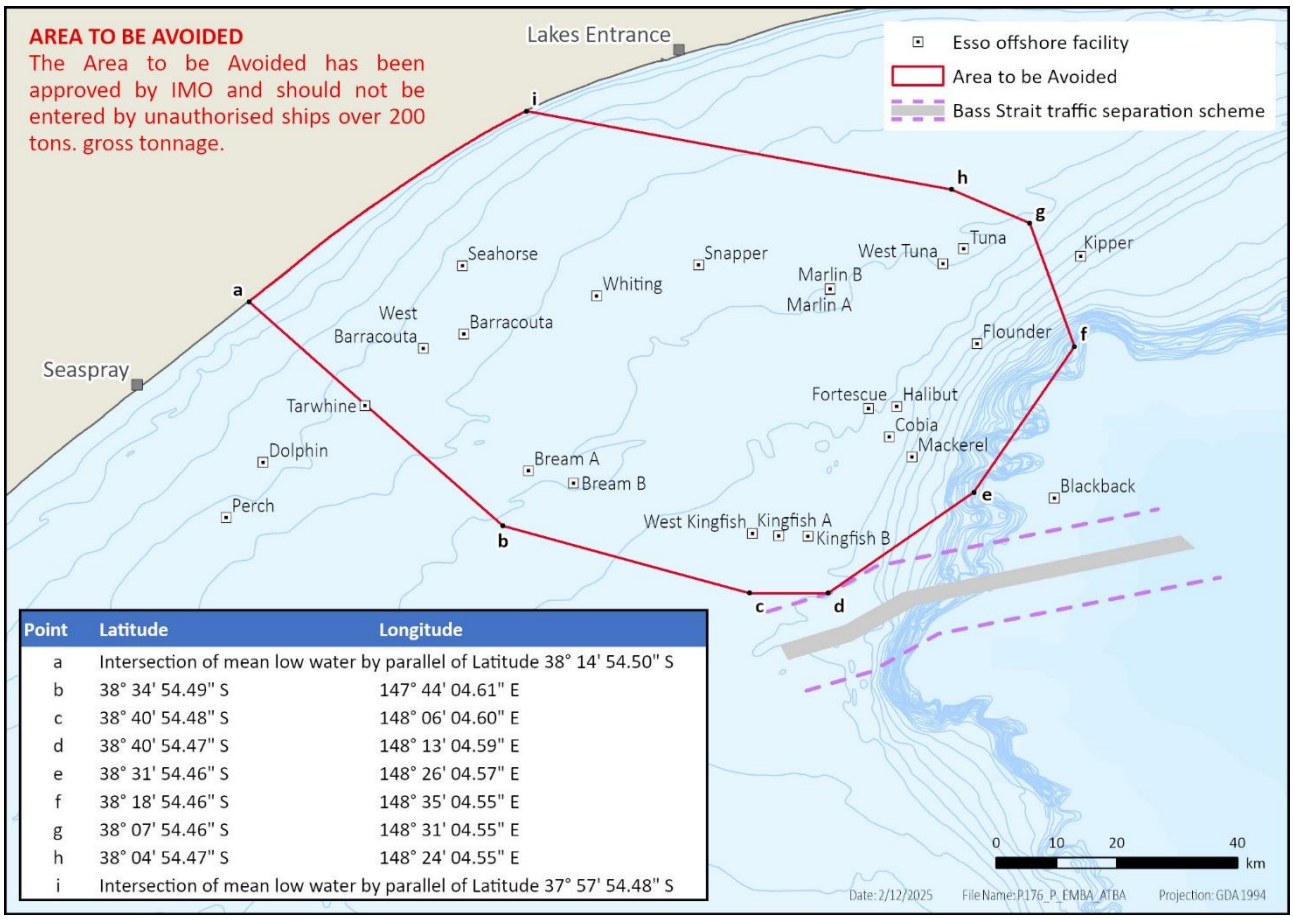
### *A.1.6.7 Shipping*

The southeast and eastern coasts are some of Australia's busiest in terms of shipping activity and volumes. This traffic includes international and coastal cargo trade, and passenger and ferry services. Major ports include Melbourne, Geelong, Western Port, Sydney and Brisbane, with other minor ports important to commercial and recreational fishing, yachts and other pleasure craft. Bass Strait is one of Australia's busiest shipping areas, data derived from AMSA indicates that 226 vessels travelled through the ADE from January 2025- July 2025. .

A shipping exclusion zone (or Area To Be Avoided (ATBA)) exists around the operating oil and gas platforms in the Gippsland Basin, whereby unauthorised vessels larger than 200t (gross tonnage) are excluded from entry (Figure A-77). Two traffic separation schemes have been implemented to enhance safety of navigation around the ATBA by separating shipping into one-direction lanes for vessels heading northeast and those heading southwest. One separation area is located south of Wilsons Promontory, and the other south of the Kingfish B platform.

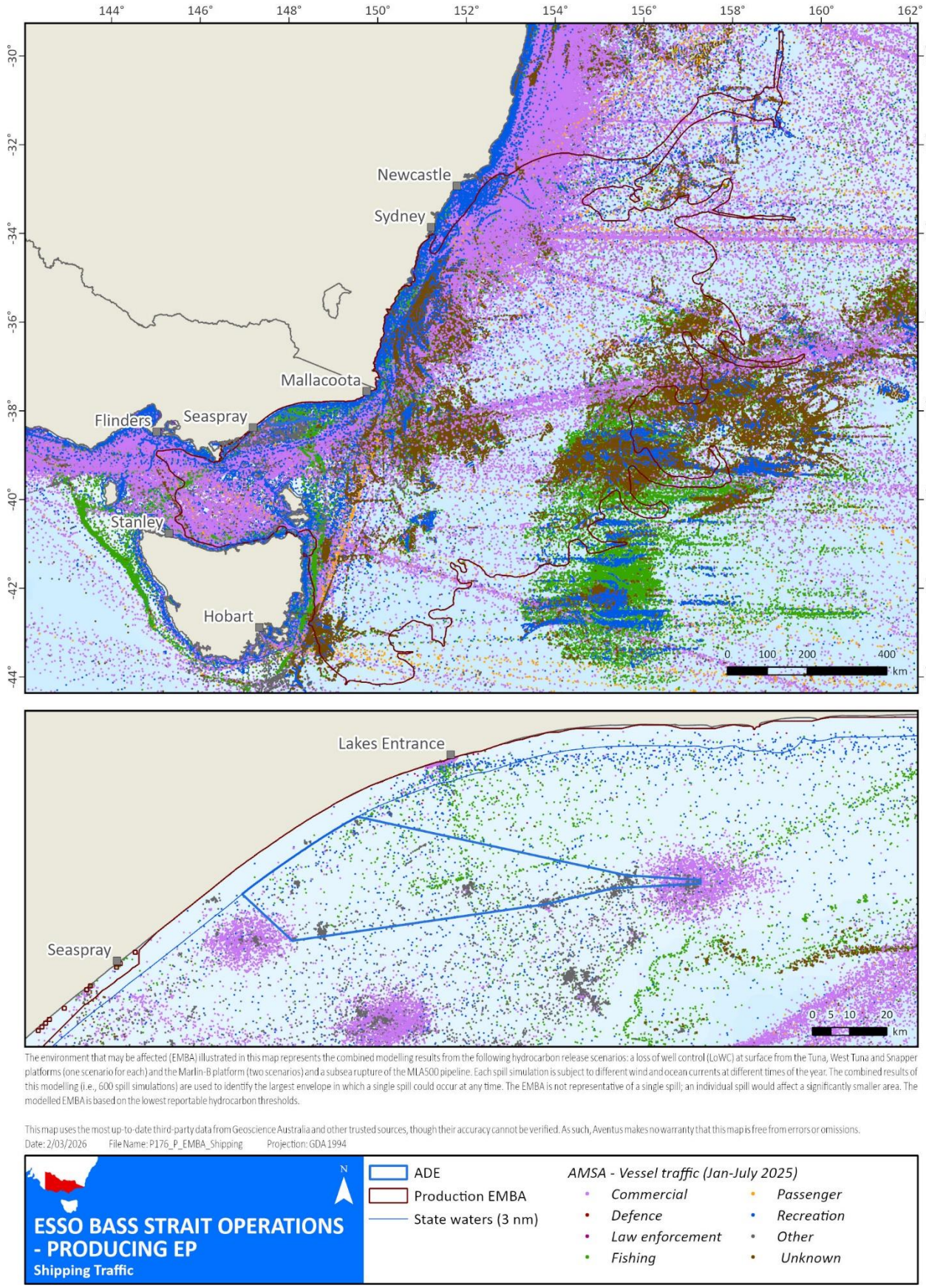
Although the Operational Areas (Oas) for the activities are located outside the shipping exclusion zone, the presence of this ATBA along with the existence of the Petroleum Safety Zone which are all located outside the traffic separation scheme route minimises the potential for interactions with large commercial shipping.

Figure A-78 shows vessel traffic within the EMBA based on January - July 2025 Australian Maritime Safety Authority (AMSA) data, noting that areas of higher activity within the Area of Described Environment is support vessel traffic associated with Esso's facilities.




| Point | Latitude | Longitude |
|---|---|---|
| a | Intersection of mean low water by parallel of Latitude 38° 14' 54.50" S | |
| b | 38° 34' 54.49" S | 147° 44' 04.61" E |
| c | 38° 40' 54.48" S | 148° 06' 04.60" E |
| d | 38° 40' 54.47" S | 148° 13' 04.59" E |
| e | 38° 31' 54.46" S | 148° 26' 04.57" E |
| f | 38° 18' 54.46" S | 148° 35' 04.55" E |
| g | 38° 07' 54.46" S | 148° 31' 04.55" E |
| h | 38° 04' 54.47" S | 148° 24' 04.55" E |
| i | Intersection of mean low water by parallel of Latitude 37° 57' 54.48" S | |

**Figure A-77 Bass Strait ATBA (ABF, 2019)**




The environment that may be affected (EMBA) illustrated in this map represents the combined modelling results from the following hydrocarbon release scenarios: a loss of well control (LoWC) at surface from the Tuna, West Tuna and Snapper platforms (one scenario for each) and the Marlin-B platform (two scenarios) and a subsea rupture of the MLA500 pipeline. Each spill simulation is subject to different wind and ocean currents at different times of the year. The combined results of this modelling (i.e., 600 spill simulations) are used to identify the largest envelope in which a single spill could occur at any time. The EMBA is not representative of a single spill; an individual spill would affect a significantly smaller area. The modelled EMBA is based on the lowest reportable hydrocarbon thresholds.

This map uses the most up-to-date third-party data from Geoscience Australia and other trusted sources, though their accuracy cannot be verified. As such, Aventus makes no warranty that this map is free from errors or omissions.
Date: 2/03/2026 File Name: P176_P_EMBA_Shipping Projection: GDA 1994

**Figure A-78 Vessel traffic within the EMBA based on January – July 2025 AMSA data**

### *A.1.6.8 Defence*

The Australian Defence Force conducts a range of training, research activities, and preparatory operations in Australian waters. In 2024, the Special Operations Command recovery task group conducted an exercise on the Yolla offshore gas platform in Bass Strait. The exercise is one of several domestic and offshore crisis-response activities that the recovery task group prepares for (Brennan, 2024).

The interactive Department of Defence database indicates that the EMBA lies within several areas of unexploded ordinance (UXO). UXO is ammunition which has been fired but has not functioned as designed. UXO can be particularly dangerous as all the normal safety features have been overcome (Australian Gvernment Defence, 2025). As shown in Figure A-79, the EMBA overlaps several areas of 'substantial' and 'slight' potential as well as areas identified as 'other'.

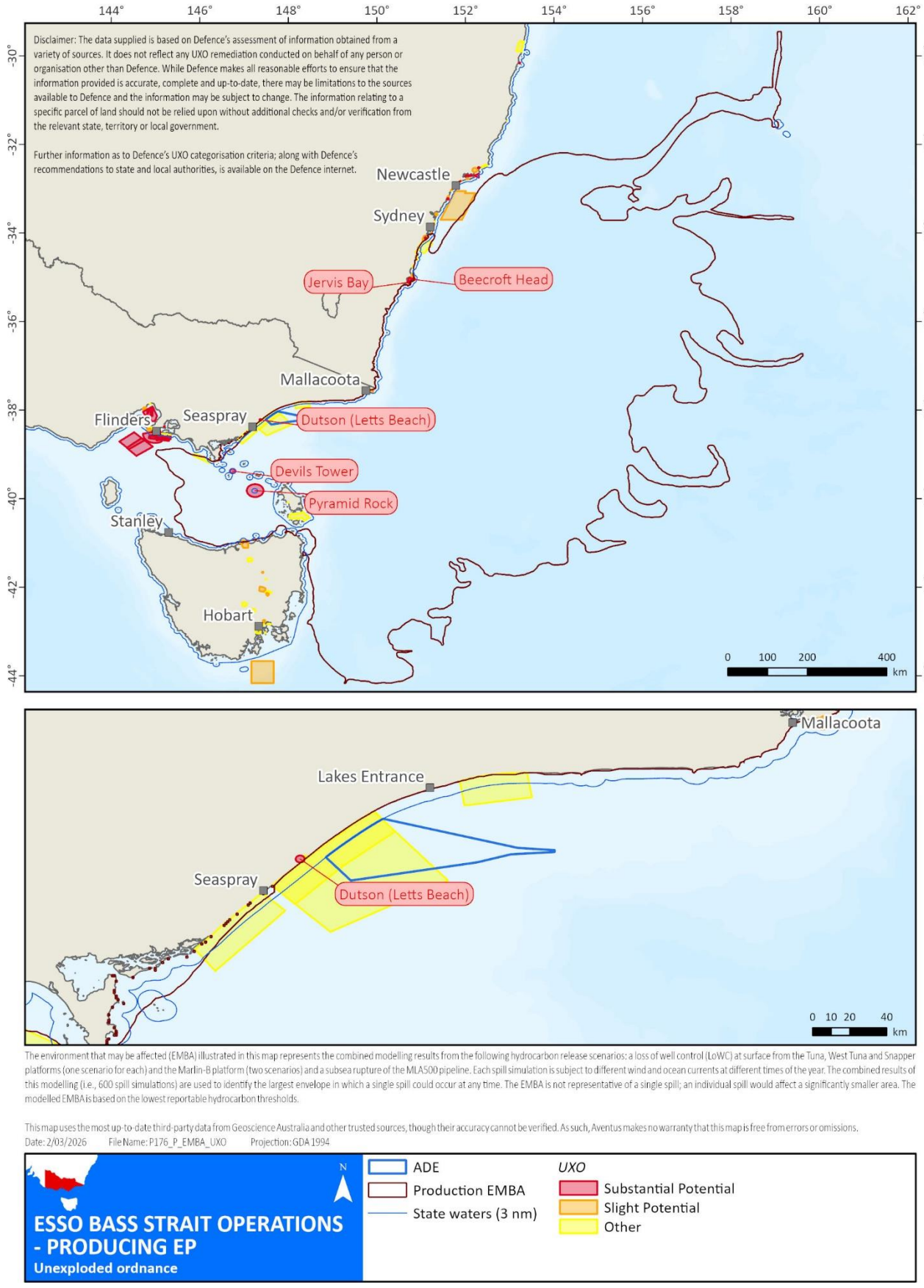



**Figure A-79 UXO sites within the EMBA**

## A.2 References

ABF. (2019). *BASS STRAIT AREA TO BE AVOIDED*. Retrieved from Australian Border Force : https://www.abf.gov.au/about-us/what-we-do/border-protection/maritime/bass-strait-area-to-be-avoided

AEP. (2024). *Key Statistics 2024.* Australian Energy Producers .

AFMA. (2015). *School Shark (Galeorhinus galeus) Stock Rebuilding Strategy.* Australian Fisheries Management Authority. Canberra: Australian Government. Retrieved from https://www.afma.gov.au/sites/default/files/2023-02/School-Shark-Rebuilding-Strategy.pdf

AFMA. (2022). *Blue warehou (Seriolella brama) Stock Rebuilding Strategy.* Australian Fisheries Management Authority. Canberra: Australian Government. Retrieved from https://www.afma.gov.au/sites/default/files/2023-02/blue-warehou-rebuilding-strategy-2022.pdf

Agriculture Victoria. (2025). *Marine pests in Victoria*. Retrieved from Agriculture Victoria: https://agriculture.vic.gov.au/biosecurity/marine-pests/marine-pests-in-victoria

AIATSIS. (2022, May 25). *Welcome to Country*. Retrieved from The Australian Institute of Aboriginal and Torres Strait Islander Studies: https://aiatsis.gov.au/explore/welcome-country

Allen, S. J., Marsh, H., & Hodgson, A. J. (2004, August). Occurrence and Conservation of the Dugong (Sirenia: Dugongidae) in New South Wales. *Proceedings of the Linnean Society of New South Wales, 125*, 211-216. Retrieved from https://researchportal.murdoch.edu.au/esploro/outputs/journalArticle/Occurrence-and-conservation-of-the-dugong/991005546005607891/filesAndLinks?index=0

AMSA. (2024). Harmful substances report (POLREP)—oil (form 197). *AMSA 197*. Retrieved from https://www.amsa.gov.au/sites/default/files/AMSA197-Harmful-suabstances-report-POLREP-Oil%202024.pdf

AOLA. (2019). *Red-Tailed Tropicbird - Phaethon rubricauda (Boddaert, 1783)*. Retrieved from Atlas of Living Australia: https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:e005180ba44d-4809-9b45-57a9e496bc1

Arnould, J. P., & Hindell, M. A. (2001, January). Dive behaviour, foraging locations, and maternal-attendance patterns of Australian fur seals (arctocephalus pusillus doriferus). *Canadian Journal of Zoology, 79*(1), 35-48. doi:10.1139/z00-178

Arnould, J. P., & Kirkwood, R. (2007, December). Habitat selection by female Australian fur seals (Arctocephalus pusillus doriferus). *Aquatic Conservation: Marine and Freshwater Ecosystems, 17*(S1), S53-S67. doi:10.1002/aqc.908

Arnould, J., & Mathews, H. (2024). *Preliminary investigation of Australian fur seal use of sea* . Burwood, VIC, Australia.: Deakin University.

Australian Gvernment Defence. (2025). *Unexploded ordnance in Australia*. Retrieved from Australian Gvernment Defence: https://www.defence.gov.au/about/locations-property/unexploded-ordnance-australia

Backhouse, G., Jackson, J., & O'Connor, J. (2008). *National Recovery Plan for the Australian Grayling Prototroctes maraena.* Melbourne: Department of Sustainability and Environment. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/australian-grayling.pdf

Balcazar, N. E., Tripovich, J. S., Klinck, H., Nieukirk, S. L., Mellinger, D. K., Dziak, R. P., & R. T. (2015, November 24). Calls reveal population structure of blue whales across the southeast Indian Ocean and the southwest Pacific Ocean. *Journal of Mammalogy, 96*(6), 1184-1193. doi:10.1093/jmammal/gyv126

Bannister, J. L. (1996). *The action plan for Australian cetaceans. .* Canberra, ACT, Australia:: Australian Nature Conservation Agency.

Barlow, D., Klinck, H., Ponirakis, D., Colberg, M. H., & Torres, L. G. (2023). Temporal occurence of three blue whale popualtions in New Zealand waters from passive acoustic monitoring. *Journal of Mammalogy 104(1)*, 29-38.

Barton, J., Pope, A., & Howe, S. (2012). *Marine Natural Values Study Vol 2: Marine Protected Areas of the Flinders and Twofold Shelf Bioregions.* Deakin University, School of Life & Environmental Sciences. Melbourne: Parks Victoria. Retrieved from https://scispace.com/pdf/marine-protected-areas-of-the-flinders-and-twofold-shelf-1j1qn5l5o5.pdf

Bax, N. J., & Williams, A. (2001, September). Seabed habitat on the south-eastern Australian continental shelf: context, vulnerability and monitoring. *Marine and Freshwater Research, 52*(4), 491-512. doi:10.1071/MF00003

Birdlife Australia. (2025). *Find a bird*. Retrieved from Bird profiles: https://birdlife.org.au/bird-profiles/

BirdLife International. (n.d.). *Data Zone*. Retrieved from BirdLife International: https://datazone.birdlife.org/

BOM. (2025, May 13). *Monthly climate statistics: Summary statistics HOGAN ISLAND*. Retrieved from Climate statistics for Australian locations: http://www.bom.gov.au/climate/averages/tables/cw_200838.shtml

Boon, P. I., Allen, T., Brook, J., Carr, G., Frood, D., Hoye, J., . . . White, M. (2011). *Mangroves and coastal saltmarsh of Victoria: Distribution, condition, threats and management.* Melbourne: Victoria University.

Branch, T., Monnahan, M., Leroy, E., Shabangu, F., Širović, A., Harthi, S., . . . Alexander. (2023). *Further revisions to the historical catch separation of pygmy blue whale populations using contemporary song detections.* International Whaling Commision.

Bray, D. J. (2021). *Seahorses, pipefishes, SYNGNATHIDAE*. Retrieved from Fishes of Australia: https://fishesofaustralia.net.au/home/family/34

Bray, D. J. (2023). *Carcharodon carcharias*. Retrieved from Fishes of Australia: https://fishesofaustralia.net.au/home/species/1846

Brennan, R. (2024). *Exercise prepares special ops for offshore crisis event*. Retrieved from Australian Government Defence : https://www.defence.gov.au/news-events/news/2024-04-23/exercise-prepares-special-ops-offshore-crisis-event

Brothers, N., Pemberton, D., Pryor, H., & Halley, V. (2001). *Tasmania's Offshore Islands: seabirds and other natural features.* Hobart: Tasmanian Museum and Art Gallery.

Butler, C., Lucieer, V., Walsh, P., Flukes, E., & Johnson, C. (2017). *Seamap Australia [Version 1.0] the development of a national benthic marine classification scheme for the Australian continental shelf. Final Report to the Australian National Data Service (ANDS) High Values Collection #19 .* Institute for Marine and Antarctic Studies. University of Tasmania.

Butler, I. P. (2024). *Fishery status reports 2024.* Canberra: Australian Bureau of Agricultural and Resource Economics and Sciences.

Cardno. (2017). *Metocean Criteria for Drilling-Baldfish, Bass Strait.* Cardno (NSW/ACT).

Cardno. (2019). *In-Situ Sediment Quality and Infauna Sampling Program Report for Esso Australia Pty Ltd.*

Carlyon, K., Pemberton, D., & Rudman, T. (2011). *Islands of the Hogan Group, Bass Strait: Biodiversity and Oil Spill Response Survey.* Nature Conservation Report Series 11/03, Department of Primary Industries, Parks, Water and Environment, Resource Management and Conservation Division, Hobart.

Chaloupka, M. Y., & Watson, G. F. (1982). *Zooplankton of Bass Strait: Species composition, systematics and artificial key to species.* Deparment of Zoology, University of Melbourne. Victorian Institute of Marine Science.

Charlton, C. M. (2017). *Southern right whale (Eubalaena australis) population demographics in southern Australia.* Centre for Marine Science and Technology, Faculty of Science and Engineering. Curtin Univeristy. Retrieved from https://espace.curtin.edu.au/bitstream/handle/20.500.11937/59638/Charlton%20C%202017.pdf?sequence=1&isAllowed=y

Chilvers, B. L., & Goldsworthy, S. D. (2015). *Arctocephalus forsteri. The IUCN Red List of Threatened Species 2015.* IUCN. doi:10.2305/IUCN.UK.2015-2.RLTS.T41664A45230026.en

Coastcare. (2000). *Small Bass Strait Island Reserves - Draft Management Plan.* Department of Primary Industries, Water and Environment, . Hobart: Parks and Wildlife Service. Retrieved from https://parks.tas.gov.au/Documents/bassstraitpdf.pdf

Coffey. (2010). *Snapper platform seabed survey.* Coffey Environments Pty Ltd.

Commonwealth of Australia. (2006). *Integrated Marine and Coastal Regionalisation of Australia (IMCRA).* Commonwealth of Australia.

Commonwealth of Australia. (2015a). *South-east marine region profile: A description of the ecosystems, conservation values and uses of the South-east Marine Region.* Commonwealth of Australia.

Commonwealth of Australia. (2015b). *Conservation Management Plan for the Blue Whale.* Department of the Environment. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/blue-whale-conservation-management-plan.pdf

Commonwealth of Australia. (2019). *National Recovery Plan for the Littoral Rainforest and Coastal Vine Thickets of Eastern Australia Ecological Community.* Department of the Environment and Energy. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/recovery-plan-littoral-rainforest-coastal-vine-thickets.pdf

Commonwealth of Australia. (2020). *Wildlife Conservation Plan for Seabirds.* Commonwealth of Australia.

Commonwealth of Australia. (2022). *National Recovery Plan for albatrosses and petrels (2022).* Department of Climate Change, Energy, the Environment and Water. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/national-recovery-plan-albatrosses-and-petrels-2022.pdf

Council, S.-e. S. (2025). *A message from the South-east Saltwater Council*. Retrieved from First Nations engagement in the South-east Network: https://australianmarineparks.gov.au/static/0df519f00113b820eb15d67b3f586e5c/a-message-from-the-south-east-saltwater-council.pdf

Creese, R. G., Glasby, T. M., West, G., & Gallen, C. (2009). *Mapping the habitats of NSW Estuaries.* Port Stephens Fisheries Institute. Industry & Investment NSW. Retrieved from https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0010/545716/FFRS-113_Creese-et-al-2009.pdf

DAFF. (2024). *Department of Agriculture, Fisheries and Forestry*. Retrieved from https://www.agriculture.gov.au/

Daly, T. (2013, March). Coastal saltmarsh. *primefact, 1256*. Retrieved from https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/459628/Coastal-Saltmarsh-Primefact.pdf

DAWE. (2015a). *Conservation Advice - Balaenoptera physalus - fin whale.* Canberra: Department of Agriculture, Water and the Environment.

DAWE. (2015b). *Conservation Advice - Balaenoptera borealis - sei whale.* Canberra: Department of Agriculture, Water and the Environment.

DAWE. (2021). *National Plastics Plan 2021*. Commonwealth of Australia . Retrieved from www.agriculture.gov.au/sites/default/files/documents/national-plastics-plan-2021.pdf

DAWE. (2022). *Listing Advice - Megaptera novaeangliae - Humpback Whale.* Canberra: Department of Agricultire, Water and the Environment.

DCCEEW. (2019a). *Corner Inlet* . Retrieved from Australian Wetlands Database: https://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=13

DCCEEW. (2019b). *Gippsland Lakes*. Retrieved from Australian Wetlands Database: https://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=21

DCCEEW. (2019c). *Logan Lagoon*. Retrieved from Australian Wetlands Database: https://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=4

DCCEEW. (2021a). *Criteria for identifying Wetlands of International Importance*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/water/wetlands/ramsar/criteria-identifying-wetlands

DCCEEW. (2021b, October 3). *Directory of Important Wetlands in Australia*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands

DCCEEW. (2022a, September 14). *Kamay Botany Bay: botanical collection sites*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/parks-heritage/heritage/places/national/kamay-botany-bay

DCCEEW. (2022b, September 14). *National Heritage Places - Kurnell Peninsula*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/parks-heritage/heritage/places/national/kurnell

DCCEEW. (2022c, September 14). *National Heritage Places - Royal National Park and Garawarra State Conservation Area*. Retrieved from Department of Climate Change, Energy the Environment and Water: https://www.dcceew.gov.au/parks-heritage/heritage/places/national/royal-park

DCCEEW. (2022d, September 14). *World Heritage Places - Lord Howe Island Group*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/parks-heritage/heritage/places/world/lord-howe

DCCEEW. (2023a). *Conservation Advice for Calidris ferruginea (curlew sandpiper).* Canberra: Department of Climate Change, Energy, the Environment and Water. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/856-conservation-advice-18122023.pdf

DCCEEW. (2023b). *Species Profile and Threats (SPRAT) Database*. Retrieved from Department of Climate Change, Energy, Environment and Water: https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

DCCEEW. (2023c). *Australian Heritage Database - Jervis Bay Territory.* Canberra: Department of Climate Change, Energy, the Environment and Water.

DCCEEW. (2023d). *Sea Country Indigenous Protected Areas Program - Grant Opportunity.* Department of Climate Change, Energy, the Environment and Water.

DCCEEW. (2023e). *The Protocol for Designation of Biologically Important Areas for Protected Marine Species (The BIA Protocol).* Canberra: Department of Climate Change, Energy, the Environment and Water.

DCCEEW. (2024a). *Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters.* Canberra: Department of Climate Change, Energy, the Environment and Water. Retrieved from www.dcceew.gov.au/sites/default/files/documents/guidelines-assessing-managing-impacts-underwater-cultural-heritage.pdf

DCCEEW. (2024b, June 13). *Biologically Important Areas of Regionally Significant Marine Species*. Retrieved from Find Environmental Data: https://fed.dcceew.gov.au/datasets/e8e7a7c233a44cf099817b2f4dff29c7_0/explore?location=-23.618820%2C-39.164273%2C3.08

DCCEEW. (2024c, July 18). *Gippsland, Victoria declared offshore wind area*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/energy/renewable/offshore-wind/areas/gippsland

DCCEEW. (2024d). *National Recovery Plan for the Southern Right Whale.* Canberra: Department of Climate Change, Energy, the Environment and Water.

DCCEEW. (2025a). *Australasian Underwater Cultural Heritage Database*. Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/parks-heritage/heritage/underwater-heritage/auchd

DCCEEW. (2025b, May 09). *Australia's National Heritage List. A WWW webpage accessed at Australia's National Heritage List - DCCEEW.* Retrieved from Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au/parks-heritage/heritage/places/national-heritage-list

DCCEEW. (n.d.). *Australian Ramsar Wetlands*. Retrieved from Australian Wetlands Database: http://www.environment.gov.au/cgi-bin/wetlands/advsearch.pl

De Leo, F. C., Smith, C. R., Rowden, A. A., Bowden, D. A., & Clark, M. R. (2010, May). Submarine canyons: hotspots of benthic biomass and productivity in the deep sea. *Proceedings of the Royal Society B, 277*(1695), 2783-2792. doi:10.1098/rspb.2010.0462

DECC (NSW). (2007). *Lord Howe Island Biodiversity Management Plan.* Sydney: Department of Environment and Climate Change (NSW). Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/lord-howe-island.pdf

DEECA. (2023). *Australian Grayling (Prototroctes maraena) [Action Statement].* Department of Energy, Environment and Climate Action. Melbourne: The State of Victoria . Retrieved from https://bio-prd-naturekit-public-data.s3.ap-southeast-2.amazonaws.com/actionstmts/Australian_Grayling_AS_4686.pdf

DELWP. (2015). *Dwarf Galaxias Galaxiella pusilla [Action Statement No. 258].* Department of Environment, Land, Water and Planning. Melbourne: The State of Victoria. Retrieved from https://vgls.sdp.sirsidynix.net.au/client/search/asset/1289267

DELWP. (2016). *National Recovery Plan for the Orange-bellied Parrot, Neophema chrysogaster.* Department of Environment, Land, Water and Planning.

DELWP. (2017). *Our Wildlife Fact Sheet: Little Penguin.* Department of Environment, Land, Water and Planning. Retrieved from https://www.wildlife.vic.gov.au/__data/assets/pdf_file/0023/91391/Little-Penguin.pdf

Destination NSW. (2025). *NSW statistics*. Retrieved from Destination NSW: https://www.destinationnsw.com.au/insights/nsw-statistics

DEWR. (2006). *The South-west Marine Region: Ecosystems and Key Species Groups.* Canberra: Department of the Environment and Water Resources.

Dive Works Subsea Solutions. (2018). *Esso West Barracouta Geophysical Survey.* Dive Works Subsea Solutions.

DNP. (2018). *Temperate East Marine Parks Network Management Plan 2018.* Canberra: Director of National Parks. Retrieved from https://australianmarineparks.gov.au/static/9b2c9381d231f410bf662f01b9a096d8/amp-document-temperate-east-management-plan-2018.pdf

DNP. (2025). *South-east Marine Parks Network Management Plan 2025.* Director of National Parks. Retrieved from https://australianmarineparks.gov.au/static/0a1fca1937a3392d1eecf0be90531239/south-east-network-management-plan-2025.pdf

DoE. (2014). *Recovery Plan for the Grey Nurse Shark (Carcharias taurus).* Department of the Environment. Commonwelath of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/recovery-plan-grey-nurse-shark-carcharias-taurus.pdf

DoE. (2015a). *Approved Conservation Advice (including listing advice) for Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion ecological community.* Canberra: Department of the Environment. Retrieved from http://www.environment.gov.au/biodiversity/threatened/communities/pubs/127-conservation-advice.pdf

DoE. (2015b). *Conservation management plan for the blue whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999* . Department of the Environment, Canberra.

DoE. (2015c). *Conservation Advice Numenius madagascariensis eastern curlew.* Department of the Environment.

DoEE. (2017). *Recovery plan for Marine turtles in Australia*. Retrieved from dcceew.gov.au: https://www.dcceew.gov.au/environment/marine/publications/recovery-plan-marine-turtles-australia-2017

DoEE. (2018). *Conservation advice (incorporating listing advice) for the Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community.* Canberra: Department of the Environment and Energy. Retrieved from http://www.environment.gov.au/biodiversity/threatened/communities/pubs/141-conservation-advice.pdf

DoEE. (2025a). *Tasman Front and eddy field as accessed on 01.08 2025*. Retrieved from https://www.environment.gov.au/spratpublic/action/kef/view/43;jsessionid=01AD87551D0DE1B0248C8722BE137004

DPI (NSW). (2018). *Batemans Marine Park User Guide.* NSW Department of Primary Industries. Retrieved from https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/656289/BMP-User-Guide-June-2018.pdf

DPIRD. ((n.d.)(b)). *Cape Banks Aquatic Reserve*. Retrieved from NSW Department of Primary Industries and Regional Development: https://www.dpi.nsw.gov.au/fishing/marine-protected-areas/marine-parks/cape-byron-marine-park

DPIRD. (n.d.). *Boat Harbour Aquatic Reserve*. Retrieved from NSW Department of Primary Industries and Regional Development: https://www.dpi.nsw.gov.au/fishing/marine-protected-areas/aquatic-reserves/boat-harbour-aquatic-reserve

DPIRD. (n.d.). *Jervis Bay Marine Park*. Retrieved from NSW Department of Primary Industries and Regional Development: https://www.dpi.nsw.gov.au/fishing/marine-protected-areas/marine-parks/jervis-bay-marine-park

DPIRD. (n.d.)(a). *Bushrangers Bay Aquatic Reserve*. Retrieved from NSW Department of Primary Industries and Regional Development: https://www.dpi.nsw.gov.au/fishing/marine-protected-areas/aquatic-reserves/bushrangers-bay-aquatic-reserve

DPMC. (2019). *Indigenous Protected Areas.* . Retrieved from Department of Prime Minister and Cabinet: https://www.pmc.gov.au/indigenous-affairs/environment/indigenous-protected-areas-ipas

DSE. (2003). *Great White Shark Carcharodon carcharias [Action Statement No. 185].* Department of Sustainability and Environment. Melbourne: The State of Victoria . Retrieved from https://bio-prd-naturekit-public-data.s3.ap-southeast-2.amazonaws.com/actionstmts/Great_White_Shark_AS_14300.pdf

DSEWPAC. (2011). *Approved Conservation Advice for Sternula nereis nereis (Fairy Tern).* Canberra: Department of Sustainability, Environment, Water, Population and Communities. Retrieved from https://www.environment.gov.au/biodiversity/threatened/species/pubs/82950-conservation-advice.pdf

DSEWPAC. (2012a). *Marine bioregional plan for the Temperate East Marine Region.* Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/env/pages/1e59b6ec-8b7e-42a8-9619-b5d728f878b2/files/temperate-east-marine-plan.pdf

DSEWPAC. (2012b). *Approved Conservation Advice for Epinephelus daemelii (black cod).* Canberra: Department of Sustainability, Environment, Water, Population and Communities.

DSEWPAC. (2012c). *Giant Kelp Marine Forests of South East Australia Fact Sheet.* Department of Sustainability, Environment, Water, Population and Communities. Retrieved from https://www.agriculture.gov.au/sites/default/files/documents/giant-kelp-marine-forests-fact-sheet.pdf

DSEWPAC. (2012d). *Approved Conservation Advice for Thymichthys politus (red handfish).* Canberra: Department of Sustainability, Environment, Water, Population and Communities. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/83756-conservation-advice.pdf

DSEWPAC. (2012e). *Species group report card - cetaceans: Supporting the marine bioregional plan for the Temperate East Marine Region.* Department of Sustainability, Environment, Water, Population and Communities. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/env/pages/0fcb6106-b4e3-4f9f-8d06-f6f94bea196b/files/north-report-card-cetaceans.pdf

DSEWPAC. (2013a). *Conservation Advice for Subtropical and Temperate Coastal Saltmarsh.* Canberra: Department of Sustainability, Environment, Water, Population and Communities. Retrieved from http://www.environment.gov.au/biodiversity/threatened/communities/pubs/118-conservation-advice.pdf

DSEWPAC. (2013b). *Recovery Plan for the White Shark (Carcharodon carcharias).* Department of Sustainability, Environment, Water, Population and Communities. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/white-shark.pdf

Edyvane, K. (1998). *Great Australian Bight Marine Park Management Plan, Part B, Resource Information.* Department of Environment, Heritage and Aboriginal Affairs, South Australia. Retrieved from https://cdn.environment.sa.gov.au/environment/docs/parks_pdfs_gabmp_mgt_planb.pdf

Erbe, C., McCauley, R., Gavrilov, A., Madhusudhana, S., & Verma, A. (2016, November). The underwater soundscape around Australia. *Proceedings of Acoustics 2016* (p. 10). Perth: Centre for Marine Science & Technology, Curtin University. Retrieved from https://www.acoustics.asn.au/conference_proceedings/AASNZ2016/papers/p14.pdf

Esso. (1989). *Metocean Design Criteria for Bass Strait fixed platforms.* Esso Australia Ltd.

Esso. (2009). *Bass Strait Environment Plan (BSEP) Geophysical and Geotechnical Supplement Summary Environment Plan.* Esso Australia Pty Ltd.

Etter, R. J., & Grassle, J. F. (1992, December 10). Patterns of species diversity in the deep sea as a function of sediment particle size diversity. *Nature, 360*, 576-578. doi:10.1038/360576a0

Flegg, J. (2002). *Photographic Field Guide Birds of Australia* (Vol. Second Edition). Sydney: Reed New Holland.

Gage, J. D., Lamont, P. A., & Tyler, P. A. (1995). Deep-sea macrobenthic communities at contrasting sites off Portugal, preliminary results: Introduction and diversity comparisons. *Internationale Revue Gesamten Hydrobiologie, 80*(2), 235-250.

Geoiscience Australia. (2004). *Sediments and Benthic Biota of Bass Strait: an Approach to Benthic Habitat Mapping.* Geoiscience Australia.

Geoscience Australia. (2022, August 31). *Regional Geology of the Gippsland Basin*. Retrieved from Geoscience Australia: https://www.ga.gov.au/scientific-topics/energy/province-sedimentary-basin-geology/petroleum/acreagerelease/gippsland

Gibbs. (1991). *Nutrient and plankton distribution near a shelf break front in the region of the Bass Strait cascade.* Australian Journal of Marine and Freshwater Research 42(2) 201 - 217.

Gill, P. C., & Wapstra, H. (2000). Confirmed sightings of dusky dolphins (Lagenorhynchus obscurus) in southern Australian waters. *Marine Mammal Science, 16*(2), 452-459. doi:10.1111/j.1748-7692.2000.tb00937.x

Gill, P., Morrice, M., Page, B., Pirzl, R., Levings, A., & Coyne, M. (2011). Blue whale habitat selection and within-season distribution in a regional upwelling system off southern Australia. *Mar. Ecol. Prog. Ser*.

Gill., P. (2020). Blue Whale Literature Review - Offshore Victoria (Otway Basin/Bass Strait. Report to Beach Energy Limited. *Blue Whale Study Inc.*

Gill., P., & Morrice, G. (2003). *Blue Whale research in the Bonney Upwelling, South-east Australia - current information.* Deakin University, School of Ecology and Environment, Technical paper 2001/1. November 2003.

GLaWAC. (2015). *Gunaikurnai Whole-of-Country Plan.* Gunaikurnai Land and Waters Aboriginal Corporation.

GLaWAC. (2023). *Our Country*. Retrieved from Gunaikurnai Land and Waters Aboriginal Corporation: https://gunaikurnai.org/our-country/

Global Environmental Modelling System. (2005). *Nexus Petroleum. Oil Spill Risk Assessment Longtom-3 Bass Strait VIC.* Global Environmental Modelling System.

Gomon, M. F., & Bray, D. J. (2020). *Prototroctes maraena*. Retrieved from Fishes of Australia: https://fishesofaustralia.net.au/home/species/3634

Griffin, C., Hazelwood, M., Nicholas, T., & Xu, J. (2012). *A Nationally Consistent Geomorphic Classification of the Australian Coastal Zone.* Geoscience Australia.

Hayes, K. R., Dunstan, P., Woolley, S., Barrett, N., Howe, S. A., Samson, C. R., . . . Francis, S. O. (2021). *Designing a Targeted Monitoring Program to Support Evidence Based Management of Australian Marine Parks: A Pilot onthe South-East Marine Parks Network.* Hobart: CSIRO.

Huang, Z. (2018). *MODIS Derived Primary Productivity: Overall Hotspots Canberra.* Retrieved from Geoscience Australia: http://dx.doi.org/10.4225/25/5a4d5951881cb

Huang, Z., & Hua Wang, X. (2019, June 15). Mapping the spatial and temporal variability of the upwelling systems of the Australian south-eastern coast using 14-year of MODIS data. *Remote Sensing of Environment, 227*, 90-109. doi:10.1016/j.rse.2019.04.002

Huisman, J. M. (2000). *Marine Plants of Australia.* University of Western Australia Press.

Hume, F., Hindell, M. A., Pemberton, D., & Gales, R. (2003, October 15). Spatial and temporal variation in the diet of a high trophic level predator, the Australian fur seal (Arctocephalus pusillus doriferus). *Marine Biology, 144*(3), 407-415. doi:10.1007/s00227-003-1219-0

Invest Gippsland. (2025). *Invest Gippsland*. Retrieved from Invest Gippsland: https://investgippsland.com.au/industries/visitor-economy/#:~:text=Gippsland%20has%20outperformed%20regional%20Victoria%20for%20domestic%20and,of%20their%20income%20from%20overnight%20and%20daytrip%20visitors.

Jones, I. S. (1980). Tidal and wind-driven currents in Bass Strait. *Australian Journal of Marine and Freshwater Research, 31*(2), 109-117. doi:10.1071/MF9800109

Jones, R., & Allen, J. (1979, November). A stratified archaeological site on great Glennie Island, Bass Strait. *Australian Archaeology, 9*, 2–11.

Keable, S. J. (2007). *Description of Key Species Groups in the East Marine Region.* (V. Tzioumis, & S. J. Keable, Eds.) Australian Museum. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/key-species.pdf

Kirkham, H. (1997). *Seagrasses of Australia, Australia: State of the Environment* (Vol. Technical Paper Series (Estuaries and the Sea)). Canberra: Environment Australia.

Kirkwood, R., Gales, R., Terauds, A., Arnould, J. P., Pemberton, D., Shaughnessy, P. D., . . . Gibbens, J. (2006, August 26). Pup production and population trends of the Australian fur seal Arctocephalus pusillus doriferus. *Marine Mammal Science, 21*(2), 260-282. doi:10.1111/j.1748-7692.2005.tb01227.x

Kirkwood, R., Warneke, R. M., & Arnould, J. P. (2009, April 16). Recolonization of Bass Strait, Australia, by the New Zealand fur seal, Arctocephalus forsteri. *Marine Mammal Science, 25*(2), 441-449. doi:10.1111/j.1748-7692.2008.00250.x

Klimley, A. P., & Anderson, S. D. (1996). Residency patterns of White Sharks at the South Farrallone Islands, California. In P. A. Klimley, & D. G. Ainley (Eds.), *Great White Sharks: The biology of Carcharodon carcharias* (pp. 365-373). New York: Academic Press.

Kloser RJ, W. A. (2001). *Assessment of acoustic mapping of seabed habitats: marine biological and resource surveys South-East Region.* Cooperative Program, Report 2 to the National Oceans Office. 332 pp.

Ku-ring-gai GeoRegion. (2025, 8 15). *Aboriginal Heritage*. Retrieved from Ku-ring-gai GeoRegion: https://kuringgaigeoregion.au/geosites/sandstone-plateaus/aboriginal-heritage/

Lawson and Treloar. (1996). *Blackback Oceanographic Measurement Program.* Unpublished report prepared by Lawson and Treloar Pty Ltd for Esso Australia Limited.

Lawson and Treloar. (1998). *Prediction of Bass Strait Cascade Currents.* Unpublished report.

Lawson, N. V., & Treloar, P. D. (1987). Inter-relationships between Wave Periods for the NSW, Australia Coast. *Eighth Australasian Conference on Coastal and Ocean Engineering*, (pp. 429-434). Launceston.

LCC. (1993). *Marine and Coastal Development Report (special investigation).* Land Conservation Council (LCC).

Lord Howe Island Board. (2010). *Lord Howe Island Permanent Park Preserve Plan of Management.* Department of Environment, Climate Change and Water (NSW). Retrieved from https://www.environment.nsw.gov.au/resources/planmanagement/final/20110007LordHoweIslandPomFinal.pdf

Mackay, A. I., Bailluel, F., Childerhouse, S., Donnelly, D., Harcourt, R., Parra, G. J., & Goldsworthy, S. D. (2015). *Offshore migratory movement of southern right whales: informing critical conservation and management needs.* SARDI Research Report Series No. 859, South Australian Research and Development Institute, Aquatics Sciences, Adelaide. Retrieved from https://www.pir.sa.gov.au/__data/assets/pdf_file/0004/260941/Southern_Right_Whale_Movement_Report.pdf

Marine Solutions. (2018). *West Barracouta Environmental Baseline Survey.* Report to DiveWorks.

Marsh, H., O'Shea, T. J., & Reynolds, J. E. (2011). *Ecology and Conservation of the Sirenia: Dugongs and Manatees.* London: Cambridge University Press. doi:10.1017/CBO9781139013277

Marsh, H., Penrose, H., Eros, C., & Hugues, J. (2002). *Dugong Status Report and Action Plans for Countries and Territories.* United Nations Environment Programme. Retrieved from https://portals.iucn.org/library/sites/library/files/documents/2002-001.pdf

McCauley, R. D., Gavrilov, A. N., Jolliffe, C. D., Ward, R., & Gill, P. C. (2018, November–December). Pygmy blue and Antarctic blue whale presence, distribution and population parameters in southern Australia based on passive acoustics. *Deep Sea Research Part II: Topical Studies in Oceanography, 157-158*, 154-168. doi:10.1016/j.dsr2.2018.09.006

McClatchie, S., Middleton, J., Pattiaratchi, C., Currie, D., & Kendrick, G. (2006). *The South-west Marine Region: Ecosystems and Key Species Groups.* Department of the Environment and Water Resources. Commonwealth of Australia. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/sw-ecosystems-part1.pdf

McLean, D., Jaworski, S., Bornt, K., Galaiduk, R., Birt, M., McCormack, S., . . . Speed, C. (2025). *Fish and benthic communities of subsea pipelines, platforms, and natural habitats of the Bass Strait: informing decommissioning.* Perth, WA: Australian Institute of Marine Science.

McLeay, L. J., Sorokin, S. J., Rogers, P. J., & Ward, T. M. (2003). *Benthic Protection Zone of the Great Australian Bight Marine Park: 1. Literature Review.* Aquatic Sciences. Adelaide: South Australia Marine Research and Development Institute. Retrieved from https://figshare.utas.edu.au/articles/report/Benthic_Protection_Zone_of_the_Great_Australian_Bight_Marine_Park_1_Literature_Review/25322944?file=44760355

Morrice, M. G. (2004). *Killer whales (Orcinus orca) in Australian territorial waters.* Technical Paper.

National Museum Australia . (2025). *National Museum Australia* . Retrieved from An isolated island: https://digital-classroom.nma.gov.au/defining-moments/separation-tasmania

NNTT. (2010). *Native Title Determination Details - VCD2010/001 - Gunai/Kurnai People*. Retrieved from National Native Title Tribunal: http://www.nntt.gov.au/searchRegApps/NativeTitleClaims/Pages/Determination_details.a

NNTT. (2018). *Native Title Claimant Applications and Determinations as per the Federal Court*. Retrieved from National Native Title Tribunal: http://www.nntt.gov.au/Maps/NSW_ACT_JBT_NTDA_Schedule.pdf

NNTT. (2025). *About Indigenous Land Use Agreements (ILUAs)*. Retrieved from National Native Title Tribunal : https://www.nntt.gov.au/ILUAs/Pages/default.aspx

NOAA. (2010). *Characteristic Coastal Habitats - Choosing Spill Response Alternatives. .* National Oceanic and atmospheric Administration.

NOO. (2002a). *Ecosystems - Nature's Diversity. The South-East Regional Marine Plan Assessment Reports.* Hobart: National Oceans Office.

NOO. (2002b). *Sea Country – an Indigenous perspective. The South-east Regional Marine Plan Assessment Reports.* Hobart: National Oceans Office. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/indigenous.pdf

NOPSEMA. (2025). *Application of oil spill modelling in EPs and OPEPs information paper (DRAFT).* NOPSEMA.

NPWS. (2000). *Royal National Park, Heathcote National Park and Garawarra State Recreation Area Plan of Management.* NSW National Parks and Wildlife Service.

NPWS. (2008). *Broulee Island Nature Reserve Plan of Management.* NSW National Parks and Wildlife Service. Department of Environment and Climate Change NSW. Retrieved from https://www.environment.nsw.gov.au/sites/default/files/broulee-island-nature-reserve-plan-of-management-080663.pdf

NPWS. (2016). *Botany Bay National Park Plan of Management .* NSW National Parks and Wildlife Service.

NPWS. (2018). *Kamay Botany Bay National Park Draft Plan of Management .* NSW National Parks and Wildlife Service, Office of Environment & Heritage.

NPWS. (n.d.)(a). *Bournda National Park*. Retrieved from NSW National Parks and Wildlife Service: https://www.nationalparks.nsw.gov.au/visit-a-park/parks/bournda-national-park/learn-more#F04CBA7765DD45DAA0B7E1A88E78EF5C

NPWS. (n.d.)(b). *Conjola National Park*. Retrieved from NSW National Parks and Wildlife Service: https://www.nationalparks.nsw.gov.au/visit-a-park/parks/conjola-national-park/learn-more

NPWS. (n.d.)(c). *Eurobodalla National Park*. Retrieved from NSW National Parks and Wildlife Service: https://www.nationalparks.nsw.gov.au/visit-a-park/parks/eurobodalla-national-park

NPWS. (n.d.)(d). *Meroo National Park*. Retrieved from NSW National Parks and Wildlife Service: https://www.nationalparks.nsw.gov.au/visit-a-park/parks/meroo-national-park

NPWS. (n.d.)(e). *Mimosa Rocks National Park*. Retrieved from NSW National Parks and Wildlife Service: https://www.nationalparks.nsw.gov.au/visit-a-park/parks/mimosa-rocks-national-park

NPWS. (n.d.)(f). *Murramarang National Park*. Retrieved from NSW National Parks and Wildlife Service: https://www.nationalparks.nsw.gov.au/visit-a-park/parks/murramarang-national-park/visitor-info

NPWS. (n.d.)(g). *Narrawallee Creek Nature Reserve*. Retrieved from NSW National Parks and Wildlife Service: https://www.nationalparks.nsw.gov.au/visit-a-park/parks/narrawallee-creek-nature-reserve

NSW Government. (2019, April 26). *Little penguin*. Retrieved from Environment and Heritage: https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/native-animal-facts/little-penguin

OEH. (2019). *Search Aboriginal Places & State Heritage Register* . Retrieved from https://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx

O'Hara, T. a. (2000). *Victorian Marine Species of Conservation Concern: Molluscs, Echinoderms and Decapod Crustaceans.* Parks, Flora and Fauna Division. East Melbourne: Department of Natural Resources and Environment.

OSRA. (2015). *Oil Spill Response Maps – Vic.* Oil Spill Response Atlas.

Parks Australia. (2023). *Elizabeth and Middleton Reefs Guide (Lorde Howe Marine Park).* Australian Government Director of National Parks.

ParksVic. ( 2017a). *Beware Reef Marine Sanctuary.* Retrieved from http://parkweb.vic.gov.au/explore/parks/beware-reef-marine-sanctuary. Accessed on 4 Oct 2017

ParksVic. (2017b). *Cape Howe Marine National Park*. Retrieved from http://parkweb.vic.gov.au/explore/parks/cape-howe-marine-national-park.

ParksVic. (2017c). *Ninety Mile Beach Marine National Park*. Retrieved from http://parkweb.vic.gov.au/explore/parks/ninety-mile-beach-marine-national-park.

ParksVic. (2017d). *Point Hicks Marine National Park*. Retrieved from http://parkweb.vic.gov.au/explore/parks/point-hicks-marine-national-park.

ParksVic. (2017e). *Cape Conran Coastal Park*. Retrieved from http://parkweb.vic.gov.au/explore/parks/cape-conran-coastal-park.

ParksVic. (2017f). *Wilsons Promontory Marine Park*. Retrieved from http://parkweb.vic.gov.au/explore/parks/wilsons-promontory-national-park.

ParksVic. (2017g). *Croajingolong National Park* . Retrieved from http://parkweb.vic.gov.au/explore/parks/croajingolong-national-park.

ParksVic. (2017h ). *Gippsland Lakes Coastal Park* . Retrieved from http://parkweb.vic.gov.au/explore/parks/gippsland-lakes-coastal-park

ParksVic. (2017i). *The Lakes National Park*. Retrieved from http://parkweb.vic.gov.au/explore/parks/the-lakes-national-park.

ParksVic. (2023). *Explore Lake Tyers State Park*. Retrieved from Parks Victoria: https://www.parks.vic.gov.au/places-to-see/parks/lake-tyers-state-park

ParksVic. (2025). *Marine*. Retrieved from Park Victoria: https://www.parks.vic.gov.au/get-into-nature/conservation-and-science/our-amazing-diversity/marine

Parry, G. C. (1990). *Marine resources off East Gippsland, southeastern Australia. Technical Report No. 72, , Queenscliff, Victoria, Australia.* Marine Science Laboratories.

Patil, J., Gunasekera, R., McEnnulty, F., & Bax, N. (2004). *Development of genetic probes for rapid assessment of the impacts of marine invasive species on native biodiversity–Maoricolpus roseus.* CSIRO Marine Research. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/maoricolpus-roseus.pdf

Penguin Foundation. (2025). *Little Penguin*. Retrieved from Penguin Foundation: https://penguinfoundation.org.au/about-us/species/little-penguin

Plummer, A., Morris, L., Blake, S., & Ball, D. (2003). *Marine Natural Values Study.* Victorian Marine National Parks and Sanctuaries. Melbourne: Parks Victoria. Retrieved from https://nla.gov.au/nla.obj-2822114936/view

Ramahyuck. (2023). *GUNAI/KURNAI PEOPLE.* Retrieved from Ramahyuck: https://www.ramahyuck.org/about/gunaikurnai-people/

Roberts, J. M., Wheeler, A., Freiwald, A., & Carins, S. (2009). *Cold-Water Corals: The Biology and Geology of Deep-Sea Coral Habitats.* Cambridge University Press.

Robinson, S., Gales, R., Terauds, A., & Greenwood, M. (2008, June 17). Movements of fur seals following relocation from fish farms. *Aquatic Conservation: Marine and Freshwater Ecosystems, 18*(7), 1189-1199. doi:10.1002/aqc.972

Rogers, P. J., Ward, T. M., van Ruth, P. D., Williams, A., Bruce, B. D., Connell, S. D., . . . Young, J. W. (2013). *Physical processes, biodiversity and ecology of the Great Australian Bight Region: a literature review.* CSIRO.

Rowe, G. T., Polloni, P. T., & Haedrich, R. L. (1982, February). The deep-sea macrobenthos on the continental margin of the Northwest Atlantic Ocean. *Deep-Sea Research Part A. Oceanographic Research Papers, 29*(2), 257-278. doi:10.1016/0198-0149(82)90113-3

RPS. (2025). *Bass Strait Environmental Plan Renewal. Prepared for Esso Australia Pty Ltd by. Report No. GOC371529.* RPS Asia-Pacific Applied Science Associates.

Saddlier, S., Jackson, J., & Hammer, M. (2010, February). *National Recovery Plan for the Dwarf Galaxias Galaxiella pusilla.* Melbourne: Department of Sustainability and Environment. Retrieved from https://www.dcceew.gov.au/sites/default/files/documents/dwarf-galaxias.pdf

Sanderson, J. C. (1997). *Subtidal Macroalgal Assemblages in Temperate Australian Coastal Waters.* Environment Australia. Canberra: Department of the Environment. Retrieved from https://www.researchgate.net/profile/J-Sanderson/publication/236688368_Subtidal_Macroalgal_Assemblages_in_Temperate_Australian_Coastal_Water/links/0deec532ba8270e29e000000/Subtidal-Macroalgal-Assemblages-in-Temperate-Australian-Coastal-Water.pdf

Schlacher, T. A., Schlacher-Hoenlinger, M. A., Williams, A., Althaus, F., Hooper, J. N., & Kloser, R. (2007, June 18). Richness and distribution of sponge megabenthos in continental margin canyons off southeastern Australia. *Marine Ecology Progress Series, 340*, 73-88. doi:10.3354/meps340073

Shaughnessy, P. (1999). *The action plan for Australian seals.* CSIRO Wildlife and Ecology.

Smyth, D., & Isherwood, M. (2016). Protecting sea country: Indigenous people and marine protected areas in Australia. *Big, Bold and Blue: Lessons from Australia's marine protected areas*, 307-325.

Smyth, L., Egan, H., & Kennett, R. (2018). *Livelihood values of Indigenous customary fishing: Final report to the Fisheries Research and Development Corporation.* Canberra: Australian Institute of Aboriginal and Torres Strait Islander Studies. Retrieved from https://www.frdc.com.au/sites/default/files/products/2015-205-DLD.pdf

Stantec Australia. (2024, August). *Sediment transport and Dispersion Modelling - Gippsland Decommissioning Project - Campaign 1.* Prepared for Esso Australia Pty Ltd.

Tasmanian Government. (2025a). *Abalone Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/abalone-fishery

Tasmanian Government. (2025b). *Scalefish Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/scalefish-fishery

Tasmanian Government. (2025c). *Rock Lobster Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/rock-lobster-fishery

Tasmanian Government. (2025d). *Giant Crab Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/giant-crab-fishery

Tasmanian Government. (2025e). *Scallop Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/scallop-fishery

Tasmanian Government. (2025f). *Commercial Dive Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/commercial-dive-fishery

Tasmanian Government. (2025g). *Shellfish Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/shellfish-fishery

Tasmanian Government. (2025h). *Marine Plant Fishery*. Retrieved from Department of Natural Resources and Environment Tasmania: https://fishing.tas.gov.au/commercial-fishing/commercial-fisheries/marine-plant-fishery

The University of Adelaide. (n.d.). *Sea Country*. Retrieved from The University of Adelaide: https://storymaps.arcgis.com/stories/4a5c0beda383452889d5c0b37bf9d539

Tomczak. (1985 ). *The Bass Strait water cascade during winter 1981. Continental Shelf Research 4, 255-278.*

Toursim Tasmania. (2025). *Tourism Fast Facts.* Toursim Tasmania. Retrieved from Toursim Tasmania: https://www.tourismtasmania.com.au/siteassets/documents/fast-facts/2024-q4-tourism-fast-facts-updated-april-2025.pdf

TPWS. (2017). *Kent Group Marine Reserve*. Retrieved from Tasmania Parks and Wildlife Service: http://www.parks.tas.gov.au/index.aspx?base=3110.

TPWS. (2022, April 12). *Strzelecki National Park*. Retrieved from Tasmania Parks and Wildlife Service: https://parks.tas.gov.au/explore-our-parks/strzelecki-national-park

TSSC. (2001). *Commonwealth Listing Advice on Carcharias taurus, Grey Nurse Shark (East Coast population).* Canberra: Threatened Species Scientific Committee. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/c-taurus.html

TSSC. (2008). *Commonwealth Conservation Advice on Dermochelys coriacea Leatherback Turtle.* . Department of the Environment, Water, Heritage and the Arts.

TSSC. (2013a). *Commonwealth Listing Advice on Centrophorus harrissoni (Harrisson's dogfish).* Department of Sustainability, Environment, Water, Population and Communities. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/68444-listing-advice.pdf

TSSC. (2013b). *Commonwealth Listing Advice on Centrophorus zeehaani (southern dogfish).* Department of Sustainability, Environment, Water, Population and Communities. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/82679-listing-advice.pdf

TSSC. (2014). *Conservation Advice (including listing advice) for Coastal Upland Swamps in the Sydney Basin Bioregion.* Department of the Environment. Retrieved from https://www.environment.gov.au/biodiversity/threatened/communities/pubs/140-conservation-advice.pdf

TSSC. (2015). *Conservation Advice Rhincodon typus whale shark.* Canberra: Department of the Environment. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/66680-conservation-advice-01102015.pdf

TSSC. (2020a). *Conservation Advice Dendronephthya australis Cauliflower Soft Coral.* Department of Agriculture, Water and the Environment. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/90325-conservation-advice-12122020.pdf

TSSC. (2020b). *Conservation Advice Hippocampus whitei White's Seahorse.* Canberra: Department of Agriculture, Water and the Environment. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/66240-conservation-advice-12122020.pdf

TSSC. (2022). *Listing Advice Megaptera novaeangliae Humpback Whale.* Canberra: Department of Agriculture, Water and the Environment. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/38-listing-advice-26022022.pdf

TSSC. (2024a). *Conservation Advice Amphiprion mccullochi McCulloch's anemonefish, whitesnout anemonefish.* Threatened Species Scientific Committee.

TSSC. (2024b). *Listing Advice for Sphyrna lewini (scalloped hammerhead).* Canberra: Department of Climate Change, Energy, the Environment and Water. Retrieved from http://www.environment.gov.au/biodiversity/threatened/species/pubs/85267-listing-advice-27022024.pdf

Umwelt. (2022). *Greater Gippslan d Offshore Wind Project, Preliminary Desktop Cultural Heritage Constraints Assessnment, prepared for BlueFloat Energy and Energy Estate.* Umwelt.

UNESCO. (2009). *2009 UNESCO Framework for Cultural Statistics.* Montreal: UNESCO Institute for Statistics. Retrieved from https://uis.unesco.org/sites/default/files/documents/unesco-framework-for-cultural-statistics-2009-en_0.pdf

UNESCO. (n.d.). *What is Intangible Cultural Heritage?* Retrieved from UNESCO Intangible Cultural Heritage: https://ich.unesco.org/en/what-is-intangible-heritage-00003

URS Corporation. (2000). *Blackback Seabed Monitoring Programme.* URS Corporation.

Vetter, E. W., & Dayton, P. K. (1999, September 17). Organic enrichment by macrophyte detritus, and abundance patterns of megafaunal populations in submarine canyons. *Marine Ecology Progress Series, 186*, 137-148. Retrieved from https://www.int-res.com/articles/meps/186/m186p137.pdf

Warren, V. E., McPherson, C., Giorli, G., Goetz, K. T., & Radford, C. A. (2021, March 3). Marine soundscape variation reveals insights into baleen whales and their environment: a case study in central New Zealand. *Royal Society Open Science, 8*(3), e201503. doi:10.1098/rsos.201503

Waycott, M., McMahon, K., & Lavery, P. (2013). *A Guide to Southern Temperate Seagrasses.* Collingwood: CSIRO.

Wiebkin, A. S. (2011). *Conservation management priorities for little penguin populations in Gulf St Vincent.* Aquatic Sciences. Adelaide: South Australian Research and Development Institute. Retrieved from https://cdn.environment.sa.gov.au/landscape/docs/hf/little-penguins-conservation-management-priorities-for-populations-gulf-st-vincent-2011-rep.pdf

Williams, A., Bax, N., Kloser, R., Althaus, F., Barker, B., & Keith, G. (2009). Australia's deep-water reserve network: implications of false homogeneity for classifying abiotic surrogates of biodiversity. *ICES Journal of Marine Science, 66*, 214-224.

Woodhams, J., Butler, I., Timmiss, T., Bromhead, D., Cottrell, M., Dylewski, M., . . . Galeano, D. (2025). *Fishery status reports 2025 .* Australian Bureau of Agricultural and Resource Economics and Sciences.

# Appendix B: Platform details

Facilities – Platforms

## TRANSITIONING



### Barracouta (BTA)

#### History

| | |
|---|---|
| **Field discovered:** | January 1965 |
| **Exploration vessel:** | *Glomar III* |
| **Field size (area):** | 7608 hectares |
| **Distance from shore:** | 23 kilometres |
| **Water depth:** | 46 metres |

#### Construction

| | |
|---|---|
| **Type of construction:** | Steel jacket platform |
| **Jacket launched:** | December 1967 |
| **Height of main deck above sea level:** | 20 metres |
| **Dimensions of main deck:** | 37m x 20m |
| **Weight of sub structure:** | 2042 tonnes |

#### Production

| | | |
|---|---|---|
| **Drilling started:** | | March 1968 |
| **Production started:** | | March 1969 (gas)<br>October 1969 (oil) |
| **Well conductors:** | | 10 |
| **Products:** | | Crude oil and natural gas |
| **Pipelines** | **Oil:** | 150mm to shore<br>150mm from Seahorse<br>200mm from Tarwhine |
| | **Gas:** | 450mm to shore |
| | **Gas lift:** | 65mm to Seahorse<br>65mm to Tarwhine |

## PRODUCING



### Marlin A (MLA)

#### History

| | |
|---|---|
| **Field discovered:** | February 1966 |
| **Exploration vessel:** | *Glomar III* |
| **Field size (area):** | 7870 hectares |
| **Distance from shore:** | 42 kilometres |
| **Water depth:** | 59 metres |

#### Construction

| | |
|---|---|
| **Type of construction:** | Twin steel jacket platform |
| **Jacket launched:** | April 1968 |
| **Height of main deck above sea level:** | 20 metres |
| **Dimensions of main deck:** | 43m x 36m |
| **Weight of sub structure:** | 4127 tonnes |
| **Bridge link to Marlin B platform installed 2011** | |

#### Production

| | | |
|---|---|---|
| **Drilling started:** | | August 1968 |
| **Production started:** | | April 1969 (gas)<br>January 1982 (oil) |
| **Well conductors:** | | 24 |
| **Products:** | | Crude oil and natural gas |
| **Pipelines** | **Gas:** | 500mm to shore<br>200mm from Tuna |
| | **Oil:** | 300mm to tee in Halibut-shore 600mm line<br>250mm from Snapper<br>300mm from Tuna |
| | **Fuel gas:** | 150mm to Kingfish B |

# PRODUCING



## Marlin B (MLB)

### History

| | |
|---|---|
| **Turrum field discovered:** | February 1966 |
| **Exploration vessel:** | *Glomar III* |
| **Field size (area):** | 1550 hectares |
| **Distance from shore:** | 42 kilometres |
| **Water depth:** | 60 metres |

### Construction

| | |
|---|---|
| **Type of construction:** | Steel jacket platform bridge connected to Marlin A Jacket launched: 2011 |
| **Height of main deck above sea level:** | 31 metres |
| **Dimensions of main deck:** | 64m x 34m |
| **Weight of sub structure:** | 8000 tonnes (approx) |

### Production

| | | |
|---|---|---|
| **Drilling starting:** | | December 2014 |
| **Production started:** | | June 2013 |
| **Well conductors:** | | 18 slots, 7 installed |
| **Products:** | | Crude oil and natural gas |
| **Pipelines** | **Gas:** | 450mm from West Tuna<br>450mm to Snapper |

# TRANSITIONING



## Snapper (SNA)

### History

| | |
|---|---|
| **Field discovered:** | June 1968 |
| **Exploration vessel:** | *Discoverer 2* |
| **Field size (area):** | 5900 hectares |
| **Distance from shore:** | 32 kilometres |
| **Water depth:** | 55 metres |

### Construction

| | |
|---|---|
| **Type of construction:** | Steel jacket platform |
| **Jacket launched:** | May 1979 |
| **Height of main deck above sea level:** | 24 metres |
| **Dimensions of main deck:** | 59m x 29m |
| **Weight of sub structure:** | 6783 tonnes |

### Production

| | | |
|---|---|---|
| **Drilling started:** | | March 1981 |
| **Production started:** | | July 1981 |
| **Well conductors:** | | 31 |
| **Products:** | | Crude oil and natural gas |
| **Pipelines** | **Oil:** | 250mm to Marlin<br>250mm from Whiting |
| | **Gas:** | 600mm to shore<br>200mm from Whiting |

# TRANSITIONING



## Tuna (TNA)

### History

| | |
|---|---|
| **Field discovered:** | June 1968 |
| **Exploration vessel:** | *Glomar III* |
| **Field size (area):** | 2707 hectares |
| **Distance from shore:** | 43 kilometres |
| **Water depth:** | 59 metres |

### Construction

| | |
|---|---|
| **Type of construction:** | Steel jacket platform |
| **Jacket launched:** | January 1977 |
| **Height of main deck above sea level:** | 24 metres |
| **Dimensions of main deck:** | 59m x 29m |
| **Weight of sub structure:** | 6245 tonnes |

### Production

| | | |
|---|---|---|
| **Drilling started:** | | October 1978 |
| **Production started:** | | May 1979 |
| **Well conductors:** | | 33 |
| **Products:** | | Crude oil and natural gas |
| **Pipelines** | **Oil:** | 300mm to Marlin<br>250mm from Flounder<br>250mm from West Tuna |
| | **Gas:** | 200mm to Marlin<br>250mm from Flounder<br>100mm from West Tuna |

# PRODUCING



## West Tuna (WTN)

### History

| | |
|---|---|
| **Field discovered:** | June 1968 |
| **Exploration vessel:** | *Glomar III* |
| **Field size (area):** | 2707 hectares |
| **Distance from shore:** | 45 kilometres |
| **Water depth:** | 61 metres |

### Construction

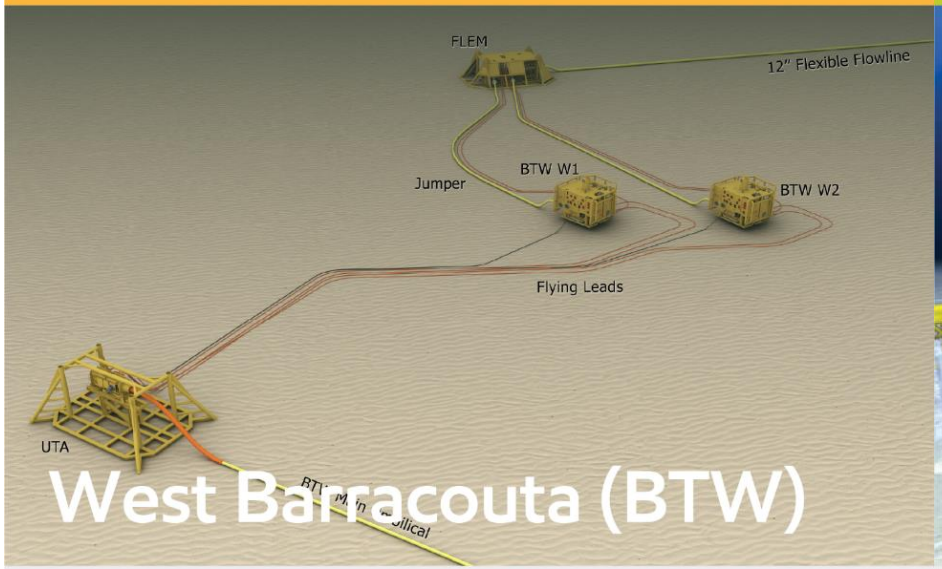
| | |
|---|---|
| **Type of construction:** | Concrete gravity based platform |
| **Platform positioned:** | November 1996 |
| **Height of main deck above sea level:** | 27 metres |
| **Dimensions of main deck:** | 80m x 69m |
| **Dimensions of base:** | 92m x 76m x 15m |
| **Weight of sub structure:** | 104000 tonnes |

### Production

| | | |
|---|---|---|
| **Drilling started:** | | January 1997 |
| **Production started:** | | January 1997 |
| **Well conductors:** | | 47 |
| **Product:** | | Crude oil and natural gas |
| **Pipelines** | **Gas:** | 100mm to Tuna A |
| | **Oil:** | 250mm to Tuna A |
| | **Oil:** | 450mm to Marlin B |
| | **Gas:** | 350mm from Kipper (2 pipelines) |

# 1. Facilities - Subsea

## TRANSITIONING




## West Barracouta (BTW)

### History

| | |
|---|---|
| **Field discovered:** | January 1965 |
| **Exploration vessel:** | *Glomar III* |
| **Field size (area):** | 7608 hectares |
| **Distance from shore:** | 22 kilometres |
| **Distance to host platform:** | 6 kilometres |
| **Water depth:** | 45 metres |

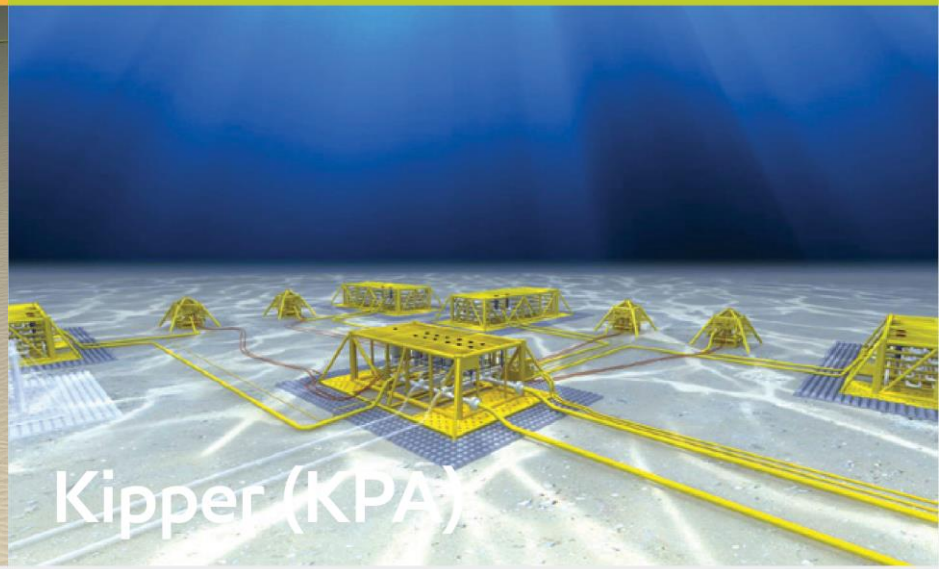
### Construction

| | |
|---|---|
| **Type of construction:** | Subsea completion |
| **Total height (from seabed):** | 6 metres |
| **Distance between wellheads:** | 11 metres (approx.) |
| **Weight of each wellhead:** | 59 tonnes |

### Production

| | | |
|---|---|---|
| **Drilling started:** | | February 2020 |
| **Production started:** | | April 2021 |
| **Well conductors:** | | 2 |
| **Product:** | | Natural gas |
| **Pipeline:** | **Gas:** | 350mm to Barracouta |

## PRODUCING



## Kipper (KPA)

### History

| | |
|---|---|
| **Field discovered:** | March 1986 |
| **Exploration vessel:** | *Southern Cross* |
| **Field size (area):** | 4000 hectares |
| **Distance from shore:** | 45 kilometres |
| **Distance to host platform:** | 18 kilometres |
| **Water depth:** | 100 metres |

### Construction

| | |
|---|---|
| **Type of construction:** | Subsea completion |
| **Total height (from seabed):** | 8 metres (approx) |
| **Distance between wellheads:** | 7m (approx) |
| **Weight of each wellhead:** | 40 tonnes (approx) |

### Production

| | | |
|---|---|---|
| **Drilling starting:** | | March 2010 |
| **Production started:** | | March 2017 |
| **Well conductors:** | | 4 |
| **Product:** | | Natural gas |
| **Pipeline:** | **Gas:** | Looped 2 x 350mm to West Tuna |

# Appendix C: EPBC Act Listed Species in the Operational Area/Area of Described Environment and Environment That May Be Affected

**Table C-1 EPBC Act listed fish (bony) species or species habitat that may occur within the ADE and EMBA**

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| **Fish** | | | | | | | | |
| *Acentronura tentaculate* | Shortpouch pygmy pipehorse | - | - | ✓ | - | - | - | MO |
| *Amphiprion mccullochi* | Whitesnout anemonefish | CE | - | - | - | - | - | KO |
| *Cosmocampus howensis* | Lord Howe pipefish | - | - | ✓ | - | - | - | MO |
| *Epinephelus daemelii* | Black rockcod | V | - | ✓ | - | - | - | LO |
| *Festucalex cinctus* | Girdled pipefish | - | - | ✓ | - | - | - | MO |
| *Filicampus tigris* | Tiger pipefish | - | - | ✓ | - | - | - | MO |
| *Galaxiella pusilla* | Eastern dwarf galaxias | E | - | - | - | - | - | KO |
| *Halicampus boothae* | Booth's pipefish | - | - | ✓ | - | - | - | MO |
| *Heraldia nocturna* | Upside-down pipefish | - | - | ✓ | - | - | MO | MO |
| *Hippichthys penicillus* | Beady pipefish | - | - | ✓ | - | - | - | MO |
| *Hippocampus abdominalis* | Big-belly seahorse | - | - | ✓ | - | - | MO | MO |
| *Hippocampus breviceps* | Short-head seahorse | - | - | ✓ | - | - | MO | MO |
| *Hippocampus minotaur* | Bullneck seahorse | - | - | ✓ | - | - | MO | MO |
| *Hippocampus kelloggi* | Kellogg Seahorse | - | - | ✓ | - | - | - | MO |
| *Hippocampus whitei* | White's seahorse | E | - | ✓ | - | - | - | KO |
| *Histiogamphelus briggsii* | Crested pipefish | - | - | ✓ | - | - | MO | MO |
| *Histiogamphelus cristatus* | Rhino pipefish | - | - | ✓ | - | - | MO | MO |
| *Hoplostethus atlanticus* | Orange roughy | CD | - | - | - | - | LO | LO |
| *Hypselognathus rostratus* | Knifesnout pipefish | - | - | ✓ | - | - | MO | MO |
| *Kaupus costatus* | Deepbody pipefish | - | - | ✓ | - | - | MO | MO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Kimblaeus bassensis* | Trawl pipefish | - | - | ✓ | - | - | MO | MO |
| *Leptoichthys fistularius* | Brushtail pipefish | - | - | ✓ | - | - | MO | MO |
| *Lissocampus caudalis* | Australian smooth pipefish | - | - | ✓ | - | - | - | MO |
| *Lissocampus runa* | Javelin pipefish | - | - | ✓ | - | - | MO | MO |
| *Maccullochella peelii* | Murray cod | V | - | - | - | - | - | KO |
| *Macquaria australasica* | Macquarie perch | E | - | - | - | - | - | KO |
| *Maroubra perserrata* | Sawtooth pipefish | - | - | ✓ | - | - | MO | MO |
| *Mitotichthys mollisoni* | Mollison's pipefish | - | - | ✓ | - | - | - | MO |
| *Mitotichthys semistriatus* | Halfbanded pipefish | - | - | ✓ | - | - | MO | MO |
| *Mitotichthys tuckeri* | Tucker's pipefish | - | - | ✓ | - | - | MO | MO |
| *Mordacia praecox* | Non-parasitic lamprey, precocious lamprey | E | - | - | - | - | - | LO |
| *Notiocampus ruber* | Red pipefish | - | - | ✓ | - | - | MO | MO |
| *Phycodurus eques* | Leafy seadragon | - | - | ✓ | - | - | - | MO |
| *Phyllopteryx taeniolatus* | Common seadragon | - | - | ✓ | - | - | MO | MO |
| *Prototroctes maraena* | Australian grayling | V | - | - | - | - | MO | KO |
| *Pugnaso curtirostris* | Pugnose pipefish | - | - | ✓ | - | - | - | MO |
| *Rexea solandri* | Eastern gemfish | CD | - | - | - | - | LO | LO |
| *Seriolella brama* | Blue warehou | CD | - | - | - | - | KO | KO |
| *Solegnathus dunckeri* | Duncker's pipehorse | - | - | ✓ | - | - | - | MO |
| *Solegnathus robustus* | Robust pipehorse | - | - | ✓ | - | - | MO | MO |
| *Solegnathus spinosissimus* | Spiny pipe horse | - | - | ✓ | - | - | MO | MO |
| *Solenostomus cyanopterus* | Robust ghostpipefish | - | - | ✓ | - | - | - | MO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Solenostomus paradoxus* | Ornate ghostpipefish | - | - | ✓ | - | - | - | MO |
| *Stigmatopora argus* | Spotted pipefish | - | - | ✓ | - | - | MO | MO |
| *Stigmatopora nigra* | Widebody pipefish | - | - | ✓ | - | - | MO | MO |
| *Stipecampus cristatus* | Ringback pipefish | - | - | ✓ | - | - | MO | MO |
| *Syngnathoides biaculeatus* | Double-end pipehorse, | - | - | ✓ | - | - | MO | MO |
| *Thymichthys politus* | Red handfish | CE | - | - | - | - | - | MO |
| *Trachyrhamphus bicoarctatus* | Bentstick pipefish | - | - | ✓ | - | - | - | MO |
| *Urocampus carinirostris* | Hairy pipefish | - | - | ✓ | - | - | MO | MO |
| *Vanacampus margaritifer* | Mother-of-pearl pipefish | - | - | ✓ | - | - | MO | MO |
| *Vanacampus phillipi* | Port Phillip pipefish | - | - | ✓ | - | - | MO | MO |
| *Vanacampus poecilolaemus* | Long-snout pipefish | - | - | ✓ | - | - | MO | MO |

Threatened Species:
V Vulnerable
E Endangered
CE Critically Endangered
CD Conservation Dependant

Type of Presence:
MO Species or species habitat may occur within the area
LO Species or species habitat likely to occur within the area
KO Species or species habitat known to occur within the area
TKO Translocated population known to occur within area

**Table C-2 EPBC Act listed fish (cartilaginous) species or species habitat that may occur within the ADE and EMBA**

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| **Fish** | | | | | | | | |
| *Carcharhinus longimanus* | Oceanic whitetip shark | - | ✓ | - | - | - | MO | LO |
| *Carcharias taurus* (east coast population) | Grey nurse shark (east coast population) | CE | - | - | - | b,f | - | KO |
| *Carcharias taurus* | Grey nurse shark | - | ✓ | - | - | - | MO | KO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Carcharodon carcharias* | Great white shark | V | ✓ | - | | b,f | BKO | BKO |
| *Centrophorus harrissoni* | Harrisson's dogfish | CD | - | - | - | - | LO | LO |
| *Centrophorus uyato* | Little gulper shark | CD | - | - | - | - | LO | LO |
| *Galeorhinus galeus* | School shark | CD | - | - | - | - | LO | LO |
| *Isurus oxyrinchus* | Shortfin mako | - | ✓ | - | - | - | LO | LO |
| *Isurus paucus* | Longfin mako | - | ✓ | - | - | - | - | LO |
| *Lamna nasus* | Porbeagle | - | ✓ | - | - | - | LO | LO |
| *Mobula alfredi* | Reef manta ray | - | ✓ | - | - | - | - | LO |
| *Mobula birostris* | Giant manta ray | - | ✓ | - | - | - | - | KO |
| *Rhincodon typus* | Whale shark | V | ✓ | - | - | - | MO | MO |
| *Sphyrna lewini* | Scalloped hammerhead | CD | - | - | - | - | - | LO |

Threatened Species:
- V Vulnerable
- CE Critically Endangered
- CD Conservation Dependant

Type of Presence:
- MO Species or species habitat may occur within the area
- LO Species or species habitat likely to occur within the area
- KO Species or species habitat known to occur within the area
- BKO Breeding known to occur

Type of BIA:
- b Breeding
- f Foraging

**Table C-3 EPBC Act listed seabird and shorebird species or species habitat that may occur within the ADE and EMBA**

Note: only seabirds and shorebirds known to occur in marine or coastal environments are listed below. See Appendix C and Appendix D for a full list of birds that were detected by the EPBC Act Protected Matters Search Tool reports for the ADE and EMBA respectively.

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| **Seabirds** | | | | | | | | |
| **Albatross** | | | | | | | | |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Diomedea exulans antipodensis* | Antipodean albatross | V | ✓ | ✓ | f | f | LO | FLO |
| *Diomedea antipodensis gibsoni* | Gibson's albatross | V | - | ✓ | - | - | FLO | FLO |
| *Diomedea epomophora* | Southern royal albatross | V | ✓ | ✓ | - | - | FLO | FLO |
| *Diomedea exulans (sensu lato)* | Wandering albatross | V | ✓ | ✓ | f | f | FLO | FLO |
| *Diomedea sanfordi* | Northern royal albatross | E | ✓ | ✓ | - | - | FLO | FLO |
| *Phoebetria fusca* | Sooty albatross | V | ✓ | ✓ | - | - | MO | LO |
| *Thalassarche bulleri* | Buller's albatross | V | ✓ | ✓ | f | f | MO | FLO |
| *Thalassarche bulleri platei* | Northern Buller's albatross | V | - | ✓ | - | - | MO | FLO |
| *Thalassarche chlororhynchos bassi (Thalassarche carteri)* | Indian yellow-nosed albatross | V | ✓ | ✓ | f | f | LO | LO |
| *Thalassarche cauta cauta* | Shy albatross | E | ✓ | ✓ | f | f | FLO | FLO |
| *Thalassarche chrysostoma* | Grey-headed albatross | E | ✓ | ✓ | - | - | MO | MO |
| *Thalassarche eremita* | Chatham albatross | E | ✓ | ✓ | - | - | FMO | FMO |
| *Thalassarche impavida* | Campbell albatross | V | ✓ | ✓ | f | f | FLO | FLO |
| *Thalassarche melanophris* | Black-browed albatross | V | ✓ | ✓ | f | f | FLO | FLO |
| *Thalassarche salvini* | Salvin's albatross | V | ✓ | ✓ | - | - | FLO | FLO |
| *Thalassarche steadi* | White-capped albatross | V | ✓ | ✓ | - | f | FKO | FKO |
| **Petrels** | | | | | | | | |
| *Fregetta grallaria grallaria* | White-bellied storm-petrel (Tasman Sea) | V | - | - | - | b,f | LO | BKO |
| *Halobaena caerulea* | Blue petrel | V | - | ✓ | - | - | MO | MO |
| *Macronectes giganteus* | Southern giant petrel | E | ✓ | ✓ | - | f | MO | FLO |
| *Macronectes halli* | Northern giant petrel | V | ✓ | ✓ | - | f | FLO | FLO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Oceanites oceanites* | Wilson storm petrel | - | - | - | - | m | - | MKO |
| *Pelagodroma marina* | White-faced storm petrel | - | - | ✓ | f | b,f | - | BKO |
| *Pelecanoides urinatrix* | Common diving petrel | - | - | ✓ | f | b,f | KO | BKO |
| *Procellaria parkinsoni* | Black petrel | - | - | - | - | f | - | FLO |
| *Pterodroma cervicalis* | White-necked petrel | - | - | ✓ | - | - | MO | BLO |
| *Pterodroma heraldica* | Herald petrel | CE | - | - | - | - | - | LO |
| *Pterodroma leucoptera leucoptera* | Gould's petrel | E | - | - | - | - | MO | BKO |
| *Pterodroma macroptera* | Great winged petrel | - | - | - | - | f | - | FLO |
| *Pterodroma mollis* | Soft-plumaged petrel | V | - | - | - | f | - | MO |
| *Pterodroma neglecta neglecta* | Kermadec petrel (western) | V | - | - | - | f | - | FMO |
| *Pterodroma nigripennis* | Black-winged petrel | - | - | - | - | b,f | - | BKO |
| *Pterodroma solandri* | Providence petrel | - | - | - | - | b,f | - | BKO |
| **Shearwaters** | | | | | | | | |
| *Ardenna carneipes* | Flesh-footed shearwater | - | ✓ | ✓ | f | b,f | KO | BKO |
| *Ardenna grisea* | Sooty shearwater | V | ✓ | ✓ | - | b,f | MO | BKO |
| *Ardenna pacifica* | Wedge-tailed shearwater | - | ✓ | ✓ | - | f | - | BKO |
| *Ardenna tenuirostris* | Short-tailed shearwater | - | ✓ | ✓ | f | b,f | KO | BKO |
| *Calonectris leucomelas* | Streaked shearwater | - | ✓ | ✓ | - | - | - | KO |
| *Puffinus assimilis* | Little shearwater | - | - | ✓ | - | b,f | - | BKO |
| **Other seabirds** | | | | | | | | |
| *Anous albivitta* | Grey noddy | - | - | ✓ | - | - | - | BKO |
| *Anous minutus* | Black noddy | - | - | - | - | b,f | - | BLO |
| *Anous stolidus* | Common noddy | - | - | ✓ | - | b,f | - | BKO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Chroicocephalus novaehollandiae* | Silver gull | - | - | ✓ | - | - | - | BKO |
| *Eudyptula minor* | Little penguin | - | - | ✓ | - | b,f | - | BKO |
| *Fregata ariel* | Lesser frigatebird | - | ✓ | ✓ | - | - | - | KO |
| *Fregata minor* | Great frigatebird | - | ✓ | ✓ | - | - | - | KO |
| *Gygis alba* | White tern | - | - | - | - | b,f | - | BLO |
| *Haliaeetus leucogaster* | White-bellied sea eagle | - | - | ✓ | - | - | - | BKO |
| *Hydroprogne caspia* | Caspian tern | - | ✓ | ✓ | - | - | - | BKO |
| *Onychoprion fuscatus* | Sooty tern | - | - | ✓ | - | b,f | - | BKO |
| *Pachyptila turtur* | Fairy prion | - | - | ✓ | - | - | MO | KO |
| *Pachyptila turtur subantarctica* | Fairy prion (southern) | V | - | - | - | - | MO | KO |
| *Pandion haliaetus* | Osprey | - | ✓ | ✓ | - | - | KO | KO |
| *Procelsterna cerulea* | Grey ternlet | - | - | - | - | b,f | - | BLO |
| *Stercorarius antarcticus* | Brown skua | - | - | ✓ | - | - | MO | MO |
| *Sterna striata* | White-fronted tern | - | - | ✓ | - | b,f | MRMO | BKO |
| *Sternula albifrons* | Little tern | V | ✓ | ✓ | - | - | - | BKO |
| *Sternula nereis* | Fairy tern | - | - | ✓ | - | - | - | BKO |
| *Sternula nereis nereis* | Australian fairy tern | V | - | - | - | - | LO | KO |
| *Sula dactylatra* | Masked booby | - | ✓ | ✓ | - | b,f | - | BKO |
| *Thalasseus bergii* | Greater crested tern | - | ✓ | ✓ | - | b,f | - | BKO |
| **Shorebirds** | | | | | | | | |
| *Actitis hypoleucos* | Common sandpiper | - | ✓ | ✓ | - | - | MO | KO |
| *Anthochaera Phrygia* | Regent honeyeater | CE | - | - | - | - | - | KO |
| *Aphelocephala leucopsis* | Southern whiteface | V | - | - | - | - | - | MO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Apus pacificus* | Fork-tailed swift | - | ✓ | ✓ | - | - | LO | LO |
| *Aquila audax fleayi* | Tasmanian wedge-tailed eagle | E | - | - | - | - | - | BLO |
| *Arenaria interpres* | Ruddy turnstone | V | ✓ | ✓ | - | - | - | RKO |
| *Botaurus poiciloptilus* | Australasian bittern | E | - | - | - | - | - | KO |
| *Bubulcus ibis* | Cattle egret | - | - | ✓ | - | - | - | MO |
| *Calidris acuminata* | Sharp-tailed sandpiper | V | ✓ | ✓ | - | - | MO | RKO |
| *Calidris alba* | Sanderling | - | ✓ | ✓ | - | - | - | RKO |
| *Calidris canutus* | Red knot | V | ✓ | ✓ | - | - | MO | KO |
| *Calidris ferruginea* | Curlew sandpiper | CE | ✓ | ✓ | - | - | MO | KO |
| *Calidris melanotos* | Pectoral sandpiper | - | ✓ | ✓ | - | - | MO | KO |
| *Calidris pugnax* | Ruff | - | ✓ | ✓ | - | - | - | RKO |
| *Calidris ruficollis* | Red-necked stint | - | ✓ | ✓ | - | - | - | RKO |
| *Calidris subminuta* | Long-toed stint | - | ✓ | ✓ | - | - | - | RKO |
| *Calidris tenuirostris* | Great knot | V | ✓ | ✓ | - | - | - | RKO |
| *Callocephalon fimbriatum* | Gang-gang cockatoo | E | - | - | - | - | - | KO |
| *Calyptorhynchus lathami lathami* | South-eastern glossy black cockatoo | V | - | - | - | - | - | KO |
| *Ceyx azureus diemenensis* | Tasmanian azzure kingfisher | E | - | - | - | - | - | LO |
| *Charadrius bicinctus* | Double-banded plover | - | ✓ | ✓ | - | - | - | RKO |
| *Charadrius leschenaultii* | Greater sand plover | V | ✓ | ✓ | - | - | - | KO |
| *Charadrius mongolus* | Lesser sand plover | E | ✓ | ✓ | - | - | - | RKO |
| *Charadrius ruficapillus* | Red-capped plover | - | - | ✓ | - | - | - | RKO |
| *Charadrius veredus* | Oriental plover | - | ✓ | ✓ | - | - | - | RKO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Climacteris picumnus victoriae* | Brown treecreeper | V | - | - | - | - | - | KO |
| *Cuculus optatus* | Oriental cuckoo, Horsfield's cuckoo | - | ✓ | - | - | - | - | KO |
| *Dasyomis brachypterus* | Eastern bristlebird | E | - | - | - | - | - | KO |
| *Erythrotriorchis radiatus* | Red goshawk | E | - | - | - | - | - | MO |
| *Falco hypoleucos* | Grey falcon | V | - | - | - | - | - | LO |
| *Gallinago hardwickii* | Latham's snipe | V | ✓ | ✓ | - | - | - | KO |
| *Gallinago megala* | Swinhoe's snipe | - | ✓ | ✓ | - | - | - | RLO |
| *Gallinago stenura* | Pin-tailed snipe | - | ✓ | ✓ | - | - | - | RLO |
| *Grantiella picta* | Painted honeyeater | V | - | - | - | - | - | KO |
| *Himantopus himantopus* | Black-winged stilt | - | - | ✓ | - | - | - | RKO |
| *Hirundapus caudacutus* | White-throated needletail | V | ✓ | ✓ | - | - | - | KO |
| *Hypotaenidia sylvestris* | Lord Howe woodhen | E | - | - | - | - | - | BLO |
| *Larus dominicanus* | Kelp gull | - | - | ✓ | - | - | - | BKO |
| *Larus pacificus* | Pacific gull | - | - | ✓ | - | - | - | BKO |
| *Lathamus discolor* | Swift parrot | CE | - | ✓ | - | - | - | KO |
| *Limicola falcinellus* | Broad-billed sandpiper | - | ✓ | ✓ | - | - | - | RKO |
| *Limnodromus semipalmatus* | Asian dowitcher | V | ✓ | ✓ | - | - | - | MO |
| *Limosa lapponica* | Bar-tailed godwit | - | ✓ | ✓ | - | - | - | KO |
| *Limosa lapponica baueri* | Nunivak bar-tailed godwit | E | - | - | - | - | - | KO |
| *Limosa limosa* | Black-tailed godwit | E | ✓ | ✓ | - | - | - | RKO |
| *Merops ornatus* | Rainbow bee-eater | - | - | ✓ | - | - | - | MO |
| *Melanodryas cucullata cucullata* | South-eastern hooded robin | E | - | - | - | - | - | KO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Monarcha melanopsis* | Black-faced monarch | - | - | ✓ | - | - | - | KO |
| *Morus serrator* | Australasian gannet | - | - | ✓ | - | - | - | BKO |
| *Motacilla flava* | Yellow wagtail | - | ✓ | ✓ | - | - | - | LO |
| *Myiagra cyanoleuca* | Satin flycatcher | - | - | ✓ | - | - | - | BKO |
| *Neophema chrysogaster* | Orange-bellied parrot | CE | - | ✓ | - | - | - | KO |
| *Neophema chrysostoma* | Blue-winged parrot | V | - | ✓ | - | - | - | KO |
| *Numenius madagascariensis* | Eastern curlew | CE | ✓ | ✓ | - | - | MO | KO |
| *Numenius minutus* | Little curlew | - | ✓ | ✓ | - | - | - | RKO |
| *Numenius phaeopus* | Whimbrel | - | ✓ | ✓ | - | - | - | RKO |
| *Pardalotus quadragintus* | Forty-spotted pardalote | E | - | - | - | - | - | FKO |
| *Phalacrocorax fuscescens* | Black-faced cormorant | - | - | - | - | b,f | - | BKO |
| *Phaethon lepturus* | White-tailed tropicbird | - | ✓ | ✓ | - | - | - | KO |
| *Phaethon rubricauda* | Red-tailed tropicbird | - | ✓ | ✓ | - | b,f | - | BKO |
| *Pluvialis fulva* | Pacific golden plover | - | ✓ | ✓ | - | - | - | RKO |
| *Pluvialis squatarola* | Grey plover | V | ✓ | ✓ | - | - | - | RKO |
| *Pycnoptilus floccosus* | Pilotbird | V | - | - | - | - | - | KO |
| *Recurvirostra novaehollandiae* | Red-necked avocet | - | - | ✓ | - | - | - | RKO |
| *Rhipidura rufifrons* | Rufous fantail | - | - | ✓ | - | - | - | KO |
| *Rostratula australis* | Australian painted snipe | E | - | ✓ | - | - | - | KO |
| *Stagonopleura guttata* | Diamond firetail | V | - | - | - | - | - | KO |
| *Strepera graculina crissalis* | Lord Howe Island currawong | V | - | - | - | - | - | KO |
| *Symposiachrus trivirgatus* | Spectacled monarch | - | - | ✓ | - | - | - | KO |
| *Thinornis cucullatus* | Hooded plover | - | - | ✓ | - | - | - | KO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Thinornis cucullatus cucullatus* | Eastern hooded plover | V | - | ✓ | - | - | - | KO |
| *Tringa brevipes* | Grey-tailed tattler | - | ✓ | ✓ | - | - | - | RKO |
| *Tringa glareola* | Wood sandpiper | - | ✓ | ✓ | - | - | - | RKO |
| *Tringa incana* | Wandering tattler | - | ✓ | ✓ | - | - | - | RKO |
| *Tringa nebularia* | Common greenshank | E | ✓ | ✓ | - | - | - | KO |
| *Tringa stagnatilis* | Marsh sandpiper | - | ✓ | ✓ | - | - | - | RKO |
| *Tyto novaehollandiae castanops (Tasmanian population)* | Masked owl (Tasmanian) | V | - | - | - | - | - | KO |
| *Xenus cinereus* | Terek sandpiper | V | ✓ | ✓ | - | - | - | RKO |

Threatened Species:

| | |
|---|---|
| V | Vulnerable |
| E | Endangered |
| CE | Critically Endangered |

Type of Presence:

| | |
|---|---|
| MO | Species or species habitat may occur within the area |
| LO | Species or species habitat likely to occur within the area |
| KO | Species or species habitat known to occur within the area |
| TKO | Translocated population known to occur within area |
| BKO | Breeding Known to Occur within area |
| BLO | Breeding likely to occur within area |
| FKO | Foraging known to occur within area |
| FLO | Foraging likely to occur within area |
| MKO | Migration known to occur within area |
| RKO | Roosting known to occur within area |
| RLO | Roosting likely to occur within area |

Type of BIA:

| | |
|---|---|
| b | Breeding |
| f | Foraging |
| m | Migration |

**Table C-4 EPBC Act listed cetacean or species habitat that may occur within the ADE and EMBA**

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| **Whales** | | | | | | | | |
| *Balaenoptera acutorostrata* | Minke whale | - | - | - | - | - | MO | MO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Balaenoptera bonaerensis* | Antartic minke whale | - | ✓ | - | - | - | LO | LO |
| *Balaenoptera borealis* | Sei whale | V | ✓ | - | - | - | FLO | FLO |
| *Balaenoptera edeni* | Bryde's whale | - | ✓ | - | - | - | MO | LO |
| *Balaenoptera musculus* | Blue whale | E | ✓ | - | f | f | LO | LO |
| *Balaenoptera physalus* | Fin whale | V | ✓ | - | - | - | FLO | FLO |
| *Berardius arnuxii* | Arnoux's beaked whale | - | - | - | - | - | MO | MO |
| *Caperea marginata* | Pygmy right whale | - | ✓ | - | - | - | FLO | FLO |
| *Eubalaena australis* | Southern right whale | E | ✓ | - | m | m | BKO | BKO |
| *Globicephala macrorhynchus* | Short-finned pilot whale | - | - | - | - | - | MO | MO |
| *Globicephala melas* | Long-finned pilot whale | - | - | - | - | - | MO | MO |
| *Hyperoodon planifrons* | Southern bottlenose whale | - | - | - | - | - | MO | MO |
| *Kogia breviceps* | Pygmy sperm whale | - | - | - | - | - | MO | MO |
| *Kogia sima* | Dwarf sperm whale | - | - | - | - | - | MO | MO |
| *Megaptera novaeangliae* | Humpback whale | - | ✓ | - | - | m | MO | FKO |
| *Mesoplodon bowdoini* | Andrew's beaked whale | - | - | - | - | - | MO | MO |
| *Mesoplodon densirostris* | Blainville's beaked whale | - | - | - | - | - | MO | MO |
| *Mesoplodon ginkgodens* | Gingko-toothed beaked whale | - | - | - | - | - | MO | MO |
| *Mesoplodon grayi* | Gray's beaked whale | - | - | - | - | - | MO | MO |
| *Mesoplodon hectori* | Hector's beaked whale | - | - | - | - | - | MO | MO |
| *Mesoplodon layardii* | Strap-toothed beaked whale | - | - | - | - | - | MO | MO |
| *Mesoplodon mirus* | True's beaked whale | - | - | - | - | - | MO | MO |
| *Physeter microcephalus* | Sperm whale | - | ✓ | - | - | - | MO | MO |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Tasmacetus shepherdi* | Shepherd's beaked whale | - | - | - | - | - | MO | MO |
| *Ziphius cavirostris* | Cuvier's beaked whale | - | - | - | - | - | MO | MO |
| **Dolphins** | | | | | | | | |
| *Delphinus delphis* | Common dolphin | - | - | - | - | - | MO | MO |
| *Feresa attenuata* | Pygmy killer whale | - | - | - | - | - | MO | MO |
| *Grampus griseus* | Risso's dolphin | - | - | - | - | - | MO | MO |
| *Lagenodelphis hosei* | Fraser's dolphin | - | - | - | - | - | MO | MO |
| *Lagenorhynchus obscurus* | Dusky dolphin | - | ✓ | - | - | - | LO | LO |
| *Lissodelphis peronii* | Southern right whale dolphin | - | - | - | - | - | MO | MO |
| *Orcinus orca* | Killer whale | - | ✓ | - | - | - | LO | LO |
| *Peponocephala electra* | Melon-headed whale | - | - | - | - | - | MO | MO |
| *Pseudorca crassidens* | False killer whale | - | - | - | - | - | LO | LO |
| *Stenella attenuata* | Spotted dolphin | - | - | - | - | - | MO | MO |
| *Stenella coeruleoalba* | Striped dolphin | - | - | - | - | - | MO | MO |
| *Stenella longirostris* | Long-snouted spinner dolphin | - | - | - | - | - | MO | MO |
| *Steno bredanensis* | Rough-toothed dolphin | - | - | - | - | - | MO | MO |
| *Tursiops aduncus* | Spotted bottlenose dolphin | - | - | - | - | b | LO | LO |
| *Tursiops truncatus s. str.* | Bottlenose dolphin | - | - | - | - | - | MO | MO |

Threatened Species:
V Vulnerable
E Endangered

Type of Presence:
MO Species or species habitat may occur within the area
LO Species or species habitat likely to occur within the area
KO Species or species habitat known to occur within the area
TKO Translocated population known to occur within area

Type of BIA:
b Breeding
f Foraging
m Migration

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| | BKO Breeding Known to Occur within area<br>FKO Foraging known to occur within area<br>FLO Foraging likely to occur within area<br>MKO Migration known to occur within area | | | | | | | |

**Table C-5 EPBC Act listed pinnipeds or species habitat that may occur within the ADE and EMBA**

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Arctocephalus forsteri* | New Zealand fur seal | - | - | ✓ | - | - | MO | MO |
| *Arctocephalus pusillus* | Australian fur seal | - | - | ✓ | - | - | MO | BKO |

Type of Presence:

MO Species or species habitat may occur within the area
BKO Breeding Known to Occur within area

**Table C-6 EPBC Act listed sirenia or species habitat that may occur within the ADE and EMBA**

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Dugong dugon* | Dugong | - | ✓ | ✓ | - | - | - | MO |

Type of Presence:

MO Species or species habitat may occur within the area

**Table C-7 EPBC Act listed marine reptiles or species habitat that may occur within the ADE and EMBA**

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| **Turtles** | | | | | | | | |

| Scientific name | Common name | Threatened status | Migratory status | Listed marine species | BIA | | Type of presence | |
|---|---|---|---|---|---|---|---|---|
| | | | | | ADE | EMBA | ADE | EMBA |
| *Caretta caretta* | Loggerhead turtle | E | ✓ | ✓ | - | - | LO | KO |
| *Chelonia mydas* | Green turtle | V | ✓ | ✓ | - | - | MO | FKO |
| *Dermochelys coriacea* | Leatherback turtle | E | ✓ | ✓ | - | - | LO | FKO |
| *Eretmochelys imbricata* | Hawksbill turtle | V | ✓ | ✓ | - | - | - | FKO |
| *Natator depressus* | Flatback turtle | V | ✓ | ✓ | - | - | - | FKO |
| **Sea snakes** | | | | | | | | |
| *Pelamis platurus* | Yellow-bellied sea snake | - | - | ✓ | - | - | - | MO |
| *Hydrophis elegans* | Elegant Sea Snake, Bar-bellied Sea Snake | - | - | - | - | - | - | MO |

Threatened Species:
V Vulnerable
E Endangered

Type of Presence:
KO Species or species habitat known to occur within the area
LO Species or species habitat likely to occur within the area
MO Species or species habitat may occur within the area
FKO Foraging known to occur within the area

# Appendix D: EPBC Act Protected Matters Report – Operational Area/Area of Described Environment

Australian Government

Department of Climate Change, Energy, the Environment and Water

# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 24-Feb-2026

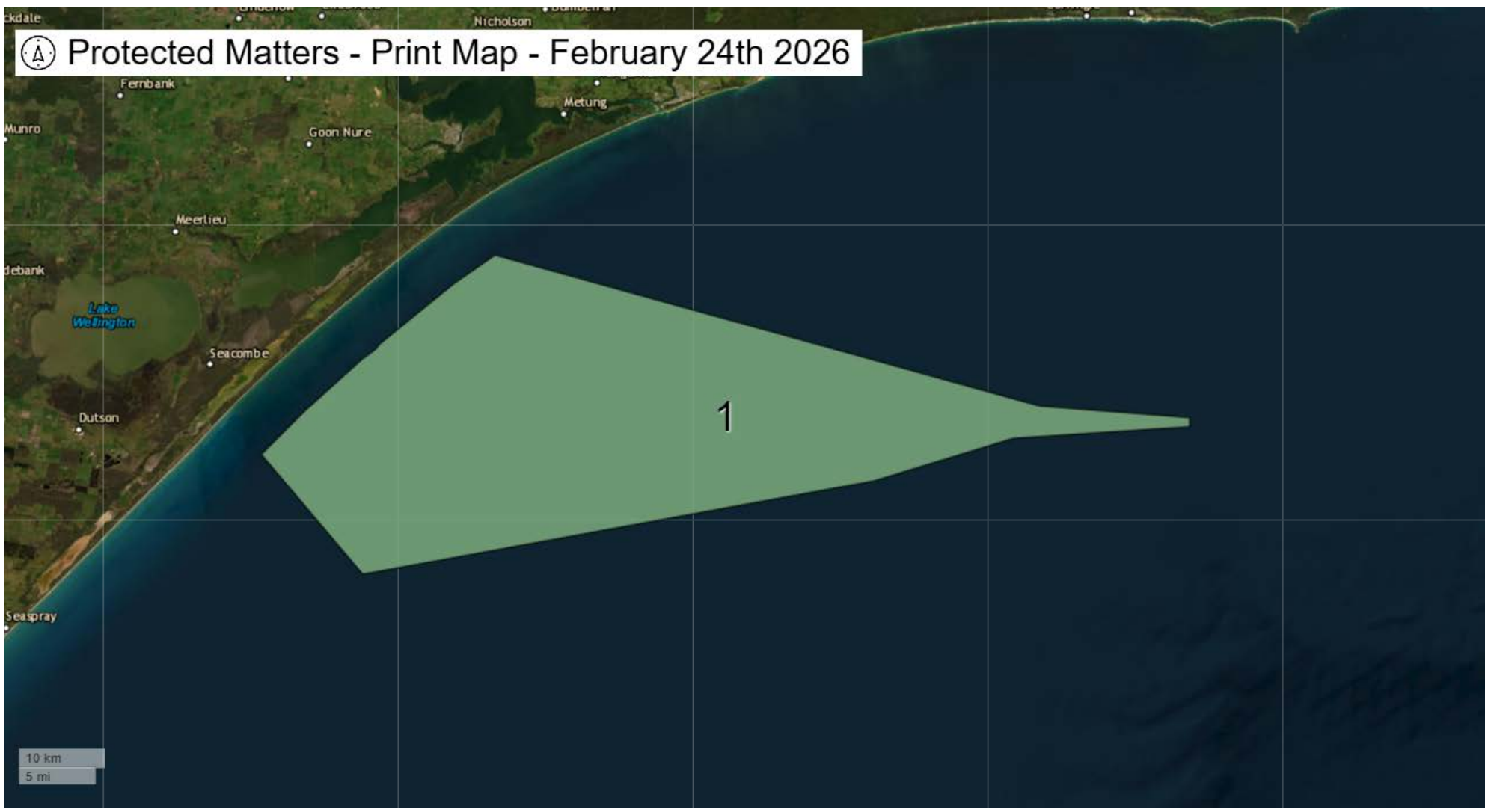

[Summary](#)

[Details](#)

- [Matters of NES](#)
- [Other Matters Protected by the EPBC Act](#)
- [Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

# Summary

## Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

| | |
|---|---|
| World Heritage Properties: | None |
| National Heritage Places: | None |
| Wetlands of International Importance (Ramsar | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | 2 |
| Listed Threatened Ecological Communities: | None |
| Listed Threatened Species: | 44 |
| Listed Migratory Species: | 46 |

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|---|---|
| Commonwealth Lands: | None |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 64 |
| Whales and Other Cetaceans: | 29 |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | None |
| Habitat Critical to the Survival of Marine Turtles: | None |

## Extra Information

This part of the report provides information that may also be relevant to the area you have

| | |
|---|---|
| State and Territory Reserves: | None |
| Regional Forest Agreements: | None |
| Nationally Important Wetlands: | None |
| EPBC Act Referrals: | 40 |
| Key Ecological Features (Marine): | 1 |
| Biologically Important Areas: | 13 |
| Bioregional Assessments: | None |
| Geological and Bioregional Assessments: | None |

# Details

## Matters of National Environmental Significance

### Commonwealth Marine Area [ Resource Information ]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

| Feature Name |
| --- |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |

### Listed Threatened Species [ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| BIRD | | |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Diomedea antipodensis gibsoni<br>Gibson's Albatross [82270] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Fregetta grallaria grallaria<br>White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438] | Vulnerable | Species or species habitat likely to occur within area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pachyptila turtur subantarctica<br>Fairy Prion (southern) [64445] | Vulnerable | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat may occur within area |
| Pterodroma leucoptera leucoptera<br>Gould's Petrel, Australian Gould's Petrel [26033] | Endangered | Species or species habitat may occur within area |
| Sternula nereis nereis<br>Australian Fairy Tern [82950] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Species or species habitat may occur within area |
| Thalassarche bulleri platei<br>Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Species or species habitat may occur within area |
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche eremita<br>Chatham Albatross [64457] | Endangered | Foraging, feeding or related behaviour may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thalassarche melanophris | | |
| Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini | | |
| Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi | | |
| White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| FISH | | |
| Hoplostethus atlanticus | | |
| Orange Roughy, Deep-sea Perch, Red Roughy [68455] | Conservation Dependent | Species or species habitat likely to occur within area |
| Prototroctes maraena | | |
| Australian Grayling [26179] | Vulnerable | Species or species habitat may occur within area |
| Rexea solandri (eastern Australian population) | | |
| Eastern Gemfish [76339] | Conservation Dependent | Species or species habitat likely to occur within area |
| Seriolella brama | | |
| Blue Warehou [69374] | Conservation Dependent | Species or species habitat known to occur within area |
| MAMMAL | | |
| Balaenoptera borealis | | |
| Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Balaenoptera musculus | | |
| Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |
| Balaenoptera physalus | | |
| Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Eubalaena australis | | |
| Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area |
| REPTILE | | |
| Caretta caretta | | |
| Loggerhead Turtle [1763] | Endangered | Species or species habitat likely to occur within area |
| Chelonia mydas | | |
| Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| Dermochelys coriacea | | |
| Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Species or species habitat likely to occur within area |
| SHARK | | |
| Carcharodon carcharias | | |
| White Shark, Great White Shark [64470] | Vulnerable | Breeding known to occur within area |
| Centrophorus harrissoni | | |
| Harrisson's Dogfish, Endeavour Dogfish, Dumb Gulper Shark, Harrison's Deepsea Dogfish [68444] | Conservation Dependent | Species or species habitat likely to occur within area |
| Centrophorus uyato | | |
| Little Gulper Shark [68446] | Conservation Dependent | Species or species habitat likely to occur within area |
| Galeorhinus galeus | | |
| Tope, Flake, Oil Shark, School Shark [68453] | Conservation Dependent | Species or species habitat likely to occur within area |
| Rhincodon typus | | |
| Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |

| Listed Migratory Species | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Threatened Category | Presence Text |
| Migratory Marine Birds | | |
| Apus pacificus | | |
| Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Ardenna carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Species or species habitat likely to occur within area |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat may occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche eremita<br>Chatham Albatross [64457] | Endangered | Foraging, feeding or related behaviour may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Migratory Marine Species | | |
| Balaenoptera bonaerensis<br>Antarctic Minke Whale, Dark-shoulder Minke Whale [67812] | | Species or species habitat likely to occur within area |
| Balaenoptera borealis<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Balaenoptera edeni<br>Bryde's Whale [35] | | Species or species habitat may occur within area |
| Balaenoptera musculus<br>Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |
| Balaenoptera physalus<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Caperea marginata<br>Pygmy Right Whale [39] | | Foraging, feeding or related behaviour likely to occur within area |
| Carcharhinus longimanus<br>Oceanic Whitetip Shark [84108] | | Species or species habitat may occur within area |
| Carcharias taurus<br>Grey Nurse Shark [64469] | | Species or species habitat may occur within area |
| Carcharodon carcharias<br>White Shark, Great White Shark [64470] | Vulnerable | Breeding known to occur within area |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Species or species habitat likely to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Species or species habitat likely to occur within area |
| Eubalaena australis as Balaena glacialis australis<br>Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Isurus oxyrinchus](#)<br>Shortfin Mako, Mako Shark [79073] | | Species or species habitat likely to occur within area |
| [Lagenorhynchus obscurus](#)<br>Dusky Dolphin [43] | | Species or species habitat likely to occur within area |
| [Lamna nasus](#)<br>Porbeagle, Mackerel Shark [83288] | | Species or species habitat likely to occur within area |
| [Megaptera novaeangliae](#)<br>Humpback Whale [38] | | Species or species habitat known to occur within area |
| [Orcinus orca](#)<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |
| [Physeter macrocephalus](#)<br>Sperm Whale [59] | | Species or species habitat may occur within area |
| [Rhincodon typus](#)<br>Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |
| **Migratory Wetlands Species** | | |
| [Actitis hypoleucos](#)<br>Common Sandpiper [59309] | | Species or species habitat may occur within area |
| [Calidris acuminata](#)<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area |
| [Calidris canutus](#)<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area |
| [Calidris ferruginea](#)<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Calidris melanotos | | |
| Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| Numenius madagascariensis | | |
| Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pandion haliaetus | | |
| Osprey [952] | | Species or species habitat may occur within area |

## Other Matters Protected by the EPBC Act

| Listed Marine Species | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Threatened Category | Presence Text |
| Bird | | |
| Actitis hypoleucos | | |
| Common Sandpiper [59309] | | Species or species habitat may occur within area |
| Apus pacificus | | |
| Fork-tailed Swift [678] | | Species or species habitat likely to occur within area overfly marine area |
| Ardenna carneipes as Puffinus carneipes | | |
| Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Species or species habitat likely to occur within area |
| Ardenna grisea as Puffinus griseus | | |
| Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Calidris acuminata | | |
| Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area |
| Calidris canutus | | |
| Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area overfly marine area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area overfly marine area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area overfly marine area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea antipodensis gibsoni as Diomedea gibsoni<br>Gibson's Albatross [82270] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pachyptila turtur<br>Fairy Prion [1066] | | Species or species habitat may occur within area |
| Pandion haliaetus<br>Osprey [952] | | Species or species habitat may occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat may occur within area |
| Pterodroma cervicalis<br>White-necked Petrel [59642] | | Species or species habitat may occur within area |
| Stercorarius antarcticus as Catharacta skua<br>Brown Skua [85039] | | Species or species habitat may occur within area |
| Sterna striata<br>White-fronted Tern [799] | | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Species or species habitat may occur within area |
| Thalassarche bulleri platei as Thalassarche sp. nov.<br>Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Species or species habitat may occur within area |
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche eremita<br>Chatham Albatross [64457] | Endangered | Foraging, feeding or related behaviour may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Fish | | |
| Heraldia nocturna<br>Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227] | | Species or species habitat may occur within area |
| Hippocampus abdominalis<br>Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233] | | Species or species habitat may occur within area |
| Hippocampus breviceps<br>Short-head Seahorse, Short-snouted Seahorse [66235] | | Species or species habitat may occur within area |
| Hippocampus minotaur<br>Bullneck Seahorse [66705] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Histiogamphelus briggsii<br>Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242] | | Species or species habitat may occur within area |
| Histiogamphelus cristatus<br>Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243] | | Species or species habitat may occur within area |
| Hypselognathus rostratus<br>Knifesnout Pipefish, Knife-snouted Pipefish [66245] | | Species or species habitat may occur within area |
| Kaupus costatus<br>Deepbody Pipefish, Deep-bodied Pipefish [66246] | | Species or species habitat may occur within area |
| Kimblaeus bassensis<br>Trawl Pipefish, Bass Strait Pipefish [66247] | | Species or species habitat may occur within area |
| Leptoichthys fistularius<br>Brushtail Pipefish [66248] | | Species or species habitat may occur within area |
| Lissocampus runa<br>Javelin Pipefish [66251] | | Species or species habitat may occur within area |
| Maroubra perserrata<br>Sawtooth Pipefish [66252] | | Species or species habitat may occur within area |
| Mitotichthys semistriatus<br>Halfbanded Pipefish [66261] | | Species or species habitat may occur within area |
| Mitotichthys tuckeri<br>Tucker's Pipefish [66262] | | Species or species habitat may occur within area |
| Notiocampus ruber<br>Red Pipefish [66265] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Phyllopteryx taeniolatus<br>Common Seadragon, Weedy Seadragon [66268] | | Species or species habitat may occur within area |
| Solegnathus robustus<br>Robust Pipehorse, Robust Spiny Pipehorse [66274] | | Species or species habitat may occur within area |
| Solegnathus spinosissimus<br>Spiny Pipehorse, Australian Spiny Pipehorse [66275] | | Species or species habitat may occur within area |
| Stigmatopora argus<br>Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276] | | Species or species habitat may occur within area |
| Stigmatopora nigra<br>Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277] | | Species or species habitat may occur within area |
| Stipecampus cristatus<br>Ringback Pipefish, Ring-backed Pipefish [66278] | | Species or species habitat may occur within area |
| Syngnathoides biaculeatus<br>Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279] | | Species or species habitat may occur within area |
| Urocampus carinirostris<br>Hairy Pipefish [66282] | | Species or species habitat may occur within area |
| Vanacampus margaritifer<br>Mother-of-pearl Pipefish [66283] | | Species or species habitat may occur within area |
| Vanacampus phillipi<br>Port Phillip Pipefish [66284] | | Species or species habitat may occur within area |
| Vanacampus poecilolaemus<br>Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285] | | Species or species habitat may occur within area |
| Mammal | | |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Arctocephalus forsteri](#) | | |
| Long-nosed Fur-seal, New Zealand Fur-seal [20] | | Species or species habitat may occur within area |
| [Arctocephalus pusillus](#) | | |
| Australian Fur-seal, Australo-African Fur-seal [21] | | Species or species habitat may occur within area |
| **Reptile** | | |
| [Caretta caretta](#) | | |
| Loggerhead Turtle [1763] | Endangered | Species or species habitat likely to occur within area |
| [Chelonia mydas](#) | | |
| Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| [Dermochelys coriacea](#) | | |
| Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Species or species habitat likely to occur within area |

| Whales and Other Cetaceans | | [ Resource Information ] |
|---|---|---|
| Current Scientific Name | Status | Type of Presence |
| **Mammal** | | |
| [Balaenoptera acutorostrata](#) | | |
| Minke Whale [33] | | Species or species habitat may occur within area |
| [Balaenoptera bonaerensis](#) | | |
| Antarctic Minke Whale, Dark-shoulder Minke Whale [67812] | | Species or species habitat likely to occur within area |
| [Balaenoptera borealis](#) | | |
| Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Balaenoptera edeni](#) | | |
| Bryde's Whale [35] | | Species or species habitat may occur within area |
| [Balaenoptera musculus](#) | | |
| Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |

| Current Scientific Name | Status | Type of Presence |
| --- | --- | --- |
| Balaenoptera physalus<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Berardius arnuxii<br>Arnoux's Beaked Whale [70] | | Species or species habitat may occur within area |
| Caperea marginata<br>Pygmy Right Whale [39] | | Foraging, feeding or related behaviour likely to occur within area |
| Delphinus delphis<br>Common Dolphin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area |
| Eubalaena australis<br>Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area |
| Globicephala macrorhynchus<br>Short-finned Pilot Whale [62] | | Species or species habitat may occur within area |
| Globicephala melas<br>Long-finned Pilot Whale [59282] | | Species or species habitat may occur within area |
| Grampus griseus<br>Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area |
| Kogia breviceps<br>Pygmy Sperm Whale [57] | | Species or species habitat may occur within area |
| Kogia sima<br>Dwarf Sperm Whale [85043] | | Species or species habitat may occur within area |
| Lagenorhynchus obscurus<br>Dusky Dolphin [43] | | Species or species habitat likely to occur within area |

| Current Scientific Name | Status | Type of Presence |
| --- | --- | --- |
| [Lissodelphis peronii](#)<br>Southern Right Whale Dolphin [44] | | Species or species habitat may occur within area |
| [Megaptera novaeangliae](#)<br>Humpback Whale [38] | | Species or species habitat known to occur within area |
| [Mesoplodon bowdoini](#)<br>Andrew's Beaked Whale [73] | | Species or species habitat may occur within area |
| [Mesoplodon densirostris](#)<br>Blainville's Beaked Whale, Dense-beaked Whale [74] | | Species or species habitat may occur within area |
| [Mesoplodon hectori](#)<br>Hector's Beaked Whale [76] | | Species or species habitat may occur within area |
| [Mesoplodon layardii](#)<br>Strap-toothed Beaked Whale, Strap-toothed Whale, Layard's Beaked Whale [25556] | | Species or species habitat may occur within area |
| [Mesoplodon mirus](#)<br>True's Beaked Whale [54] | | Species or species habitat may occur within area |
| [Orcinus orca](#)<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |
| [Physeter macrocephalus](#)<br>Sperm Whale [59] | | Species or species habitat may occur within area |
| [Pseudorca crassidens](#)<br>False Killer Whale [48] | | Species or species habitat likely to occur within area |
| [Tursiops aduncus](#)<br>Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] | | Species or species habitat likely to occur within area |

| Current Scientific Name | Status | Type of Presence |
|---|---|---|
| Tursiops truncatus s. str.<br>Bottlenose Dolphin [68417] | | Species or species habitat may occur within area |
| Ziphius cavirostris<br>Cuvier's Beaked Whale, Goose-beaked Whale [56] | | Species or species habitat may occur within area |

## Extra Information

### EPBC Act Referrals [ Resource Information ]

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Gippsland Dawn Offshore Wind Project Geophysical and Geotechnical Investigations | 2024/10030 | | Referral Decision |
| Navigator North Offshore Wind Farm ? Early Marine Survey Investigations | 2024/10093 | | Referral Decision |
| Seadragon Offshore Wind, Early Marine Surveys | 2023/09670 | | Completed |
| **Not controlled action** | | | |
| 2004/2005 drilling program for exploration and production (VIC 01-06, 09-11, 16, 18 & 19 and VIC/RL | 2003/1282 | Not Controlled Action | Completed |
| 2D seismic Survey in VIC/P55, VIC/RL2 and VIC/P41 | 2004/1876 | Not Controlled Action | Completed |
| 55m lattice tower & infrastructure | 2003/1159 | Not Controlled Action | Completed |
| Acquistion of 2D seismic data in State Waters adjacent to Ninety Mile Beach-VIC/P39(V) | 2004/1889 | Not Controlled Action | Completed |
| Angas and Galloway Exploration Wells VIC/P39(v) | 2005/2330 | Not Controlled Action | Completed |
| Basker-Manta-Gummy Oil Development | 2011/6052 | Not Controlled Action | Completed |
| Basker-Manta Oil Field Development | 2005/2026 | Not Controlled Action | Completed |
| Beardie-1 Field wildcat oil well | 2001/505 | Not Controlled Action | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action | | | |
| Development of Kipper gas field within Vic/L3, Vic/L4 Vic/RL2 | 2005/2484 | Not Controlled Action | Completed |
| Development of Turrum Oil Field and associated infrastructure | 2003/1204 | Not Controlled Action | Completed |
| Drilling and side track completion at Baleen gas production well in Production Licence area VIC/L21 | 2004/1535 | Not Controlled Action | Completed |
| Drilling of 'Culverin' oil exploration well, permit VIC/P56 | 2005/2279 | Not Controlled Action | Completed |
| Drilling of Scallop-1 Exploration Well | 2003/917 | Not Controlled Action | Completed |
| East Pilchard exploration well | 2001/137 | Not Controlled Action | Completed |
| Gippsland Basin Seismic Programme | 2004/1866 | Not Controlled Action | Completed |
| INDIGO Central Submarine Telecommunications Cable | 2017/8127 | Not Controlled Action | Completed |
| Longtom-3 Gas Appraisal Well, VIC/P54 | 2005/2494 | Not Controlled Action | Completed |
| Longtom Gas Pipeline Development, VIC/P54 | 2006/3072 | Not Controlled Action | Completed |
| Marlin-Snapper Gas Pipeline Project | 2006/3197 | Not Controlled Action | Completed |
| Turrum Phase 2 Development Project | 2008/4191 | Not Controlled Action | Completed |
| West Triton Drilling Program - Gippsland Basin | 2007/3915 | Not Controlled Action | Completed |
| Not controlled action (particular manner) | | | |
| Bream 3D seismic survey | 2006/2556 | Not Controlled Action (Particular Manner) | Post-Approval |
| Golden Beach gas field development | 2003/1031 | Not Controlled Action (Particular Manner) | Post-Approval |
| INDIGO Marine Cable Route Survey (INDIGO) | 2017/7996 | Not Controlled Action (Particular Manner) | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| Inspection of project vessels for presence of invasive marine pests in Commonwealth waters off Victo | 2012/6362 | Not Controlled Action (Particular Manner) | Post-Approval |
| Longtom-5 Offshore Production Drilling (Vic/L29), VIC | 2012/6498 | Not Controlled Action (Particular Manner) | Post-Approval |
| Longtom South -1 Exploration Drilling | 2011/6217 | Not Controlled Action (Particular Manner) | Post-Approval |
| Northern Fields 3D Seismic Survey | 2001/140 | Not Controlled Action (Particular Manner) | Post-Approval |
| Pelican 3D Marine Seismic Survey, Gippsland Basin, Vic | 2017/8097 | Not Controlled Action (Particular Manner) | Post-Approval |
| Seismic Exploration in Permit VIC/P41 | 2001/267 | Not Controlled Action (Particular Manner) | Post-Approval |
| Southern Flanks 2D Marine Seismic Survey | 2010/5288 | Not Controlled Action (Particular Manner) | Post-Approval |
| Southern Margins 3D Seismic Survey VIC/P55 | 2007/3780 | Not Controlled Action (Particular Manner) | Post-Approval |
| West Seahorse Oil Development Project, Commonwealth waters offshore Victoria | 2013/6973 | Not Controlled Action (Particular Manner) | Post-Approval |
| Referral decision | | | |
| Beardie-1 Field wildcat oil well | 2001/469 | Referral Decision | Completed |
| Longtom 5 Offshore Production Drilling (VIC/L29) | 2012/6404 | Referral Decision | Completed |
| Longtom-5 Offshore Production Drilling (Vic/L29) | 2012/6413 | Referral Decision | Completed |
| Shark 3D Seismic Survey | 2007/3294 | Referral Decision | Completed |

## Key Ecological Features [ Resource Information ]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

| Name | Region |
|---|---|
| Upwelling East of Eden | South-east |

## Biologically Important Areas [ Resource Information ]

| Scientific Name | Behaviour | Presence |
|---|---|---|
| **Seabirds** | | |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Foraging | Known to occur |
| Diomedea exulans (sensu lato)<br>Wandering Albatross [1073] | Foraging | Known to occur |
| Diomedea exulans antipodensis<br>Antipodean Albatross [82269] | Foraging | Known to occur |
| Pelagodroma marina<br>White-faced Storm-petrel [1016] | Foraging | Known to occur |
| Pelecanoides urinatrix<br>Common Diving-petrel [1018] | Foraging | Known to occur |
| Thalassarche bulleri<br>Bullers Albatross [64460] | Foraging | Known to occur |
| Thalassarche cauta cauta<br>Shy Albatross [82345] | Foraging likely | Likely to occur |
| Thalassarche chlororhynchos bassi<br>Indian Yellow-nosed Albatross [85249] | Foraging | Known to occur |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Foraging | Known to occur |
| Thalassarche melanophris impavida<br>Campbell Albatross [82449] | Foraging | Known to occur |
| **Sharks** | | |
| Carcharodon carcharias<br>White Shark [64470] | Breeding (nursery area) | Known to occur |

| Scientific Name | Behaviour | Presence |
| --- | --- | --- |
| Whales | | |
| Balaenoptera musculus brevicauda | | |
| Pygmy Blue Whale [81317] | Foraging | Likely to be present |
| Eubalaena australis | | |
| Southern Right Whale [40] | Migration | |

# Caveat

## 1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

## 2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

## 3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

## 4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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# Appendix E: EPBC Act Protected Matters Report – Environment That May Be Affected

Australian Government

Department of Climate Change, Energy, the Environment and Water

# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 24-Feb-2026

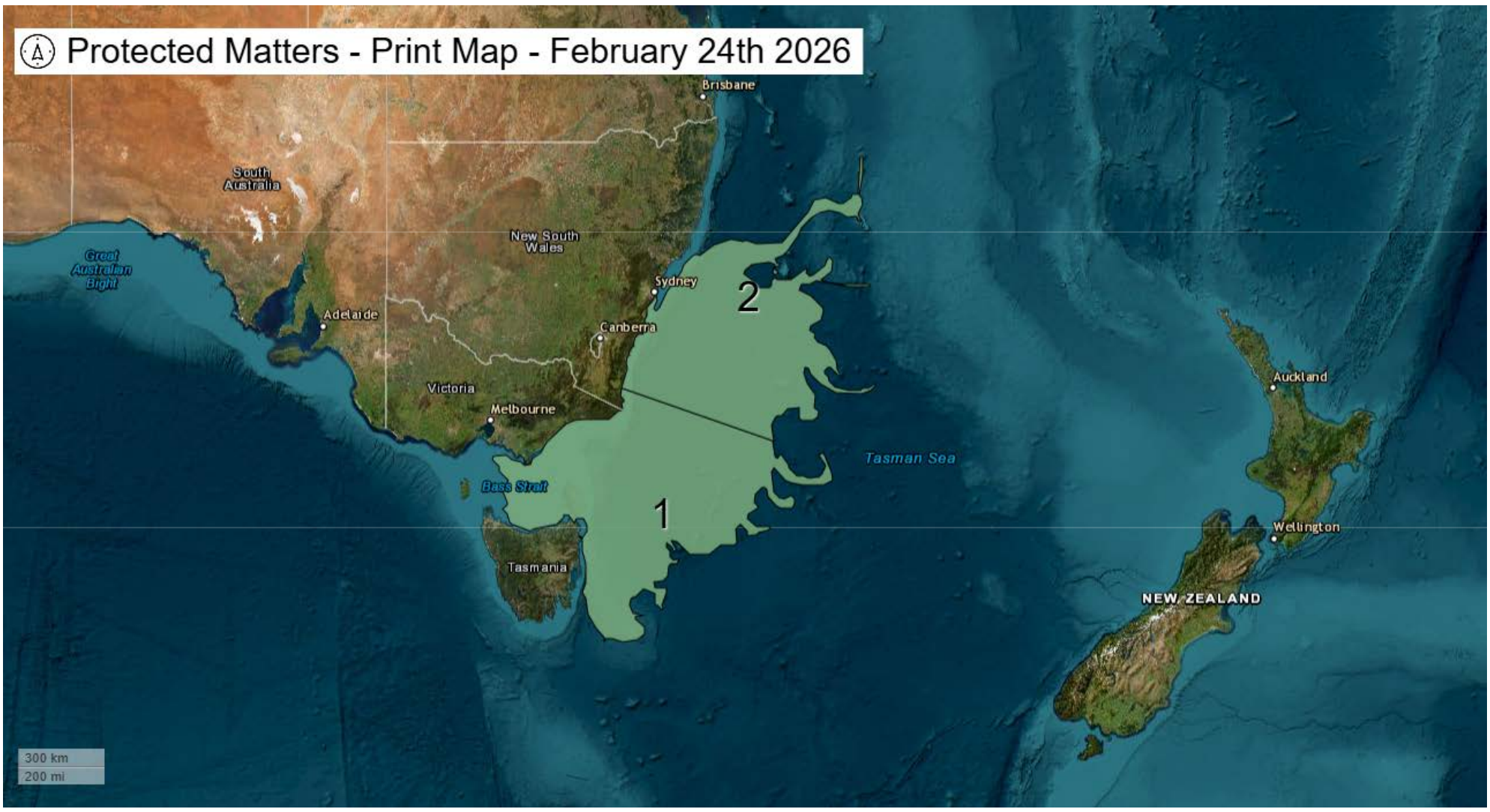

[Summary](#)

[Details](#)

- [Matters of NES](#)
- [Other Matters Protected by the EPBC Act](#)
- [Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

# Summary

## Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

| | |
|---|---|
| World Heritage Properties: | 1 |
| National Heritage Places: | 4 |
| Wetlands of International Importance (Ramsar | 9 |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | 9 |
| Listed Threatened Ecological Communities: | 26 |
| Listed Threatened Species: | 240 |
| Listed Migratory Species: | 94 |

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|---|---|
| Commonwealth Lands: | 56 |
| Commonwealth Heritage Places: | 17 |
| Listed Marine Species: | 157 |
| Whales and Other Cetaceans: | 40 |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | 2 |
| Australian Marine Parks: | 23 |
| Habitat Critical to the Survival of Marine Turtles: | None |

## Extra Information

This part of the report provides information that may also be relevant to the area you have

| | |
|---|---|
| State and Territory Reserves: | 225 |
| Regional Forest Agreements: | 5 |
| Nationally Important Wetlands: | None |
| EPBC Act Referrals: | 230 |
| Key Ecological Features (Marine): | 9 |
| Biologically Important Areas: | 75 |
| Bioregional Assessments: | 2 |
| Geological and Bioregional Assessments: | None |

# Details

## Matters of National Environmental Significance

| World Heritage Properties | | [ Resource Information ] |
|---|---|---|
| Name | State | Legal Status |
| Lord Howe Island Group | NSW | Declared property |

| National Heritage Places | | [ Resource Information ] |
|---|---|---|
| Name | State | Legal Status |
| Historic | | |
| Kamay Botany Bay: botanical collection sites | NSW | Listed place |
| Kurnell Peninsula Headland | NSW | Listed place |
| Natural | | |
| Lord Howe Island Group | NSW | Listed place |
| Royal National Park and Garawarra State Conservation Area | NSW | Listed place |

| Wetlands of International Importance (Ramsar Wetlands) | [ Resource Information ] |
|---|---|
| Ramsar Site Name | Proximity |
| Corner inlet | Within Ramsar site |
| East coast cape barren island lagoons | Within Ramsar site |
| Elizabeth and middleton reefs marine national nature reserve | Within Ramsar site |
| Flood plain lower ringarooma river | Within 10km of Ramsar site |
| Gippsland lakes | Within Ramsar site |
| Jocks lagoon | Within 10km of Ramsar site |
| Little waterhouse lake | Within Ramsar site |
| Logan lagoon | Within Ramsar site |
| Towra point nature reserve | Within Ramsar site |

| Commonwealth Marine Area | [ Resource Information ] |
|---|---|

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

| Feature Name |
|---|

| Feature Name |
| --- |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |

## Listed Threatened Ecological Communities

[ Resource Information ]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

| Community Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Alpine Sphagnum Bogs and Associated Fens | Endangered | Community may occur within area |
| Araluen Scarp Grassy Forest | Endangered | Community may occur within area |
| Brogo Vine Forest of the South East Corner Bioregion | Endangered | Community likely to occur within area |
| Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community | Endangered | Community likely to occur within area |
| Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland | Endangered | Community likely to occur within area |
| Coastal Upland Swamps in the Sydney Basin Bioregion | Endangered | Community likely to occur within area |
| Dry rainforests of south-east New South Wales and eastern Victoria | Critically Endangered | Community likely to occur within area |
| Eastern Suburbs Banksia Scrub of the Sydney Region | Critically Endangered | Community likely to occur within area |
| Giant Kelp Marine Forests of South East Australia | Endangered | Community likely to occur within area |

| Community Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland | Critically Endangered | Community likely to occur within area |
| Illawarra and south coast lowland forest and woodland ecological community | Critically Endangered | Community likely to occur within area |
| Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion | Critically Endangered | Community likely to occur within area |
| Littoral Rainforest and Coastal Vine Thickets of Eastern Australia | Critically Endangered | Community likely to occur within area |
| Lowland Grassy Woodland in the South East Corner Bioregion | Critically Endangered | Community likely to occur within area |
| Lowland Native Grasslands of Tasmania | Critically Endangered | Community likely to occur within area |
| Natural Damp Grassland of the Victorian Coastal Plains | Critically Endangered | Community likely to occur within area |
| Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion | Endangered | Community likely to occur within area |
| River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria | Critically Endangered | Community likely to occur within area |
| Robertson Rainforest in the Sydney Basin Bioregion | Critically Endangered | Community likely to occur within area |
| Shale Sandstone Transition Forest of the Sydney Basin Bioregion | Critically Endangered | Community likely to occur within area |
| Subtropical and Temperate Coastal Saltmarsh | Vulnerable | Community likely to occur within area |
| Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (Eucalyptus ovata / E. brookeriana) | Critically Endangered | Community likely to occur within area |
| Tasmanian white gum (Eucalyptus viminalis) wet forest | Critically Endangered | Community likely to occur within area |
| Turpentine-Ironbark Forest of the Sydney Basin Bioregion | Critically Endangered | Community likely to occur within area |
| Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion | Endangered | Community may occur within area |
| White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland | Critically Endangered | Community may occur within area |

| Community Name | Threatened Category | Presence Text |
|---|---|---|

## Listed Threatened Species [ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| BIRD | | |
| Anthochaera phrygia<br>Regent Honeyeater [82338] | Critically Endangered | Species or species habitat known to occur within area |
| Aphelocephala leucopsis<br>Southern Whiteface [529] | Vulnerable | Species or species habitat may occur within area |
| Aquila audax fleayi<br>Tasmanian Wedge-tailed Eagle, Wedge-tailed Eagle (Tasmanian) [64435] | Endangered | Breeding likely to occur within area |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Breeding known to occur within area |
| Arenaria interpres<br>Ruddy Turnstone [872] | Vulnerable | Roosting known to occur within area |
| Botaurus poiciloptilus<br>Australasian Bittern [1001] | Endangered | Species or species habitat known to occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat known to occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat known to occur within area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat known to occur within area |
| Calidris tenuirostris<br>Great Knot [862] | Vulnerable | Roosting known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Callocephalon fimbriatum<br>Gang-gang Cockatoo [768] | Endangered | Species or species habitat known to occur within area |
| Calyptorhynchus lathami lathami<br>South-eastern Glossy Black-Cockatoo [67036] | Vulnerable | Species or species habitat known to occur within area |
| Ceyx azureus diemenensis<br>Tasmanian Azure Kingfisher [25977] | Endangered | Species or species habitat likely to occur within area |
| Charadrius leschenaultii<br>Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat known to occur within area |
| Charadrius mongolus<br>Lesser Sand Plover, Mongolian Plover [879] | Endangered | Roosting known to occur within area |
| Climacteris picumnus victoriae<br>Brown Treecreeper (south-eastern) [67062] | Vulnerable | Species or species habitat known to occur within area |
| Dasyornis brachypterus<br>Eastern Bristlebird [533] | Endangered | Species or species habitat known to occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea antipodensis gibsoni<br>Gibson's Albatross [82270] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Erythrotriorchis radiatus<br>Red Goshawk [942] | Endangered | Species or species habitat may occur within area |
| Falco hypoleucos<br>Grey Falcon [929] | Vulnerable | Species or species habitat likely to occur within area |
| Fregetta grallaria grallaria<br>White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438] | Vulnerable | Breeding known to occur within area |
| Gallinago hardwickii<br>Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat known to occur within area |
| Grantiella picta<br>Painted Honeyeater [470] | Vulnerable | Species or species habitat known to occur within area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area |
| Hypotaenidia sylvestris<br>Lord Howe Woodhen [87732] | Endangered | Breeding likely to occur within area |
| Lathamus discolor<br>Swift Parrot [744] | Critically Endangered | Species or species habitat known to occur within area |
| Limnodromus semipalmatus<br>Asian Dowitcher [843] | Vulnerable | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Limosa lapponica baueri<br>Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380] | Endangered | Species or species habitat known to occur within area |
| Limosa limosa<br>Black-tailed Godwit [845] | Endangered | Roosting known to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Melanodryas cucullata cucullata<br>South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093] | Endangered | Species or species habitat likely to occur within area |
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Species or species habitat known to occur within area |
| Neophema chrysostoma<br>Blue-winged Parrot [726] | Vulnerable | Species or species habitat known to occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Pachyptila turtur subantarctica<br>Fairy Prion (southern) [64445] | Vulnerable | Species or species habitat known to occur within area |
| Pardalotus quadragintus<br>Forty-spotted Pardalote [418] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Pluvialis squatarola<br>Grey Plover [865] | Vulnerable | Roosting known to occur within area |
| Pterodroma heraldica<br>Herald Petrel [66973] | Critically Endangered | Species or species habitat likely to occur within area |
| Pterodroma leucoptera leucoptera<br>Gould's Petrel, Australian Gould's Petrel [26033] | Endangered | Breeding known to occur within area |
| Pterodroma mollis<br>Soft-plumaged Petrel [1036] | Vulnerable | Species or species habitat may occur within area |
| Pterodroma neglecta neglecta<br>Kermadec Petrel (western) [64450] | Vulnerable | Foraging, feeding or related behaviour may occur within area |
| Pycnoptilus floccosus<br>Pilotbird [525] | Vulnerable | Species or species habitat known to occur within area |
| Rostratula australis<br>Australian Painted Snipe [77037] | Endangered | Species or species habitat known to occur within area |
| Stagonopleura guttata<br>Diamond Firetail [59398] | Vulnerable | Species or species habitat known to occur within area |
| Sternula albifrons<br>Little Tern [82849] | Vulnerable | Breeding known to occur within area |
| Sternula nereis nereis<br>Australian Fairy Tern [82950] | Vulnerable | Species or species habitat known to occur within area |
| Strepera graculina crissalis<br>Lord Howe Island Currawong, Pied Currawong (Lord Howe Island) [25994] | Vulnerable | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri platei<br>Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche eremita<br>Chatham Albatross [64457] | Endangered | Foraging, feeding or related behaviour may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thinornis cucullatus cucullatus | | |
| Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat known to occur within area |
| Tringa nebularia | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat known to occur within area |
| Tyto novaehollandiae castanops (Tasmanian population) | | |
| Masked Owl (Tasmanian) [67051] | Vulnerable | Species or species habitat known to occur within area |
| Xenus cinereus | | |
| Terek Sandpiper [59300] | Vulnerable | Roosting known to occur within area |
| CRUSTACEAN | | |
| Astacopsis gouldi | | |
| Giant Freshwater Crayfish, Tasmanian Giant Freshwater Lobster [64415] | Vulnerable | Species or species habitat may occur within area |
| Engaeus granulatus | | |
| Central North Burrowing Crayfish [78959] | Endangered | Species or species habitat may occur within area |
| Engaeus martigener | | |
| Furneaux Burrowing Crayfish [67220] | Endangered | Species or species habitat known to occur within area |
| Euastacus bidawalus | | |
| Bidhawal Crayfish, Bidawal Crayfish, East Gippsland Spiny Crayfish [83136] | Endangered | Species or species habitat known to occur within area |
| Euastacus diversus | | |
| Orbost Spiny Crayfish [66782] | Endangered | Species or species habitat may occur within area |
| FISH | | |
| Amphiprion mccullochi | | |
| Whitesnout Anemonefish, McCulloch's Anemonefish [76925] | Critically Endangered | Species or species habitat known to occur within area |
| Epinephelus daemelii | | |
| Black Rockcod, Black Cod, Saddled Rockcod [68449] | Vulnerable | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Galaxiella pusilla | | |
| Eastern Dwarf Galaxias, Dwarf Galaxias [56790] | Endangered | Species or species habitat known to occur within area |
| Hippocampus whitei | | |
| White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240] | Endangered | Species or species habitat known to occur within area |
| Hoplostethus atlanticus | | |
| Orange Roughy, Deep-sea Perch, Red Roughy [68455] | Conservation Dependent | Species or species habitat likely to occur within area |
| Maccullochella peelii | | |
| Murray Cod [66633] | Vulnerable | Translocated population known to occur within area |
| Macquaria australasica | | |
| Macquarie Perch [66632] | Endangered | Translocated population known to occur within area |
| Mordacia praecox | | |
| Non-parasitic Lamprey, Precocious Lamprey [81530] | Endangered | Species or species habitat likely to occur within area |
| Prototroctes maraena | | |
| Australian Grayling [26179] | Vulnerable | Species or species habitat known to occur within area |
| Rexea solandri (eastern Australian population) | | |
| Eastern Gemfish [76339] | Conservation Dependent | Species or species habitat likely to occur within area |
| Seriolella brama | | |
| Blue Warehou [69374] | Conservation Dependent | Species or species habitat known to occur within area |
| Thymichthys politus | | |
| Red Handfish [83756] | Critically Endangered | Species or species habitat may occur within area |
| FROG | | |
| Heleioporus australiacus australiacus | | |
| Giant Burrowing Frog, Eastern Owl Frog [92013] | Endangered | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Heleioporus australiacus flavopunctatus | | |
| Southern Owl Frog, Southern Giant Burrowing Frog [92014] | Endangered | Species or species habitat known to occur within area |
| Litoria aurea | | |
| Green and Golden Bell Frog [1870] | Vulnerable | Species or species habitat known to occur within area |
| Litoria littlejohni | | |
| Northern Heath Frog, Littlejohn's Tree Frog [64733] | Endangered | Species or species habitat known to occur within area |
| Litoria watsoni | | |
| Southern Heath Frog, Watson's Tree Frog [91509] | Endangered | Species or species habitat known to occur within area |
| Mixophyes balbus | | |
| Stuttering Frog, Southern Barred Frog (in Victoria) [1942] | Vulnerable | Species or species habitat known to occur within area |
| Ranoidea raniformis listed as Litoria raniformis | | |
| Southern Bell Frog, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [94668] | Vulnerable | Species or species habitat known to occur within area |
| Uperoleia martini | | |
| Martin's Toadlet [1873] | Endangered | Species or species habitat known to occur within area |
| INSECT | | |
| Antipodia chaostola leucophaea | | |
| Tasmanian Chaostola Skipper, Heath-sand Skipper [77672] | Endangered | Species or species habitat known to occur within area |
| Austrocordulia leonardi | | |
| Sydney Hawk Dragonfly [84741] | Endangered | Species or species habitat likely to occur within area |
| Cormodes darwini | | |
| a beetle [92235] | Critically Endangered | Species or species habitat known to occur within area |
| Promethis sterrha | | |
| a beetle [92260] | Critically Endangered | Species or species habitat known to occur within area |
| MAMMAL | | |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Antechinus minimus maritimus<br>Swamp Antechinus (mainland) [83086] | Vulnerable | Species or species habitat likely to occur within area |
| Balaenoptera borealis<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Balaenoptera musculus<br>Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |
| Balaenoptera physalus<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Chalinolobus dwyeri<br>Large-eared Pied Bat, Large Pied Bat [183] | Endangered | Species or species habitat known to occur within area |
| Dasyurus maculatus maculatus (SE mainland population)<br>Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184] | Endangered | Species or species habitat known to occur within area |
| Dasyurus maculatus maculatus (Tasmanian population)<br>Spotted-tail Quoll, Spot-tailed Quoll, Tiger Quoll (Tasmanian population) [75183] | Vulnerable | Species or species habitat known to occur within area |
| Dasyurus viverrinus<br>Eastern Quoll, Luaner [333] | Endangered | Species or species habitat known to occur within area |
| Eubalaena australis<br>Southern Right Whale [40] | Endangered | Breeding known to occur within area |
| Isoodon obesulus obesulus<br>Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050] | Endangered | Species or species habitat known to occur within area |
| Mastacomys fuscus mordicus<br>Broad-toothed Rat (mainland), Tooarrana [87617] | Endangered | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Notamacropus parma<br>Parma Wallaby [89289] | Vulnerable | Species or species habitat may occur within area |
| Perameles gunnii gunnii<br>Eastern Barred Bandicoot (Tasmania) [66651] | Vulnerable | Species or species habitat likely to occur within area |
| Petauroides volans<br>Greater Glider (southern and central) [254] | Endangered | Species or species habitat known to occur within area |
| Petaurus australis australis<br>Yellow-bellied Glider (south-eastern) [87600] | Vulnerable | Species or species habitat known to occur within area |
| Petrogale penicillata<br>Brush-tailed Rock-wallaby [225] | Vulnerable | Species or species habitat may occur within area |
| Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)<br>Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104] | Endangered | Species or species habitat known to occur within area |
| Potorous longipes<br>Long-footed Potoroo [217] | Endangered | Species or species habitat known to occur within area |
| Potorous tridactylus trisulcatus<br>Long-nosed Potoroo (southern mainland) [86367] | Vulnerable | Species or species habitat known to occur within area |
| Pseudomys fumeus<br>Smoky Mouse, Konoom [88] | Endangered | Species or species habitat likely to occur within area |
| Pseudomys novaehollandiae<br>New Holland Mouse, Pookila [96] | Vulnerable | Species or species habitat known to occur within area |
| Pteropus poliocephalus<br>Grey-headed Flying-fox [186] | Vulnerable | Roosting known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Sarcophilus harrisii](#)<br>Tasmanian Devil [299] | Endangered | Species or species habitat likely to occur within area |
| OTHER | | |
| [Dendronephthya australis](#)<br>Cauliflower Soft Coral [90325] | Endangered | Species or species habitat known to occur within area |
| [Pericryptodrilus nanus](#)<br>Lord Howe Earthworm [84736] | Critically Endangered | Species or species habitat known to occur within area |
| PLANT | | |
| [Acacia baueri subsp. aspera](#)<br>[18662] | Endangered | Species or species habitat known to occur within area |
| [Acacia bynoeana](#)<br>Bynoe's Wattle, Tiny Wattle [8575] | Vulnerable | Species or species habitat likely to occur within area |
| [Acacia caerulescens](#)<br>Limestone Blue Wattle, Buchan Blue, Buchan Blue Wattle [21883] | Vulnerable | Species or species habitat known to occur within area |
| [Acacia constablei](#)<br>Narrabarba Wattle [10798] | Critically Endangered | Species or species habitat known to occur within area |
| [Acacia georgensis](#)<br>Bega Wattle [9848] | Vulnerable | Species or species habitat known to occur within area |
| [Acacia lanigera var. gracilipes](#)<br>[31652] | Endangered | Species or species habitat may occur within area |
| [Acacia pubescens](#)<br>Downy Wattle, Hairy Stemmed Wattle [18800] | Vulnerable | Species or species habitat may occur within area |
| [Acacia terminalis subsp. Eastern Sydney (G.P.Phillips 126) listed as Acacia terminalis subsp. terminalis MS](#)<br>Sunshine Wattle (Sydney region) [91564] | Endangered | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Allocasuarina glareicola [21932] | Endangered | Species or species habitat may occur within area |
| Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215] | Vulnerable | Species or species habitat likely to occur within area |
| Anthosachne kingiana subsp. kingiana Phillip Island Wheat Grass [87946] | Critically Endangered | Species or species habitat known to occur within area |
| Astrotricha crassifolia Thick-leaf Star-hair [10352] | Vulnerable | Species or species habitat known to occur within area |
| Astrotricha sp. Howe Range (D.E.Albrecht 1054) Long-leaf Star-hair [85676] | Critically Endangered | Species or species habitat likely to occur within area |
| Astrotricha sp. Wingan Inlet (J.A.Jeanes 2268) Wingan Star-hair [85675] | Endangered | Species or species habitat known to occur within area |
| Banksia vincentia [88276] | Critically Endangered | Species or species habitat likely to occur within area |
| Caladenia ancylosa Genoa Spider-orchid, Gippsland Spider Orchid [84574] | Critically Endangered | Species or species habitat likely to occur within area |
| Caladenia caudata Tailed Spider-orchid [17067] | Vulnerable | Species or species habitat known to occur within area |
| Caladenia orientalis Eastern Spider Orchid [83410] | Endangered | Species or species habitat likely to occur within area |
| Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119] | Vulnerable | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Calochilus pulchellus<br>Pretty Beard Orchid, Pretty Beard-orchid [84677] | Endangered | Species or species habitat likely to occur within area |
| Calystegia affinis<br>[48909] | Critically Endangered | Species or species habitat known to occur within area |
| Cassinia rugata<br>Wrinkled Cassinia, Wrinkled Dollybush [21885] | Vulnerable | Species or species habitat may occur within area |
| Commersonia prostrata<br>Dwarf Kerrawang [87152] | Endangered | Species or species habitat known to occur within area |
| Conospermum hookeri<br>Variable Smoke-bush [68161] | Vulnerable | Species or species habitat likely to occur within area |
| Correa baeuerlenii<br>Chef's Cap [17007] | Vulnerable | Species or species habitat known to occur within area |
| Correa lawrenceana var. genoensis<br>Genoa River Correa [66626] | Endangered | Species or species habitat may occur within area |
| Corunastylis rhyolitica listed as Genoplesium rhyoliticum<br>Pambula Midge-orchid, Rhyolite Midge Orchid [78697] | Endangered | Species or species habitat likely to occur within area |
| Corunastylis vernalis listed as Genoplesium vernale<br>East Lynne Midge-orchid [78699] | Vulnerable | Species or species habitat known to occur within area |
| Cryptostylis hunteriana<br>Leafless Tongue-orchid [19533] | Vulnerable | Species or species habitat known to occur within area |
| Cynanchum elegans<br>White-flowered Wax Plant [12533] | Endangered | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Daphnandra johnsonii<br>Illawarra Socketwood [67186] | Endangered | Species or species habitat known to occur within area |
| Deyeuxia ramosa<br>Climbing Bent-grass [87970] | Critically Endangered | Species or species habitat known to occur within area |
| Dianella amoena<br>Matted Flax-lily [64886] | Endangered | Species or species habitat known to occur within area |
| Dodonaea procumbens<br>Trailing Hop-bush [12149] | Vulnerable | Species or species habitat known to occur within area |
| Epacris graniticola<br>Mt Cameron Heath, Granite Heath [82822] | Critically Endangered | Species or species habitat may occur within area |
| Eucalyptus camfieldii<br>Camfield's Stringybark [15460] | Vulnerable | Species or species habitat known to occur within area |
| Eucalyptus stenostoma<br>Jillaga Ash [3976] | Endangered | Species or species habitat may occur within area |
| Geniostoma huttonii<br>[56368] | Endangered | Species or species habitat known to occur within area |
| Genoplesium baueri<br>Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528] | Endangered | Species or species habitat known to occur within area |
| Glycine latrobeana<br>Clover Glycine, Purple Clover [13910] | Vulnerable | Species or species habitat known to occur within area |
| Haloragis exalata subsp. exalata<br>Wingless Raspwort, Square Raspwort [24636] | Vulnerable | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Hibbertia acaulothrix [87409] | Endangered | Species or species habitat may occur within area |
| Leionema ralstonii [64926] | Vulnerable | Species or species habitat likely to occur within area |
| Lepidium hyssopifolium Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542] | Endangered | Species or species habitat likely to occur within area |
| Lepidorrhachis mooreana Little Mountain Palm, Moorei Palm [6388] | Critically Endangered | Species or species habitat known to occur within area |
| Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104] | Endangered | Species or species habitat may occur within area |
| Leucopogon exolasius Woronora Beard-heath [14251] | Vulnerable | Species or species habitat known to occur within area |
| Melaleuca biconvexa Biconvex Paperbark [5583] | Vulnerable | Species or species habitat likely to occur within area |
| Melaleuca deanei Deane's Melaleuca [5818] | Vulnerable | Species or species habitat known to occur within area |
| Persicaria elatior Knotweed, Tall Knotweed [5831] | Vulnerable | Species or species habitat known to occur within area |
| Persoonia bargoensis Bargo Geebung [56267] | Endangered | Species or species habitat may occur within area |
| Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006] | Endangered | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Persoonia nutans<br>Nodding Geebung [18119] | Endangered | Species or species habitat known to occur within area |
| Phebalium daviesii<br>Davies' Waxflower, St Helens Waxflower [16959] | Critically Endangered | Species or species habitat may occur within area |
| Pimelea curviflora var. curviflora<br>[4182] | Vulnerable | Species or species habitat likely to occur within area |
| Pimelea spicata<br>Spiked Rice-flower [20834] | Endangered | Species or species habitat known to occur within area |
| Polystichum moorei<br>Rock Shield Fern [40755] | Endangered | Species or species habitat likely to occur within area |
| Pomaderris brunnea<br>Rufous Pomaderris, Brown Pomaderris [16845] | Vulnerable | Species or species habitat likely to occur within area |
| Pomaderris cotoneaster<br>Cotoneaster Pomaderris [2043] | Endangered | Species or species habitat may occur within area |
| Pomaderris parrisiae<br>Parris' Pomaderris [22119] | Vulnerable | Species or species habitat known to occur within area |
| Prasophyllum affine<br>Jervis Bay Leek Orchid [2210] | Endangered | Species or species habitat known to occur within area |
| Prasophyllum apoxychilum<br>Tapered Leek-orchid [64947] | Endangered | Species or species habitat known to occur within area |
| Prasophyllum frenchii<br>Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid [9704] | Endangered | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Prasophyllum secutum<br>Northern Leek-orchid [64954] | Endangered | Species or species habitat likely to occur within area |
| Prasophyllum spicatum<br>Dense Leek-orchid [55146] | Vulnerable | Species or species habitat known to occur within area |
| Prostanthera densa<br>Villous Mintbush [12233] | Vulnerable | Species or species habitat known to occur within area |
| Prostanthera galbraithiae<br>Wellington Mintbush [64959] | Vulnerable | Species or species habitat likely to occur within area |
| Pterostylis chlorogramma<br>Green-striped Greenhood [56510] | Vulnerable | Species or species habitat likely to occur within area |
| Pterostylis cucullata<br>Leafy Greenhood [15459] | Vulnerable | Species or species habitat known to occur within area |
| Pterostylis gibbosa<br>Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562] | Endangered | Species or species habitat known to occur within area |
| Pterostylis saxicola<br>Sydney Plains Greenhood [64537] | Endangered | Species or species habitat likely to occur within area |
| Pterostylis sp. Botany Bay (A.Bishop J221/1-13)<br>Botany Bay Bearded Greenhood, Botany Bay Bearded Orchid [64965] | Endangered | Species or species habitat likely to occur within area |
| Pterostylis ziegeleri<br>Grassland Greenhood, Cape Portland Greenhood [64971] | Vulnerable | Species or species habitat known to occur within area |
| Pultenaea aristata<br>[18062] | Vulnerable | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Rhizanthella slateri<br>Eastern Underground Orchid [11768] | Endangered | Species or species habitat may occur within area |
| Rhodamnia rubescens<br>Scrub Turpentine, Brown Malletwood [15763] | Critically Endangered | Species or species habitat known to occur within area |
| Rhodomyrtus psidioides<br>Native Guava [19162] | Critically Endangered | Species or species habitat may occur within area |
| Senecio psilocarpus<br>Swamp Fireweed, Smooth-fruited Groundsel [64976] | Vulnerable | Species or species habitat known to occur within area |
| Spyridium cinereum<br>Tiny Spyridium [13564] | Endangered | Species or species habitat known to occur within area |
| Syzygium paniculatum<br>Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307] | Vulnerable | Species or species habitat known to occur within area |
| Thelymitra epipactoides<br>Metallic Sun-orchid [11896] | Endangered | Species or species habitat known to occur within area |
| Thelymitra jonesii<br>Sky-blue Sun-orchid [76352] | Endangered | Species or species habitat known to occur within area |
| Thelymitra kangaloonica<br>Kangaloon Sun Orchid [81861] | Critically Endangered | Species or species habitat likely to occur within area |
| Thelymitra matthewsii<br>Spiral Sun-orchid [4168] | Endangered | Species or species habitat likely to occur within area |
| Thesium australe<br>Austral Toadflax, Toadflax [15202] | Vulnerable | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thismia clavarioides [90425] | Endangered | Species or species habitat may occur within area |
| Triplarina nowraensis Nowra Heath-myrtle [64544] | Endangered | Species or species habitat known to occur within area |
| Westringia davidii [19079] | Vulnerable | Species or species habitat may occur within area |
| Xanthorrhoea arenaria Sand Grasstree [21603] | Vulnerable | Species or species habitat likely to occur within area |
| Xanthorrhoea bracteata Shiny Grasstree [7950] | Endangered | Species or species habitat known to occur within area |
| Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215] | Vulnerable | Species or species habitat known to occur within area |
| Xylosma parvifolia [48040] | Endangered | Species or species habitat known to occur within area |
| Zieria granulata Hill Zieria, Hilly Zieria, Illawarra Zieria [17147] | Endangered | Species or species habitat likely to occur within area |
| Zieria tuberculata Warty Zieria [56736] | Vulnerable | Species or species habitat known to occur within area |
| REPTILE | | |
| Caretta caretta Loggerhead Turtle [1763] | Endangered | Species or species habitat known to occur within area |
| Chelonia mydas Green Turtle [1765] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Christinus guentheri | | |
| Lord Howe Island Gecko, Lord Howe Island Southern Gecko [59250] | Vulnerable | Species or species habitat known to occur within area |
| Dermochelys coriacea | | |
| Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Eretmochelys imbricata | | |
| Hawksbill Turtle [1766] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Hoplocephalus bungaroides | | |
| Broad-headed Snake [1182] | Endangered | Species or species habitat known to occur within area |
| Lissolepis coventryi | | |
| Swamp Skink, Eastern Mourning Skink [84053] | Endangered | Species or species habitat known to occur within area |
| Natator depressus | | |
| Flatback Turtle [59257] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Oligosoma lichenigerum | | |
| Lord Howe and Norfolk Islands Skink, Lord Howe Island Skink [91467] | Vulnerable | Species or species habitat known to occur within area |
| Pseudemoia rawlinsoni | | |
| Glossy Grass Skink, Swampland Cool-skink, Rawlinson's Window-eyed Skink [59160] | Vulnerable | Species or species habitat known to occur within area |
| SHARK | | |
| Carcharias taurus (east coast population) | | |
| Grey Nurse Shark (east coast population) [68751] | Critically Endangered | Congregation or aggregation known to occur within area |
| Carcharodon carcharias | | |
| White Shark, Great White Shark [64470] | Vulnerable | Breeding known to occur within area |
| Centrophorus harrissoni | | |
| Harrisson's Dogfish, Endeavour Dogfish, Dumb Gulper Shark, Harrison's Deepsea Dogfish [68444] | Conservation Dependent | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Centrophorus uyato | | |
| Little Gulper Shark [68446] | Conservation Dependent | Species or species habitat likely to occur within area |
| Galeorhinus galeus | | |
| Tope, Flake, Oil Shark, School Shark [68453] | Conservation Dependent | Species or species habitat likely to occur within area |
| Rhincodon typus | | |
| Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |
| Sphyrna lewini | | |
| Scalloped Hammerhead [85267] | Conservation Dependent | Species or species habitat likely to occur within area |
| SNAIL | | |
| Gudeoconcha sophiae magnifica | | |
| Magnificent Helicarionid Land Snail [82864] | Critically Endangered | Species or species habitat likely to occur within area |
| Haliotis rubiginosa | | |
| Lord Howe Abalone [92433] | Critically Endangered | Species or species habitat known to occur within area |
| Meridolum maryae | | |
| Maroubra Woodland Snail, Maroubra Land Snail [89884] | Endangered | Species or species habitat known to occur within area |
| Mystivagor mastersi | | |
| Masters' Charopid Land Snail [81247] | Critically Endangered | Species or species habitat known to occur within area |
| Placostylus bivaricosus | | |
| Lord Howe Flax Snail, Lord Howe Placostylus [66769] | Endangered | Species or species habitat known to occur within area |
| Pseudocharopa ledgbirdi | | |
| Mount Lidgbird Charopid Land Snail [85279] | Critically Endangered | Species or species habitat likely to occur within area |
| Pseudocharopa whiteleggei | | |
| Whitelegge's Land Snail [81249] | Critically Endangered | Species or species habitat likely to occur within area |

Listed Migratory Species [ Resource Information ]

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Migratory Marine Birds | | |
| Anous stolidus<br>Common Noddy [825] | | Breeding known to occur within area |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardenna carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Breeding known to occur within area |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Breeding known to occur within area |
| Ardenna pacifica<br>Wedge-tailed Shearwater [84292] | | Breeding known to occur within area |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | | Breeding known to occur within area |
| Calonectris leucomelas<br>Streaked Shearwater [1077] | | Species or species habitat known to occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Fregata ariel<br>Lesser Frigatebird, Least Frigatebird [1012] | | Species or species habitat known to occur within area |
| Fregata minor<br>Great Frigatebird, Greater Frigatebird [1013] | | Species or species habitat known to occur within area |
| Hydroprogne caspia<br>Caspian Tern [808] | | Breeding known to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Phaethon lepturus<br>White-tailed Tropicbird [1014] | | Species or species habitat known to occur within area |
| Phaethon rubricauda<br>Red-tailed Tropicbird [994] | | Breeding known to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |
| Sternula albifrons<br>Little Tern [82849] | Vulnerable | Breeding known to occur within area |
| Sula dactylatra<br>Masked Booby [1021] | | Breeding known to occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche eremita<br>Chatham Albatross [64457] | Endangered | Foraging, feeding or related behaviour may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Migratory Marine Species | | |
| Balaenoptera bonaerensis<br>Antarctic Minke Whale, Dark-shoulder Minke Whale [67812] | | Species or species habitat likely to occur within area |
| Balaenoptera borealis<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Balaenoptera edeni<br>Bryde's Whale [35] | | Species or species habitat likely to occur within area |
| Balaenoptera musculus<br>Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |
| Balaenoptera physalus<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Caperea marginata<br>Pygmy Right Whale [39] | | Foraging, feeding or related behaviour likely to occur within area |
| Carcharhinus longimanus<br>Oceanic Whitetip Shark [84108] | | Species or species habitat likely to occur within area |
| Carcharias taurus<br>Grey Nurse Shark [64469] | | Congregation or aggregation known to occur within area |
| Carcharodon carcharias<br>White Shark, Great White Shark [64470] | Vulnerable | Breeding known to occur within area |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Species or species habitat known to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Dugong dugon<br>Dugong [28] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Eretmochelys imbricata<br>Hawksbill Turtle [1766] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Eubalaena australis as Balaena glacialis australis<br>Southern Right Whale [40] | Endangered | Breeding known to occur within area |
| Isurus oxyrinchus<br>Shortfin Mako, Mako Shark [79073] | | Species or species habitat likely to occur within area |
| Isurus paucus<br>Longfin Mako [82947] | | Species or species habitat likely to occur within area |
| Lagenorhynchus obscurus<br>Dusky Dolphin [43] | | Species or species habitat likely to occur within area |
| Lamna nasus<br>Porbeagle, Mackerel Shark [83288] | | Species or species habitat likely to occur within area |
| Megaptera novaeangliae<br>Humpback Whale [38] | | Foraging, feeding or related behaviour known to occur within area |
| Mobula alfredi as Manta alfredi<br>Reef Manta Ray, Coastal Manta Ray [90033] | | Species or species habitat likely to occur within area |
| Mobula birostris as Manta birostris<br>Giant Manta Ray [90034] | | Species or species habitat known to occur within area |
| Natator depressus<br>Flatback Turtle [59257] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Physeter macrocephalus | | |
| Sperm Whale [59] | | Species or species habitat may occur within area |
| Rhincodon typus | | |
| Whale Shark [66680] | Vulnerable | Species or species habitat may occur within area |
| **Migratory Terrestrial Species** | | |
| Cuculus optatus | | |
| Oriental Cuckoo, Horsfield's Cuckoo [86651] | | Species or species habitat known to occur within area |
| Hirundapus caudacutus | | |
| White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area |
| Motacilla flava | | |
| Yellow Wagtail [644] | | Species or species habitat likely to occur within area |
| **Migratory Wetlands Species** | | |
| Actitis hypoleucos | | |
| Common Sandpiper [59309] | | Species or species habitat known to occur within area |
| Arenaria interpres | | |
| Ruddy Turnstone [872] | Vulnerable | Roosting known to occur within area |
| Calidris acuminata | | |
| Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat known to occur within area |
| Calidris alba | | |
| Sanderling [875] | | Roosting known to occur within area |
| Calidris canutus | | |
| Red Knot, Knot [855] | Vulnerable | Species or species habitat known to occur within area |
| Calidris falcinellus as Limicola falcinellus | | |
| Broad-billed Sandpiper [91731] | | Roosting known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat known to occur within area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat known to occur within area |
| Calidris pugnax as Philomachus pugnax<br>Ruff [91256] | | Roosting known to occur within area |
| Calidris ruficollis<br>Red-necked Stint [860] | | Roosting known to occur within area |
| Calidris subminuta<br>Long-toed Stint [861] | | Roosting known to occur within area |
| Calidris tenuirostris<br>Great Knot [862] | Vulnerable | Roosting known to occur within area |
| Charadrius bicinctus<br>Double-banded Plover [895] | | Roosting known to occur within area |
| Charadrius leschenaultii<br>Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat known to occur within area |
| Charadrius mongolus<br>Lesser Sand Plover, Mongolian Plover [879] | Endangered | Roosting known to occur within area |
| Charadrius veredus<br>Oriental Plover, Oriental Dotterel [882] | | Roosting known to occur within area |
| Gallinago hardwickii<br>Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat known to occur within area |
| Gallinago megala<br>Swinhoe's Snipe [864] | | Roosting likely to occur within area |
| Gallinago stenura<br>Pin-tailed Snipe [841] | | Roosting likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Limnodromus semipalmatus<br>Asian Dowitcher [843] | Vulnerable | Species or species habitat may occur within area |
| Limosa lapponica<br>Bar-tailed Godwit [844] | | Species or species habitat known to occur within area |
| Limosa limosa<br>Black-tailed Godwit [845] | Endangered | Roosting known to occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Numenius minutus<br>Little Curlew, Little Whimbrel [848] | | Roosting known to occur within area |
| Numenius phaeopus<br>Whimbrel [849] | | Roosting known to occur within area |
| Pandion haliaetus<br>Osprey [952] | | Species or species habitat known to occur within area |
| Pluvialis fulva<br>Pacific Golden Plover [25545] | | Roosting known to occur within area |
| Pluvialis squatarola<br>Grey Plover [865] | Vulnerable | Roosting known to occur within area |
| Thalasseus bergii<br>Greater Crested Tern [83000] | | Breeding known to occur within area |
| Tringa brevipes<br>Grey-tailed Tattler [851] | | Roosting known to occur within area |
| Tringa glareola<br>Wood Sandpiper [829] | | Roosting known to occur within area |
| Tringa incana<br>Wandering Tattler [831] | | Roosting known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Tringa nebularia<br>Common Greenshank, Greenshank [832] | Endangered | Species or species habitat known to occur within area |
| Tringa stagnatilis<br>Marsh Sandpiper, Little Greenshank [833] | | Roosting known to occur within area |
| Xenus cinereus<br>Terek Sandpiper [59300] | Vulnerable | Roosting known to occur within area |

## Other Matters Protected by the EPBC Act

Commonwealth Lands [ Resource Information ]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

| Commonwealth Land Name | State |
|---|---|
| Australian Broadcasting Corporation | |
| Lot 62 DP853283 [AGPR166] | NSW |
| Australian Financial Security Authority | |
| Lot 7 DP249799 [AGPR5836] | NSW |
| Australian Postal Corporation | |
| Lot 11 DP18033 [AGPR7189] | NSW |
| Lot 12 DP1087743 [AGPR7061] | NSW |
| Lot 19 DP13346 [AGPR7381] | NSW |
| Lot 19 DP800924 [AGPR7412] | NSW |
| Lot 1 DP106081 [AGPR7379] | NSW |
| Lot 1 DP570695 [AGPR7191] | NSW |
| Lot 1 DP776577 [AGPR7392] | NSW |
| Lot 1 DP843926 [AGPR7008] | NSW |
| Lot 20 DP800924 [AGPR7413] | NSW |
| Lot 2 DP85063 [AGPR7168] | NSW |
| Lot 4 DP809842 [AGPR7026] | NSW |
| PC354906M [AGPR6975] | VIC |
| Department of Climate Change, Energy, the Environment and Water | |

| Commonwealth Land Name | State |
|---|---|
| Beecroft Peninsula [CHL_105539] | NSW |
| Booderee Botanic Gardens (Commonwealth) [CAPAD_CWTH_02] | JBT |
| Booderee National Park (Commonwealth) [CAPAD_CWTH_03] | JBT |
| Cape Baily Lighthouse [CHL_105571] | NSW |
| Cape St George Lighthouse Ruins & Curtilage [CHL_105312] | ACT |
| Christians Minde Settlement [CHL_105314] | ACT |
| Cronulla Post Office [CHL_106203] | NSW |
| Gabo Island Lighthouse [CHL_105379] | VIC |
| Goose Island Lighthouse [CHL_105564] | TAS |
| Jervis Bay Botanic Gardens [CHL_105400] | ACT |
| Jervis Bay Territory [CHL_105394] | ACT |
| Kiama Post Office [CHL_105508] | NSW |
| Montague Island Lighthouse [CHL_105601] | NSW |
| Point Perpendicular Lightstation [CHL_105364] | NSW |
| Royal Australian Naval College [CHL_105380] | ACT |
| Swan Island Lighthouse [CHL_105598] | TAS |
| Wilsons Promontory Lighthouse [CHL_105375] | VIC |
| **Department of Defence** | |
| AAC 222 Army Cadet Unit - South Coast [DD_3152] | NSW |
| Bass Pyramid Weapon Range - Bass Strait [DD_0981] | VIC |
| Beecroft Rapier Range [AGPR706] | NSW |
| Beecroft Weapons Range [DD_0027] | NSW |
| Bherwerre Ridge Communications Facility [DD_0019] | ACT |
| Devils Tower Weapon Range - Bass Strait [DD_0976] | VIC |
| Eden Navy Wharf Establishment [DD_0288] | NSW |
| HMAS Albatross [AGPR778] | NSW |
| HMAS Albatross [AGPR779] | NSW |

| Commonwealth Land Name | State |
|---|---|
| HMAS Creswell [DD_0020] | ACT |
| Hydrographics Office - Wollongong [DD_1434] | NSW |
| Jervis Bay Airfield (JBAF) [DD_0021] | ACT |
| Lot 1 DP700616 [AGPR915] | NSW |
| Lot 52 DP914687 [AGPR6461] | NSW |
| Point Perpendicular Lighthouse [DD_1521] | NSW |
| Stonyhead Training Area [DD_0829] | TAS |
| Volume 127834 Folio 1 [AGPR3270] | TAS |
| Volume 202633 Folio 1 [AGPR3274] | TAS |
| Volume 41804 Folio 1 [AGPR3275] | TAS |
| Volume 85202 Folio 1 [AGPR3271] | TAS |
| Volume 93807 Folio 1 [AGPR3269] | TAS |
| Wollongong Training Depot [DD_0434] | NSW |
| Department of Finance | |
| Jervis Bay Court and Police Station [AGPR007676] | NSW |
| Department of Home Affairs | |
| Lot 412 DP1081599 [AGPR6053] | NSW |
| Lot 5 DP1062089 [AGPR6054] | NSW |

## Commonwealth Heritage Places [ Resource Information ]

| Name | State | Status |
|---|---|---|
| Historic | | |
| Cape Baily Lighthouse | NSW | Listed place |
| Cape St George Lighthouse Ruins & Curtilage | ACT | Listed place |
| Christians Minde Settlement | ACT | Listed place |
| Cronulla Post Office | NSW | Listed place |
| Gabo Island Lighthouse | VIC | Listed place |
| Goose Island Lighthouse | TAS | Listed place |
| Jervis Bay Botanic Gardens | ACT | Listed place |
| Kiama Post Office | NSW | Listed place |

| Name | State | Status |
|---|---|---|
| Montague Island Lighthouse | NSW | Listed place |
| Point Perpendicular Lightstation | NSW | Listed place |
| Royal Australian Naval College | ACT | Listed place |
| Swan Island Lighthouse | TAS | Listed place |
| Wilsons Promontory Lighthouse | VIC | Listed place |
| **Indigenous** | | |
| Crocodile Head Area | NSW | Within listed place |
| Currarong Rockshelters Area | NSW | Within listed place |
| Jervis Bay Territory | ACT | Listed place |
| **Natural** | | |
| Beecroft Peninsula | NSW | Listed place |

## Listed Marine Species [ Resource Information ]

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| **Bird** | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat known to occur within area |
| Anous albivitta as Procelsterna cerulea<br>Grey Noddy, Grey Ternlet [91286] | | Breeding known to occur within area |
| Anous stolidus<br>Common Noddy [825] | | Breeding known to occur within area |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area overfly marine area |
| Ardenna carneipes as Puffinus carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Breeding known to occur within area |
| Ardenna grisea as Puffinus griseus<br>Sooty Shearwater [82651] | Vulnerable | Breeding known to occur within area |
| Ardenna pacifica as Puffinus pacificus<br>Wedge-tailed Shearwater [84292] | | Breeding known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Ardenna tenuirostris as Puffinus tenuirostris<br>Short-tailed Shearwater [82652] | | Breeding known to occur within area |
| Arenaria interpres<br>Ruddy Turnstone [872] | Vulnerable | Roosting known to occur within area |
| Bubulcus ibis as Ardea ibis<br>Cattle Egret [66521] | | Species or species habitat may occur within area overfly marine area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat known to occur within area |
| Calidris alba<br>Sanderling [875] | | Roosting known to occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| Calidris falcinellus as Limicola falcinellus<br>Broad-billed Sandpiper [91731] | | Roosting known to occur within area overfly marine area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat known to occur within area overfly marine area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat known to occur within area overfly marine area |
| Calidris pugnax as Philomachus pugnax<br>Ruff [91256] | | Roosting known to occur within area overfly marine area |
| Calidris ruficollis<br>Red-necked Stint [860] | | Roosting known to occur within area overfly marine area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Calidris subminuta<br>Long-toed Stint [861] | | Roosting known to occur within area<br>overfly marine area |
| Calidris tenuirostris<br>Great Knot [862] | Vulnerable | Roosting known to occur within area<br>overfly marine area |
| Calonectris leucomelas<br>Streaked Shearwater [1077] | | Species or species habitat known to occur within area |
| Charadrius bicinctus<br>Double-banded Plover [895] | | Roosting known to occur within area<br>overfly marine area |
| Charadrius leschenaultii<br>Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat known to occur within area |
| Charadrius mongolus<br>Lesser Sand Plover, Mongolian Plover [879] | Endangered | Roosting known to occur within area |
| Charadrius ruficapillus<br>Red-capped Plover [881] | | Roosting known to occur within area<br>overfly marine area |
| Charadrius veredus<br>Oriental Plover, Oriental Dotterel [882] | | Roosting known to occur within area<br>overfly marine area |
| Chroicocephalus novaehollandiae as Larus novaehollandiae<br>Silver Gull [82326] | | Breeding known to occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea antipodensis gibsoni as Diomedea gibsoni<br>Gibson's Albatross [82270] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Eudyptula minor<br>Little Penguin [1085] | | Breeding known to occur within area |
| Fregata ariel<br>Lesser Frigatebird, Least Frigatebird [1012] | | Species or species habitat known to occur within area |
| Fregata minor<br>Great Frigatebird, Greater Frigatebird [1013] | | Species or species habitat known to occur within area |
| Gallinago hardwickii<br>Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat known to occur within area<br>overfly marine area |
| Gallinago megala<br>Swinhoe's Snipe [864] | | Roosting likely to occur within area<br>overfly marine area |
| Gallinago stenura<br>Pin-tailed Snipe [841] | | Roosting likely to occur within area<br>overfly marine area |
| Haliaeetus leucogaster<br>White-bellied Sea-Eagle [943] | | Breeding known to occur within area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Himantopus himantopus<br>Pied Stilt, Black-winged Stilt [870] | | Roosting known to occur within area<br>overfly marine area |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area<br>overfly marine area |
| Hydroprogne caspia as Sterna caspia<br>Caspian Tern [808] | | Breeding known to occur within area |
| Larus dominicanus<br>Kelp Gull [809] | | Breeding known to occur within area |
| Larus pacificus<br>Pacific Gull [811] | | Breeding known to occur within area |
| Lathamus discolor<br>Swift Parrot [744] | Critically Endangered | Species or species habitat known to occur within area<br>overfly marine area |
| Limnodromus semipalmatus<br>Asian Dowitcher [843] | Vulnerable | Species or species habitat may occur within area overfly marine area |
| Limosa lapponica<br>Bar-tailed Godwit [844] | | Species or species habitat known to occur within area |
| Limosa limosa<br>Black-tailed Godwit [845] | Endangered | Roosting known to occur within area<br>overfly marine area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Merops ornatus<br>Rainbow Bee-eater [670] | | Species or species habitat may occur within area overfly marine area |
| Monarcha melanopsis<br>Black-faced Monarch [609] | | Species or species habitat known to occur within area overfly marine area |
| Morus serrator<br>Australasian Gannet [1020] | | Breeding known to occur within area |
| Motacilla flava<br>Yellow Wagtail [644] | | Species or species habitat likely to occur within area overfly marine area |
| Myiagra cyanoleuca<br>Satin Flycatcher [612] | | Breeding known to occur within area overfly marine area |
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Species or species habitat known to occur within area overfly marine area |
| Neophema chrysostoma<br>Blue-winged Parrot [726] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Numenius minutus<br>Little Curlew, Little Whimbrel [848] | | Roosting known to occur within area overfly marine area |
| Numenius phaeopus<br>Whimbrel [849] | | Roosting known to occur within area |
| Onychoprion fuscatus as Sterna fuscata<br>Sooty Tern [90682] | | Breeding known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Pachyptila turtur<br>Fairy Prion [1066] | | Species or species habitat known to occur within area |
| Pandion haliaetus<br>Osprey [952] | | Species or species habitat known to occur within area |
| Pelagodroma marina<br>White-faced Storm-Petrel [1016] | | Breeding known to occur within area |
| Pelecanoides urinatrix<br>Common Diving-Petrel [1018] | | Breeding known to occur within area |
| Phaethon lepturus<br>White-tailed Tropicbird [1014] | | Species or species habitat known to occur within area |
| Phaethon rubricauda<br>Red-tailed Tropicbird [994] | | Breeding known to occur within area |
| Phalacrocorax fuscescens<br>Black-faced Cormorant [59660] | | Breeding known to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |
| Pluvialis fulva<br>Pacific Golden Plover [25545] | | Roosting known to occur within area |
| Pluvialis squatarola<br>Grey Plover [865] | Vulnerable | Roosting known to occur within area<br>overfly marine area |
| Pterodroma cervicalis<br>White-necked Petrel [59642] | | Breeding likely to occur within area |
| Pterodroma mollis<br>Soft-plumaged Petrel [1036] | Vulnerable | Species or species habitat may occur within area |
| Pterodroma nigripennis<br>Black-winged Petrel [1038] | | Breeding known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Pterodroma solandri<br>Providence Petrel [1040] | | Breeding known to occur within area |
| Puffinus assimilis<br>Little Shearwater [59363] | | Breeding known to occur within area |
| Recurvirostra novaehollandiae<br>Red-necked Avocet [871] | | Roosting known to occur within area<br>overfly marine area |
| Rhipidura rufifrons<br>Rufous Fantail [592] | | Species or species habitat known to occur within area<br>overfly marine area |
| Rostratula australis as Rostratula benghalensis (sensu lato)<br>Australian Painted Snipe [77037] | Endangered | Species or species habitat known to occur within area<br>overfly marine area |
| Stercorarius antarcticus as Catharacta skua<br>Brown Skua [85039] | | Species or species habitat may occur within area |
| Sterna striata<br>White-fronted Tern [799] | | Breeding known to occur within area |
| Sternula albifrons as Sterna albifrons<br>Little Tern [82849] | Vulnerable | Breeding known to occur within area |
| Sternula nereis as Sterna nereis<br>Fairy Tern [82949] | | Breeding known to occur within area |
| Sula dactylatra<br>Masked Booby [1021] | | Breeding known to occur within area |
| Symposiachrus trivirgatus as Monarcha trivirgatus<br>Spectacled Monarch [83946] | | Species or species habitat known to occur within area<br>overfly marine area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thalassarche bulleri platei as Thalassarche sp. nov. | | |
| Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche carteri | | |
| Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta | | |
| Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma | | |
| Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche eremita | | |
| Chatham Albatross [64457] | Endangered | Foraging, feeding or related behaviour may occur within area |
| Thalassarche impavida | | |
| Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris | | |
| Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini | | |
| Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi | | |
| White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Thalasseus bergii as Sterna bergii | | |
| Greater Crested Tern [83000] | | Breeding known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thinornis cucullatus as Thinornis rubricollis | | |
| Hooded Plover, Hooded Dotterel [87735] | | Species or species habitat known to occur within area overfly marine area |
| Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis | | |
| Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| Tringa brevipes as Heteroscelus brevipes | | |
| Grey-tailed Tattler [851] | | Roosting known to occur within area |
| Tringa glareola | | |
| Wood Sandpiper [829] | | Roosting known to occur within area overfly marine area |
| Tringa incana as Heteroscelus incanus | | |
| Wandering Tattler [831] | | Roosting known to occur within area |
| Tringa nebularia | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat known to occur within area overfly marine area |
| Tringa stagnatilis | | |
| Marsh Sandpiper, Little Greenshank [833] | | Roosting known to occur within area overfly marine area |
| Xenus cinereus | | |
| Terek Sandpiper [59300] | Vulnerable | Roosting known to occur within area overfly marine area |
| Fish | | |
| Acentronura tentaculata | | |
| Shortpouch Pygmy Pipehorse [66187] | | Species or species habitat may occur within area |
| Cosmocampus howensis | | |
| Lord Howe Pipefish [66208] | | Species or species habitat may occur within area |
| Festucalex cinctus | | |
| Girdled Pipefish [66214] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Filicampus tigris<br>Tiger Pipefish [66217] | | Species or species habitat may occur within area |
| Halicampus boothae<br>Booth's Pipefish [66218] | | Species or species habitat may occur within area |
| Heraldia nocturna<br>Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227] | | Species or species habitat may occur within area |
| Hippichthys penicillus<br>Beady Pipefish, Steep-nosed Pipefish [66231] | | Species or species habitat may occur within area |
| Hippocampus abdominalis<br>Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233] | | Species or species habitat may occur within area |
| Hippocampus breviceps<br>Short-head Seahorse, Short-snouted Seahorse [66235] | | Species or species habitat may occur within area |
| Hippocampus kelloggi<br>Kellogg's Seahorse, Great Seahorse [66723] | | Species or species habitat may occur within area |
| Hippocampus minotaur<br>Bullneck Seahorse [66705] | | Species or species habitat may occur within area |
| Hippocampus whitei<br>White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240] | Endangered | Species or species habitat known to occur within area |
| Histiogamphelus briggsii<br>Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242] | | Species or species habitat may occur within area |
| Histiogamphelus cristatus<br>Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Hypselognathus rostratus<br>Knifesnout Pipefish, Knife-snouted Pipefish [66245] | | Species or species habitat may occur within area |
| Kaupus costatus<br>Deepbody Pipefish, Deep-bodied Pipefish [66246] | | Species or species habitat may occur within area |
| Kimblaeus bassensis<br>Trawl Pipefish, Bass Strait Pipefish [66247] | | Species or species habitat may occur within area |
| Leptoichthys fistularius<br>Brushtail Pipefish [66248] | | Species or species habitat may occur within area |
| Lissocampus caudalis<br>Australian Smooth Pipefish, Smooth Pipefish [66249] | | Species or species habitat may occur within area |
| Lissocampus runa<br>Javelin Pipefish [66251] | | Species or species habitat may occur within area |
| Maroubra perserrata<br>Sawtooth Pipefish [66252] | | Species or species habitat may occur within area |
| Mitotichthys mollisoni<br>Mollison's Pipefish [66260] | | Species or species habitat may occur within area |
| Mitotichthys semistriatus<br>Halfbanded Pipefish [66261] | | Species or species habitat may occur within area |
| Mitotichthys tuckeri<br>Tucker's Pipefish [66262] | | Species or species habitat may occur within area |
| Notiocampus ruber<br>Red Pipefish [66265] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Phycodurus eques<br>Leafy Seadragon [66267] | | Species or species habitat may occur within area |
| Phyllopteryx taeniolatus<br>Common Seadragon, Weedy Seadragon [66268] | | Species or species habitat may occur within area |
| Pugnaso curtirostris<br>Pugnose Pipefish, Pug-nosed Pipefish [66269] | | Species or species habitat may occur within area |
| Solegnathus dunckeri<br>Duncker's Pipehorse [66271] | | Species or species habitat may occur within area |
| Solegnathus robustus<br>Robust Pipehorse, Robust Spiny Pipehorse [66274] | | Species or species habitat may occur within area |
| Solegnathus spinosissimus<br>Spiny Pipehorse, Australian Spiny Pipehorse [66275] | | Species or species habitat may occur within area |
| Solenostomus cyanopterus<br>Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183] | | Species or species habitat may occur within area |
| Solenostomus paradoxus<br>Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184] | | Species or species habitat may occur within area |
| Stigmatopora argus<br>Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276] | | Species or species habitat may occur within area |
| Stigmatopora nigra<br>Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277] | | Species or species habitat may occur within area |
| Stipecampus cristatus<br>Ringback Pipefish, Ring-backed Pipefish [66278] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Syngnathoides biaculeatus<br>Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279] | | Species or species habitat may occur within area |
| Trachyrhamphus bicoarctatus<br>Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280] | | Species or species habitat may occur within area |
| Urocampus carinirostris<br>Hairy Pipefish [66282] | | Species or species habitat may occur within area |
| Vanacampus margaritifer<br>Mother-of-pearl Pipefish [66283] | | Species or species habitat may occur within area |
| Vanacampus phillipi<br>Port Phillip Pipefish [66284] | | Species or species habitat may occur within area |
| Vanacampus poecilolaemus<br>Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285] | | Species or species habitat may occur within area |
| **Mammal** | | |
| Arctocephalus forsteri<br>Long-nosed Fur-seal, New Zealand Fur-seal [20] | | Species or species habitat may occur within area |
| Arctocephalus pusillus<br>Australian Fur-seal, Australo-African Fur-seal [21] | | Breeding known to occur within area |
| Dugong dugon<br>Dugong [28] | | Species or species habitat may occur within area |
| **Reptile** | | |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Species or species habitat known to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Eretmochelys imbricata<br>Hawksbill Turtle [1766] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Hydrophis elegans<br>Elegant Sea Snake, Bar-bellied Sea Snake [1104] | | Species or species habitat may occur within area |
| Hydrophis platura as Pelamis platurus<br>Yellow-bellied Sea Snake [93746] | | Species or species habitat may occur within area |
| Natator depressus<br>Flatback Turtle [59257] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |

| Whales and Other Cetaceans | | [ Resource Information ] |
|---|---|---|
| Current Scientific Name | Status | Type of Presence |
| Mammal | | |
| Balaenoptera acutorostrata<br>Minke Whale [33] | | Species or species habitat may occur within area |
| Balaenoptera bonaerensis<br>Antarctic Minke Whale, Dark-shoulder Minke Whale [67812] | | Species or species habitat likely to occur within area |
| Balaenoptera borealis<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Balaenoptera edeni<br>Bryde's Whale [35] | | Species or species habitat likely to occur within area |
| Balaenoptera musculus<br>Blue Whale [36] | Endangered | Species or species habitat likely to occur within area |

| Current Scientific Name | Status | Type of Presence |
| --- | --- | --- |
| [Balaenoptera physalus](#)<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Berardius arnuxii](#)<br>Arnoux's Beaked Whale [70] | | Species or species habitat may occur within area |
| [Caperea marginata](#)<br>Pygmy Right Whale [39] | | Foraging, feeding or related behaviour likely to occur within area |
| [Delphinus delphis](#)<br>Common Dolphin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area |
| [Eubalaena australis](#)<br>Southern Right Whale [40] | Endangered | Breeding known to occur within area |
| [Feresa attenuata](#)<br>Pygmy Killer Whale [61] | | Species or species habitat may occur within area |
| [Globicephala macrorhynchus](#)<br>Short-finned Pilot Whale [62] | | Species or species habitat may occur within area |
| [Globicephala melas](#)<br>Long-finned Pilot Whale [59282] | | Species or species habitat may occur within area |
| [Grampus griseus](#)<br>Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area |
| [Hyperoodon planifrons](#)<br>Southern Bottlenose Whale [71] | | Species or species habitat may occur within area |
| [Kogia breviceps](#)<br>Pygmy Sperm Whale [57] | | Species or species habitat may occur within area |

| Current Scientific Name | Status | Type of Presence |
| --- | --- | --- |
| Kogia sima<br>Dwarf Sperm Whale [85043] | | Species or species habitat may occur within area |
| Lagenodelphis hosei<br>Fraser's Dolphin, Sarawak Dolphin [41] | | Species or species habitat may occur within area |
| Lagenorhynchus obscurus<br>Dusky Dolphin [43] | | Species or species habitat likely to occur within area |
| Lissodelphis peronii<br>Southern Right Whale Dolphin [44] | | Species or species habitat may occur within area |
| Megaptera novaeangliae<br>Humpback Whale [38] | | Foraging, feeding or related behaviour known to occur within area |
| Mesoplodon bowdoini<br>Andrew's Beaked Whale [73] | | Species or species habitat may occur within area |
| Mesoplodon densirostris<br>Blainville's Beaked Whale, Dense-beaked Whale [74] | | Species or species habitat may occur within area |
| Mesoplodon ginkgodens<br>Gingko-toothed Beaked Whale, Gingko-toothed Whale, Gingko Beaked Whale [59564] | | Species or species habitat may occur within area |
| Mesoplodon grayi<br>Gray's Beaked Whale, Scamperdown Whale [75] | | Species or species habitat may occur within area |
| Mesoplodon hectori<br>Hector's Beaked Whale [76] | | Species or species habitat may occur within area |
| Mesoplodon layardii<br>Strap-toothed Beaked Whale, Strap-toothed Whale, Layard's Beaked Whale [25556] | | Species or species habitat may occur within area |

| Current Scientific Name | Status | Type of Presence |
| --- | --- | --- |
| Mesoplodon mirus<br>True's Beaked Whale [54] | | Species or species habitat may occur within area |
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |
| Peponocephala electra<br>Melon-headed Whale [47] | | Species or species habitat may occur within area |
| Physeter macrocephalus<br>Sperm Whale [59] | | Species or species habitat may occur within area |
| Pseudorca crassidens<br>False Killer Whale [48] | | Species or species habitat likely to occur within area |
| Stenella attenuata<br>Spotted Dolphin, Pantropical Spotted Dolphin [51] | | Species or species habitat may occur within area |
| Stenella coeruleoalba<br>Striped Dolphin, Euphrosyne Dolphin [52] | | Species or species habitat may occur within area |
| Stenella longirostris<br>Long-snouted Spinner Dolphin [29] | | Species or species habitat may occur within area |
| Steno bredanensis<br>Rough-toothed Dolphin [30] | | Species or species habitat may occur within area |
| Tasmacetus shepherdi<br>Shepherd's Beaked Whale, Tasman Beaked Whale [55] | | Species or species habitat may occur within area |
| Tursiops aduncus<br>Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] | | Species or species habitat likely to occur within area |

| Current Scientific Name | Status | Type of Presence |
|---|---|---|
| Tursiops truncatus s. str.<br>Bottlenose Dolphin [68417] | | Species or species habitat may occur within area |
| Ziphius cavirostris<br>Cuvier's Beaked Whale, Goose-beaked Whale [56] | | Species or species habitat may occur within area |

## Commonwealth Reserves Terrestrial [ Resource Information ]

| Name | State | Type |
|---|---|---|
| Booderee | JBT | National Park (Commonwealth) |
| Booderee | JBT | Botanic Gardens (Commonwealth) |

## Australian Marine Parks [ Resource Information ]

| Park Name | Zone & IUCN Categories |
|---|---|
| Central Eastern | Habitat Protection Zone (IUCN IV) |
| Flinders | Habitat Protection Zone (IUCN IV) |
| Freycinet | Habitat Protection Zone (IUCN IV) |
| Hunter | Habitat Protection Zone (IUCN IV) |
| Jervis | Habitat Protection Zone (IUCN IV) |
| Lord Howe | Habitat Protection Zone (IUCN IV) |
| Lord Howe | Habitat Protection Zone (Lord Howe) (IUCN IV) |
| Beagle | Multiple Use Zone (IUCN VI) |
| East Gippsland | Multiple Use Zone (IUCN VI) |
| Flinders | Multiple Use Zone (IUCN VI) |
| Freycinet | Multiple Use Zone (IUCN VI) |
| Lord Howe | Multiple Use Zone (IUCN VI) |
| Beagle | National Park Zone (IUCN II) |

| Park Name | Zone & IUCN Categories |
|---|---|
| Flinders | National Park Zone (IUCN II) |
| Flinders | National Park Zone (IUCN II) |
| Flinders | National Park Zone (IUCN II) |
| Freycinet | National Park Zone (IUCN II) |
| Freycinet | National Park Zone (IUCN II) |
| Lord Howe | National Park Zone (IUCN II) |
| Freycinet | Recreational Use Zone (IUCN IV) |
| Lord Howe | Recreational Use Zone (IUCN IV) |
| Hunter | Special Purpose Zone (Trawl) (IUCN VI) |
| Jervis | Special Purpose Zone (Trawl) (IUCN VI) |

## Extra Information

### State and Territory Reserves

[ Resource Information ]

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Anderson Islands | Conservation Area | TAS |
| Anser Island | Reference Area | VIC |
| Arthur Bay | Conservation Area | TAS |
| Baawang | Reference Area | VIC |
| Badger Corner | Private Sanctuary | TAS |
| Bancroft Bay - Kalimna G.L.R. | Natural Features Reserve | VIC |
| Barunguba Montague Island | Nature Reserve | NSW |
| Bass Pyramid | Nature Reserve | TAS |
| Batemans | Marine Park | NSW |
| Battery Island | Conservation Area | TAS |
| Baxter Island G.L.R. | Natural Features Reserve | VIC |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Baynes Island | Nature Reserve | TAS |
| Belowla Island | Nature Reserve | NSW |
| Bemm, Goolengook, Arte and Errinundra Rivers | Heritage River | VIC |
| Benedore River | Reference Area | VIC |
| Beowa | National Park | NSW |
| Bermaguee | Nature Reserve | NSW |
| Bermagui | Flora Reserve | NSW |
| Beware Reef | Marine Sanctuary | VIC |
| Biamanga | National Park | NSW |
| Big Green Island | Nature Reserve | TAS |
| Big Silver | Conservation Covenant | TAS |
| Blond Bay G.L.R. | Natural Features Reserve | VIC |
| Blond Bay W.R. | Natural Features Reserve | VIC |
| Blyth Point | Conservation Area | TAS |
| Boat Harbour | Aquatic Reserve | NSW |
| Boat Harbour Road Killiecrankie | Conservation Covenant | TAS |
| Boobyalla | Conservation Area | TAS |
| Bournda | National Park | NSW |
| Boxen Island | Conservation Area | TAS |
| Briggs Islet | Conservation Area | TAS |
| Brodribb River F.F.R | Nature Conservation Reserve | VIC |
| Brougham Sugarloaf | Conservation Area | TAS |
| Broulee Island | Nature Reserve | NSW |
| Brush Island | Nature Reserve | NSW |
| Bun Beetons Point | Conservation Area | TAS |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Bushrangers Bay | Aquatic Reserve | NSW |
| Cabbage Tree Creek F.R | Nature Conservation Reserve | VIC |
| Cape Banks | Aquatic Reserve | NSW |
| Cape Conran Coastal Park | Conservation Park | VIC |
| Cape Howe | Wilderness Zone | VIC |
| Cape Howe | Marine National Park | VIC |
| Cape Portland | Conservation Area | TAS |
| Cape Portland | Private Sanctuary | TAS |
| Cat Island | Conservation Area | TAS |
| Chalky Island | Conservation Area | TAS |
| Chappell Islands | Nature Reserve | TAS |
| Clyde River | National Park | NSW |
| Cone Islet | Conservation Area | TAS |
| Conjola | National Park | NSW |
| Craggy Island | Conservation Area | TAS |
| Croajingolong | National Park | VIC |
| Cullendulla Creek | Nature Reserve | NSW |
| Curtis Island | Nature Reserve | TAS |
| Darling Range | Conservation Area | TAS |
| Darriman H29 B.R | Natural Features Reserve | VIC |
| Devils Tower | Nature Reserve | TAS |
| Dharawal | National Park | NSW |
| Dharawal | Nature Reserve | NSW |
| Double Creek | Natural Catchment Area | VIC |
| Double Sandy Point | Conservation Area | TAS |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Doughboy Island | Conservation Area | TAS |
| Eagles Claw | Nature Reserve | NSW |
| East Gippsland Coastal streams | Natural Catchment Area | VIC |
| East Kangaroo Island | Nature Reserve | TAS |
| East Moncoeur Island | Conservation Area | TAS |
| Egg Beach | Conservation Area | TAS |
| Emita | Nature Recreation Area | TAS |
| Eurobodalla | National Park | NSW |
| Ewing Morass W.R | Natural Features Reserve | VIC |
| Fannys Bay | Conservation Area | TAS |
| First and Second Islands F.R. | Nature Conservation Reserve | VIC |
| Five Islands | Nature Reserve | NSW |
| Five Mile Bluff | Conservation Area | TAS |
| Flannagan Island G.L.R. | Natural Features Reserve | VIC |
| Foochow | Conservation Area | TAS |
| Forsyth Island | Conservation Area | TAS |
| Foster Islands | Nature Reserve | TAS |
| Fotheringate Bay | Conservation Area | TAS |
| Fraser Island G.L.R. | Natural Features Reserve | VIC |
| Fresh-water Swamp, Woodside Beach W.R | Natural Features Reserve | VIC |
| Garawarra | State Conservation Area | NSW |
| Gippsland Lakes Coastal Park | Conservation Park | VIC |
| Goose Island | Conservation Area | TAS |
| Great Musselroe River | Conservation Area | TAS |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Gulaga | National Park | NSW |
| Gull Island | Conservation Area | TAS |
| Heathcote | National Park | NSW |
| Hogan Group | Conservation Area | TAS |
| Holts Point | Conservation Area | TAS |
| Humbug Point | Nature Recreation Area | TAS |
| Illawarra Escarpment | State Conservation Area | NSW |
| Illawong | Nature Reserve | NSW |
| Isabella Island | Nature Reserve | TAS |
| Jack Smith Lake W.R | Natural Features Reserve | VIC |
| Jacksons Cove | Conservation Area | TAS |
| Jervis Bay | National Park | NSW |
| Jervis Bay | Marine Park | NSW |
| Kamay Botany Bay | National Park | NSW |
| Kent Group | National Park | TAS |
| Killalea | Regional Park | NSW |
| Killiecrankie | Nature Recreation Area | TAS |
| Kuhns Rd Memana | Conservation Covenant | TAS |
| Lackrana | Conservation Area | TAS |
| Lake Coleman W.R | Natural Features Reserve | VIC |
| Lake Corringle W.R | Natural Features Reserve | VIC |
| Lake Curlip W.R. | Natural Features Reserve | VIC |
| Lake Denison W.R | Natural Features Reserve | VIC |
| Lake Tyers S.P. | State Park | VIC |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Lands End | Conservation Covenant | TAS |
| Lefroy | Regional Reserve | TAS |
| Lighthouse Point | Conservation Area | TAS |
| Lime Pit Road | Conservation Area | TAS |
| Little Chalky Island | Conservation Area | TAS |
| Little Dog Island | Game Reserve | TAS |
| Little Green Island | Conservation Area | TAS |
| Little Island | Conservation Area | TAS |
| Little Silver | Conservation Covenant | TAS |
| Little Swan Island | Nature Reserve | TAS |
| Little Waterhouse Island | Nature Reserve | TAS |
| Logan Lagoon | State Reserve | TAS |
| Logan Lagoon | Conservation Area | TAS |
| Logans Lagoon | Conservation Covenant | TAS |
| Long Island | Conservation Area | TAS |
| Lord Howe Island | Permanent Park Preserve | NSW |
| Lord Howe Island | Marine Park | NSW |
| Low Islets | Nature Reserve | TAS |
| Low Point | Conservation Area | TAS |
| Lughrata | Conservation Covenant | TAS |
| Mallacoota B.R. | Natural Features Reserve | VIC |
| Marriott Reef | Conservation Area | TAS |
| Marshall Beach | Conservation Area | TAS |
| Meroo | National Park | NSW |
| Metung B.R. | Natural Features Reserve | VIC |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Mile Island | Conservation Area | TAS |
| Mimosa Rocks | National Park | NSW |
| Moriarty Rocks | Nature Reserve | TAS |
| Morley Swamp G.L.R. | Natural Features Reserve | VIC |
| Mount Tanner | Nature Recreation Area | TAS |
| Mount William | National Park | TAS |
| Mulligans Hill | Conservation Area | TAS |
| Mulligans Hill | Conservation Covenant | TAS |
| Mumbulla | Flora Reserve | NSW |
| Murrah | Flora Reserve | NSW |
| Murramarang | Aboriginal Area | NSW |
| Murramarang | National Park | NSW |
| Musselroe Bay | Conservation Area | TAS |
| Musselroe Bay | Conservation Covenant | TAS |
| Nadgee | Nature Reserve | NSW |
| Narrawallee Creek | Nature Reserve | NSW |
| Neds Reef | Conservation Area | TAS |
| Night Island | Conservation Area | TAS |
| Ninety Mile Beach | Marine National Park | VIC |
| Ninth Island | Conservation Area | TAS |
| Nooramunga Marine & Coastal Park | National Parks Act Schedule 4 park or reserve | VIC |
| NOORAMUNGA STATE FAUNAL RESERVE | Nature Conservation Reserve | VIC |
| North East Islet | Nature Reserve | TAS |
| North East River | Game Reserve | TAS |
| Nungurner B.R. | Natural Features Reserve | VIC |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Nyerimilang Park G.L.R. | Natural Features Reserve | VIC |
| Oyster Rocks | Conservation Area | TAS |
| Palana Beach | Nature Recreation Area | TAS |
| Pardoe Northdown | Conservation Area | TAS |
| Pasco Group | Conservation Area | TAS |
| Passage Island | Conservation Area | TAS |
| Patriarchs | Private Sanctuary | TAS |
| Patriarchs | Conservation Area | TAS |
| Point Hicks | Marine National Park | VIC |
| Prime Seal Island | Conservation Area | TAS |
| Rame Head | Remote and Natural Area - Schedule 6, National Parks Act | VIC |
| Ram Island | Conservation Area | TAS |
| Raymond Island G.L.R. | Natural Features Reserve | VIC |
| Reedy Lagoon | Private Nature Reserve | TAS |
| Reef Island | Conservation Area | TAS |
| Rigby Island G.L.R. | Natural Features Reserve | VIC |
| Ringarooma Tier - Rushy Lagoon | Conservation Covenant | TAS |
| Rodondo Island | Nature Reserve | TAS |
| Royal | National Park | NSW |
| Roydon Island | Conservation Area | TAS |
| Salt Lake - Backwater Morass G.L.R. | Natural Features Reserve | VIC |
| Sandpatch | Wilderness Zone | VIC |
| Seal Creek | Reference Area | VIC |
| Seal Islands W.R. | Nature Conservation Reserve | VIC |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Sellars Lagoon | Game Reserve | TAS |
| Sentinel Island | Conservation Area | TAS |
| Settlement Point | Conservation Area | TAS |
| Shag Lagoon | Conservation Area | TAS |
| Shiprock | Aquatic Reserve | NSW |
| Single Tree Plain | Conservation Area | TAS |
| Sister Islands | Conservation Area | TAS |
| Snowy River | Heritage River | VIC |
| Southern Wilsons Promontory | Remote and Natural Area - Schedule 6, National Parks Act | VIC |
| South Pats River | Conservation Area | TAS |
| Spike Island | Conservation Area | TAS |
| Steel Bay - Newland Backwater G.L.R. | Natural Features Reserve | VIC |
| St Helens | Conservation Area | TAS |
| Storehouse Island | Conservation Area | TAS |
| Strzelecki | National Park | TAS |
| Sugarloaf Rock | Conservation Area | TAS |
| Summer Camp | Conservation Area | TAS |
| Sydney Cove | Historic Site | TAS |
| Tanja | Flora Reserve | NSW |
| Tenth Island | Nature Reserve | TAS |
| The Dock | Conservation Covenant | TAS |
| The Dutchman | Conservation Area | TAS |
| The Lakes | National Park | VIC |
| Tollgate Islands | Nature Reserve | NSW |
| Towra Point | Nature Reserve | NSW |

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Towra Point | Aquatic Reserve | NSW |
| Trousers Point Beach | Conservation Area | TAS |
| Unnamed (Badger Corner) | Conservation Area | TAS |
| Vansittart Island | Conservation Area | TAS |
| Waterhouse | Conservation Area | TAS |
| Waterhouse Island | Conservation Area | TAS |
| West Moncoeur Island | Nature Reserve | TAS |
| White Beach | Conservation Area | TAS |
| William Hunter F.R | Nature Conservation Reserve | VIC |
| Wilsons Promontory | National Park | VIC |
| Wilsons Promontory | Marine National Park | VIC |
| Wilsons Promontory Islands | Remote and Natural Area - Schedule 6, National Parks Act | VIC |
| Wilsons Promontory Marine Reserve | National Parks Act Schedule 4 park or reserve | VIC |
| Wingaroo | Nature Reserve | TAS |
| Wright Rock | Nature Reserve | TAS |
| Wybalenna Island | Conservation Area | TAS |
| Youngs Creek | Conservation Area | TAS |

## Regional Forest Agreements

[ Resource Information ]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

| RFA Name | State |
|---|---|
| East Gippsland | Victoria |
| Eden | New South Wales |
| Gippsland | Victoria |
| Southern NSW | New South Wales |

| RFA Name | State |
|---|---|
| Tasmanian | Tasmania |

## EPBC Act Referrals

[ Resource Information ]

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Albion Park Quarry Extraction Area Stage 7 Extension | 2020/8871 | | Post-Approval |
| Albion Park Rail Bypass, NSW | 2017/7909 | | Post-Approval |
| Aurora Green Offshore Wind Farm Preliminary Surveys | 2024/09968 | | Completed |
| Bass Strait Blue Economy Zone, Marine Aquaculture Trial in Commonwealth Waters | 2024/09946 | | Completed |
| Bell Bay Wind Farm | 2024/09868 | | Assessment |
| Bermagui Golf Club Proposed Subdivision (Stages 3-8) | 2022/09242 | | Post-Approval |
| Blue Mackerel North Offshore Wind Farm Marine Surveys | 2024/09934 | | Completed |
| Blue Marlin Offshore Wind Energy Project | 2023/09532 | | Completed |
| Broulee Beach Estate residential development subdivision | 2023/09551 | | Completed |
| Dunmore Hard Rock Quarry Modification 13 | 2022/09319 | | Post-Approval |
| Dunmore Lakes Sand Project Modification 2 Pond 5B extraction | 2023/09552 | | Completed |
| Eastern Rise Offshore Wind Project | 2023/09544 | | Assessment |
| Eastern Rise Offshore Wind Project Initial Marine Field Investigations | 2023/09555 | | Completed |
| Eurobodalla Regional Hospital | 2023/09506 | | Completed |
| Gippsland Dawn Offshore Wind Project Geophysical and Geotechnical Investigations | 2024/10030 | | Referral Decision |
| Gippsland Offshore Wind Farm Marine Survey Investigations | 2023/09682 | | Completed |
| Gippsland Offshore Wind Transmission 2GW Project | 2024/09980 | | Assessment |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Gippsland Skies Offshore Wind Project marine surveys (investigations) | 2024/09991 | | Referral Decision |
| Golf Course Extension | 2001/215 | | Completed |
| Greater Gippsland Offshore Wind Project | 2022/09379 | | Assessment |
| Greater Gippsland Offshore Wind Project Initial Marine Field Investigations | 2022/09374 | | Completed |
| Hawaiki Nui Submarine Cable - Marine Route Survey and Cable Installation | 2024/09814 | | Completed |
| Hunter-Central Coast Offshore Energy Initial Marine Field Investigations | 2023/09480 | | Completed |
| Hunter Central-Coast Offshore Energy Project | 2023/09478 | | Assessment |
| Krauatungalung Walk | 2024/10043 | | Completed |
| Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia East | 2024/09795 | | Completed |
| Mirador Residential Development Stages 8 & 9 and 13 | 2023/09685 | | Assessment |
| Navigator North Offshore Wind Farm ? Early Marine Survey Investigations | 2024/10093 | | Referral Decision |
| North East Wind - construction and operation of wind turbines and associated infrastructure | 2022/09388 | | Assessment |
| PEP11 Site Survey | 2009/5093 | | Completed |
| Preliminary Site Investigations for Great Eastern Offshore Wind Project | 2024/09890 | | Referral Decision |
| Princes Highway upgrade program - Milton Ulladulla bypass | 2024/10023 | | Assessment |
| Project 2 Witchcliffe - proposed vineyard & dam | 2005/2263 | | Completed |
| Proposed residential subdivision | 2023/09632 | | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| | | | |
| Residential Development, Lot 172 DP 755923 and Lot 823 DP 247285, Manyana, NSW | 2020/8704 | | Post-Approval |
| Seadragon Offshore Wind, Early Marine Surveys | 2023/09670 | | Completed |
| Seadragon Offshore Wind Farm | 2022/9163 | | Completed |
| Shearwater 2D and 3D marine seismic survey | 2005/2180 | | Completed |
| SMAP telecommunications submarine cable installation | 2024/09989 | | Completed |
| Snug Cove Maritime Precinct | 2024/09994 | | Completed |
| South East Australia Carbon Capture and Storage Project, Commonwealth waters | 2023/09732 | | Completed |
| South East Australia Carbon Capture and Storage Project, Onshore and State waters | 2023/09731 | | Completed |
| South Pacific Offshore Wind Project | 2023/09605 | | Completed |
| supersonic missile launch facility | 2000/120 | | Completed |
| Action clearly unacceptable | | | |
| Lord Howe Island Renewable Energy Project - Stage 2 Wind Turbines | 2016/7790 | Action Clearly Unacceptable | Completed |
| Controlled action | | | |
| Develop an Offshore Tidal Energy Facility | 2008/4518 | Controlled Action | Completed |
| Expansion of the NRE No. 1 Colliery Coal Mine in the Southern Coalfield of NSW | 2013/6838 | Controlled Action | Completed |
| Extension of Underground Mining Operations at The Bulli Seam Operations | 2010/5350 | Controlled Action | Post-Approval |
| Gippsland Lakes Mosquito Control Aerial /Hovercraft Spraying | 2001/491 | Controlled Action | Completed |
| Golden Beach Gas Project | 2019/8513 | Controlled Action | Post-Approval |
| Kurnell Sand Extraction and Backfilling Proposal | 2002/631 | Controlled Action | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Controlled action | | | |
| Lord Howe Island Rodent Eradication Project, NSW | 2016/7703 | Controlled Action | Post-Approval |
| Low Head Wind Farm, TAS | 2012/6450 | Controlled Action | Post-Approval |
| Musselroe Wind Farm | 2002/683 | Controlled Action | Post-Approval |
| North Manyana Subdivision, NSW | 2021/8948 | Controlled Action | Further Information Request |
| Pilot Offshore Artificial Reefs | 2008/4176 | Controlled Action | Post-Approval |
| Russell Vale Colliery Revised Underground Expansion Project | 2020/8702 | Controlled Action | Post-Approval |
| Russell Vale Colliery Underground Expansion Project, NSW | 2014/7268 | Controlled Action | Completed |
| Sand Reclamation to Towra Beach | 2003/1085 | Controlled Action | Post-Approval |
| Star of the South Offshore Wind Farm Project | 2020/8650 | Controlled Action | Guidelines Issued |
| Tasmania Natural Gas Project - Stage 2 | 2001/211 | Controlled Action | Post-Approval |
| Thomson River Mercury Recovery Project | 2010/5734 | Controlled Action | Completed |
| Upgrade of surface facilities at NRE No.1 Colliery | 2011/5891 | Controlled Action | Post-Approval |
| Yolla Gas Field (TRL1) Development | 2001/321 | Controlled Action | Post-Approval |
| Not controlled action | | | |
| 2004/2005 drilling program for exploration and production (VIC 01-06, 09-11, 16, 18 & 19 and VIC/RL | 2003/1282 | Not Controlled Action | Completed |
| 2D seismic Survey in VIC/P55, VIC/RL2 and VIC/P41 | 2004/1876 | Not Controlled Action | Completed |
| 55m lattice tower & infrastructure | 2003/1159 | Not Controlled Action | Completed |
| Acquistion of 2D seismic data in State Waters adjacent to Ninety Mile Beach-VIC/P39(V) | 2004/1889 | Not Controlled Action | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action | | | |
| Air Traffic Control Infrastructure Facility | 2007/3872 | Not Controlled Action | Completed |
| Angas and Galloway Exploration Wells VIC/P39(v) | 2005/2330 | Not Controlled Action | Completed |
| APX-East sub-sea telecommunications & data cable system | 2014/7139 | Not Controlled Action | Completed |
| Australia-USA Southern Cross NEXT fibre optic cable installation | 2019/8405 | Not Controlled Action | Completed |
| Basker-Manta-Gummy Oil Development | 2011/6052 | Not Controlled Action | Completed |
| Basker-Manta-Gummy Oil Field Development | 2007/3402 | Not Controlled Action | Completed |
| Basker-Manta Oil Field Development | 2005/2026 | Not Controlled Action | Completed |
| Bass Basin - Pee Jay-1 - Drilling Program | 2007/3908 | Not Controlled Action | Completed |
| Batemans Bay Marina Redevelopment | 2008/4265 | Not Controlled Action | Completed |
| Beardie-1 Field wildcat oil well | 2001/505 | Not Controlled Action | Completed |
| Biodiversity Impacts Audit | 2011/6191 | Not Controlled Action | Completed |
| Botany Bay Cable Project | 2007/3552 | Not Controlled Action | Completed |
| Carbon Black Plant Upgrade | 2006/2785 | Not Controlled Action | Completed |
| Caswell Street - Moruya East | 2020/8781 | Not Controlled Action | Completed |
| Clearance of native vegetation to create fire breaks | 2004/1534 | Not Controlled Action | Completed |
| Communications tower extension | 2003/1099 | Not Controlled Action | Completed |
| Construction of a high-capacity fibre optic submarine cable | 2006/2914 | Not Controlled Action | Completed |
| Construction of an ocean access boat ramp at Bastion Point | 2004/1407 | Not Controlled Action | Completed |
| Construction Of Two New Fuel Processing Plants On Existing Site | 2003/1243 | Not Controlled Action | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action | | | |
| Continental slope research/mid-NSW/Commonwealth Waters | 2006/3026 | Not Controlled Action | Completed |
| Cunninghame Arm Redevelopment (Stage 3) | 2002/618 | Not Controlled Action | Completed |
| Development of Kipper gas field within Vic/L3, Vic/L4 Vic/RL2 | 2005/2484 | Not Controlled Action | Completed |
| Development of Turrum Oil Field and associated infrastructure | 2003/1204 | Not Controlled Action | Completed |
| DOFA weed eradication program at Goorooyaroo NSW | 2003/1270 | Not Controlled Action | Completed |
| Dredging of Tuross Lake channel and depositon of spoil in lake | 2004/1554 | Not Controlled Action | Completed |
| Drilling and side track completion at Baleen gas production well in Production Licence area VIC/L21 | 2004/1535 | Not Controlled Action | Completed |
| Drilling of 'Culverin' oil exploration well, permit VIC/P56 | 2005/2279 | Not Controlled Action | Completed |
| Drilling of Scallop-1 Exploration Well | 2003/917 | Not Controlled Action | Completed |
| Duke Cogeneration Plant Port Kembla | 2001/179 | Not Controlled Action | Completed |
| East Pilchard exploration well | 2001/137 | Not Controlled Action | Completed |
| Eden Wind Farm | 2011/6037 | Not Controlled Action | Completed |
| Exploration Drilling Well Trefoil-1 | 2003/1058 | Not Controlled Action | Completed |
| Extension to Lucas Heights production building | 2003/1114 | Not Controlled Action | Completed |
| George Bass Drive Lilli Pilli Road Realignment | 2021/8876 | Not Controlled Action | Completed |
| Gippsland Basin Seismic Programme | 2004/1866 | Not Controlled Action | Completed |
| Gippsland Lakes Composting Toilet Program | 2000/66 | Not Controlled Action | Completed |
| Hayes Hill Ridge Wind Farm | 2007/3437 | Not Controlled Action | Completed |
| Hemingway1/Oil Exploration | 2001/177 | Not Controlled Action | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action | | | |
| Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia | 2015/7522 | Not Controlled Action | Completed |
| Increase of Road Access to 24 Hours a Day 7 Days a Week | 2008/4206 | Not Controlled Action | Completed |
| INDIGO Central Submarine Telecommunications Cable | 2017/8127 | Not Controlled Action | Completed |
| Industrial Subdivision | 2004/1859 | Not Controlled Action | Completed |
| Industrial Subdivision, 262-276 Captain Cook Drive | 2004/1899 | Not Controlled Action | Completed |
| Installation of optic fibre cable from Inverloch, Victoria to Stanley, Tasmania | 2002/906 | Not Controlled Action | Completed |
| Installation of Sydney-Guam Submarine Cable | 2007/3848 | Not Controlled Action | Completed |
| Installation of viewing platform | 2005/2138 | Not Controlled Action | Completed |
| Japan-Guam-Australia Sunshine Coast Branch Marine Cable Route Survey (JGA) QLD | 2018/8373 | Not Controlled Action | Completed |
| Lake Illawarra entrance works, Stage 2 | 2004/1696 | Not Controlled Action | Completed |
| Longtom-3 Gas Appraisal Well, VIC/P54 | 2005/2494 | Not Controlled Action | Completed |
| Longtom Gas Pipeline Development, VIC/P54 | 2006/3072 | Not Controlled Action | Completed |
| Lord Howe Island Solar Photovoltaic Project | 2015/7544 | Not Controlled Action | Completed |
| Lot 2 Foreshore Drive, in-filling pit, Port Kembla, NSW | 2018/8374 | Not Controlled Action | Completed |
| Marlin-Snapper Gas Pipeline Project | 2006/3197 | Not Controlled Action | Completed |
| Melville 1 Oil Exploration Well | 2001/167 | Not Controlled Action | Completed |
| Metropolitan coal project - continutaion, upgrade and extension of underground m | 2008/4519 | Not Controlled Action | Completed |
| Milton/Ulladulla Sewerage Scheme | 2001/251 | Not Controlled Action | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action | | | |
| Northright-1 Exploration Well | 2001/209 | Not Controlled Action | Completed |
| Noxious weed removal and controlled burn | 2003/1272 | Not Controlled Action | Completed |
| Offshore Petroleum Exploration | 2001/289 | Not Controlled Action | Completed |
| Offshore Seismic Survey | 2001/498 | Not Controlled Action | Completed |
| Pilot study - Short term captive holding of 22 LHI Woodhen & 10 LHI Currawong, Lord Howe Island | 2013/6847 | Not Controlled Action | Completed |
| Princes Highway Upgrade, NSW | 2013/6968 | Not Controlled Action | Completed |
| Pump station upgrades and rising main construction, Lakes Entrance, Victoria | 2016/7646 | Not Controlled Action | Completed |
| Rabbit Control Anzac Rifle Range | 2005/1940 | Not Controlled Action | Completed |
| Redevelopment of the Cronulla Sharks Leagues Club | 2011/5889 | Not Controlled Action | Completed |
| Redevelopment of the former Prince Henry Hospital Site | 2003/1048 | Not Controlled Action | Completed |
| Sandon Point Residential Development | 2001/458 | Not Controlled Action | Completed |
| Seismic Station | 2007/3301 | Not Controlled Action | Completed |
| Shellcove Boatharbour Marine, Commercial & Residential Development | 2007/3935 | Not Controlled Action | Completed |
| Shipment of Spent Nuclear Fuel to USA | 2007/3672 | Not Controlled Action | Completed |
| Ship to ship crude oil lightering | 2008/4279 | Not Controlled Action | Completed |
| Ship to Ship Crude Oil Lightering | 2001/271 | Not Controlled Action | Completed |
| Sole-2 appraisal gas well, VIC/RL3 | 2002/636 | Not Controlled Action | Completed |
| Sole gas field development | 2003/937 | Not Controlled Action | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action | | | |
| Spikey Beach 1, West Triton Drilling Program, Bass Basin Permit T/38P | 2007/3914 | Not Controlled Action | Completed |
| Subdivision for Residential development | 2004/1823 | Not Controlled Action | Completed |
| Subdivision of 68 ha into two blocks, construction of access road and house site | 2004/1531 | Not Controlled Action | Completed |
| Sydney Desalination Plant | 2005/2331 | Not Controlled Action | Completed |
| Taleb Property Pty Ltd, Tempe Tyres Warehouse project, Captain Cook Drive, Kurnell | 2017/8068 | Not Controlled Action | Completed |
| The 3000 Acres, clearing and development of native vegetation | 2006/3199 | Not Controlled Action | Completed |
| Turrum Phase 2 Development Project | 2008/4191 | Not Controlled Action | Completed |
| Undertake a controlled burn of the Eastern Suburbs Banksia Scrub at Byrne Cresce | 2004/1728 | Not Controlled Action | Completed |
| Upgrade of Captain Cook Drive | 2012/6286 | Not Controlled Action | Completed |
| Valentine Substation | 2005/1961 | Not Controlled Action | Completed |
| wastewater collection systems and pumping stations | 2001/511 | Not Controlled Action | Completed |
| West Triton Drilling Program - Gippsland Basin | 2007/3915 | Not Controlled Action | Completed |
| Wreck Bay Housing Development | 2001/299 | Not Controlled Action | Completed |
| Not controlled action (particular manner) | | | |
| 2D & 3D seismic survey T/39P | 2005/2237 | Not Controlled Action (Particular Manner) | Post-Approval |
| 2D marine seismic survey in PEP-11 permit area, NSW | 2002/879 | Not Controlled Action (Particular Manner) | Post-Approval |
| 2D Seismic Aquisition Survey | 2008/4041 | Not Controlled Action (Particular Manner) | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| 2D Seismic Survey | 2008/4066 | Not Controlled Action (Particular Manner) | Post-Approval |
| 2D Seismic Survey | 2008/4131 | Not Controlled Action (Particular Manner) | Post-Approval |
| 2D seismic survey in the Sole gas field and adjacent acreage in the Gippsland Basin (VIC RL/3 & VIC/ | 2002/871 | Not Controlled Action (Particular Manner) | Post-Approval |
| 2D seismic survey Permit Area VIC/P49 | 2006/2943 | Not Controlled Action (Particular Manner) | Post-Approval |
| 2D Seismic Survey Program in Bass Strait | 2008/4040 | Not Controlled Action (Particular Manner) | Post-Approval |
| 3D Seismic Survey | 2008/4528 | Not Controlled Action (Particular Manner) | Post-Approval |
| Apache 3D seismic exploration survey | 2006/3146 | Not Controlled Action (Particular Manner) | Post-Approval |
| Aroo Chappell 3D seismic survey | 2010/5701 | Not Controlled Action (Particular Manner) | Post-Approval |
| Bass Basin 2D and 3D seismic surveys (T/38P & T/37P) | 2007/3650 | Not Controlled Action (Particular Manner) | Post-Approval |
| Bream 3D seismic survey | 2006/2556 | Not Controlled Action (Particular Manner) | Post-Approval |
| Construction and operation of a subsea telecommunications cable, between Sydney and New Zealand | 2015/7480 | Not Controlled Action (Particular Manner) | Post-Approval |
| Dalrymple 3D Seismic Survey | 2010/5680 | Not Controlled Action (Particular | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| | | Manner) | |
| Drilling of one exploration well | 2010/5664 | Not Controlled Action (Particular Manner) | Post-Approval |
| Eden Breakwater Wharf extension, NSW | 2015/7582 | Not Controlled Action (Particular Manner) | Post-Approval |
| Eden Breakwater Wharf Extension, NSW | 2016/7828 | Not Controlled Action (Particular Manner) | Completed |
| Exploration drilling of the Craigow-1 and Tolpuddle-1 wells | 2010/5725 | Not Controlled Action (Particular Manner) | Post-Approval |
| Gas Pipeline | 2000/20 | Not Controlled Action (Particular Manner) | Post-Approval |
| Gippsland 2D Marine Seismic Survey - VIC/P-63, VIC/P-64 and T/46P | 2009/5241 | Not Controlled Action (Particular Manner) | Post-Approval |
| Golden Beach gas field development | 2003/1031 | Not Controlled Action (Particular Manner) | Post-Approval |
| Hawaiki Fibre-Optic Submarine Cable installation | 2016/7765 | Not Controlled Action (Particular Manner) | Post-Approval |
| Illawarra coal seam gas exploration drilling and gas monitoring program | 2011/5821 | Not Controlled Action (Particular Manner) | Post-Approval |
| INDIGO Marine Cable Route Survey (INDIGO) | 2017/7996 | Not Controlled Action (Particular Manner) | Post-Approval |
| Inspection of project vessels for presence of invasive marine pests in Commonwealth waters off Victo | 2012/6362 | Not Controlled Action (Particular Manner) | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| International fibre optic submarine cable installation, between Sydney and Honiara, Solomon Islands | 2015/7502 | Not Controlled Action (Particular Manner) | Post-Approval |
| Japan-Guam-Australia (JGA) Fibre Optic Cable project | 2016/7795 | Not Controlled Action (Particular Manner) | Post-Approval |
| Kiama Post Office alterations | 2006/2940 | Not Controlled Action (Particular Manner) | Post-Approval |
| Labatt 3D Seismic Survey T/47P Bass Strait | 2007/3759 | Not Controlled Action (Particular Manner) | Post-Approval |
| Lake Illawarra Entrance Works (stage 2) | 2005/1997 | Not Controlled Action (Particular Manner) | Post-Approval |
| Lakes Entrance Sand Management Program Trial Dredging | 2007/3852 | Not Controlled Action (Particular Manner) | Post-Approval |
| Lakes Entrance Sand Management Program Trial Dredging | 2007/3694 | Not Controlled Action (Particular Manner) | Completed |
| Longtom-5 Offshore Production Drilling (Vic/L29), VIC | 2012/6498 | Not Controlled Action (Particular Manner) | Post-Approval |
| Longtom South -1 Exploration Drilling | 2011/6217 | Not Controlled Action (Particular Manner) | Post-Approval |
| Lowering Blinky Beach Sand Dune to Comply with CASA Regulations for Runway 28, Lord Howe Island | 2012/6599 | Not Controlled Action (Particular Manner) | Post-Approval |
| Maintenance dredging of 150,000 cubic metres of sediment in Burnie Port and du | 2004/1569 | Not Controlled Action (Particular Manner) | Post-Approval |
| Maintenance Dredging of Oceanic Sand | 2011/5932 | Not Controlled Action (Particular | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| | | Manner) | |
| NBN Transit Fibre Minnamurra Wetlands Section | 2011/5900 | Not Controlled Action (Particular Manner) | Post-Approval |
| Non-exclusive 3-D Marine Seismic Survey, Bass Strait | 2002/775 | Not Controlled Action (Particular Manner) | Post-Approval |
| Northern Fields 3D Seismic Survey | 2001/140 | Not Controlled Action (Particular Manner) | Post-Approval |
| Pelican 3D Marine Seismic Survey, Gippsland Basin, Vic | 2017/8097 | Not Controlled Action (Particular Manner) | Post-Approval |
| Removal of Tasmanian blue gums | 2004/1356 | Not Controlled Action (Particular Manner) | Post-Approval |
| Rockhopper-1 and Trefoil-2 Exploration Drilling in Permit Area T/18P | 2009/4776 | Not Controlled Action (Particular Manner) | Post-Approval |
| Seismic Exploration in Permit VIC/P41 | 2001/267 | Not Controlled Action (Particular Manner) | Post-Approval |
| Seismic Survey | 2001/206 | Not Controlled Action (Particular Manner) | Post-Approval |
| Seismic survey, Gippsland Basin | 2001/525 | Not Controlled Action (Particular Manner) | Post-Approval |
| Soil and Organic Recycling Facility | 2005/2216 | Not Controlled Action (Particular Manner) | Post-Approval |
| Southern Cross Australia-New Zealand-America marine acoustic survey of the seabed | 2017/7863 | Not Controlled Action (Particular Manner) | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| Southern Flanks 2D Marine Seismic Survey | 2010/5288 | Not Controlled Action (Particular Manner) | Post-Approval |
| Southern Margins 3D Seismic Survey VIC/P55 | 2007/3780 | Not Controlled Action (Particular Manner) | Post-Approval |
| Survey and Sampling of Lord Howe Island Reef | 2008/3986 | Not Controlled Action (Particular Manner) | Post-Approval |
| Tap Oil Ltd Molson 2D Seismic Survey T47P | 2008/3967 | Not Controlled Action (Particular Manner) | Post-Approval |
| Tasman Global Access submarine cable marine route survey, Narrabeen, NSW | 2015/7442 | Not Controlled Action (Particular Manner) | Post-Approval |
| Transport of intermediate level radioactive waste to Lucas Heights, NSW | 2015/7437 | Not Controlled Action (Particular Manner) | Post-Approval |
| Transport of OPAL Spent Fuel to France in 2018 and 2025 | 2016/7841 | Not Controlled Action (Particular Manner) | Post-Approval |
| Tuskfish 3D Seismic Survey, Bass Strait | 2002/864 | Not Controlled Action (Particular Manner) | Post-Approval |
| Waterfront Facility at HMAS Creswell | 2002/658 | Not Controlled Action (Particular Manner) | Post-Approval |
| West Seahorse Oil Development Project, Commonwealth waters offshore Victoria | 2013/6973 | Not Controlled Action (Particular Manner) | Post-Approval |
| Referral decision | | | |
| All actions taken in response to the current severe bushfires in Victoria. | 2009/4787 | Referral Decision | Completed |
| Beardie-1 Field wildcat oil well | 2001/469 | Referral Decision | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Referral decision | | | |
| Beecroft Weapons Range Visitors Centre | 2004/1322 | Referral Decision | Completed |
| Breeding program for Grey Nurse Sharks | 2007/3245 | Referral Decision | Completed |
| Darymple 3D Seismic Survey, Petroleum Exploration Permit T/41P | 2010/5322 | Referral Decision | Completed |
| Holloman 2010 Vic/P60 3D Seismic Acquisition Survey Program | 2009/5251 | Referral Decision | Completed |
| Hybrid Renewable Energy (Solar & Wind Turbine), Lord Howe Island, NSW | 2014/7231 | Referral Decision | Completed |
| Longtom 5 Offshore Production Drilling (VIC/L29) | 2012/6404 | Referral Decision | Completed |
| Longtom-5 Offshore Production Drilling (Vic/L29) | 2012/6413 | Referral Decision | Completed |
| Mineral Exploration Ringarooma Bay | 2012/6508 | Referral Decision | Completed |
| PEP11 Drilling Program | 2009/5094 | Referral Decision | Completed |
| Relocation of Grey-Headed Flying-Fox Colony | 2008/4568 | Referral Decision | Completed |
| Shark 3D Seismic Survey | 2007/3294 | Referral Decision | Completed |
| Stage 2 Masonry Plant, Port Kembla, NSW | 2014/7247 | Referral Decision | Completed |
| Stanton 3D Marine Seismic Survey | 2013/6764 | Referral Decision | Completed |
| Upgrade of Corringle Road | 2009/4825 | Referral Decision | Completed |

## Key Ecological Features [ Resource Information ]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

| Name | Region |
|---|---|
| Big Horseshoe Canyon | South-east |
| Canyons on the eastern continental slope | Temperate east |

| Name | Region |
|---|---|
| Elizabeth and Middleton reefs | Temperate east |
| Lord Howe seamount chain | Temperate east |
| Seamounts South and east of Tasmania | South-east |
| Shelf rocky reefs | Temperate east |
| Tasman Front and eddy field | Temperate east |
| Tasmantid seamount chain | Temperate east |
| Upwelling East of Eden | South-east |

## Biologically Important Areas

[ Resource Information ]

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Dolphins | | |
| Tursiops aduncus<br>Indo-Pacific/Spotted Bottlenose Dolphin [68418] | Breeding | Likely to occur |
| Tursiops aduncus<br>Indo-Pacific/Spotted Bottlenose Dolphin [68418] | Breeding | Known to occur |
| Seabirds | | |
| Anous minutus<br>Black Noddy [824] | Breeding | Known to occur |
| Anous minutus<br>Black Noddy [824] | Foraging | Likely to occur |
| Anous stolidus<br>Common Noddy [825] | Breeding | Known to occur |
| Anous stolidus<br>Common Noddy [825] | Foraging | Likely to occur |
| Ardenna carneipes<br>Flesh-footed Shearwater [82404] | Breeding | Known to occur |
| Ardenna carneipes<br>Flesh-footed Shearwater [82404] | Foraging | Known to occur |
| Ardenna grisea<br>Sooty Shearwater [82651] | Breeding | Known to occur |
| Ardenna grisea<br>Sooty Shearwater [82651] | Foraging | Likely to occur |

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Ardenna grisea<br>Sooty Shearwater [82651] | Foraging | Known to occur |
| Ardenna pacifica<br>Wedge-tailed Shearwater [84292] | Breeding | Known to occur |
| Ardenna pacifica<br>Wedge-tailed Shearwater [84292] | Foraging | Likely to occur |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Breeding | Known to occur |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Foraging | Known to occur |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Foraging | Likely to occur |
| Diomedea exulans (sensu lato)<br>Wandering Albatross [1073] | Foraging | Known to occur |
| Diomedea exulans (sensu lato)<br>Wandering Albatross [1073] | Foraging | Likely to occur |
| Diomedea exulans antipodensis<br>Antipodean Albatross [82269] | Foraging | Known to occur |
| Eudyptula minor<br>Little Penguin [1085] | Breeding | Likely to occur |
| Eudyptula minor<br>Little Penguin [1085] | Breeding | Known to occur |
| Eudyptula minor<br>Little Penguin [1085] | Foraging | Known to occur |
| Fregetta grallaria grallaria<br>White-bellied Storm Petrel [64438] | Breeding | Known to occur |
| Fregetta grallaria grallaria<br>White-bellied Storm Petrel [64438] | Foraging | Likely to occur |
| Gygis alba<br>White Tern [807] | Breeding | Known to occur |

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Gygis alba<br>White Tern [807] | Foraging | Likely to occur |
| Macronectes giganteus<br>Southern Giant Petrel [1060] | Foraging | Known to occur |
| Macronectes halli<br>Northern Giant Petrel [1061] | Foraging | Known to occur |
| Oceanites oceanites<br>Wilsons Storm Petrel [1034] | Migration | Known to occur |
| Onychoprion fuscata<br>Sooty Tern [82847] | Breeding | Known to occur |
| Onychoprion fuscata<br>Sooty Tern [82847] | Foraging | Likely to occur |
| Pelagodroma marina<br>White-faced Storm-petrel [1016] | Breeding | Known to occur |
| Pelagodroma marina<br>White-faced Storm-petrel [1016] | Foraging | Known to occur |
| Pelecanoides urinatrix<br>Common Diving-petrel [1018] | Breeding | Known to occur |
| Pelecanoides urinatrix<br>Common Diving-petrel [1018] | Foraging | Known to occur |
| Phaethon rubricauda<br>Red-tailed Tropicbird [994] | Breeding | Known to occur |
| Phaethon rubricauda<br>Red-tailed Tropicbird [994] | Foraging | Likely to occur |
| Phalacrocorax fuscescens<br>Black-faced Cormorant [59660] | Breeding | Known to occur |
| Phalacrocorax fuscescens<br>Black-faced Cormorant [59660] | Foraging | Likely to occur |
| Phalacrocorax fuscescens<br>Black-faced Cormorant [59660] | Foraging | Known to occur |

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Procellaria parkinsoni<br>Black Petrel [1048] | Foraging | Likely to occur |
| Procelsterna cerulea<br>Grey Ternlet [64378] | Breeding | Known to occur |
| Procelsterna cerulea<br>Grey Ternlet [64378] | Foraging | Likely to occur |
| Pterodroma macroptera<br>Great-winged Petrel [1035] | Foraging | Likely to occur |
| Pterodroma mollis<br>Soft-plumaged Petrel [1036] | Foraging | Known to occur |
| Pterodroma neglecta neglecta<br>Kermadec Petrel [64450] | Foraging | Likely to occur |
| Pterodroma nigripennis<br>Black-winged Petrel [1038] | Breeding | Known to occur |
| Pterodroma nigripennis<br>Black-winged Petrel [1038] | Foraging | Likely to occur |
| Pterodroma solandri<br>Providence Petrel [1040] | Breeding | Known to occur |
| Pterodroma solandri<br>Providence Petrel [1040] | Foraging | Likely to occur |
| Puffinus assimilis<br>Little Shearwater [59363] | Breeding | Known to occur |
| Puffinus assimilis<br>Little Shearwater [59363] | Foraging | Likely to occur |
| Sterna striata<br>White-fronted Tern [799] | Breeding | Known to occur |
| Sterna striata<br>White-fronted Tern [799] | Foraging | Known to occur |
| Sula dactylatra<br>Masked Booby [1021] | Breeding | Known to occur |
| Sula dactylatra<br>Masked Booby [1021] | Foraging | Likely to occur |

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Thalassarche bulleri<br>Bullers Albatross [64460] | Foraging | Known to occur |
| Thalassarche cauta cauta<br>Shy Albatross [82345] | Foraging likely | Likely to occur |
| Thalassarche cauta steadi<br>White-capped Albatross [82344] | Foraging | Known to occur |
| Thalassarche chlororhynchos bassi<br>Indian Yellow-nosed Albatross [85249] | Foraging | Known to occur |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Foraging | Known to occur |
| Thalassarche melanophris impavida<br>Campbell Albatross [82449] | Foraging | Likely to occur |
| Thalassarche melanophris impavida<br>Campbell Albatross [82449] | Foraging | Known to occur |
| Thalasseus bergii<br>Crested Tern [83000] | Breeding | Known to occur |
| Thalasseus bergii<br>Crested Tern [83000] | Foraging | Likely to occur |
| Sharks | | |
| Carcharias taurus<br>Grey Nurse Shark [64469] | Foraging | Known to occur |
| Carcharias taurus<br>Grey Nurse Shark [64469] | Reproduction | Known to occur |
| Carcharodon carcharias<br>White Shark [64470] | Breeding (nursery area) | Known to occur |
| Carcharodon carcharias<br>White Shark [64470] | Foraging | Known to occur |
| Whales | | |
| Balaenoptera musculus brevicauda<br>Pygmy Blue Whale [81317] | Foraging | Likely to be present |

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Balaenoptera musculus brevicauda<br>Pygmy Blue Whale [81317] | Known Foraging Area | Known to occur |
| Eubalaena australis<br>Southern Right Whale [40] | Migration | |
| Eubalaena australis<br>Southern Right Whale [40] | Reproduction | |
| Megaptera novaeangliae<br>Humpback Whale [38] | Migration | Known to occur |
| Megaptera novaeangliae<br>Humpback Whale [38] | Migration (north and south) | Known to occur |

| Bioregional Assessments | | [ Resource Information ] |
|---|---|---|
| SubRegion | BioRegion | Website |
| Sydney | Sydney Basin | BA website |
| Gippsland | Gippsland Basin | BA website |

# Caveat

## 1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

## 2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

## 3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

## 4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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# Appendix F: Consultation report (Summary)

Appendix F-1 Relevant persons consultation levels ..... 689
Relevant persons consultation levels for Regulation 25(1)(a) relevant persons ..... 689
Relevant persons consultation levels for Regulation 25(1)(b) relevant persons ..... 696
Relevant persons consultation levels for Regulation 25(1)(d) relevant persons ..... 697
Relevant persons consultation levels for Regulation 25(1)(e) relevant persons ..... 718
Appendix F-2 Consultation report (Summary) ..... 723
Regulation 25(2) sufficient information: ..... 723
Regulation 25(3) sufficient time: ..... 723
Community Information Sessions: ..... 723
Consultation report (Summary) for Regulation 25 (1)(a) relevant persons ..... 724
Aboriginal Heritage Tasmania (Part of the Department Premier and Cabinet) [420] ..... 724
Australian Fisheries Management Authority [4] ..... 724
Australian Hydrographic Office [125] ..... 726
Australian Institute of Marine Science [654] ..... 727
Australian Maritime Safety Authority [2] ..... 728
Bass Coast Shire Council [407] ..... 729
CarbonNet [100] ..... 730
Commonwealth Scientific and Industrial Research Organisation [945] ..... 731
Department of Agriculture, Fisheries and Forestry [340] ..... 732
Department of Climate Change, Energy, the Environment and Water [339] ..... 733
Department of Climate Change, Energy, the Environment and Water - Director of National Parks [103] ..... 734
Department of Defence [104] ..... 735
Department of Energy, Environment and Climate Action - Agriculture Victoria [576] ..... 736
Department of Energy, Environment and Climate Action (DEECA) - cetacean/marine wildlife [529] ..... 737
Department of Industry, Science, Energy and Resources [334] ..... 738
Department of Jobs, Skills, Industry and Regions [383] ..... 738
Department of Transport and Planning [382] ..... 739
East Gippsland Catchment Management Authority [10] ..... 742
East Gippsland Shire Council [11] ..... 743
East Gippsland Water [392] ..... 744
Environment Protection Authority Victoria [13] ..... 744

Environmental Protection Agency Tasmania [63] ..... 746
Fire Rescue Victoria [536] ..... 749
Gippsland Ports [15] ..... 750
Gippsland Water [409] ..... 751
Indigenous Land and Sea Corporation [495] ..... 751
Maritime Border Command [539] ..... 752
Mornington Peninsula Shire [93] ..... 753
National Offshore Petroleum Titles Administrator [85] ..... 753
Parks Australia (part of DCCEEW) [129] ..... 754
Parks Victoria [27] ..... 756
Ports Victoria [399] ..... 757
Safe Transport Victoria - Maritime [42] ..... 757
South Gippsland Shire Council [38] ..... 758
State Emergency Service [39] ..... 759
Transport for NSW [62] ..... 760
Victorian Fisheries Authority [101] ..... 763
Victorian Regional Channels Authority [112] ..... 764
Wellington Shire Council [20] ..... 764
West Gippsland Catchment Management Authority [380] ..... 767
Consultation report (Summary) for Regulation 25 (1)(b) relevant persons ..... 767
Department of Energy, Environment and Climate Action [371] ..... 767
WorkSafe Victoria [147] ..... 768
Consultation report (Summary) for Regulation 25 (1)(d) relevant persons ..... 769
3D Energi [847] ..... 769
Australian Conservation Foundation [516] ..... 770
Australian Manufacturing Workers Union [338] ..... 771
Australian Marine Conservation Society (ACMS) [517] ..... 772
Australian Southern Bluefin Tuna Industry Association [121] ..... 772
Australian Volunteer Coastguard [405] ..... 773
Australian WildCatch Fishing [207] ..... 774
Australian Wildlife Conservancy [372] ..... 774
Australian Workers Union [337] ..... 775
Blue Mackerel North Pty Ltd [630] ..... 776
Boating Industry Association of Victoria [107] ..... 777
Bunurong Land Council Aboriginal Corporation [209] ..... 777
Cape Barren Island Aboriginal Association Incorporated (TAS) [424] ..... 778
Carnarvon Hibiscus [61] ..... 779
Circular Head Aboriginal Corporation (TAS) [425] ..... 779

Committee for Gippsland [218] ..... 780
Commonwealth Fisheries Association [76] ..... 781
Community Over Mining [335] ..... 781
Construction, Forestry, Maritime, Mining and Energy Union [496] ..... 783
Cooper Energy [34] ..... 784
Corner Inlet Fisheries Habitat Association [83] ..... 785
East Gippsland Estuarine Fishermens Association [82] ..... 785
Eastern Victorian Sea Urchin Divers Association [79] ..... 786
Eastern Zone Abalone Industry Association [136] ..... 787
Elders Council of Tasmania Aboriginal Corporation [426] ..... 787
Electrical Trades Union [336] ..... 788
Emperor Energy [58] ..... 789
Environment Victoria [518] ..... 789
Far Out Charters [204] ..... 790
First Tasmanians Aboriginal Corporation (TAS) [427] ..... 791
Fishing Tribunal [128] ..... 791
Flinders Island Aboriginal Association Inc (TAS) [428] ..... 792
Friends of the Earth [353] ..... 793
Game Fishing Association of Victoria [197] ..... 794
GB Energy [827] ..... 795
Gippsland Angling Clubs Association [694] ..... 796
Gippsland Climate Change Network [637] ..... 796
Gippsland Lakes Fishing Club [208] ..... 798
Gippsland Lakes Yacht Club [408] ..... 798
Golden Paradise Beach Ratepayers & Residents Association Inc [581] ..... 799
Great Eastern Offshore Wind Farm Project Co Pty Ltd [650] ..... 800
GreenPeace [362] ..... 800
Gulaga and Biamanga Joint Authority [429] ..... 801
Gunaikurnai Land and Waters Aboriginal Corporation [213] ..... 802
Hastings Coastal Advisory Group [190] ..... 804
Hewardia [205] ..... 805
High Sea Wind [650] ..... 805
Iberdrola Australia OW 2 Pty Limited [631] ..... 806
King Island Shire Council [430] ..... 807
Kurnai Aboriginal Corporation [742] ..... 807
Lake Tyers Aboriginal Trust [395] ..... 811
Lakes Entrance Fishermen Limited [17] ..... 812
Lakes Entrance Offshore Charters [410] ..... 815

Lakes Entrance Scallop Fishing Industry Association [18] ..... 816
Life Saving Victoria [109] ..... 816
Maritime Industry Australia Limited [199] ..... 817
Maritime Union of Australia [348] ..... 818
Melythina tiakana warrana Aboriginal Corporation (TAS) [431] ..... 819
Mining and Energy Union [639] ..... 819
Mitchelson Fisheries [211] ..... 820
Navigator North Project Pty Ltd [585] ..... 821
New South Wales Aboriginal Land Council [374] ..... 821
NSW Local Aboriginal Land Council: Awabakal [433] ..... 822
NSW Local Aboriginal Land Council: Bahtabah [434] ..... 823
NSW Local Aboriginal Land Council: Batemans Bay [435] ..... 823
NSW Local Aboriginal Land Council: Bega [436] ..... 824
NSW Local Aboriginal Land Council: Bodalla [437] ..... 825
NSW Local Aboriginal Land Council: Cobowra [438] ..... 825
NSW Local Aboriginal Land Council: Darkinjung [439] ..... 826
NSW Local Aboriginal Land Council: Eden [440] ..... 826
NSW Local Aboriginal Land Council: Illawarra [442] ..... 827
NSW Local Aboriginal Land Council: Jerrinja [443] ..... 828
NSW Local Aboriginal Land Council: La Perouse [445] ..... 828
NSW Local Aboriginal Land Council: Merrimans [446] ..... 829
NSW Local Aboriginal Land Council: Metropolitan [447] ..... 830
NSW Local Aboriginal Land Council: Mogo [448] ..... 830
NSW Local Aboriginal Land Council: Ulladulla [450] ..... 831
NSW Local Aboriginal Land Council: Wagonga [451] ..... 831
NSW Local Government Area / Council: Bega Valley [454] ..... 832
NSW Local Government Area / Council: Central Coast [455] ..... 833
NSW Local Government Area / Council: Eurobodalla [456] ..... 833
NSW Local Government Area / Council: Kiama [458] ..... 834
NSW Local Government Area / Council: Lake Macquarie [459] ..... 835
NSW Local Government Area / Council: Lord Howe Island Board [640] ..... 835
NSW Local Government Area / Council: Mosman [461] ..... 836
NSW Local Government Area / Council: Newcastle [462] ..... 837
NSW Local Government Area / Council: Northern Beaches [464] ..... 837
NSW Local Government Area / Council: Shellharbour [467] ..... 838
NSW Local Government Area / Council: Shoalhaven [468] ..... 839
NSW Local Government Area / Council: Sutherland Shire [469] ..... 839
NSW Local Government Area / Council: Waverley [471] ..... 840

NSW Local Government Area / Council: Wollongong [472] ..... 841
NSW Local Government Area / Council: Woollahra [473] ..... 841
NTSCORP Limited (NSW) [474] ..... 842
Oil Spill Response Limited [25] ..... 843
Orsted Offshore Australia 1 Pty Ltd - Gippsland 1 and 2 Projects [586] ..... 843
Panama II Octopus fishing vessel [123] ..... 844
Parrdarrama Pungenna Aboriginal Corporation (TAS) [475] ..... 844
Piscari Industries Pty Ltd [212] ..... 845
Port Phillip Sea Pilots [84] ..... 846
Prom Coast Ecolink [666] ..... 846
Qube [515] ..... 848
Save Westernport [214] ..... 849
Scallop Fishermens Association [196] ..... 849
Sea Shepherd Australia [520] ..... 850
Seafood Industry Australia [948] ..... 850
Seafood Industry Victoria [33] ..... 852
Seaspray Surf Lifesaving Club [402] ..... 855
Seven Group Holdings [24] ..... 856
Six Rivers Aboriginal Corporation (TAS) [476] ..... 857
South East Trawl Fishing Industry Association [37] ..... 857
Southern Shark Industry Alliance [77] ..... 859
Star of the South Wind Farm Pty Ltd (FL005) and Kut-Wut Bratualung Pty Ltd (FL006) [638] ..... 860
Surfrider Foundation Australia [522] ..... 861
TAS Local Government Area / Council: Break ODay [477] ..... 861
TAS Local Government Area / Council: Burnie [478] ..... 862
TAS Local Government Area / Council: Central Coast [479] ..... 863
TAS Local Government Area / Council: Circular Head [480] ..... 863
TAS Local Government Area / Council: Devonport [481] ..... 864
TAS Local Government Area / Council: Dorset [482] ..... 864
TAS Local Government Area / Council: Flinders [483] ..... 865
TAS Local Government Area / Council: George Town [484] ..... 866
TAS Local Government Area / Council: Glamorgan-Spring Bay [485] ..... 866
TAS Local Government Area / Council: Latrobe [486] ..... 867
TAS Local Government Area / Council: Launceston [487] ..... 867
TAS Local Government Area / Council: Waratah-Wynyard [488] ..... 868
TAS Local Government Area / Council: West Tamar [489] ..... 869
Tasman Council [490] ..... 869
Tasmanian Aboriginal Centre [421] ..... 870

Tasmanian Gas Pipeline [678] ..... 870
Tasmanian Regional Aboriginal Communities Alliance [491] ..... 871
The Nature Conservancy [373] ..... 872
The Wilderness Society [345] ..... 872
Trust For Nature [365] ..... 874
Tuna Australia Ltd [120] ..... 874
Victoria Game Fishing Club [124] ..... 878
Victorian Recreational Fishing [51] ..... 879
Victorian Scallop Industry Association [52] ..... 879
Wildlife Victoria [55] ..... 880
World Wide Fund for Nature [370] ..... 881
Yachting Victoria [111] ..... 881
Consultation report (Summary) for Regulation 25 (1)(e) relevant persons ..... 882
Australian Marine Oil Spill Centre [1] ..... 882
Brown and May Marine LTD [816] ..... 883
Democratic Labour Party [537] ..... 884
Gippsland Forestec TAFE [394] ..... 885
National Native Title Tribunal (NNTT) [432] ..... 886
Port of Hastings [28] ..... 886
Relevant Person #507 [507] ..... 887
Relevant Person #508 [508] ..... 888
Relevant Person #509 [509] ..... 889
Relevant Person #510 [510] ..... 889
Relevant Person #609 [609] ..... 890
Relevant Person #747 [747] ..... 891
Relevant Person #771 [771] ..... 892
Relevant Person #807 [807] ..... 893
Relevant Person #831 [831] ..... 895
Relevant Person #863 [863] ..... 896
Relevant Person #921 [921] ..... 897
Relevant Person #933 [933] ..... 898
Relevant Person #909 [951] ..... 899
Relevant Person #942 [952] ..... 900
Relevant Person #944 [954] ..... 901
Relevant Person #945 [955] ..... 902
Relevant Person #947 [957] ..... 903
Relevant Person #951 [961] ..... 904
Relevant Person #952 [962] ..... 905

Relevant Person #965 [965] ..... 906
Relevant Person #968 [968] ..... 907
Relevant Person #979 [979] ..... 908
Relevant Person #980 [980] ..... 909
Relevant Person #981 [981] ..... 910
Appendix G-1 Information Bulletin #1 (July 2025) ..... 913
Appendix G-2 Email sent on 28 July 2025 ..... 914
Appendix G-3 Community information session flyer (August 2025) ..... 915
Appendix G-4 Community information session flyer (November 2025) ..... 916
Appendix G-5 Community information session presentation (August 2025) ..... 917
Appendix G-6 Community information session presentation (November 2025) ..... 918
Appendix H-1 Newspaper advertisements – August 2025 ..... 920
Appendix H-2 Newspaper Advertisements November-2025 ..... 921

# Appendix F-1 Relevant persons consultation levels

## Relevant persons consultation levels for Regulation 25(1)(a) relevant persons

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 420 | Aboriginal Heritage Tasmania (Part of the Department Premier and Cabinet) | EMBA | Function as a Tasmanian State government agency that aims to protect and promote Tasmania's Aboriginal heritage and facilitate the return of land to Tasmania's Aboriginal people. | L3 | Esso has applied its methodology and assessed the agency as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 4 | Australian Fisheries Management Authority | OA | Function as a Commonwealth government agency responsible for management of Commonwealth commercial fisheries from 3-200nm. The OAs overlap with local fisheries. | L1 | Esso has applied its methodology and assessed AFMA as a Level 1 consultation as their function is in the OA of the planned activity. |
| 125 | Australian Hydrographic Office | OA | Function as a Commonwealth government agency responsible for publication of nautical charts and other information for safety of ships navigating in Australian waters (including Notices to Mariners). | L1 | Esso has applied its methodology and assessed AHO as a Level 1 consultation as they provide Notice to Mariners and therefore have a function in the OA of the planned activity. |
| 654 | Australian Institute of Marine Science | OA | Function as a Commonwealth government agency responsible for the sustainable use and protection of Australia's marine environment. | L1 | Esso has applied its methodology and assessed AIMS as a Level 1 consultation as their function is in the OA of the planned activity. |
| 2 | Australian Maritime Safety Authority | OA | Function as a Commonwealth government statutory authority responsible for maritime safety, protection of the marine environment including marine pollution and maritime aviation search and rescue. | L1 | Esso has applied its methodology and assessed AMSA as a Level 1 consultation as their function is in the OA of the planned activity. |
| 407 | Bass Coast Shire Council | EMBA | Function as a Victorian local government for Bass Coast Shire. Provides a range of services to | L3 | Esso has applied its methodology and assessed council as a Level 3 consultation as their |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| | | | community and is interested in maintaining sustainable communities and business. | | function may occur in the EMBA and no impact from planned activity. |
| 100 | CarbonNet | ATBA | Function as a Victorian government agency to establish a commercial scale Carbon Capture and Storage network in Gippsland, Victoria. | L2 | Esso has applied its methodology and assessed CarbonNet as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 945 | Commonwealth Scientific and Industrial Research Organisation | OA | Function as a Commonwealth government agency responsible for scientific research and its commercial and industrial applications, including ocean science, management and sustainability. | L1 | Esso has applied its methodology and assessed CSIRO as a Level 1 consultation as their function is in the OA of the planned activity. |
| 340 | Department of Agriculture, Fisheries and Forestry | OA | Function as a Commonwealth government department that manages biosecurity risks to Australia for agriculture, fisheries and forestry, industry growth and resilience and sustainability. | L1 | Esso has applied its methodology and assessed DAFF as a Level 1 consultation as their function is in the OA of the planned activity. |
| 339 | Department of Climate Change, Energy, the Environment and Water | OA | Function as a Commonwealth government department whose role is to help Australia respond to climate change, manage water and energy resources, environment, parks and heritage. They have responsibility for considering sea dumping applications. | L1 | Esso has applied its methodology and assessed DCCEEW as a Level 1 consultation as their function is in the OA of the planned activity. |
| 103 | Department of Climate Change, Energy, the Environment and Water - Director of National Parks | OA | Function as a Commonwealth entity responsible for the management of Commonwealth terrestrial and marine protected areas. | L1 | Esso has applied its methodology and assessed DNP as a Level 1 consultation as their function is in the OA of the planned activity. |
| 104 | Department of Defence | OA | Function as Commonwealth department for national defence. The East Sale Air Base is located in Gippsland and has activities over Bass Strait. | L1 | Esso has applied its methodology and assessed DoD as a Level 1 consultation as their function is in the OA of the planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 612 | Department of Employment and Workforce Relations - Gippsland | EMBA | Function as a government agency that bring together businesses, employment and skills services and community organisations to connect people to training, jobs and support services. | L3 | Esso has applied its methodology and assessed the department as a Level 3 consultation as their function is in the EMBA and no impact from planned activity. |
| 576 | Department of Energy, Environment and Climate Action - Agriculture Victoria | ATBA | Function as Victorian State government department to protect plant, animal and human health from biosecurity threats in Victoria. This includes invasive marine species. | L2 | Esso has applied its methodology and assessed the department as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 529 | Department of Energy, Environment and Climate Action (DEECA) - cetacean/marine wildlife | ATBA | Function as department of the Victorian Government working with industry and the community to develop Victoria's secure and sustainable energy future. Responsible for earth resources exploration, licensing, approval of applications, and enforcement on land and state waters. Responsible for protection of biodiversity and biosecurity on land and in State waters. Has responsibility to approve sea dumping applications in State waters. | L2 | Esso has applied its methodology and assessed the department as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 334 | Department of Industry, Science, Energy and Resources | OA | Function as department or agency of the Commonwealth responsible for consolidating the Government's efforts to drive economic growth, productivity and competitiveness by bringing together industry, energy, resources and science. | L1 | Esso has applied its methodology and assessed DISR as a Level 1 consultation as their function is in the OA of the planned activity. |
| 383 | Department of Jobs, Skills, Industry and Regions | ATBA | Function as a Victorian State government department for economic recovery and business and industry engagement. | L2 | Esso has applied its methodology and assessed DJSIR as a Level 2 consultation as their function is in the ATBA of the planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 382 | Department of Transport and Planning | EMBA | Function as Victorian State government department with primary responsibility for maritime sourced pollution oil spills in Victorian water and primary responsibility for wildlife impacted by marine pollution in the relevant state waters. | L3 | Esso has applied its methodology and assessed DTP as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 10 | East Gippsland Catchment Management Authority | ATBA | Function as a Victorian government statutory authority for the integrated management of land, biodiversity and water resources in the region. The Authority also has responsibility for the planning and delivery of river health works, and several statutory activities. | L2 | Esso has applied its methodology and assessed the authority as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 11 | East Gippsland Shire Council | EMBA | Function as Victorian government local council delivering services to community and issuing planning permits for land use and development throughout East Gippsland. Has an interest in maintaining sustainable communities and business. | L3 | Esso has applied its methodology and assessed council as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 392 | East Gippsland Water | EMBA | Function as Victorian government statutory corporation responsible for delivery of water supply and wastewater management in East Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 13 | Environment Protection Authority Victoria | EMBA | Function as the Victorian State's environmental regulator and performs oil spill response support functions and conducts incident investigations. | L3 | Esso has applied its methodology and assessed authority as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 63 | Environmental Protection Agency Tasmania | EMBA | Function as Tasmanian regulator responsible for the environmental protection and management, including ensuring that activities do not cause unacceptable pollution. They also have a function | L3 | Esso has applied its methodology and assessed agency as a Level 3 consultation as their |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| | | | of oil spill response control agency in Tasmanian State waters. | | function may occur in the EMBA and no impact from planned activity. |
| 536 | Fire Rescue Victoria | EMBA | Function as fire and rescue service for the state of Victoria. Responsible for marine response associated with fires, chemical spills on ships and in ports, and other marine related emergencies. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 15 | Gippsland Ports | ATBA | Function as Victorian statutory authority responsible for five Gippsland Ports, including Lakes Entrance, Port of Corner Inlet and Port Albert. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their function may occur in the ATBA of the planned activity. |
| 409 | Gippsland Water | EMBA | Function as Victorian government statutory corporation to deliver fresh, clean drinking water, and manage and treat wastewater. | L3 | Esso has applied its methodology and assessed Gippsland Water as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 495 | Indigenous Land and Sea Corporation | EMBA | Function as a Commonwealth government statutory authority with national responsibilities to assist Aboriginal and Torres Strait Islander people to acquire land and to manage assets to achieve cultural, social, environmental and economic benefits for Indigenous peoples. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 539 | Maritime Border Command | EMBA | Function as a Commonwealth government agency and is Australia's principal civil maritime security agency, a de facto coast guard, operating in the maritime domain to ensure compliance with Australia's maritime legislation by foreign and domestic non-state actors. | L3 | Esso has applied its methodology and assessed MBC as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 93 | Mornington Peninsula Shire | EMBA | Function as department or agency of Victoria as Local Council. | L3 | Esso has applied its methodology and assessed council as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 85 | National Offshore Petroleum Titles Administrator | OA | Function as Commonwealth government agency responsible for the day-to-day administration of petroleum & greenhouse gas titles in Commonwealth waters in Australia. | L1 | Esso has applied its methodology and assessed NOPTA as a Level 1 consultation as their function is in the OA of the planned activity. |
| 129 | Parks Australia (part of DCCEEW) | OA | Function as Commonwealth government agency responsible for managing Commonwealth parks, reserves and conservation zones. | L1 | Esso has applied its methodology and assessed Parks Australia as a Level 1 consultation as their function is in the OA of the planned activity. |
| 27 | Parks Victoria | ATBA | Function as a Victorian State Government agency that manages coastal marine parks and reserves, and coastal areas. They manage significant stretches of land along the Gippsland coastline and some maritime infrastructure in the Gippsland area (e.g. some piers, jetties, berths and ports including Western Port). Support agency for oil spill response. | L2 | Esso has applied its methodology and assessed Parks Victoria as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 399 | Ports Victoria | ATBA | Function as Victorian State government agency that manages the safe transit of vessels into and out of Victoria's commercial ports. It provides maritime expertise, informing the strategic development and operations within Victoria's commercial ports and waterways. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their function is in the ATBA of the planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 42 | Safe Transport Victoria - Maritime | ATBA | Function as a Victorian State government department responsible for conducting audits of Victoria's ports and waterways and work with the entities that manage them to ensure they are safe for all waterway users. | L2 | Esso has applied its methodology and assessed STV as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 38 | South Gippsland Shire Council | EMBA | Function as department or agency of Victoria as Local Council. | L3 | Esso has applied its methodology and assessed council as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 39 | State Emergency Service | EMBA | Function as a Commonwealth government agency responsible for flood, storm, tsunami, earthquake and landslide throughout Australia. | L3 | Esso has applied its methodology and assessed SES as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 62 | Transport for NSW | EMBA | Function as a NSW State government department responsible for NSW's maritime safety and management of transport on coastal waterways. They also fill the function of oil spill response control agency in NSW state waters. | L3 | Esso has applied its methodology and assessed TfNSW as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 101 | Victorian Fisheries Authority | ATBA | Function as a Victorian State government agency to effectively manage Victoria's fisheries resources. This includes providing support during an emergency that involves cetacean entanglement, strandings and vessel strike; responding to pollution in waterways; responding to marine pest incursions; and preventing noxious aquatic species being brought into Victoria. | L2 | Esso has applied its methodology and assessed VFA as a Level 2 consultation as their function is in the ATBA of the planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 112 | Victorian Regional Channels Authority | EMBA | Function as Victorian State government agency/authority managing commercial navigation in the port waters of Geelong and Hastings. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 20 | Wellington Shire Council | ATBA | Function as department or agency of Victoria as Local Council. | L2 | Esso has applied its methodology and assessed council as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 380 | West Gippsland Catchment Management Authority | EMBA | Function as a Victorian State government statutory authority to manage land and water resources in the West Gippsland region, including estuaries. | L3 | Esso has applied its methodology and assessed authority as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |

## Relevant persons consultation levels for Regulation 25(1)(b) relevant persons

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 371 | Department of Energy, Environment and Climate Action | ATBA | Function as department of the Victorian Government Department of the responsible State Minister. | L2 | Esso has applied its methodology and assessed DEECA as a Level 2 consultation as their function is in the ATBA of the planned activity. |
| 147 | WorkSafe Victoria | ATBA | Function as department of the Victorian Government responsible for reducing workplace harm. | L2 | Esso has applied its methodology and assessed WorkSafe as a Level 2 consultation as their function is in the ATBA of the planned activity. |

## Relevant persons consultation levels for Regulation 25(1)(d) relevant persons

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 847 | 3D Energi | ATBA | Organisation with activities as oil and gas company with licenses offshore from Gippsland. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA and no impact from planned activity. |
| 516 | Australian Conservation Foundation | EMBA | Australian independent, non-profit organisation, working to conserve threatened wildlife and ecosystems. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 338 | Australian Manufacturing Workers Union | OA | Activities as a trade union for Automotive, Food, Metals, Engineering, Printing, and Kindred Industries. | L1 | Esso has applied its methodology and assessed union as a Level 1 consultation as their activities are in the OA of the planned activity. |
| 517 | Australian Marine Conservation Society | EMBA | National charity dedicated solely to protecting ocean wildlife across the nation and working for healthy seas. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 121 | Australian Southern Bluefin Tuna Industry Association | EMBA | Organisation representing the Australian Southern Bluefin Tuna Industry working to maintain a high level of quality and training. | L3 | Esso has applied its methodology and assessed association as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 405 | Australian Volunteer Coastguard | EMBA | Organisation responding to a variety of marine incident types and supporting other agencies in events such as marine fire and medical evacuation from vessels. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 207 | Australian WildCatch Fishing | ATBA | Activities as business operating five fishing vessels in Gippsland and supports a variety of other Vessels, with the design and construction of fishing gear, crew placement, quota, licence management and associated administration. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 372 | Australian Wildlife Conservancy | EMBA | Interest as Australian independent, non-profit organisation, working to conserve threatened wildlife and ecosystems. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 337 | Australian Workers Union | OA | Activities as negotiating workplace enterprise agreements. | L1 | Esso has applied its methodology and assessed union as a Level 1 consultation as their activity is in the OA of the planned activity. |
| 630 | Blue Mackerel North Pty Ltd | EMBA | Organisation with a feasibility licence for an offshore wind farm project off the South Coast of Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 107 | Boating Industry Association of Victoria | EMBA | Not-for-profit organisation and the peak body representing the recreational and light commercial marine industry. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 209 | Bunurong Land Council Aboriginal Corporation | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 424 | Cape Barren Island Aboriginal | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| | Association Incorporated (TAS) | | | | may occur in the EMBA and no impact from planned activity. |
| 61 | Carnarvon Hibiscus | ATBA | Activity as oil and gas company with licenses offshore from Gippsland. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA and no impact from planned activity. |
| 218 | Committee for Gippsland | EMBA | Interests as independent group established to represent all sectors of business, industry and community views to collaboration on regional priorities to benefit Gippsland communities. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 76 | Commonwealth Fisheries Association | ATBA | Organisation contributing to the formulation of effective and responsible fisheries policies. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 335 | Community Over Mining | EMBA | Interest as non-government organisation covering many topics in Gippsland and around Australia including pollution to air, land and water. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 496 | Construction, Forestry, Maritime, Mining and Energy Union | OA | Activities as trade union in building and construction, forestry and furnishing products, maritime and mining and energy production. | L1 | Esso has applied its methodology and assessed union as a Level 1 consultation as their activities are in the OA of the planned activity. |
| 34 | Cooper Energy | ATBA | Organisation with activities as oil and gas company with licenses offshore from Gippsland. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
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| 83 | Corner Inlet Fisheries Habitat Association | EMBA | Person or organisation to facilitate and encourage better habitat protection and stewardship of the local marine resource. | L3 | Esso has applied its methodology and assessed association as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 82 | East Gippsland Estuarine Fishermens Association | EMBA | Person or organisation representing the interests of the Gippsland Lakes Estuarine fishers. | L3 | Esso has applied its methodology and assessed association as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 79 | Eastern Victorian Sea Urchin Divers Association | EMBA | Organisation representing Sea Urchin Divers. | L3 | Esso has applied its methodology and assessed association as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 136 | Eastern Zone Abalone Industry Association | EMBA | Activities as the wild catch abalone industry sector that operates in the Mallacoota regions of Victoria. | L3 | Esso has applied its methodology and assessed association as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 426 | Elders Council of Tasmania Aboriginal Corporation | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 336 | Electrical Trades Union | OA | Activities as contractors - services include closure studies and decommissioning, deconstruction and demolition, civil engineering and construction, landscaping and external works, resource recovery and waste management, asbestos removal and disposal, site remediation, rehabilitation and revegetation, and heavy plant rental. | L1 | Esso has applied its methodology and assessed union as a Level 1 consultation as their activities are in the OA of the planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
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| 58 | Emperor Energy | ATBA | Organisation with activities as oil and gas company with licenses offshore from Gippsland. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their function may occur in the ATBA of the planned activity. |
| 518 | Environment Victoria | EMBA | Interest as an independent and not-for-profit group campaigning for a safe climate, healthy rivers and sustainable living. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 204 | Far Out Charters | EMBA | Organisation operating offshore fishing charters based out of Lakes Entrance. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 427 | First Tasmanians Aboriginal Corporation (TAS) | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 128 | Fishing Tribunal | ATBA | Activities as independent group established to consider commercial fishing vessel damage claims resulting from interaction with Esso equipment/facilities. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 428 | Flinders Island Aboriginal Association Inc (TAS) | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 353 | Friends of the Earth | EMBA | Interest as eNGO working to protect and/or educate about the natural environment. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
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| 197 | Game Fishing Association of Victoria | ATBA | Activities as the governing body for Game Fishing in Victoria. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 827 | GB Energy | EMBA | Function as developer of natural gas field in state waters for gas production and CO2 sequestration. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 694 | Gippsland Angling Clubs Association | EMBA | Activity as recreational sports fishing association in Victoria. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 637 | Gippsland Climate Change Network | N/A | Interest as a not for profit and registered charity focussed on connecting and collaborating with local communities, businesses and government organisations around climate change awareness and solutions. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 208 | Gippsland Lakes Fishing Club | ATBA | Activities as a recreational fishing club based in Lakes Entrance. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 408 | Gippsland Lakes Yacht Club | EMBA | Organisation sailing club in East Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 581 | Golden Paradise Beach Ratepayers & | EMBA | A not-for-profit Volunteer Organisation providing a range of services and advocacy for, and on behalf of, | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity |

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| | Residents Association Inc | | the communities of Golden Beach and Paradise Beach, in Gippsland, Victoria. | | may occur in the EMBA and no impact from planned activity. |
| 650 | Great Eastern Offshore Wind Farm Project Co Pty Ltd | EMBA | Organisation with a feasibility licence for an offshore wind farm project off the South Coast of Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 362 | GreenPeace | EMBA | Interest as eNGO campaigning for a green and peaceful future. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 429 | Gulaga and Biamanga Joint Authority | EMBA | Authority overseeing the care and control of the Gulaga and Biamanga National Parks. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 213 | Gunaikurnai Land and Waters Aboriginal Corporation | OA | Function, interests and activities as Registered Aboriginal Party that represents the GunaiKurnai people, the Traditional Owners of our Country, as determined by the Victorian Aboriginal Heritage Council under the Aboriginal Heritage Act 2006. | L1 | Esso has applied its methodology and assessed GLaWAC as a Level 1 consultation as their function is in the OA of the planned activity. |
| 190 | Hastings Coastal Advisory Group | EMBA | Organisation advising Council in the use or development, planning, management, protecting and enhancing the Shire's coastlines. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 205 | Hewardia | ATBA | Activities as Lakes Entrance based commercial fishing boat. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |

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| 650 | High Sea Wind | EMBA | Organisation with a feasibility licence for an offshore wind farm project off the South Coast of Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 631 | Iberdrola Australia OW 2 Pty Limited | EMBA | Organisation with a feasibility licence for an offshore wind farm project off the South Coast of Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 430 | TAS Local Government Area / Council: King Island | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 742 | Kurnai Aboriginal Corporation | OA | Organisation representing Traditional Owners. | L1 | Esso has applied its methodology and assessed organisation as a Level 1 consultation as their function is in the OA of the planned activity. |
| 395 | Lake Tyers Aboriginal Trust | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 17 | Lakes Entrance Fishermen Limited | ATBA | Activities as Fishing co-operative representing the interests of Lakes Entrance based commercial fishing vessels. Represents Lakes Entrance commercial fishing by providing a full-service unloading facility to the local fishing fleet. From here, fresh seafood is distributed to local shops. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |

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| 410 | Lakes Entrance Offshore Charters | EMBA | Organisation as fishing charter operator. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 18 | Lakes Entrance Scallop Fishing Industry Association | ATBA | Activities as commercial scallop fishing industry group. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 109 | Life Saving Victoria | EMBA | Organisation working with communities, educational institutions, government agencies, businesses and the broader aquatic industry to prevent aquatic related death and injury in all Victorian communities. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 199 | Maritime Industry Australia Limited | ATBA | Activities as organisation established to be the voice and advocate of the Australian maritime industry. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 348 | Maritime Union of Australia | OA | Activities as union for waterside workers, seafarers, port workers, professional divers, and office workers associated with Australian ports. | L1 | Esso has applied its methodology and assessed union as a Level 1 consultation as their activities are in the OA of the planned activity. |
| 431 | Melythina tiakana warrana Aboriginal Corporation (TAS) | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 639 | Mining and Energy Union | N/A | Activities as trade union in Australia for coal, mining, exploration industries and specific classes of workers working in the oil, gas, nuclear, chemical production and power generation industries. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |

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| 211 | Mitchelson Fisheries | ATBA | Activities as commercial fishing company based in Lakes Entrance who represent themselves. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 585 | Navigator North Project Pty Ltd | ATBA | Organisation with a feasibility licence for an offshore wind farm project off the South Coast of Gippsland. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their interest is in the ATBA of the planned activity. |
| 374 | New South Wales Aboriginal Land Council | EMBA | Organisation as NSW State peak representative body in Aboriginal affairs. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 435 | NSW Local Aboriginal Land Council: Batemans Bay | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 436 | NSW Local Aboriginal Land Council: Bega | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 437 | NSW Local Aboriginal Land Council: Bodalla | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 438 | NSW Local Aboriginal Land Council: Cobowra | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |

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| 439 | NSW Local Aboriginal Land Council: Darkinjung | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 440 | NSW Local Aboriginal Land Council: Eden | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 442 | NSW Local Aboriginal Land Council: Illawarra | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 443 | NSW Local Aboriginal Land Council: Jerrinja | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 445 | NSW Local Aboriginal Land Council: La Perouse | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 446 | NSW Local Aboriginal Land Council: Merrimans | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 447 | NSW Local Aboriginal Land | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their |

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| | Council: Metropolitan | | | | function may occur in the EMBA and no impact from planned activity. |
| 448 | NSW Local Aboriginal Land Council: Mogo | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 450 | NSW Local Aboriginal Land Council: Ulladulla | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 451 | NSW Local Aboriginal Land Council: Wagonga | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 454 | NSW Local Government Area / Council: Bega Valley | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 455 | NSW Local Government Area / Council: Central Coast | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 456 | NSW Local Government Area / Council: Eurobodalla | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |

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| 458 | NSW Local Government Area / Council: Kiama | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 459 | NSW Local Government Area / Council: Lake Macquarie | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 640 | NSW Local Government Area / Council: Lord Howe Island Board | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 461 | NSW Local Government Area / Council: Mosman | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 462 | NSW Local Government Area / Council: Newcastle | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 454 | NSW Local Government Area / Council: Northern Beaches | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |

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| 467 | NSW Local Government Area / Council: Shellharbour | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 468 | NSW Local Government Area / Council: Shoalhaven | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 469 | NSW Local Government Area / Council: Sutherland Shire | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 471 | NSW Local Government Area / Council: Waverley | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 472 | NSW Local Government Area / Council: Wollongong | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 473 | NSW Local Government Area / Council: Woollahra | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 474 | NTSCORP Limited (NSW) | EMBA | Function as department or agency of NSW local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their |

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| | | | | | function may occur in the EMBA and no impact from planned activity. |
| 25 | Oil Spill Response Limited | EMBA | Function as an organisation industry-funded cooperative which exists to respond to oil spills. | L3 | Esso has applied its methodology and assessed OSRL as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 586 | Orsted Offshore Australia 1 Pty Ltd - Gippsland 1 and 2 Projects | EMBA | Organisation with a feasibility licence for an offshore wind farm project off the South Coast of Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 123 | Panama II Octopus fishing vessel | ATBA | Activities as Lakes Entrance based commercial fishing boat. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 212 | Piscari Industries Pty Ltd | ATBA | Activities as commercial fishing company based in Lakes Entrance. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 84 | Port Phillip Sea Pilots | EMBA | Organisation of marine pilotage for commercial vessels calling to Melbourne, Geelong, Hastings, Corner Inlet, and back-up pilotage to Portland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 666 | Prom Coast Ecolink | EMBA | Not for profit group of local volunteers working to connect a network of nature corridors throughout the Prom Coast across South Gippsland between Wilsons Prom National Park and the Strzelecki Ranges. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 515 | Qube | EMBA | Organisation with activities as Barry Beach Port Operator. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity |

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| | | | | | may occur in the EMBA and no impact from planned activity. |
| 214 | Save Westernport | EMBA | Interest as community organisation to protect Western Port Bay's wetlands, and support sustainable marine and tourism industries. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 196 | Scallop Fishermens Association | ATBA | Activities as a collective of the Scallop Fishing Families and associated support work force based in Lakes Entrance. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 520 | Sea Shepherd Australia | EMBA | Interest as an international, non-profit marine conservation organization that campaigns to defend, conserve and protect the world's ocean. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 948 | Seafood Industry Australia | EMBA | Activities as a not-for-profit, non-government organisation. SIA is the representative peak body for the Australian seafood industry, from professional fishers through to wholesale, processors and retail. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |
| 33 | Seafood Industry Victoria | ATBA | Activities as a not-for-profit, non-government organisation. SIV is the representative peak body for the Victorian seafood industry, from professional fishers through to wholesale, processors and retail. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 402 | Seaspray Surf Lifesaving Club | EMBA | Organisation as Surf Lifesaving Club. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |

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| 24 | Seven Group Holdings | EMBA | Organisation as shareholder in Beach Energy and has interests in energy assets in Australia. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 476 | Six Rivers Aboriginal Corporation (TAS) | EMBA | Organisation dedicated to supporting and empowering the Aboriginal community in Tasman, focusing on cultural education and preservation. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 37 | South East Trawl Fishing Industry Association | ATBA | Activities as incorporated association representing commercial fishers in Commonwealth South East Trawl Sector; Scalefish Hook Sector; Shark Hook, Shark Gillnet Sectors; small pelagic fishery. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 77 | Southern Shark Industry Alliance | ATBA | Activities as incorporated association with members from the Southern and Eastern Scalefish Hook Sector; Shark Hook, Shark Gillnet Sectors; small pelagic fishery. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 638 | Star of the South Wind Farm Pty Ltd (FL005) and Kut-Wut Bratualung Pty Ltd (FL006) | EMBA | Organisation as commercial venture proposing an offshore wind farm project of the South Coast of Gippsland. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 522 | Surfrider Foundation Australia | EMBA | Interest as not for profit sea-roots organisation dedicated to the protection of Australia's waves and beaches through conservation, activism, research and education. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may occur in the EMBA and no impact from planned activity. |

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| 477 | TAS Local Government Area / Council: Break ODay | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 478 | TAS Local Government Area / Council: Burnie | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 479 | TAS Local Government Area / Council: Central Coast | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 480 | TAS Local Government Area / Council: Circular Head | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 481 | TAS Local Government Area / Council: Devonport | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 482 | TAS Local Government Area / Council: Dorset | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |

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| 483 | TAS Local Government Area / Council: Flinders | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 484 | TAS Local Government Area / Council: George Town | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 485 | TAS Local Government Area / Council: Glamorgan-Spring Bay | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 486 | TAS Local Government Area / Council: Latrobe | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 487 | TAS Local Government Area / Council: Launceston | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 488 | TAS Local Government Area / Council: Waratah-Wynyard | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |

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|---|---|---|---|---|---|
| 489 | TAS Local Government Area / Council: West Tamar | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 490 | TAS Local Government Area / Council: Tasman Council | EMBA | Function as department or agency of Tasmania local council. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 421 | Tasmanian Aboriginal Centre | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 678 | Tasmanian Gas Pipeline | EMBA | Organisation with activities as oil and gas company supplying natural gas from Longford in Victoria, under Bass Strait, to Bell Bay in Tasmania. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 491 | Tasmanian Regional Aboriginal Communities Alliance | EMBA | Organisation representing Traditional Owners. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 373 | The Nature Conservancy | EMBA | Interest as Environmental conservation charity whose mission is to conserve the lands and waters on which all life depends. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 345 | The Wilderness Society | EMBA | Interest as eNGO working to protect, promote and restore wilderness and natural processes across Australia. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 365 | Trust For Nature | EMBA | Interest as eNGO working to permanently protect habitat on private land to give native plants and animals safe places to live. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 120 | Tuna Australia Ltd | EMBA | Activities representing statutory fishing right owners, holders, fish processors and sellers, and associate members of the Eastern and Western tuna and billfish fisheries of Australia. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 124 | Victoria Game Fishing Club | ATBA | Activities as governing body for Game Fishing in Victoria. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 51 | Victorian Recreational Fishing | ATBA | Activities as organisation representing Victorian Recreational Fishing in Victoria. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 52 | Victorian Scallop Industry Association | ATBA | Activities as commercial scallop fishing representative body. | L2 | Esso has applied its methodology and assessed organisation as a Level 2 consultation as their activity may occur in the ATBA of the planned activity. |
| 55 | Wildlife Victoria | EMBA | Interest as community organisation providing Wildlife Emergency Response. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 370 | World Wide Fund for Nature | EMBA | Interest as eNGO that works in the field of wilderness preservation and the reduction of human impact on the environment. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |
| 111 | Yachting Victoria | EMBA | Interest as organisation providing sailing advice for the South East of Australia. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their activity may occur in the EMBA and no impact from planned activity. |

## Relevant persons consultation levels for Regulation 25(1)(e) relevant persons

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 1 | Australian Marine Oil Spill Centre | EMBA | Function as an organisation set up by the petroleum industry to enable a quick and effective response to oil spills around the Australian coastline. Relevant for OPEP. | L3 | Esso has applied its methodology and assessed AMOSC as a Level 3 consultation as their function occurs in the EMBA and no impact from planned activity. |
| 816 | Brownd & May Marine Ltd | N/A | Function as an organisation with expertise in offshore surveys, wide range of fishing methods and techniques for oil and gas. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 537 | Democratic Labour Party | N/A | Interest as a member of the Democratic Labour Party, an Australian political party. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 394 | Gippsland Forestec TAFE | EMBA | Activities as Victorian tertiary institution. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| | | | | | may occur in the EMBA and no impact from planned activity. |
| 432 | National Native Title Tribunal (NNTT) | EMBA | Functions as an independent body established under the Native Title Act 1993 in Australia as a special measure for the advancement and protection of Aboriginal and Torres Strait Islander peoples. It manages applications for and administration of native title in Australia. | L3 | Esso has applied its methodology and assessed organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 28 | Port of Hastings | EMBA | Function as responsible for managing the operations at the Port of Hastings, including maintaining the associated port infrastructure. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may occur in the EMBA and no impact from planned activity. |
| 507 | Relevant Person #507 | N/A | Interests as community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 508 | Relevant Person #508 | N/A | Interests as community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 509 | Relevant Person #509 | N/A | Interests as community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 510 | Relevant Person #510 | N/A | Interests as community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 609 | Relevant Person #609 | N/A | Interests as community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their interest may be relevant in the event of an unplanned activity. |
| 747 | Relevant Person #747 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 771 | Relevant Person #771 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 807 | Relevant Person #807 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 831 | Relevant Person #831 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 863 | Relevant Person #863 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 921 | Relevant Person #921 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 933 | Relevant Person #933 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 951 | Relevant Person #909 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 952 | Relevant Person #942 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 954 | Relevant Person #944 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 955 | Relevant Person #945 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 957 | Relevant Person #947 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 961 | Relevant Person #951 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 962 | Relevant Person #952 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 965 | Relevant Person #965 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |

| ID | Person/organisation | Geo. area | Function, interest or activity | Consultation Level | Classification justification |
|---|---|---|---|---|---|
| 968 | Relevant Person #968 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 979 | Relevant Person #979 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 980 | Relevant Person #980 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |
| 981 | Relevant Person #981 | N/A | Interest as a community member. | L3 | Esso has applied its methodology and assessed person or organisation as a Level 3 consultation as their function may be relevant in the event of an unplanned activity. |

# Appendix F-2 Consultation report (Summary)

*Regulation 25(2) sufficient information:*

Unless otherwise noted in the tables below – Esso considers it has discharged its obligations for consultation under Regulation 25(2). Sufficient information has been provided as summarised below:

- Esso sent a Bass Strait Producing EP specific email on 30 July and a reminder email on 17 October 2025, providing links to an information bulletin which included activity description, location, timing, potential impacts and EMBA map. The emails also included links to the Esso Consultation Hub on the public website; the Esso Consultation Questionnaire to better understand relevant person consultation wishes; and NOPSEMA's "Consultation on offshore petroleum environment plans brochure".
- Esso held 10 community information sessions between August and November 2025, across six locations in South and East Gippsland, to discuss activity description, location and potential impacts.

*Regulation 25(3) sufficient time:*

Unless otherwise noted in the tables below – Esso considers it has discharged its obligations for consultation under Regulation 25(3). Esso considers that for the nature and scale of the activity as described in this EP, a minimum 30 days would provide a reasonable period for relevant persons to make an informed assessment of the possible consequences of the activity on their functions, interests or activities. Since the start of consultation, as noted in the 'Date' column, which continued until mid-February 2026, sufficient time has been provided, giving the relevant person the opportunity to provide feedback over a period greater than 30 days.

*Community Information Sessions:*

Esso held a total of 10 community information sessions between 30 July 2025 and mid-February 2026, across six locations in South and East Gippsland, attended by 78 people.

There was no feedback, requests, objections or claims relevant to this EP, raised at the sessions.

## Consultation report (Summary) for Regulation 25 (1)(a) relevant persons

*Aboriginal Heritage Tasmania (Part of the Department Premier and Cabinet) [420]*

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|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823000124 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |

*Australian Fisheries Management Authority [4]*

| | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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|---|---|---|---|
| 1. AFMA replied to Esso on 11 August and 20 October 2025, noting no comments on this EP.<br>2. In the same replies, AFMA recommended Esso engage with Commonwealth fishing operators as relevant persons. Esso responded on 18 August and 23 October 2025, acknowledging the feedback and confirming AFMA will continue to receive consultation material. Esso's engagement with Commonwealth fishing operators has been incorporated in this EP, where applicable. | 1. AFMA noted no comments on this EP.<br>2. AFMA recommended Esso engage with Commonwealth fishing operators as relevant persons.<br>No objections or claims were received. | 1. Esso will continue to keep AFMA informed about this EP.<br>2. Esso engages with Commonwealth fishing operators such as SETFIA, SIV, Tuna Australia, Commonwealth Fisheries Association, Southern Shark Industry Alliance Inc, Australian Southern Bluefin Tuna Industry Association; and via SETFIA: Bass Strait Central Zone Scallop Fishery and Small Pelagic Fishery. Refer to Section 4.5 and Section 4.3.2.1. All other fishing operators listed by AFMA do not actively fish within Esso's ATBA. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012256 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 07/08/2025 | 250823012101 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 11/08/2025 | 250828012542 | - | Email | Stakeholder advising that they have no feedback but suggest talking to Commonwealth fishing operators. |
| To | 18/08/2025 | 250828012543 | - | Email | Esso thanking Stakeholder for feedback. |
| To | 17/10/2025 | 251112072615 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| From | 20/10/2025 | 251112072810 | - | Email | Stakeholder advising that they have no feedback but suggest talking to Commonwealth fishing operators. |
| To | 23/10/2025 | 251113083553 | - | Email | Esso thanking Stakeholder for feedback. |
| To | 27/10/2025 | 251126091950 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Hydrographic Office [125]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. AHO replied to Esso on 21 October 2025, noting no concerns on this EP.<br>2. In the same reply, AHO requested further updates once this EP's activities were due to begin. Esso responded on 23 October 2025, acknowledging AHO's feedback and request for updates once activities were about to begin. | | | 1. AHO noted no concerns on this EP.<br>2. AHO requested updates once this EP's activities were about to begin.<br>No objections or claims were received. | 1. Esso will continue to keep AHO informed about this EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011731 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 31/07/2025 | 250805222856 | - | Email | Automatic reply. |
| From | 31/07/2025 | 250805223042 | - | Email | Automatic reply. |

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|---|---|---|---|---|---|
| To | 17/10/2025 | 251112153848 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 20/10/2025 | 251023111617 | - | Email | Automatic reply. |
| From | 21/10/2025 | 251112154023 | - | Email | Stakeholder informing that they have no concerns on the Bass Strait Producing EP. |
| To | 23/10/2025 | 251113083836 | - | Email | Esso acknowledges the email. |
| To | 27/10/2025 | 251126091951 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Institute of Marine Science [654]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012353 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 17/10/2025 | 251124170635 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126091951 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Maritime Safety Authority [2]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| 1. AMSA replied to Esso on 4 August 2025, requesting ongoing engagement on this EP via a new email address. Esso responded to AMSA on 6 August 2025, acknowledging AMSA's request for ongoing engagement and AMSA's new email address.<br>2. Esso contacted AMSA throughout October 2025, regarding consultation on the OPEP. AMSA advised Esso on 20 October 2025, that as per the Offshore petroleum industry advisory note, AMSA does not consult on OPEPs. | 1. AMSA requested ongoing engagement on this EP via a new email address.<br>2. AMSA advised that as per the Offshore petroleum industry advisory note, AMSA does not consult on OPEPs.<br>No objections or claims were received. | 1. Esso has updated its distribution list with the new email address provided by AMSA.<br>2. Esso will continue to keep AMSA informed about this EP, refer to Section 4.5.<br>3. Esso notes that AMSA does not consult on OPEPs. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011644 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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|---|---|---|---|---|---|
| From | 04/08/2025 | 250821145143 | - | Email | Stakeholder informing Esso that they would like to remain engaged in the consultation process for all proposed activities, including the Bass Strait Producing Environment Plan. |
| To | 06/08/2025 | 251001003218 | - | Email | Esso informing the Stakeholder that they will be kept up to date on the Bass Strait Producing Environment Plan. |
| To | 15/10/2025 | 251106103147 | - | Phone call | Phone call for request of a meeting with AMSA – OPEP Consultation. |
| To | 15/10/2025 | 251106093133 | - | Email | Follow-up email to Stakeholder requesting a meeting to discuss OPEP consultation. |
| From | 16/10/2025 | 251106093453 | - | Email | Stakeholder responding that they are currently on leave and requesting timeframes for the meeting to discuss the OPEP. |
| To | 17/10/2025 | 251106093707 | - | Email | Esso Australia providing a purpose for the meeting and dates to meet. |
| To | 17/10/2025 | 251124170636 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 20/10/2025 | 251106100147 | - | Email | Stakeholder advising they do not consult on the OPEP, as per the Offshore petroleum industry advisory note, with a link to the advisory note. |
| To | 20/10/2025 | 251106100655 | - | Email | Esso acknowledging the Stakeholder's email and thanking them for the advisory note. |
| To | 27/10/2025 | 251126092007 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Bass Coast Shire Council [407]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000136 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805202151 | - | Email | Automatic reply. |
| To | 27/10/2025 | 251126092030 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105164811 | - | Email | Automatic reply. |

*CarbonNet [100]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011633 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092051 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Commonwealth Scientific and Industrial Research Organisation [945]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. CSIRO replied to Esso on 5 November 2025, requesting that Esso keep them further consulted on this EP. Esso acknowledged CSIRO's request on 5 November 2025 to be further consulted on this EP.<br>2. Previous to this consultation period, CSIRO completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide CSIRO with consultation material. | 1. CSIRO requested Esso keep CSIRO further consulted on this EP.<br>2. Previous to this consultation period, CSIRO requested to be consulted on this EP.<br>No objections or claims were received. | 1. Esso will continue to keep CSIRO informed about this EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823012044 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 17/10/2025 | 251113112018 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092051 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 05/11/2025 | 251113111910 | - | Email | Stakeholder requesting to be further consulted on the EP activities. |
| To | 05/11/2025 | 251113113045 | - | Email | Esso informing Stakeholder that they will be kept up to date on the EP. |

*Department of Agriculture, Fisheries and Forestry [340]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
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| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011659 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| From | 30/07/2025 | 250805210523 | - | Email | Automatic reply. |
| To | 17/10/2025 | 251124170643 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 17/10/2025 | 251023111857 | - | Email | Automatic reply. |
| From | 17/10/2025 | 251023112506 | - | Email | Automatic reply. |
| To | 27/10/2025 | 251126092117 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Department of Climate Change, Energy, the Environment and Water [339]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. DCCEEW replied to Esso on 20 October 2025, requesting Esso replace an email address from the distribution list with a new email address. Esso has replaced the email address in the distribution list. | | | 1. DCCEEW requested Esso replace an email address from the distribution list with a new email address.<br>No feedback, objection or claims on this activity. | 1. Esso has updated its distribution list and replaced the old email address with the new email address. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011502 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 17/10/2025 | 251124170648 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 17/10/2025 | 251023112857 | - | Email | Automatic reply. |
| From | 17/10/2025 | 251023113048 | - | Email | Automatic reply. |
| From | 20/10/2025 | 251114112014 | - | Email | Stakeholder requesting the removal of email addresses from the mailing list and provides an alternate email to use. |
| To | 27/10/2025 | 251126092118 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Department of Climate Change, Energy, the Environment and Water - Director of National Parks [103]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received.<br>To note: as Parks Australia supports the Director of National Parks in carrying out its' statutory responsibilities, correspondence between Esso and Parks Australia for the Director of National Parks is summarised in Parks Australia. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012143 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 17/10/2025 | 251124170707 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Department of Defence [104]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
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| 1. DoD replied to Esso on 5 August 2025 and 17 October 2025, noting that Esso's email had been forwarded to an appropriate team member at DoD.<br>2. In the 17 October 2025 reply, DoD also provided a new email address. Esso has included the email address in the distribution list.<br>3. DoD replied to Esso on 13 November 2025, stating that DoD had reviewed this EP's activities and concluded that the impact to DoD was negligible given the location of Esso infrastructure and DoD infrastructure. DoD noted it had 'NIL Comment' on this EP. Esso replied to DoD on 18 November 2025, acknowledging the email and advising that they would keep DoD informed of this EP.<br>4. Previous to this consultation period, DoD completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this | 1. DoD noted that Esso's email had been forwarded to an appropriate team member at DoD.<br>2. DoD provided Esso a new email address.<br>3. DoD stated that it had reviewed this EP's activities and concluded that the impact to DoD was negligible given the location of Esso infrastructure and DoD infrastructure. DoD noted it had 'NIL Comment' on this EP.<br>4. Previous to this consultation period, DoD requested to be consulted on this EP.<br>No objection or claims on this activity. | 1. Esso has updated its distribution list with the new email address provided by DoD.<br>2. Esso will continue to keep DoD informed about this EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| EP. Esso continues to provide DoD with consultation material. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011723 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 05/08/2025 | 250930231711 | - | Email | Automatic reply. |
| From | 11/08/2025 | 250827003139 | - | Email | Automatic reply. |
| To | 17/10/2025 | 251119071716 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 17/10/2025 | 251023112151 | - | Email | Confirmation of email received. |
| To | 27/10/2025 | 251126092132 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 13/11/2025 | 251119072656 | - | Email | Stakeholder advising Esso that they have reviewed the Bass Strait Producing Environment Plan and they have no further comments. |
| To | 18/11/2025 | 251119075008 | - | Email | Esso response to Stakeholder confirming they have no further comments on Esso's Bass Strait Producing Environment Plan. |

*Department of Energy, Environment and Climate Action - Agriculture Victoria [576]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of** | **Reg 34(g) (ii): EP controls** |

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| | | | | **feedback, objection or claim and its response** | |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012123 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092156 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Department of Energy, Environment and Climate Action (DEECA) - cetacean/marine wildlife [529]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

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| To | 30/07/2025 | 250823012415 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092148 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Department of Industry, Science, Energy and Resources [334]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011701 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 17/10/2025 | 251124170719 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Department of Jobs, Skills, Industry and Regions [383]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011718 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092149 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Department of Transport and Planning [382]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. DTP and Esso corresponded between August and November 2025 about consultation for the OPEP and QRGs. DTP and Esso held a meeting on 10 September 2025, where Esso provided an overview of this EP, OPEP and QRGs and discussed consultation timeframes. DTP noted that consultation timelines were achievable, pending no urgent competing priorities. | 1. DTP noted that consultation timelines for the OPEP were achievable, pending no urgent competing priorities.<br>2. DTP referred Esso to the SEMP Maritime Emergency Sub Plan page 42 Figure 7 regarding | 1. Esso has updated Table 4-3 Control Agencies for spills in Victoria in the OPEP to include DTP for incident level 2 and 3; and updated the publication date of the State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3 | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| 2. At this meeting, Esso also requested information from DTP on who would be the point of contact for incident notification to other state agencies. DTP replied to Esso on 21 November 2025, referring Esso to the SEMP Maritime Emergency Sub Plan page 42 Figure 7 regarding incident notification to other agencies.<br><br>3. Esso sent DTP on 11 December 2025, the QRGs for consultation. No feedback was received on the QRGs.<br><br>4. Esso sent DTP on 18 December 2025, the OPEP for consultation. DTP replied to Esso on 22 January 2026, with comments on the OPEP including updating Table 4-3 Control Agencies for spills in Victoria to include DTP for incident level 2 and 3; and changing State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3 publication date from 2024 to 2025 in Section 16: Bibliography of the OPEP. | incident notification to other agencies.<br><br>3. No feedback was received from DTP on the QRGs.<br><br>4. DTP provided comments on the OPEP including updating Table 4-3 Control Agencies for spills in Victoria to include DTP for incident level 2 and 3; and changing State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3 publication date from 2024 to 2025 in Section 16: Bibliography of the OPEP.<br><br>No objection or claims on this activity. | publication date from 2024 to 2025 in Section 16: Bibliography of the OPEP refer to attachement 2.. | |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011635 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 18/08/2025 | 250827020227 | - | Email | Esso requests a meeting with Stakeholder to discuss OPEP consultation timeframes. |
| To | 21/08/2025 | 250818123457 | - | Email | Esso sent a meeting invite to DTP to discuss the OPEP and QRGs. |
| To | 10/09/2025 | 251118012345 | - | Meeting | Esso met with Stakeholder to provide them information on the OPEP and consultation timeframes. |
| To | 10/09/2025 | 250818123458 | - | Email | Esso sent DTP the Victorian Joint Industry and State Oil Pollution Responses Guidance Note that was provided the |

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| | | | | | previous year to confirm if the document was the current version. |
| From | 11/09/2025 | 250818123459 | - | Email | DTP provides the latest version of the Victorian Joint Industry and State Oil Pollution Responses Guidance Note version 3. |
| To | 27/10/2025 | 251126092158 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| To | 10/11/2025 | 251118093403 | - | Phone call | Esso calls Stakeholder to provide an update on OPEP consultation and to request information on who will act as the single point of contact for incident notification. |
| To | 11/11/2025 | 251118130430 | - | Email | Esso emails Stakeholder to provide an update on OPEP consultation timeframes and requests Stakeholder confirm who will act as the single point of contact for incident notification. |
| To | 18/11/2025 | 251119152438 | - | Email | Esso confirming with Stakeholder whether they will be the single point of contact for incident notification for the OPEP. |
| To | 21/11/2025 | 251219064600 | - | Phone call | Esso called Stakeholder to clarify incident notification to other agencies for the OPEP. |
| From | 21/11/2025 | 251124083440 | - | Email | Stakeholder advises Esso to refer to the SEMP Maritime Emergency Sub Plan page 42 Figure 7 regarding incident notification to other agencies. |
| To | 11/12/2025 | 260105153614 | - | Email | Esso sends the Stakeholder the QRGs for consultation. |
| To | 18/12/2025 | 260106112748 | - | Email | Esso sends the Stakeholder the OPEP for consultation. |
| From | 19/12/2025 | 260106113415 | - | Email | Stakeholder thanks Esso for sending the OPEP for consultation. |

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| To | 16/01/2026 | 260119083129 | - | Email | Esso asks Stakeholder if additional information is required for the review of the OPEP. |
| From | 16/01/2026 | 260119083733 | - | Email | Stakeholder advises Esso that no additional information is required for their review of the OPEP. |
| To | 16/01/2026 | 260119083858 | - | Email | Esso thanks Stakeholder for the email. |
| From | 22/01/2026 | 260123075107 | - | Email | Stakeholder sends Esso the OPEP with their comments. |
| From | 22/01/2026 | 260123075344 | - | Email | Stakeholder sends Esso the OPEP with their comments. |
| To | 22/01/2026 | 260123075533 | - | Email | Esso thanking Stakeholder for comments on the OPEP. |

*East Gippsland Catchment Management Authority [10]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
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| To | 30/07/2025 | 250823011647 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092206 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*East Gippsland Shire Council [11]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** / **Reg 34(g) (ii): EP controls** |
| 1. Previous to this consultation period, Council completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Council with consultation material. | | | 1. Previous to this consultation period, Council requested to be consulted on this EP.<br>No feedback, objection or claims on this activity. | | 1. Esso will continue to keep Council informed about this EP, refer to Section 4.5. / Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000209 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805203947 | - | Email | Automatic reply. |
| From | 30/07/2025 | 250805204102 | - | Email | Automatic reply. |
| To | 27/10/2025 | 251126092211 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105163835 | - | Email | Automatic reply. |

*East Gippsland Water [392]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012027 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092214 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Environment Protection Authority Victoria [13]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| 1. EPA Victoria advised Esso on 5 November 2025, that they were no longer able to attend the November 2025 Community Information Session they had registered for and requested an overview of the Community Information Session. Esso advised EPA Victoria on 5 November 2025, that in a future meeting, Esso would provide EPA Victoria an overview of the November Community Information Session content.<br>2. EPA Victoria registered (before this EP's consultation period) and attended the August Community Information Session. Feedback from Community Information Sessions has been incorporated into the EP, where applicable. | 1. EPA Victoria advised Esso they were no longer able to attend the November 2025 Community Information Sessions and requested an overview of the Community Information Session. Esso held a meeting with EPA Victoria and discussed decommissioning and the ORC - topics outside the scope of this EP. No feedback was provided on this EP.<br>2. No feedback, objection or claims received on this activity at the Community Information Session.<br>No feedback, objection or claims on this activity. | 1. Esso did hold a meeting with EPA Victoria on 18 November 2025, and exclusively discussed decommissioning and the ORC - topics outside the scope of this EP, and not included in this summary. No feedback was provided on this EP.<br>2. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011521 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 01/08/2025 | 250813084624 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 13/08/2025 | 250909105226 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass |

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| | | | | | Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101154 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251113102436 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105134922 | - | Email | Automatic reply. |
| From | 28/10/2025 | 251113102658 | - | Email | RSVP from Stakeholder for Esso Sale Community Information Session. |
| To | 31/10/2025 | 251113104917 | - | Email | Esso Australia: Community Information Sessions - November 2025 - Registration Confirmation. |
| From | 05/11/2025 | 251113132300 | - | Email | Stakeholder advising Esso that they can no longer attend Esso's upcoming Community Information Session. |
| To | 05/11/2025 | 251113132528 | - | Email | Esso response to stakeholder advising Esso they are unable to attend Esso's upcoming Community Information Session. |

*Environmental Protection Agency Tasmania [63]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
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| 1. EPA Tas and Esso corresponded between August and November 2025 about consultation for the OPEP and QRGs. EPA Tas and Esso held a meeting on 29 September 2025, where Esso provided an overview of the EP, OPEP and QRGs and discussed consultation timeframes. EPA Tas noted that feedback on the OPEP would be provided in late January/early February 2026 and that EPA Tas were interested in how they are embedded in the IMT, clean up, resources to be used in the event of an oil spill; and wildlife cycles impacted. EPA Tas also noted that the OPEP and QRGs would be discussed with the Flinders Working Group.<br><br>2. Esso requested information from EPA Tas on 11 November 2025, on who would be the point of contact for incident notification to other state agencies. No response was received.<br><br>3. Esso sent EPA Tas the QRGs for consultation on 11 December 2025. No feedback on QRGs was received.<br><br>4. Esso sent EPA Tas the OPEP for consultation on 18 December 2025. EPA TAS replied to Esso on 24 December 2025, requesting the Tactical Response Plans for the Flinders Island area. Esso provided the plans on 24 December 2025.<br><br>5. In January and February 2026, Esso asked EPA Tas on the progress of the OPEP review. EPA Tas replied on 3 February 2026, advising there were 'no problems' with the OPEP so far and that the review would be completed by 13 February 2026. No feedback was received on the OPEP. | 1. EPA Tas noted that feedback on the OPEP would be provided to Esso in late January/early February and that EPA Tas were interested in how they are embedded in the IMT, clean up, resources to be used in the event of an oil spill; and wildlife cycles impacted. EPA Tas also noted that the OPEP and QRGs would be discussed with the Flinders Working Group.<br><br>2. No response was received from EPA Tas on who would be the point of contact for incident notification to other state agencies.<br><br>3. EPA Tas requested the Tactical Response Plans for the Flinders Island area.<br><br>4. No feedback was received from EPA Tas on the QRGs.<br><br>5. EPA Tas advised there were 'no problems' with the OPEP so far and that the review would be completed by 13 February 2026. No feedback was received on the OPEP. | 1. Esso has included information in the OPEP regarding how EPA Tas are embedded in the IMT, clean up, resources to be used in the event of an oil spill; and wildlife cycles impacted, refer to Attachment 2: OPEP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| | | | No objection or claims on this activity. | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012111 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 18/08/2025 | 250827015957 | - | Email | Esso requests a meeting with Stakeholder to discuss OPEP consultation timeframes. |
| From | 18/08/2025 | 250828025514 | - | Email | Stakeholder responds with meeting date availability. |
| To | 21/08/2025 | 250828025513 | - | Email | Esso sent a meeting invite to EPA Tas to discuss the OPEP and QRGs. |
| To | 29/09/2025 | 251003124926 | - | Meeting - Online | Esso met with Stakeholder to provide them information on the OPEP and consultation timeframes. |
| To | 10/11/2025 | 251118125806 | - | Phone call | Voicemail left with an update on OPEP consultation and to request information on who will act as the single point of contact for incident notification. |
| To | 11/11/2025 | 251114094829 | - | Email | Esso emails Stakeholder to provide an update on OPEP consultation and to request information on who will act as the single point of contact for incident notification. |
| To | 11/12/2025 | 260105154049 | - | Email | Esso sends the Stakeholder the QRGs for consultation. |
| To | 18/12/2025 | 260106113244 | - | Email | Esso sends the Stakeholder the OPEP for consultation. |

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| From | 24/12/2025 | 260106113526 | - | Email | Stakeholder thanks Esso for sending the OPEP and requests Esso send the Tactical Response Plans for Flinders Island area. |
| To | 24/12/2025 | 260106113724 | - | Email | Esso sends Stakeholder the Tactical Response Plans for Flinders Island area. |
| From | 24/12/2025 | 260106114000 | - | Email | Stakeholder thanks Esso for sending through the Tactical Response Plans. |
| To | 16/01/2026 | 260116131931 | - | Email | Esso asks Stakeholder if additional information is required for the review of the OPEP. |
| From | 16/01/2026 | 260116132310 | - | Email | Automatic reply. |
| To | 03/02/2026 | 260116112346 | - | Phone call | Voicemail left asking about the progress of the OPEP and QRGs consultation. |
| To | 03/02/2026 | 260116112345 | - | Email | Esso asks Stakeholder if there is any feedback on the OPEP or QRGs. |
| From | 03/02/2026 | 260116112347 | - | Email | Stakeholder advising of the status of her review and that she would provide comments by consultation due date. |

*Fire Rescue Victoria [536]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011603 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092242 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Gippsland Ports [15]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011547 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092307 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Gippsland Water [409]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011612 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092320 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Indigenous Land and Sea Corporation [495]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No |

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| | | | | | additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000147 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092356 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Maritime Border Command [539]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012202 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Mornington Peninsula Shire [93]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011621 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092442 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*National Offshore Petroleum Titles Administrator [85]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011715 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 17/10/2025 | 251124170720 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 17/10/2025 | 251023112712 | - | Email | Automatic reply. |
| To | 27/10/2025 | 251126092446 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105164032 | - | Email | Automatic reply. |
| From | 27/10/2025 | 260105171507 | - | Email | Automatic reply. |

*Parks Australia (part of DCCEEW) [129]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
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| 1. Parks Australia replied to Esso on 11 September 2025, requesting the approximate distance of the operational area to the nearest three marine parks, all the titles associated with | 1. Parks Australia requested the approximate distance of the operational area to the nearest three marine parks, all the titles associated | 1. A list of the titles are included in this EP, refer to Section 1.2. | Esso will provide updates of the activity as necessary. No |

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| this EP, shapefiles showing the location of the activity relative to Australian Marine Parks and zone boundaries, and shapefiles showing the predicted EMBA in relation to marine parks. Esso replied to Parks Australia on 18 September 2025, with the information required.<br><br>2. Parks Australia replied to Esso on 22 September 2025, acknowledging receipt of the information from Esso.<br><br>3. Parks Australia responded to Esso on 30 September 2025, noting that the planned activity of this EP does not overlap with any Australian Marine Parks and therefore, no authorisation requirements were required from the DNP. Parks Australia also requested no further updates on this EP, unless EP activities changed. Esso thanked Parks Australia on 1 October 2025. | with this EP, shapefiles showing the location of the activity relative to Australian Marine Parks and zone boundaries, and shapefiles showing the predicted EMBA in relation to marine parks.<br><br>2. Parks Australia acknowledged receipt of the information from Esso.<br><br>3. Parks Australia noted that the planned activity of this EP does not overlap with any Australian Marine Parks and therefore, no authorisation requirements were required from the DNP. Parks Australia also requested no further updates on this EP, unless EP activities changed.<br><br>No objection or claims on this activity. | 2. The proximity of this EP's activities and EMBA to Australian Marine Parks is included in Appendix A.<br><br>3. Esso will continue to keep Parks Australia informed about this EP, especially in regards to EP changes, refer to Section 4.5. | additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011524 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 11/09/2025 | 251002203407 | - | Email | Stakeholder thanking Esso for consulting with them and requested information on the EP. |
| To | 18/09/2025 | 251003112003 | - | Email | Esso providing the information requested by the Stakeholder. |
| From | 22/09/2025 | 251003113521 | - | Email | Stakeholder thanking Esso for providing the information requested. |

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| From | 30/09/2025 | 251003131912 | - | Email | Stakeholder providing consultation advice for the Bass Strait Producing EP and the Bass Strait Non-Producing EP. |
| To | 01/10/2025 | 251003134704 | - | Email | Esso thanking the Stakeholder for the feedback. |
| To | 17/10/2025 | 251124170732 | 251017_E_01 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092507 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105150405 | - | Email | Automatic reply. |

*Parks Victoria [27]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011533 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092510 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Ports Victoria [399]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011511 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092531 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Safe Transport Victoria - Maritime [42]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
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|---|---|---|---|---|---|
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011842 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*South Gippsland Shire Council [38]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Council registered (before this EP's consultation period) and attended the August 2025 Community Information Session. Feedback from Community Information sessions has been incorporated into the EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000201 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 30/07/2025 | 250823011656 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 20/08/2025 | 250909105251 | 250820_CIS_01 | Community Information Session | A Community Information Session was held in Leongatha 20 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101219 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126093029 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105133655 | - | Email | Automatic reply. |
| From | 27/10/2025 | 260105133816 | - | Email | Automatic reply. |
| From | 27/10/2025 | 260105165112 | - | Email | Automatic reply. |
| From | 27/10/2025 | 260105165243 | - | Email | Automatic reply. |

*State Emergency Service [39]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback,** | **Reg 34(g) (ii): EP controls** |

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| | | | | **objection or claim and its response** | |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012346 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093049 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Transport for NSW [62]*

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|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. TfNSW and Esso corresponded between August and November 2025 about consultation for the OPEP and QRGs. TfNSW and Esso held a meeting on 15 October 2025, where Esso provided an overview of the EP, OPEP and QRGs and discussed consultation timeframes. TfNSW noted that feedback on the OPEP would be achievable by mid-January 2026.<br>2. Esso requested information from TfNSW on 11 November 2025, on who would be the point of contact for incident notification to other state agencies. No response was received. | 1. TfNSW noted that feedback on the OPEP would be achievable by mid-January 2026.<br>2. No response was received from TfNSW on who would be the point of contact for incident | 1. Not applicable as no objections or claims were made.<br>2. Refer to Attachment 2: OPEP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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|---|---|---|---|
| 3. Esso sent TfNSW the QRGs for consultation on 11 December 2025. No feedback was received on the QRGs.<br>4. Esso sent TfNSW the OPEP for consultation on 18 December 2025. In January and February 2026, Esso contacted TfNSW on the progress of the OPEP review. TfNSW replied to Esso on 9 February 2025, advising that there were no comments on the OPEP so far and the review would be completed by 13 February 2026. No feedback was received on the OPEP. | notification to other state agencies.<br>3. No feedback was received from TfNSW on the QRGs.<br>4. TfNSW advised there were no comments on the OPEP so far and that the review would be completed by 13 February 2026. No feedback was received on the OPEP.<br>No objection or claims on this activity. | | |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012500 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 18/08/2025 | 250827015300 | - | Email | Esso wants to schedule a meeting with the Stakeholder to discuss Bass Strait Producing Environment Plan and the Bass Strait Non-Producing Environment Plan, including the Oil Pollution Emergency Plan (OPEP). |
| To | 21/08/2025 | 250827015301 | - | Email | Esso requests a meeting with Stakeholder to discuss OPEP consultation timeframes. |
| To | 26/08/2025 | 250827015302 | - | Email | Esso sent a meeting invite to TfNSW to discuss the OPEP and QRGs. |
| From | 16/09/2025 | 251002211604 | - | Email | Stakeholder asking Esso to reschedule their meeting as they are going to be late. |

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| To | 16/09/2025 | 251002211754 | - | Email | Esso providing a date and time for the rescheduled meeting. |
| From | 16/09/2025 | 251002211950 | - | Email | Stakeholder agreeing to the rescheduled time for the meeting. |
| From | 30/09/2025 | 251003132512 | - | Email | Stakeholder asking Esso to reschedule the meeting. |
| To | 30/09/2025 | 251003132746 | - | Email | Esso rescheduling meeting. |
| From | 30/09/2025 | 251003135204 | - | Email | Stakeholder agreeing to the new rescheduled meeting time. |
| From | 30/09/2025 | 251003135455 | - | Email | Stakeholder asking to move the meeting to another day. |
| To | 30/09/2025 | 251003135456 | - | Email | Esso resent a meeting invite to TfNSW to discuss the OPEP and QRGs. |
| To | 01/10/2025 | 251003135728 | - | Email | Esso providing an overview to the Stakeholder of the topics to be discussed at the OPEP meeting. |
| From | 01/10/2025 | 251003142031 | - | Email | Stakeholder acknowledging the email. |
| To | 14/10/2025 | 251106092437 | - | Meeting | Esso met with Stakeholder to provide them information on the OPEP and consultation timeframes. |
| To | 10/11/2025 | 251118130159 | - | Phone call | Voicemail for Stakeholder to provide an update on OPEP consultation and to request information on who will act as the single point of contact for incident notification. |
| To | 11/11/2025 | 251118130647 | - | Email | Esso emails Stakeholder to provide an update on OPEP consultation timeframes and requests Stakeholder confirm who will act as the single point of contact for incident notification. |
| To | 11/12/2025 | 260105153834 | - | Email | Esso sends the Stakeholder the QRGs for consultation. |
| To | 18/12/2025 | 260106113121 | - | Email | Esso sends the Stakeholder the OPEP for consultation. |

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| To | 16/01/2026 | 260119083346 | - | Email | Esso asks Stakeholder if additional information is required for the review of the OPEP. |
| From | 16/01/2026 | 260119083455 | - | Email | Automatic Reply. |
| To | 03/02/2026 | 260119083454 | - | Phone call | Voicemail left asking the Stakeholder about the progress of the OPEP and QRGs consultation. |
| To | 03/02/2026 | 260119083457 | - | Email | Esso asked Stakeholder about the progress of the OPEP and QRGs consultation. |
| To | 09/02/2026 | 260119083456 | - | Phone call | Esso discussed the progress of the OPEP review. Stakeholder advised that the OPEP was being reviewed and there were no comments so far and feedback would be provided by 13 February 2026. |

*Victorian Fisheries Authority [101]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|

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|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011703 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093120 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105133934 | - | Email | Automatic reply. |

*Victorian Regional Channels Authority [112]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011513 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Wellington Shire Council [20]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of | Reg 34(g) (ii): EP controls |
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| | | | | **feedback, objection or claim and its response** | |
| 1. Council registered and attended Community Information Sessions in August and November 2025. Feedback from Community Information Sessions has been incorporated into this EP, where applicable.<br>2. Previous to this consultation period, Council completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Council with consultation material. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session.<br>2. Previous to this consultation period, Council requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | 1. No feedback, objection or claims received on this activity at the Community Information Session.<br>2. Esso will continue to provide updates on the activities of this EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000208 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 30/07/2025 | 250823011535 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805211517 | - | Email | Automatic reply. |
| From | 07/08/2025 | 251001011411 | - | Email | Stakeholder registering for the Sale consultation event. |
| To | 08/08/2025 | 251001014406 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 13/08/2025 | 250909105228 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass |

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| | | | | | Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101156 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126093145 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 251113085733 | - | Email | Stakeholder advising Esso that they will be attending an Esso event (Community Information Session). |
| From | 27/10/2025 | 251113091902 | - | Email | Stakeholder RSVP for Community session - Sale Tuesday 11 November 2025 The Criterion Hotel, 90 Macalister Street, Sale. |
| From | 27/10/2025 | 260105140435 | - | Email | Automatic reply. |
| To | 31/10/2025 | 251113105551 | - | Email | Esso Australia: Community Information Sessions - November 2025 - Registration Confirmation. |
| To | 11/11/2025 | 251125044850 | 251111_CIS_01 | Community Information Session | A Community Information Session was held in Sale 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165325 | 251117_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you. |
| From | 17/11/2025 | 260105172746 | - | Email | Automatic reply. |

*West Gippsland Catchment Management Authority [380]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011608 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093204 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

## Consultation report (Summary) for Regulation 25 (1)(b) relevant persons

*Department of Energy, Environment and Climate Action [371]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011618 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092139 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105164409 | - | Email | Automatic reply. |
| From | 27/10/2025 | 260105170200 | - | Email | Automatic reply. |

*WorkSafe Victoria [147]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. WorkSafe Victoria registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

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| From | 14/08/2025 | 250828014954 | - | Email | Stakeholder registering for the Community Information Session at Leongatha. |
| From | 14/08/2025 | 250828015332 | - | Email | Stakeholder registering a delegate for the Community Information Session at Leongatha. |
| To | 18/08/2025 | 250828021326 | - | Email | Esso registering Stakeholder for Community Information Session at Leongatha. |
| To | 20/08/2025 | 250909105255 | 250820_CIS_01 | Community Information Session | A Community Information Session was held in Leongatha 20 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101223 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126093218 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

## Consultation report (Summary) for Regulation 25 (1)(d) relevant persons

*3D Energi [847]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011915 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126091943 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Conservation Foundation [516]*

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|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011712 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126091948 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Manufacturing Workers Union [338]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August Community Information Session. Feedback from Community Information Sessions has been incorporated into the EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011530 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 01/08/2025 | 250813084623 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 11/08/2025 | 250909105219 | 250811_CIS_01 | Community Information Session | A Community Information Session was held in Lakes Entrance 11 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |

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| To | 27/08/2025 | 250909101147 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126091959 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Marine Conservation Society (ACMS) [517]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011529 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092002 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Southern Bluefin Tuna Industry Association [121]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011645 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092019 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Volunteer Coastguard [405]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823012618 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092021 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian WildCatch Fishing [207]*

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|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012253 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092022 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Wildlife Conservancy [372]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011917 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092023 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Australian Workers Union [337]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. AWU and Esso held a meeting on 18 August 2025, to discuss Esso's general activities, including this EP. No feedback was provided on this EP. | 1. No feedback, objection or claims on this activity. | 1. Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823012207 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 18/08/2025 | 250917154248 | - | Meeting - Online | Meeting to discuss current proposed activity scopes. |
| To | 27/10/2025 | 251126092024 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105165635 | - | Email | Automatic reply. |

*Blue Mackerel North Pty Ltd [630]*

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|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011706 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092037 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Boating Industry Association of Victoria [107]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | | |
|---|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823011918 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |
| To | 27/10/2025 | 251126092039 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. | |

*Bunurong Land Council Aboriginal Corporation [209]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000127 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 30/07/2025 | 250823011503 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092045 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105170051 | - | Email | Automatic reply. |

*Cape Barren Island Aboriginal Association Incorporated (TAS) [424]*

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|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

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|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000215 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Carnarvon Hibiscus [61]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| 1. Previous to this consultation period, Carnarvon Hibiscus completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Carnarvon Hibiscus with consultation material. | 1. Previous to this consultation period, Carnarvon Hibiscus requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | 1. Esso continues to provide updates on the activities of this EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012613 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092052 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Circular Head Aboriginal Corporation (TAS) [425]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*.

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000229 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Committee for Gippsland [218]*

An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*.

An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*.

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011927 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092055 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Commonwealth Fisheries Association [76]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011646 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092057 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Community Over Mining [335]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |

An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*.

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Community Over Mining registered and attended the August 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012606 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 13/08/2025 | 250827004826 | - | Email | Stakeholder registering for the Sale community session. |
| From | 13/08/2025 | 250827010351 | - | Email | Stakeholder asking Esso information on the Sales Community Information Sessions. |
| To | 13/08/2025 | 250827011943 | - | Email | Esso informing the Stakeholder that the Sale Session is still happening and that they will register the Stakeholder for the Session. |
| From | 13/08/2025 | 250827012213 | - | Email | Stakeholder thanking Esso for registering them for the Community Information Session. |
| To | 13/08/2025 | 250909090414 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 |

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| | | | | | and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250908155330 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092059 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Construction, Forestry, Maritime, Mining and Energy Union [496]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** / **Reg 34(g) (ii): EP controls** |
| 1. Union and Esso held a meeting on 22 September 2025, to discuss Esso activities including this EP. No feedback was provided by the Union on this EP. | | | 1. No response was provided by the Union on this EP.<br>No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. / Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011757 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 01/09/2025 | 251003130634 | - | Email | Esso has rescheduled as requested and checking to see if the time suits the Stakeholder. |
| To | 22/09/2025 | 260202124306 | - | Meeting | Meeting to discuss current scopes inc. decommissioning (C1, C1A and future pipelines) and Bass Strait Producing and Non-Producing EP's. |
| To | 30/09/2025 | 251003130835 | - | Email | Esso sending a follow up email covering what was discussed in the meeting and supplying a contact to best discuss their questions with. |
| To | 27/10/2025 | 251126092100 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Cooper Energy [34]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823011616 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |

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| To | 27/10/2025 | 251126092102 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Corner Inlet Fisheries Habitat Association [83]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011904 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092105 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*East Gippsland Estuarine Fishermens Association [82]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011514 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092209 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Eastern Victorian Sea Urchin Divers Association [79]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011840 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092215 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Eastern Zone Abalone Industry Association [136]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011901 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092216 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Elders Council of Tasmania Aboriginal Corporation [426]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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|---|---|---|---|---|---|
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000232 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Electrical Trades Union [336]*

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|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. ETU and Esso held a meeting on 18 August 2025, to discuss Esso's general activities, including this EP. No feedback was provided on this EP. | | | 1. No feedback, objection or claims on this activity. | 1. Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012309 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 18/08/2025 | 250917154638 | - | Meeting - Online | Meeting to discuss current proposed activity scopes. |

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| To | 27/10/2025 | 251126092218 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Emperor Energy [58]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011634 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092220 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260106120125 | - | Email | Thank you for your Judith-2 relevant person response. |

*Environment Victoria [518]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of** | **Reg 34(g) (ii): EP controls** |

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| | | | | **feedback, objection or claim and its response** | |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011507 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092234 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Far Out Charters [204]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011924 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 27/10/2025 | 251126092241 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*First Tasmanians Aboriginal Corporation (TAS) [427]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000226 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Fishing Tribunal [128]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011735 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092244 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Flinders Island Aboriginal Association Inc (TAS) [428]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000210 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Friends of the Earth [353]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. FoE attended the August and November 2025 Community Information Session. Feedback from community information sessions has been incorporated into the EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012517 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 19/08/2025 | 250909105244 | 250819_CIS_01 | Community Information Session | A Community Information Session was held in Foster 19 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101212 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092249 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

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| From | 27/10/2025 | 260105172338 | - | Email | Automatic reply. |
| To | 11/11/2025 | 251119182156 | 251111_CIS_02 | Community Information Session | A Community Information Session was held in Foster 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165314 | 251117_E_02 | Email | Esso's November Community Information Sessions (South Gippsland) – Thank you. |

*Game Fishing Association of Victoria [197]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011549 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092255 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*GB Energy [827]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder attended the November 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011926 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092259 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| To | 11/11/2025 | 251125044855 | 251111_CIS_01 | Community Information Session | A Community Information Session was held in Sale 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165330 | 251117_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you. |

*Gippsland Angling Clubs Association [694]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Previous to this consultation period, the Association completed the Esso Consultation Questionnaire nominating to be consulted on the activities of the EP. Esso continues to provide the Association with consultation material. | | | 1. Previous to this consultation period, the Association requested to be consulted on the activities of this EP.<br>No feedback, objection or claims were received on this activity. | Esso continues to provide updates on the activities of this EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012409 | 250730_E_01 | Email | Esso Australia: Consultation on the Bass Strait Non-Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092301 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Gippsland Climate Change Network [637]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | |
| **Summary of responses received and Esso's consideration and response** | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| 1. Gippsland Climate Change Network registered and attended the November 2025 Community Information Session. Feedback from community information sessions has been incorporated into this EP, where applicable.<br>2. Previous to this consultation period, the Gippsland Climate Change Network completed the Esso Consultation Questionnaire nominating to be consulted on the activities of the EP. Esso continues to provide Gippsland Climate Change Network with consultation material. | 1. No feedback, objection or claims received on this activity at the Community Information Session.<br>2. Previous to this consultation period, Gippsland Climate Change Network requested to be consulted on the activities of this EP.<br>No feedback, objection or claims were received on this activity. | 1. No feedback, objection or claims received on this activity at the Community Information Session.<br>2. Esso continues to provide updates on the activities of this EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011726 | 250730_E_01 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092304 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 10/11/2025 | 251114091902 | - | Email | Stakeholder registering to attend the Sale Community Information Session. |
| To | 10/11/2025 | 251114093650 | - | Email | Esso confirming Stakeholder registration for upcoming Esso Community Information Session |
| To | 11/11/2025 | 251125044854 | 251111_CIS_01 | Community Information Session | A Community Information Session was held in Sale 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165329 | 251117_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you. |

*Gippsland Lakes Fishing Club [208]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011638 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092304 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Gippsland Lakes Yacht Club [408]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011704 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092306 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Golden Paradise Beach Ratepayers & Residents Association Inc [581]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012331 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092329 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Great Eastern Offshore Wind Farm Project Co Pty Ltd [650]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012037 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092331 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105133450 | - | Email | Automatic reply. |

*GreenPeace [362]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback,** | **Reg 34(g) (ii): EP controls** |

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| | | | | **objection or claim and its response** | |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011946 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805203345 | - | Email | Automatic reply. |
| To | 27/10/2025 | 251126092333 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105171114 | - | Email | Automatic reply. |

*Gulaga and Biamanga Joint Authority [429]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

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| To | 30/07/2025 | 250823000224 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Gunaikurnai Land and Waters Aboriginal Corporation [213]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| 1. Esso held a meeting with GLaWAC on 21 August 2025, providing an overview on this EP, its activities, EP submission timeframes, and potential risks and impacts. Esso sent GLaWAC on 28 August 2025, the discussion notes and presentation from this meeting; and a request for feedback on any of Esso's proposed activities, including this EP. No response was received from GLaWAC, including on this EP.<br><br>2. In October and November 2025, GLaWAC and Esso corresponded on the logistics of their next meeting.<br><br>3. Esso held a meeting with GLaWAC on 4 December 2025, with a reminder on the activities of this EP, as well as other Esso activities – topics outside the scope of this EP. Esso sent GLaWAC on 17 December 2025, the discussion notes and presentation from this meeting; and a request for feedback on any of Esso's proposed activities. No response was received from GLaWAC on this EP. | 1. Esso sent GLaWAC the discussion notes and presentation from the August 2025 meeting; and a request for feedback on any of Esso's proposed activities, including this EP. No response was received from GLaWAC, including on this EP.<br><br>2. GLaWAC corresponded with Esso on the logistics of their next meeting.<br><br>4. Esso sent GLaWAC the discussion notes and presentation from this meeting; and a request for feedback on any of Esso's proposed activities, including this EP. No response was received from GLaWAC on this EP.<br><br>No objection or claims on this activity. | 1. Esso will continue to consult with GLaWAC on its activities, refer to Section 4.5 | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| No feedback, claims or objections have been made by GLaWAC on this EP.<br>To note: during the consultation period, there was other correspondence between GLaWAC and Esso regarding site visits, partnership agreements and other activities Esso is currently consulting on – topics outside the scope of this EP and not included in this summary. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000213 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 30/07/2025 | 250823011622 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805205942 | - | Email | Automatic reply. |
| To | 21/08/2025 | 250828120604 | - | Meeting - Online | Activity update with GLAWAC, including Bass Strait Producing EP. |
| To | 28/08/2025 | 250904110820 | - | Email | Esso sending the Stakeholder the discussion notes and presentations for the July 2025 and August 2025 meetings for their alignment. |
| To | 22/09/2025 | 251003115226 | - | Email | Esso providing more actions from the August meeting. |
| To | 17/10/2025 | 251124162442 | 251124170742 | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092337 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

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| To | 13/11/2025 | 251113123740 | - | Phone call | November monthly meeting logistics. |
| To | 20/11/2025 | 251219065741 | - | Email | Esso requesting an upcoming meeting to be rescheduled. |
| From | 24/11/2025 | 251219065918 | - | Email | Stakeholder confirming they will reschedule an upcoming meeting. |
| To | 24/11/2025 | 251219071151 | - | Email | RE: Rescheduling an upcoming meeting. |
| To | 28/11/2025 | 251219073817 | - | Email | Esso requesting confirmation of date for a rescheduled meeting. |
| To | 02/12/2025 | 251223064817 | - | Email | Esso providing Stakeholders with meeting pack to be shared in an upcoming meeting. |
| To | 02/12/2025 | 251223064946 | - | Email | Esso sharing meeting pack and email sent to Stakeholders to Esso Consultation Team. |
| To | 04/12/2025 | 251221130305 | - | Meeting - Online | Activity update with GLAWAC. |
| To | 17/12/2025 | 260105104133 | - | Email | GLaWAC Esso Monthly discussion notes - December. |

*Hastings Coastal Advisory Group [190]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012125 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092347 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Hewardia [205]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012300 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092348 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*High Sea Wind [650]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |

| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
|---|---|---|---|---|---|
| **Summary of responses received and Esso's consideration and response** | | | **Summary of responses received and Esso's consideration and response** | | **Summary of responses received and Esso's consideration and response** | **Summary of responses received and Esso's consideration and response** |
| Not applicable as no responses were received. | | | Not applicable as no responses were received. | | Not applicable as no responses were received. | Not applicable as no responses were received. |
| **To/ from** | **To/ from** | **To/ from** | **To/ from** | **To/ from** | **To/ from** | |
| To | 30/07/2025 | 250823012037 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |
| To | 27/10/2025 | 251126092350 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. | |
| From | 27/10/2025 | 260105133450 | - | Email | Automatic reply. | |

*Iberdrola Australia OW 2 Pty Limited [631]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012240 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092352 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*King Island Shire Council [430]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000214 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Kurnai Aboriginal Corporation [742]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Kurnai Aboriginal Corporation sent a letter to Esso on 13 August 2025, outlining legal obligations arising from decommissioning and Native Title impacts, and requesting compensation – topics outside the scope of this EP. Esso replied to Kurnai Aboriginal Corporation on 13 August 2025, acknowledging receipt of this letter. Esso further corresponded with Kurnai Aboriginal Corporation on 29 August 2025, providing a status update on the response to their letter.<br><br>2. Esso contacted Kurnai Aboriginal Corporation on 22 and 29 October 2025, requesting a meeting with Kurnai Aboriginal Corporation to discuss the letter. Kurnai Aboriginal Corporation replied to Esso on 3 November 2025, stating it was open to scheduling a meeting with Esso if certain conditions were met, including Esso funding Kurnai Aboriginal Corporations' legal costs for consultation and Esso providing all documentation regarding decommissioning plans – topics outside the scope of this EP. Esso responded to Kurnai Aboriginal Corporation on 4 December 2025, stating that it had met all consultation requirements for Campaign #1 and that there was no legal obligation for compensation, legal costs or request for documentation – topics outside the scope of this EP.<br><br>3. Esso contacted Kurnai Aboriginal Corporation on 10 December 2025, suggesting regular | 1. Kurnai Aboriginal Corporation outlined the legal obligations arising from decommissioning and Native Title impacts, and requested compensation – topics outside the scope of the activities in this EP.<br><br>2. Kurnai Aboriginal Corporation agreed to scheduling a meeting with Esso if certain conditions were met, including Esso funding Kurnai Aboriginal Corporations' legal costs for consultation and Esso providing all documentation regarding decommissioning plans – topics outside the scope of this EP.<br><br>3. Kurnai Aboriginal Corporation agreed to regular meetings in 2026 and stated that the consultation undertaken for Campaign #1 is insufficient and Esso had not met its' environmental, legal and Native Title obligations – topics outside the scope of this EP.<br><br>4. Kurnai Aboriginal Corporation rejected Esso's claim that consultation for Campaign #1 was complete; and requested documents on decommissioning plans and clarification on how Esso has complied with cultural, | 1. Esso does not consider the topics raised by Kurnai Aboriginal Corporation relevant to this EP; and has included them in this summary to demonstrate transparency in its engagement.<br><br>2. Esso will continue to request for regular information sharing meetings with Kurnai Aboriginal Corporation.<br><br>3. Esso will continue to engage with Kurnai Aboriginal Corporation on all activities. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| meetings with Kurnai Aboriginal Corporation in 2026 to share information about Esso's general activities. Kurnai Aboriginal Corporation replied to Esso on 11 December 2025, agreeing to regular meetings in 2026. Included with this correspondence was a letter Kurnai Aboriginal Corporation sent to Esso, stating that the consultation undertaken for Campaign #1 is insufficient and Esso had not met its' environmental, legal and Native Title obligations – topics outside the scope of this EP. Esso responded to Kurnai Aboriginal Corporation on 12 January 2026, stating that Esso has met its' consultation requirements for Campaign #1; that legacy impacts and compensation are not relevant to Campaign #1 and that any further assessment of compliance would be decided by NOPSEMA – topics outside the scope of this EP.<br><br>4. Esso suggested to Kurnai Aboriginal Corporation on 13 January 2026, a meeting in February 2026 to share information about Esso's general activities. Kurnai Aboriginal Corporation sent a follow-up letter to Esso on 23 January 2026, rejecting Esso's claim that consultation for Campaign #1 was complete; and requesting documents on decommissioning plans and clarification on how Esso has complied with cultural, environmental, and Native Title obligations for Campaign #1 before a meeting in February 2026 – topics outside the scope of this EP. Esso replied to Kurnai Aboriginal Corporation on 23 January 2026, acknowledging receipt of this follow-up letter. | | | environmental, and Native Title obligations for Campaign #1 before a meeting with Esso in February 2026 – topics outside the scope of this EP.<br><br>No feedback, objections or claims made on this activity. | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |

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| To | 30/07/2025 | 250823012102 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 13/08/2025 | 250904144306 | - | Email | Stakeholder sent letter to Esso outlining legal obligations arising from decommissioning and Native Title impacts, including decommissioning in a safe, environmentally responsible, and culturally respectful manner. |
| From | 13/08/2025 | 251219063012 | - | Email | Stakeholder sent letter to Esso outlining legal obligations arising from decommissioning and Native Title impacts, including decommissioning in a safe, environmentally responsible, and culturally respectful manner. |
| To | 13/08/2025 | 250904145346 | - | Email | Esso confirming receipt of letter received and forwarded to the appropriate persons for consideration. |
| From | 14/08/2025 | 250904145646 | - | Email | Kurnai Aboriginal Corporation thanking Esso for confirming receipt of letter. |
| To | 29/08/2025 | 250904145927 | - | Email | Esso updating Kurnai Aboriginal corporation they are still working through finalising a response to the letter. |
| To | 22/10/2025 | 251112154704 | - | Email | Esso requesting to meet Stakeholder to discuss the legal letter. |
| To | 27/10/2025 | 251126092359 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| To | 29/10/2025 | 251219063428 | - | Email | Esso requesting to meet with Kurnai Aboriginal Corporation to discuss the legal letter. |
| From | 03/11/2025 | 251222115904 | - | Email | Stakeholder response outlining conditions for consultation that aligns with Esso's obligations under the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth) and the Native Title Act 1993 (Cth) and reflects the principles of good faith engagement and cultural safety. |
| To | 05/12/2025 | 251222120533 | - | Email | Esso's response to Stakeholders conditions for consultation. |
| To | 10/12/2025 | 251222121251 | - | Email | Esso's request for quarterly meetings with Stakeholder. |

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| From | 11/12/2025 | 251222121645 | - | Email | Stakeholder acknowledges receipt of Esso's response to legal letter and agrees to regular meetings with Esso in 2026. Attached also a follow-up legal letter. |
| From | 11/12/2025 | 260116084134 | - | Email | Stakeholder accepting Esso's proposal for quarterly meetings in 2026. |
| To | 24/12/2025 | 260106114302 | - | Email | Reminder: Esso Australia: Consultation on the Bass Strait Producing Environment Plan - October 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 12/01/2026 | 260112124700 | - | Email | Esso's response to Stakeholder's follow-up legal letter re consultation on decommissioning. |
| To | 13/01/2026 | 260116084519 | - | Email | Esso requesting Stakeholders' availability to set up quarterly meetings for 2026. |
| From | 23/01/2026 | 260127110642 | - | Email | Letter from stakeholder regarding Esso's consultation obligation. |
| To | 23/01/2026 | 260127111422 | - | Email | Letter from Stakeholder - confirmation it has been received and will be circulated for review and response. |
| From | 23/01/2026 | 260127111725 | - | Email | Stakeholder thanking Esso for confirming receipt of letter. |

*Lake Tyers Aboriginal Trust [395]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012216 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092401 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Lakes Entrance Fishermen Limited [17]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. LEFL sent correspondence to NOPSEMA, with a cc to Esso, on 7 August 2025, outlining their position of full removal and seabed capping of offshore infrastructure to protect marine safety, environment, and the fishing industry – topics outside the scope of this EP. Esso responded to LEFL on 4 September 2025, acknowledging LEFL's position and requesting to continue with quarterly meetings.<br>2. Esso contacted LEFL on 22 and 30 October and 10 November 2025, to discuss the continuation of quarterly meetings with Esso. LEFL responded on 10 November 2025, reiterating their position of full removal of offshore infrastructure and requesting information on how stakeholder engagement would be managed | 1. LEFL submitted a letter to NOPSEMA, with a cc to Esso, outlining their position of full removal and seabed capping of offshore infrastructure to protect marine safety, environment, and fishing industry – topics outside the scope of this EP.<br>2. LEFL reiterated their position to Esso of full removal of offshore infrastructure and | 1. Esso does not consider the topics raised by LEFL relevant to this EP; and has included them in this summary to demonstrate transparency in its engagement.<br>2. Esso will continue to offer LEFL quarterly meetings.<br>3. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| once Esso transitioned to Woodside – topics outside the scope of this EP. Esso responded to LEFL on 4 December 2025, noting that the established consultation frameworks will continue as part of a 'lift and shift' approach to Woodside. Esso also suggested reinstating quarterly meetings. No response was received from LEFL.<br><br>3. LEFL attended the August and November 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable.<br><br>4. Previous to this consultation period, LEFL completed the Esso Consultation Questionnaire nominating to be consulted on the activities of the EP. Esso continues to provide LEFL with consultation material.<br><br>To note: during this consultation period, LEFL did RSVP to attend Esso's Gippsland Community Dinner in November 2025, however did not attend - topics outside the scope of this EP and not included in this summary. | requested information on how stakeholder engagement would be managed once Esso transitioned to Woodside – topics outside the scope of this EP.<br><br>3. No feedback, objection or claims received on this activity at the Community Information Session.<br><br>4. Previous to this consultation period, LEFL requested to be consulted on the activities of this EP.<br><br>No feedback, objection or claims on this activity. | 4. Esso continues to provide updates on the activities of this EP. | |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011826 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 07/08/2025 | 250904130037 | - | Email | Stakeholder supports full removal and seabed capping of offshore infrastructure to protect marine safety, environment, and fishing industry. |
| To | 11/08/2025 | 250909105222 | 250811_CIS_01 | Community Information Session | A Community Information Session was held in Lakes Entrance 11 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 |

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| | | | | | Onshore Reception Centre Stage 2 and Campaign 1A decommissioning. |
| To | 27/08/2025 | 250909101150 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 04/09/2025 | 250904131142 | - | Email | Esso outlines upcoming work and invites the Stakeholder to continue quarterly meetings to stay informed and provide feedback. |
| To | 22/10/2025 | 251223065855 | - | Phone call | Voicemail. |
| To | 27/10/2025 | 251126092403 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105164926 | - | Email | Automatic reply. |
| To | 30/10/2025 | 251223065856 | - | Phone call | Voicemail. |
| To | 10/11/2025 | 251125044857 | 251110_CIS_01 | Community Information Session | A Community Information Session was held in Lakes Entrance 10 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 10/11/2025 | 251223065857 | - | Phone call | Voicemail. |

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| From | 10/11/2025 | 251223065831 | - | Email | Request for Further Information – Transition Between Esso and Woodside. |
| To | 17/11/2025 | 251117165332 | 251117_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you. |
| To | 17/11/2025 | 251217203201 | 251117_E_01 | Email | Update: Esso Australia: Consultation on the Bass Strait Non-Producing Environment Plan - November 2025, including links to information bulletin. |
| To | 04/12/2025 | 251223070021 | - | Email | Esso response to Stakeholder RE: Request for Further Information – Transition Between Esso and Woodside. |

*Lakes Entrance Offshore Charters [410]*

An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*.

An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*.

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012105 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 27/10/2025 | 251126092407 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Lakes Entrance Scallop Fishing Industry Association [18]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011532 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092408 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Life Saving Victoria [109]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011700 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092418 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Maritime Industry Australia Limited [199]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Maritime Industry Australia Limited replied to Esso on 28 October 2025, requesting an email address be taken off the distribution list as Esso correspondence is received via another email address. Esso has removed the Stakeholder from the distribution list. | | | 1. Maritime Industry Australia Limited requested to be taken of the distribution list as Esso correspondence is received via another email address.<br>No feedback, objection or claims on this activity. | 1. Esso has removed the email address from the distribution list. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

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| To | 30/07/2025 | 250823011509 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251113100926 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 28/10/2025 | 251113101242 | - | Email | Stakeholder unsubscribing from Esso email. |

*Maritime Union of Australia [348]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
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| 1. Maritime Union of Australia held a meeting with Esso on 13 August 2025, to discuss Esso activities, including the scope of this EP's activities. No feedback was received on this EP.<br>2.. Previous to this consultation period, Maritime Union of Australia completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Maritime Union of Australia with consultation material. | 1. No feedback, objection or claims on this activity.<br>2. Previous to this consultation period, Maritime Union of Australia requested to be consulted on the activities of this EP. | 1. Esso continues to provide updates on the activities of this EP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011541 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 13/08/2025 | 250917154854 | - | Meeting - Online | Meeting to discuss current proposed activities, including the Bass Strait Producing Environmental Plan. |
| To | 27/10/2025 | 251126092428 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Melythina tiakana warrana Aboriginal Corporation (TAS) [431]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
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| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000221 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805191842 | - | Email | Automatic reply. |
| From | 06/08/2025 | 250828144922 | - | Email | Automatic reply. |

*Mining and Energy Union [639]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |

| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
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| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012226 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092438 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Mitchelson Fisheries [211]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

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| To | 30/07/2025 | 250823012218 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092440 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Navigator North Project Pty Ltd [585]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011903 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092455 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*New South Wales Aboriginal Land Council [374]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000206 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Awabakal [433]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823000228 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Bahtabah [434]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000141 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Batemans Bay [435]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000142 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Bega [436]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000143 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Bodalla [437]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000138 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Cobowra [438]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | |
| **Summary of responses received and Esso's consideration and response** | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000144 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Darkinjung [439]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000204 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Eden [440]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | | | Summary of feedback, objection or claim | | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823000145 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |

*NSW Local Aboriginal Land Council: Illawarra [442]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |

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| To | 30/07/2025 | 250823000146 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Jerrinja [443]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** / **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. / Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000130 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: La Perouse [445]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of** | **Reg 34(g) (ii): EP controls** |

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| | | | | **feedback, objection or claim and its response** | |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000131 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Merrimans [446]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000132 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Metropolitan [447]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000219 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Mogo [448]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000220 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Ulladulla [450]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000133 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Aboriginal Land Council: Wagonga [451]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000235 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Government Area / Council: Bega Valley [454]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823000149 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805201203 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Central Coast [455]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
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| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000135 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805202712 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Eurobodalla [456]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000152 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805202450 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Kiama [458]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823000154 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805203102 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Lake Macquarie [459]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000155 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805221636 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Lord Howe Island Board [640]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000134 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Government Area / Council: Mosman [461]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823000157 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Government Area / Council: Newcastle [462]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000217 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805203221 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Northern Beaches [464]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
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| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000158 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805203446 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Shellharbour [467]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823000159 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Government Area / Council: Shoalhaven [468]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000200 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*NSW Local Government Area / Council: Sutherland Shire [469]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000231 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805205735 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Waverley [471]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000211 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| From | 30/07/2025 | 250805210217 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Wollongong [472]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000203 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805203845 | - | Email | Automatic reply. |

*NSW Local Government Area / Council: Woollahra [473]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of** | **Reg 34(g) (ii): EP controls** |

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| | | | | | **feedback, objection or claim and its response** | |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823000230 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |

*NTSCORP Limited (NSW) [474]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823000223 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |

*Oil Spill Response Limited [25]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011609 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092501 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Orsted Offshore Australia 1 Pty Ltd - Gippsland 1 and 2 Projects [586]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011531 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092504 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Panama II Octopus fishing vessel [123]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012535 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092506 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Parrdarrama Pungenna Aboriginal Corporation (TAS) [475]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000227 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Piscari Industries Pty Ltd [212]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011755 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092521 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Port Phillip Sea Pilots [84]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011512 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092529 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Prom Coast Ecolink [666]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Prom Coast Ecolink registered (before this EP's consultation period for the August Community Information Session) and attended | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| August and November 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into the EP, where applicable.<br><br>To note: during the consultation period, there was other correspondence between Prom Coast Ecolink and Esso regarding requests for information on chemicals used for decommissioning processes – topics outside the scope of this EP and not included in this summary. | No feedback, claims or objections received on this activity. | | |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012336 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 01/08/2025 | 250813084621 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation |
| To | 19/08/2025 | 250909105247 | 250819_CIS_01 | Community Information Session | A Community Information Session was held in Foster 19 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101215 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you |
| To | 27/10/2025 | 251126092534 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

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| From | 04/11/2025 | 251113110015 | - | Email | RSVP from stakeholder for Esso Foster Community Information Session |
| To | 07/11/2025 | 251114140020 | - | Email | Esso Australia: Community Information Sessions - November 2025 - Registration Confirmation |
| To | 11/11/2025 | 251119182203 | 251111_CIS_01 | Community Information Session | A Community Information Session was held in Foster 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165321 | 251117_E_03 | Email | Esso's November Community Information Sessions (South Gippsland) – Thank you |

*Qube [515]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011805 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092537 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Save Westernport [214]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012436 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093000 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Scallop Fishermens Association [196]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012509 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093001 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Sea Shepherd Australia [520]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011556 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093005 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Seafood Industry Australia [948]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Seafood Industry Australia engaged Esso (before this EP's consultation period), to discuss Esso's decommissioning activities and consultation with the fishing industry – topics outside the scope of this EP.<br><br>2. Seafood Industry Australia and Esso corresponded on 4 August 2025, to organise an introductory meeting.<br><br>3. Seafood Industry Australia and Esso held a meeting on 5 August 2025, where Seafood Industry Australia gave an overview of their company and stated they were interested in Esso's general activities. Seafood Industry Australia queried why they had not been considered a relevant person by Esso. Esso responded that the Australian Fisheries Management Authority had provided feedback (prior to this consultation period) to engage with local/state fisheries such as Seafood Industry Victoria, which Esso has been doing on a quarterly basis.<br><br>4. At this meeting, Seafood Industry Australia agreed to another meeting to discuss Esso's general activities in more detail, including the activities of this EP.<br><br>5. Esso contacted Seafood Industry Australia on 6 October 2025, to organise a follow-up meeting and provided Seafood Industry Australia a link to Esso's Consultation Hub. Seafood Industry Australia replied to Esso on 10 October 2025, declining the meeting invitation. Esso contacted Seafood Industry | 1. Seafood Industry Australia engaged Esso (before this EP's consultation period), to discuss Esso's decommissioning activities and consultation with the fishing industry – topics outside the scope of this EP.<br><br>2. Seafood Industry Australia and Esso corresponded to organise an introductory meeting.<br><br>3. Seafood Industry Australia gave an overview of their company, stated they were interested in Esso's general activities and queried why they were not considered a relevant person by Esso.<br><br>4. Seafood Industry Australia agreed to another meeting to discuss Esso's general activities in more detail, including the activities of this EP.<br><br>5. Seafood Industry Australia declined Esso's follow-up meeting requests.<br><br>No objection or claims on this activity. | 1. Esso does not consider all of the topics raised by Seafood Industry Australia relevant to this EP; and has included them in this summary to demonstrate transparency in its engagement.<br><br>2. Esso notes that the Australian Fisheries Management Authority has previously (prior to this consultation period) provided feedback to Esso to engage with local/state fisheries such as Seafood Industry Victoria as relevant persons, which Esso has been doing on a quarterly basis.<br><br>3. Esso will continue to request meetings with Seafood Industry Australia to discuss its activities.<br><br>4. Esso will continue to engage Seafood Industry Victoria on its activities. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| Australia on 31 October 2025, requesting to set up another meeting with Seafood Industry Australia. No response was received. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 04/08/2025 | 250820193812 | - | Email | Esso sending out a calendar invite for an online meeting to discuss an overview of Esso's decommissioning plans and how the Stakeholder would like to be consulted with going forward. |
| From | 04/08/2025 | 250821125618 | - | Email | Stakeholder thanking Esso for the email and asking to switch the meeting time to 9am or 12pm. |
| To | 04/08/2025 | 250930214457 | - | Email | Esso informing the Stakeholder they have moved the meeting to 12pm. |
| From | 04/08/2025 | 250930213847 | - | Email | Stakeholder thanking Esso for moving the meeting to 12pm. |
| To | 05/08/2025 | 250811094403 | - | Meeting - Online | Introduction meeting held. |
| To | 06/10/2025 | 251030110027 | - | Email | Esso follow-up email to stakeholder to schedule a second meeting and share detailed information about project scope, with an open invitation for broader organisational participation. |
| From | 10/10/2025 | 251110110255 | - | Email | Declined: Esso Australia Bass Strait Decommissioning. |
| To | 27/10/2025 | 251126093006 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| To | 31/10/2025 | 251113104126 | - | Email | Esso Australia Decommissioning Activities Meeting - follow up. |

*Seafood Industry Victoria [33]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. SIV and Esso corresponded in early August 2025, on including a summary of this EP's activities and other Esso activities, in SIV's enews update.<br><br>2. SIV and Esso corresponded in late October 2025, to organise the logistics of their quarterly meeting.<br><br>3. At the same time, SIV and Esso corresponded on including a summary of the November 2025 Community Information Sessions in SIV's enews update.<br><br>5. SIV and Esso held a meeting on 1 December 2025, where Esso discussed Esso's general activities, including this EP. No feedback, objections or claims were received from SIV.<br><br>To note: during the consultation period, there was other correspondence between SIV and Esso, regarding other activities Esso is currently consulting on – topics outside the scope of this EP and not included in this summary. | 1. SIV and Esso corresponded on including a summary of this EP's activities and other Esso activities, in SIV's enews update.<br><br>2. SIV and Esso corresponded to organise the logistics of their quarterly meeting and the inclusion of a summary of the November 2025 Community Information Sessions in SIV's enews update.<br><br>3. SIV and Esso held a meeting, where Esso discussed Esso's general activities, including this EP. No feedback, objections or claims were received from SIV.<br><br>No feedback, objection or claims on this activity. | 1. Esso will continue to engage with SIV on its activities.<br><br>Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012200 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| From | 01/08/2025 | 250819205533 | - | Email | Stakeholder asking Esso if they would like them to distribute a summary of the email in the next enews update to their members. |
| To | 05/08/2025 | 250930232354 | - | Email | Esso supplying the update on their current consultation activities for the next enews publication. |
| From | 06/08/2025 | 251001000220 | - | Email | Stakeholder confirming the information that will be distributed within SIV's e-news update. |
| To | 06/08/2025 | 251001002854 | - | Email | Esso agreeing to the information being put into the enews publication. |
| To | 10/10/2025 | 251121072446 | - | Email | Meeting Forward Notification: SIV / Esso 4Q25 meeting. |
| To | 22/10/2025 | 251112154935 | - | Email | Esso/SIV 4Q25 Meeting logistics. |
| From | 22/10/2025 | 251112155413 | - | Email | RE: Esso/SIV 4Q25 Meeting logistics. |
| To | 22/10/2025 | 251112155730 | - | Email | RE: Esso/SIV 4Q25 Meeting logistics. |
| From | 22/10/2025 | 251112160028 | - | Email | Accepted: SIV / Esso 4Q25 meeting. |
| To | 27/10/2025 | 251113101811 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 28/10/2025 | 251113102110 | - | Email | Stakeholder enquiring if Esso would like Community Information Sessions to be included in the stakeholder's next e-news update to members. |
| To | 28/10/2025 | 251113102928 | - | Email | Esso confirming to include the Esso Community Information Session Information in the Stakeholders e-news. |
| From | 30/10/2025 | 251113103801 | - | Email | Stakeholder confirming they will include Esso Community Information Sessions information in their e-news. |
| To | 17/11/2025 | 251118065716 | - | Email | SIV / Esso 4Q25 quarterly meeting: logistics. |
| From | 17/11/2025 | 251118065854 | - | Email | Stakeholder response re: SIV / Esso 4Q25 quarterly meeting: logistics. |

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| To | 18/11/2025 | 251119151503 | - | Email | SIV / Esso 4Q25 quarterly meeting: proposed agenda. |
| From | 18/11/2025 | 251119151827 | - | Email | Stakeholder response to Esso sharing their proposed agenda for an upcoming meeting. |
| To | 20/11/2025 | 251121070951 | - | Email | Esso advising Stakeholder they are unable to attend a meeting and requests rescheduling. |
| To | 20/11/2025 | 251121072312 | - | Email | Esso confirming they will send an updated meeting invite. |
| From | 20/11/2025 | 251121072103 | - | Email | Stakeholder confirms rescheduling an upcoming meeting . |
| From | 20/11/2025 | 251121072721 | - | Email | Meeting accepted: SIV / Esso 4Q25 meeting. |
| From | 20/11/2025 | 251121073956 | - | Email | Meeting accepted: SIV / Esso 4Q25 meeting. |
| From | 01/12/2025 | 251219074150 | - | Email | Esso sending meeting details to Stakeholder. |
| From | 01/12/2025 | 251219074441 | - | Email | Stakeholder confirms they are able to attend a meeting via zoom. |
| To | 01/12/2025 | 260106122302 | - | Meeting - Online | Esso met with SIV for quarterly update on all offshore activities. |

*Seaspray Surf Lifesaving Club [402]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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|---|---|---|---|---|---|
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012333 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093011 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Seven Group Holdings [24]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012210 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093012 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Six Rivers Aboriginal Corporation (TAS) [476]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000137 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*South East Trawl Fishing Industry Association [37]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. SETFIA and Esso held a quarterly meeting on 11 August 2025, where Esso provided an update on Esso activities, including the activities of this EP. No feedback, objection or claims were made by SETFIA. | 1. SETFIA was provided an update on Esso activities, including the activities of this EP. No feedback, objection or claims were made by SETFIA. | 1. Esso will continue to engage with SETFIA on its activities. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| 2. SETFIA and Esso corresponded in late October 2025, on distributing an SMS to SETFIA members about Esso's November 2025 Community Information Sessions.<br>3. SETFIA and Esso held a quarterly meeting on 11 November 2025, where Esso provided SETFIA a reminder of this EP. No feedback, objection or claims were made by SETFIA.<br>To note: during the consultation period, there was other correspondence between SETFIA and Esso regarding other activities Esso is currently consulting on – topics outside the scope of this EP and not included in this summary. | 2. SETFIA and Esso corresponded on distributing an SMS to SETFIA members about Esso's November 2025 Community Information Sessions.<br>3. SETFIA was provided a reminder on this EP. No feedback, objection or claims were made by SETFIA.<br>No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012046 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 11/08/2025 | 250827001011 | - | Email | Esso asking Stakeholder information about where they will have the meeting, |
| From | 11/08/2025 | 250827001221 | - | Email | Stakeholder suggesting a place to have the meeting. |
| To | 11/08/2025 | 251112113732 | - | Meeting - In Person | Esso met with SETFIA for quarterly update on all Esso activities, including the Bass Strait Producing EP. |
| To | 27/10/2025 | 251113090313 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 251113090654 | - | Email | Stakeholder response to Esso Australia: Community Information Sessions - November 2025 . |
| From | 27/10/2025 | 251113091151 | - | Email | Stakeholder response to Esso regarding Esso Australia: Community Information Sessions - November 2025. |

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| To | 27/10/2025 | 251113091458 | - | Email | Esso response to stakeholder question regarding SMS for Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 251113094101 | - | Email | Stakeholder confirming SMS to send regarding Esso Australia: Community Information Sessions - November 2025. |
| To | 28/10/2025 | 251113100540 | - | Email | Esso response to stakeholder confirming SMS regarding Esso Community Information Sessions - November 2025. |
| To | 10/11/2025 | 260106120722 | - | Meeting - In Person | Esso met with SETFIA for quarterly update on all Esso activities. |

*Southern Shark Industry Alliance [77]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011546 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093045 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Star of the South Wind Farm Pty Ltd (FL005) and Kut-Wut Bratualung Pty Ltd (FL006) [638]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| 1. Stakeholder registered (prior to consultation period) and attended August Community Information Session. Feedback from community information sessions has been incorporated into the EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012026 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 01/08/2025 | 250813084617 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 12/08/2025 | 250909105223 | 250812_CIS_01 | Community Information Session | A Community Information Session was held in Yarram 12 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101151 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |

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|---|---|---|---|---|---|
| To | 27/10/2025 | 251126093047 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Surfrider Foundation Australia [522]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012258 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093053 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*TAS Local Government Area / Council: Break ODay [477]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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|---|---|---|---|---|---|
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000126 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805202314 | - | Email | Automatic reply. |

*TAS Local Government Area / Council: Burnie [478]*

| | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000139 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805202603 | - | Email | Automatic reply. |

*TAS Local Government Area / Council: Central Coast [479]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | | |
|---|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823000128 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |
| From | 30/07/2025 | 250805203559 | - | Email | Automatic reply. | |

*TAS Local Government Area / Council: Circular Head [480]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000150 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805205434 | - | Email | Automatic reply. |

*TAS Local Government Area / Council: Devonport [481]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000151 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*TAS Local Government Area / Council: Dorset [482]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000205 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805210403 | - | Email | Automatic reply. |

*TAS Local Government Area / Council: Flinders [483]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000225 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*TAS Local Government Area / Council: George Town [484]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000153 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*TAS Local Government Area / Council: Glamorgan-Spring Bay [485]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

| | | | | | |
|---|---|---|---|---|---|
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000129 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*TAS Local Government Area / Council: Latrobe [486]*

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|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000156 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805205553 | - | Email | Automatic reply. |

*TAS Local Government Area / Council: Launceston [487]*

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|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |

| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
|---|---|---|---|---|---|
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823000148 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |

*TAS Local Government Area / Council: Waratah-Wynyard [488]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823000202 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |

*TAS Local Government Area / Council: West Tamar [489]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823000236 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805222210 | - | Email | Automatic reply. |

*Tasman Council [490]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000233 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805210922 | - | Email | Automatic reply. |

*Tasmanian Aboriginal Centre [421]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000140 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*Tasmanian Gas Pipeline [678]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012603 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093057 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105173800 | - | Email | Automatic reply. |

*Tasmanian Regional Aboriginal Communities Alliance [491]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000234 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

*The Nature Conservancy [373]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011557 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093102 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*The Wilderness Society [345]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

| | | | |
|---|---|---|---|
| 1. The Wilderness Society sent a letter to Esso on 1 August 2025, objecting to Campaign #1, stating that Esso's timeline to remove offshore infrastructure is unreasonably delayed; inconsistent with legal obligations, international law, environmental risks, and contamination concerns; and opposed leaving infrastructure as it would set a precedent in the Bass Strait - topics outside the scope of this EP. Esso responded to The Wilderness Society on 7 August 2025, stating that Esso had met its consultation obligations by conducting extensive engagement, including a meeting with The Wilderness Society; and that staged decommissioning enables safe, timely removal of infrastructure – topics outside the scope of this EP. | 1. The Wilderness Society objected to Campaign #1, stating that Esso's timeline to remove offshore infrastructure is unreasonably delayed; inconsistent with legal obligations, international law, environmental risks, and contamination concerns; and opposed leaving infrastructure as it would set a precedent in the Bass Strait - topics outside the scope of this EP.<br><br>No feedback, objection or claims on this activity. | 1. Esso does not consider the topics raised by The Wilderness Society as relevant to this EP; and has included them in this summary to demonstrate transparency in its engagement.<br><br>2. Esso will continue to engage with The Wilderness Society on all Esso activities. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011824 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 01/08/2025 | 250811114507 | - | Email | Wilderness Society relevant person consultation on Esso Australia Resources Pty Ltd Decommissioning, dismantling or removing a facility Environment Plan. |
| To | 07/08/2025 | 250811114911 | - | Email | Esso response to Wilderness Society relevant person consultation on Esso Australia Resources Pty Ltd Decommissioning, dismantling or removing a facility Environment Plan. |
| To | 27/10/2025 | 251126093105 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Trust For Nature [365]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** | |
| To | 30/07/2025 | 250823011641 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). | |
| To | 27/10/2025 | 251126093109 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. | |

*Tuna Australia Ltd [120]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Tuna Australia replied to Esso on 1 August 2025, requesting details on Esso's Environment Plans; and whether Esso would like to consult | 1. Tuna Australia requested details on Esso's Environmental Plans and whether Esso would like to consult with Tuna | 1. Esso responded to Tuna Australia on 3 October 2025, outlining the availability of information at Community Information Sessions and via the Consultation Hub; | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| with Tuna Australia under a service agreement. Esso responded to Tuna Australia on 3 October 2025, outlining the availability of information at Community Information Sessions and via the Consultation Hub; and a list of commercial fishing stakeholders Esso currently engages with.<br><br>2. Tuna Australia replied to Esso on 16 October 2025, detailing the difficulty of tuna fishers attending Esso's Community Information Sessions and how Tuna Australia could support with engagement via a service agreement. Esso responded to Tuna Australia on 4 December 2025, outlining that Esso had reviewed fishing data which showed that Eastern Tuna and Billfish Fishery and Southern Bluefin Tuna Fishery do not actively fish within Esso's ATBA, therefore based on this and Esso's consultation methodology, Tuna Australia has been classified as a Consultation Level 3 – EMBA and not currently requiring a service agreement. Esso also suggested a meeting with Tuna Australia.<br><br>3. Tuna Australia responded to Esso on 4 December 2025, outlining their industry position statement, details on tuna fishing grounds shifting over the past decade and justifying the need for a service agreement with Tuna Australia. | Australia under a service agreement.<br><br>2. Tuna Australia detailed the difficulty of tuna fishers attending Esso's Community Information Sessions and how Tuna Australia could support with engagement via a service agreement.<br><br>3. Tuna Australia outlined their industry position statement, details on tuna fishing grounds shifting over the past decade and justifying the need for a service agreement with Tuna Australia.<br><br>4. Tuna Australia clarified Esso's consultation responsibilities and outlined how details of current tuna fishing contacts need to be obtained from Australian Fisheries Management Authority.<br><br>5. Tuna Australia replied to Esso with their availability for a meeting.<br><br>6. Tuna Australia and Esso held a meeting where Tuna Australia provided an overview of Tuna Australia, discussed service agreements and potential future tuna fishing in the Bass Strait. Tuna Australia also sent Esso an example of a service | and a list of commercial fishing stakeholders Esso currently engages with. Refer to Appendix F-2Consultation Summary for a list of commercial fishing stakeholders.<br><br>2. Esso responded to Tuna Australia on 4 December 2025, outlining that Esso had reviewed fishing data and its consultation methodology and had classified Tuna Australia as a Consultation Level 3 – EMBA. Refer to Section 4: Relevant Persons for Esso's methodology.<br><br>3. Esso responded to Tuna Australia on 9 January 2026, confirming that there is no legal requirement to enter into service agreements or provide remuneration for participation in consultation.<br><br>4. Esso will continue to engage with Tuna Australia as a Consultation Level 3 – EMBA. | |

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| 4. Esso sent a letter to Tuna Australia on 9 January 2026, explaining that it had met its' consultation requirements for Campaign #1 including extensive engagement with Tuna Australia – topics outside the scope of this EP; and that there is no legal requirement to enter into service agreements or provide remuneration for participation in consultation. Tuna Australia replied to Esso on 9 January 2026, clarifying Esso's consultation responsibilities and outlining how details of current tuna fishing contacts need to be obtained from Australian Fisheries Management Authority. Esso responded to Tuna Australia on 15 January 2025, noting Tuna Australia's statements and suggestions on consultation.<br><br>5. Esso contacted Tuna Australia on 9 January 2026, requesting an introductory meeting between Esso and Tuna Australia. Tuna Australia replied to Esso on 11 and 14 January 2025, with their availability for a meeting.<br><br>6. Tuna Australia and Esso held an online meeting on 21 January 2026, where Tuna Australia provided an overview of Tuna Australia, discussed service agreements and future tuna fishing in the Bass Strait. Tuna Australia sent Esso on 21 January 2026, an example of a service | agreement and their industry position statement.<br><br>No objection or claims on this activity. | | |

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| agreement and their industry position statement. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011649 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 01/08/2025 | 251003132137 | - | Email | Stakeholder asking for details of the proposed environmental plan and if Esso would like the Stakeholder to consult. |
| To | 03/10/2025 | 251003144358 | - | Email | Esso giving the Stakeholder a more detailed explanation of the Community Information Sessions. |
| From | 16/10/2025 | 251222145849 | - | Email | Response from stakeholder providing feedback on consultation. |
| To | 27/10/2025 | 251126093111 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| To | 04/12/2025 | 251222150234 | - | Email | Esso response to stakeholder's feedback on consultation. |
| From | 04/12/2025 | 260112092650 | - | Email | Stakeholder's response to Esso regarding consultation |
| From | 04/12/2025 | 260116085056 | - | Email | Stakeholder response to Esso Community Information Sessions and TA Services Agreement. |
| To | 09/01/2026 | 260109133503 | - | Letter | Esso response to Tuna Australia emails dated 16 October and 4 December 2025. |
| From | 09/01/2026 | 260112093046 | - | Email | Stakeholder's response to Esso's letter regarding consultation. |
| To | 09/01/2026 | 260112093438 | - | Email | Esso request for meeting to discuss ongoing consultation with Stakeholder. |
| From | 11/01/2026 | 260112093651 | - | Email | Stakeholder response agreeing to meeting request. |
| From | 14/01/2026 | 260116084957 | - | Email | Stakeholder proposing meeting dates with Esso . |

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| To | 15/01/2026 | 260116091552 | - | Email | Esso's response to Stakeholders letter/email regarding consultation. |
| To | 15/01/2026 | 260116090846 | - | Email | Esso meeting invite to Stakeholder regarding consultation with the stakeholder. |
| From | 16/01/2026 | 260119082831 | - | Email | Meeting invite acceptance. |
| From | 16/01/2026 | 260119083611 | - | Email | Meeting invite accepted. |
| To | 21/01/2026 | 260129200730 | - | Meeting - Online | Meeting with Tuna Australia and Esso Australia to discuss proposed offshore activities. |
| From | 21/01/2026 | 260129201022 | - | Email | Service agreement + Industry position statement - Tuna Australia. |

*Victoria Game Fishing Club [124]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011844 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093115 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Victorian Recreational Fishing [51]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011611 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093127 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105171958 | - | Email | Automatic reply. |

*Victorian Scallop Industry Association [52]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012639 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093135 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Wildlife Victoria [55]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012254 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093210 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*World Wide Fund for Nature [370]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011808 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805201051 | - | Email | Automatic reply. |
| To | 27/10/2025 | 251126093224 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Yachting Victoria [111]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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|---|---|---|---|---|---|
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011834 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126093225 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

## Consultation report (Summary) for Regulation 25 (1)(e) relevant persons

*Australian Marine Oil Spill Centre [1]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | | Not applicable as no feedback, objections or claims were made. Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012339 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092005 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Brown and May Marine LTD [816]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Brown and May Marine LTD replied to Esso on 31 July 2025, requesting to be informed about this EP. Esso responded to Brown and May Marine LTD on 6 August 2025, acknowledging the email and confirming that they would be kept informed on this EP.<br>2. Brown and May Marine LTD registered (before this EP's consultation period) and attended August 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. Brown and May Marine LTD requesting to be informed about this EP.<br>2. No feedback, objection or claims received on this activity at the Community Information Session.<br>No feedback, objection or claims on this activity. | 1. Esso will continue to keep Stakeholder informed of this EP, refer to Section 4.5.<br>2. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012104 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 31/07/2025 | 250807141447 | - | Email | Stakeholder would like to be consulted on the Bass Strait Producing Environment Plan activities. |

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| To | 01/08/2025 | 250813084619 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation |
| To | 06/08/2025 | 250930233724 | - | Email | Esso informing the Stakeholder that they will be kept up to date on the Bass Strait Producing Environment Plan. |
| To | 13/08/2025 | 250909105227 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101155 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you |
| To | 27/10/2025 | 251126092042 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105134054 | - | Email | Automatic reply. |

*Democratic Labour Party [537]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Previous to this consultation period, Democratic Labour Party completed the Esso Consultation Questionnaire nominating to be consulted on the activities of the EP. Esso continues to | 1. Previous to this consultation period, Democratic Labour Party requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | 1. Esso continues to provide updates on the activities of the EP, refer to Section 4.5. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| provide Democratic Labour Party with consultation material. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011909 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092116 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Gippsland Forestec TAFE [394]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| Not applicable as no responses were received. | | | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012057 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092303 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*National Native Title Tribunal (NNTT) [432]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823000207 | 250730_E_04 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - EMBA - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 30/07/2025 | 250805221823 | - | Email | Automatic reply. |
| To | 27/10/2025 | 251126092444 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 260105163718 | - | Email | Automatic reply. |

*Port of Hastings [28]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| Not applicable as no responses were received. | No feedback, objection or claims on this activity. | Not applicable as no feedback, objections or claims were made. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011947 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092527 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #507 [507]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Previous to this consultation period, Stakeholder completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Stakeholder with consultation material. | 1. Previous to this consultation period, Stakeholder requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | 1. Esso continues to provide updates on the activities of this EP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011751 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092546 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #508 [508]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Previous to this consultation period, Stakeholder completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Stakeholder with consultation material. | 1. Previous to this consultation period, Stakeholder requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | 1. Esso continues to provide updates on the activities of this EP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011518 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092547 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #509 [509]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Previous to this consultation period, Stakeholder completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Stakeholder with consultation material. | | | 1. Previous to this consultation period, Stakeholder requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | 1. Esso continues to provide updates on the activities of this EP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011745 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092548 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #510 [510]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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|---|---|---|---|
| 1. Previous to this consultation period, Stakeholder completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Stakeholder with consultation material. | 1. Previous to this consultation period, Stakeholder requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | 1. Esso continues to provide updates on the activities of this EP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011515 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092549 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #609 [609]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Stakeholder registered (before this EP's consultation period) and attended August and November 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
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| To | 30/07/2025 | 250823012359 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 13/08/2025 | 250909105230 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101158 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you |
| To | 27/10/2025 | 251126092617 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 08/11/2025 | 251114090653 | - | Email | Stakeholder requesting registration for Esso Sale Community Information Session |
| To | 09/11/2025 | 251114090908 | - | Email | Esso confirming Stakeholder registration for Esso Sale Community Information Session |

*Relevant Person #747 [747]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Stakeholder registered and attended November 2025 Community Information Session. Feedback from Community Information Sessions has | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| been incorporated into this EP, where applicable. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012146 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092709 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 251113101522 | - | Email | Stakeholder requesting registration for Esso Sale Community Session |
| To | 31/10/2025 | 251113105148 | - | Email | Esso Australia: Community Information Sessions - November 2025 - Registration Confirmation |
| To | 11/11/2025 | 251125044852 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165327 | 250827_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you |

*Relevant Person #771 [771]*

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|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |

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|---|---|---|---|
| 1. Stakeholder registered and attended August 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012100 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 04/08/2025 | 250930222935 | - | Email | Stakeholder registering for the 18th August Yanakie Community Consultation. |
| To | 08/08/2025 | 251001013507 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 18/08/2025 | 250909105238 | 250818_CIS_01 | Community Information Session | A Community Information Session was held in Yanakie 18 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101206 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092728 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #807 [807]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Stakeholder registered and attended August 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823011837 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 05/08/2025 | 250930231056 | - | Email | Stakeholder registering for the Community information session at Yanakie. |
| To | 08/08/2025 | 251001014213 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 18/08/2025 | 250909105237 | 250818_CIS_01 | Community Information Session | A Community Information Session was held in Yanakie 18 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101205 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092753 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #831 [831]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Stakeholder registered and attended August and November 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012120 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 01/08/2025 | 250819204110 | - | Email | Stakeholder registering for the Community Information Session at Sale on August 13th. |
| To | 01/08/2025 | 250813084620 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 13/08/2025 | 250909105225 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |

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| To | 27/08/2025 | 250909101153 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092813 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 04/11/2025 | 251113110314 | - | Email | Stakeholder requesting registration for Esso Sale Community Information Session. |
| To | 07/11/2025 | 251114140244 | - | Email | Esso Australia: Community Information Sessions - November 2025 - Registration Confirmation |
| To | 11/11/2025 | 251125044853 | 251111_CIS_01 | Community Information Session | A Community Information Session was held in Sale 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165328 | 251117_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you. |

*Relevant Person #863 [863]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Previous to this consultation period, Stakeholder completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Stakeholder with consultation material. | 1. Previous to this consultation period, Stakeholder requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | Esso continues to provide updates on the activities of the EP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012121 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 27/10/2025 | 251126092830 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| To | 17/11/2025 | 251217203502 | 251117_E_01 | Email | Update: Esso Australia: Consultation on the Bass Strait Non-Producing Environment Plan - November 2025, including links to information bulletin. |

*Relevant Person #921 [921]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
|---|---|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Previous to this consultation period, Stakeholder completed the Esso Consultation Questionnaire nominating to be consulted on the activities of this EP. Esso continues to provide Stakeholder with consultation material. | | | 1. Previous to this consultation period, Stakeholder requested to be consulted on the activities of this EP.<br>No feedback, objection or claims on this activity. | Esso continues to provide updates on the activities of the EP. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823011743 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |

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| To | 27/10/2025 | 251126092908 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #933 [933]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| Summary of responses received and Esso's consideration and response | Summary of feedback, objection or claim | Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response | Reg 34(g) (ii): EP controls |
|---|---|---|---|
| 1. Stakeholder registered (before this EP's consultation period) and attended August 2025 Community Information Session. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| To/ from | Date | Consultation ID | Bulk load ID | Method | Reg 24(b)(i): Summary of each response |
|---|---|---|---|---|---|
| To | 30/07/2025 | 250823012213 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| From | 08/08/2025 | 251001015054 | - | Email | Stakeholder registering for the community information session. |
| To | 18/08/2025 | 250828020653 | - | Email | Esso sending the Stakeholder an email that their registration has been recorded. |
| To | 19/08/2025 | 250909105243 | 250819_CIS_01 | Community Information Session | A Community Information Session was held in Foster 19 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for |

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| | | | | | stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101211 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092918 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #909 [951]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25() sufficient information.* | | | | | |
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| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| To | 30/07/2025 | 250823012213 | 250730_E_02 | Email | Esso Australia: Consultation on the Bass Strait Producing Environment Plan - July 2025. Includes link to Information Bulletin #1 (Appendix G-1). |
| To | 30/07/2025 | 250819154945 | - | Phone call | Stakeholder leaving a message to register for the Community Information Session at Lakes Entrance. |

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|---|---|---|---|---|---|
| From | 30/07/2025 | 250819154633 | - | Email | Stakeholder registering for the Community Information Session at Lakes Entrance. |
| To | 01/08/2025 | 250825141805 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 11/08/2025 | 250909105218 | 250811_CIS_01 | Community Information Session | A Community Information Session was held in Lakes Entrance 11 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101146 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092902 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #942 [952]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. |

| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
|---|---|---|---|
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
|---|---|---|---|---|---|

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|---|---|---|---|---|---|
| From | 13/08/2025 | 250828014000 | - | Email | Stakeholder registering for the Leongatha Community Information Session. |
| To | 18/08/2025 | 250828021048 | - | Email | Esso sending the Stakeholder an email that their registration has been recorded. |
| To | 20/08/2025 | 250909105257 | 250820_CIS_01 | Community Information Session | A Community Information Session was held in Leongatha 20 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101225 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092927 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #944 [954]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

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|---|---|---|---|---|---|
| From | 13/08/2025 | 250828014621 | - | Email | Stakeholder registering for the Yanakie Community Session with a friend. |
| To | 18/08/2025 | 250828021221 | - | Email | Esso sending the Stakeholder an email that their registration has been recorded. |
| To | 18/08/2025 | 250909105236 | 250818_CIS_01 | Community Information Session | A Community Information Session was held in Yanakie 18 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101204 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092929 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #945 [955]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |

| | | | | | |
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| From | 13/08/2025 | 250828014806 | - | Email | Stakeholder registering for a Community Information Session. |
| To | 13/08/2025 | 250909105233 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101201 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092930 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #947 [957]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 18/08/2025 | 250828021600 | - | Email | Stakeholder registering for the Community Information Session at Leongatha as well as 3 others. |

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| To | 20/08/2025 | 250909105249 | 250820_CIS_01 | Community Information Session | A Community Information Session was held in Leongatha 20 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101217 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092932 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #951 [961]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 12/08/2025 | 250828013810 | - | Email | Stakeholder asking Esso if they can register for the Sale Community Session. |
| To | 13/08/2025 | 250828014204 | - | Email | Esso Community Information Session being sent to the Stakeholder. |

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|---|---|---|---|---|---|
| To | 13/08/2025 | 250909105231 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101159 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092935 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #952 [962]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 14/08/2025 | 250828020039 | - | Email | Stakeholder registering for the Community Information Session at Foster. |
| To | 18/08/2025 | 250828021443 | - | Email | Esso sending the Stakeholder an email that their registration has been recorded. |

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| To | 20/08/2025 | 250909105250 | 250820_CIS_01 | Community Information Session | A Community Information Session was held in Leongatha 20 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101218 | 250827_E_02 | Email | Esso's August Community Information Sessions (South Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092936 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #965 [965]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | | | |
| **Summary of responses received and Esso's consideration and response** | | | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August and November 2025 Community Information Sessions. Feedback from Community Information Sessions has been incorporated into this EP, where applicable. | | | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 05/08/2025 | 250930230716 | - | Email | Stakeholder registering for the Community Consultation on Monday 11th of August. |

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| To | 08/08/2025 | 251001014029 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 27/08/2025 | 250909101148 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092938 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |
| From | 27/10/2025 | 251113094428 | - | Email | RSVP from Stakeholder for Esso Lakes Entrance Community Session. |
| To | 31/10/2025 | 251113105401 | - | Email | Esso Australia: Community Information Sessions - November 2025 - Registration Confirmation. |
| To | 10/11/2025 | 251125044858 | 251110_CIS_01 | Community Information Session | A Community Information Session was held in Lakes Entrance 10 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165333 | 251117_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you. |

*Relevant Person #968 [968]*

| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended August 2025 Community Information Sessions. Feedback from Community Information Sessions has | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| been incorporated into this EP, where applicable. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 08/08/2025 | 251001012258 | - | Email | Stakeholder registering 3 people for the community information session. |
| To | 08/08/2025 | 251001014630 | - | Email | Esso Australia: Community Information Sessions August 2025 - Registration Confirmation. |
| To | 13/08/2025 | 250909105229 | 250813_CIS_01 | Community Information Session | A Community Information Session was held in Sale 13 August 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Jack-Up Rig (JUR) – Wellworks at Barracouta platform, and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 27/08/2025 | 250909101157 | 250827_E_03 | Email | Esso's August Community Information Sessions (East Gippsland) – Thank you. |
| To | 27/10/2025 | 251126092941 | 251027_E_01 | Email | Esso Australia: Community Information Sessions - November 2025. |

*Relevant Person #979 [979]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended November 2025 Community Information Session. Feedback from | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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| Community Information Sessions has been incorporated into this EP, where applicable. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 20/10/2025 | 251114104005 | - | Email | Stakeholder enquiring about future Esso Community Information Sessions for decommissioning |
| To | 21/10/2025 | 251114105836 | - | Email | Esso response to Stakeholder regarding upcoming Community Information Sessions |
| From | 21/10/2025 | 251114110145 | - | Email | Stakeholder requesting registration for Esso Foster Community Information Session |
| To | 11/11/2025 | 251119182153 | 251111_CIS_02 | Community Information Session | A Community Information Session was held in Foster 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165311 | 251117_E_02 | Email | Esso's November Community Information Sessions (South Gippsland) – Thank you |

*Relevant Person #980 [980]*

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|---|---|---|---|
| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended November 2025 Community Information Sessions. Feedback from | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

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|---|---|---|---|---|---|
| Community Information Sessions has been incorporated into this EP, where applicable. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 08/11/2025 | 251114090418 | - | Email | Stakeholder requesting to be registered for Esso Foster Community Information Session |
| To | 09/11/2025 | 251114091219 | - | Email | Esso confirming Stakeholder registration for Esso Foster Community Information Session |
| To | 12/11/2025 | 251119182204 | - | Community Information Session | A Community Information Session was held in Leongatha 12 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165322 | 251117_E_02 | Email | Esso's November Community Information Sessions (South Gippsland) – Thank you |

*Relevant Person #981 [981]*

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| An assessment has been made for this Relevant Person on the provision of sufficient information, refer to explanation *Regulation 25(2) sufficient information*. | | | |
| An assessment has been made for this Relevant Person on the provision of sufficient time, refer to explanation *Regulation 25(3) sufficient time*. | | | |
| **Summary of responses received and Esso's consideration and response** | **Summary of feedback, objection or claim** | **Reg 24(b)(ii) & (iii): Esso's assessment of merits of feedback, objection or claim and its response** | **Reg 34(g) (ii): EP controls** |
| 1. Stakeholder registered and attended November 2025 Community Information Sessions. Feedback from Community Information Sessions has | 1. No feedback, objection or claims received on this activity at the Community Information Session. | 1. No feedback, objection or claims received on this activity at the Community Information Session. | Esso will provide updates of the activity as necessary. No additional measures or controls are required. |

| | | | | | |
|---|---|---|---|---|---|
| been incorporated into this EP, where applicable. | | | | | |
| **To/ from** | **Date** | **Consultation ID** | **Bulk load ID** | **Method** | **Reg 24(b)(i): Summary of each response** |
| From | 06/11/2025 | 251114065357 | - | Email | Stakeholder registration for Esso Community Information Session |
| To | 06/11/2025 | 251114073742 | - | Email | Esso response to Stakeholder regarding registration for Esso Community Information Session |
| To | 10/11/2025 | 251125044859 | 251110_CIS_01 | Community Information Session | A Community Information Session was held in Lakes Entrance 10 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| From | 11/11/2025 | 251114095408 | - | Email | Stakeholder confirming which Esso Community Information Session they wish to attend |
| To | 11/11/2025 | 251114100307 | - | Email | Esso confirming Stakeholder registration for Esso Community Information Session |
| To | 11/11/2025 | 251119182155 | 251111_CIS_02 | Community Information Session | A Community Information Session was held in Foster 11 November 2025. The objective of the session was to provide information on Esso's current proposed activities, with a focus on Campaign 1 Onshore Reception Centre Stage 2 and Campaign 1A decommissioning, Bass Strait Environment Plans, Future decommissioning campaigns and for stakeholders to consider and provide feedback on how activities might impact their functions, interest and activities. |
| To | 17/11/2025 | 251117165313 | 251117_E_02 | Email | Esso's November Community Information Sessions (South Gippsland) – Thank you |
| To | 17/11/2025 | 251117165334 | 251117_E_03 | Email | Esso's November Community Information Sessions (East Gippsland) – Thank you |

# Appendix G: Sufficient information materials

# Appendix G-1 Information Bulletin #1 (July 2025)




ExxonMobil

INFORMATION BULLETIN
July 2025

**CONSULTATION**

# Producing Environment Plan

Bass Strait operations

Esso is committed to engaging with the communities where we operate and helping our stakeholders understand our business. This information bulletin has been developed as part of Esso's commitment to keep relevant persons and other stakeholders informed of planned activities in Bass Strait and to provide them with sufficient information about the nature and scale of the activity, as well as its potential risks and impacts, so that stakeholders can make an informed decision as to whether their functions, interests or activities are affected.

## Overview

Esso Australia Resources Pty Ltd (Esso) is a wholly owned subsidiary of ExxonMobil Australia Pty Ltd. Esso is the operator of the assets in Bass Strait that are part of the Gippsland Basin Joint Venture between Esso and Woodside Energy (Bass Strait) Pty Ltd (Woodside Energy) and the Kipper Unit Joint Venture (Esso, Woodside Energy, and Mitsui E&P Australia Pty Ltd). These assets comprise of 19 platforms with approximately 425 wells, six subsea facilities and more than 800 kilometres of subsea pipelines.

Esso conducts its Bass Strait activities in accordance with the principles of ecologically sustainable development, and accepted Environment Plans (EPs). EPs are developed in accordance with the requirements of the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth) (OPGGS Act) and require acceptance by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

An EP is a comprehensive document that describes the existing environment, including relevant persons, and how Esso will undertake activities to avoid, minimise or manage potential environmental impacts to As Low As Reasonably Practicable (ALARP) and meet regulatory acceptability criteria. Demonstrating ALARP requires a titleholder to implement all available control measures where the cost is not grossly disproportionate to the environmental benefit gained from implementing the control measure.

While preparing an EP, Esso must consult with relevant authorities, persons and organisations whose functions, interests or activities may be affected by the proposed activities (i.e. a relevant person) and provide the opportunity for any feedback.

↑ Cover: Marlin A and Marlin B platforms

↗ Figure 1: Stages of Petroleum Activity

The currently accepted Bass Strait Environment Plan (BSEP) will be superseded by two EPs known as the **Bass Strait Producing EP** and the **Bass Strait Non-Producing EP**, valid for five years. The purpose of this information bulletin is to assist with stakeholder consultation by outlining the scope and activities within the **Producing EP**.

The current BSEP is publicly available at: info.nopsema.gov.au/environment_plans/470/show_public.

## Scope

Esso's Bass Strait facilities are operated in accordance with defined Stages of Petroleum Activity as shown in Figure 1.

In accordance with the OPPGS Act, Esso is developing the Producing EP to manage the environmental impacts and risks associated with the operation and maintenance of producing infrastructure in the 'Production' stage. This includes six offshore platforms, two subsea facilities and associated pipelines. The facilities are:

- Barracouta platform
- Marlin A platform
- Marlin B platform
- West Tuna platform
- Tuna platform
- Snapper platform
- West Barracouta subsea facility
- Kipper subsea facility.

Of these producing facilities, the Barracouta, Tuna and Snapper platforms, West Barracouta subsea facility and associated pipelines will be transitioning to the Cessation of Production and/or Stasis Mode stages, during the valid period of the EP.

Non-producing infrastructure will be included in the Non-Producing EP.

## Location

Esso's Bass Strait producing assets are located off Victoria's Gippsland coast in Australia. Esso's facilities are in water depths that range from 38 metres (West Barracouta subsea facility) to 95 metres (Kipper subsea facility). Their distance from the coast ranges from 22 kilometres (West Barracouta subsea facility) to 45 kilometres (West Tuna). Figure 2 shows the location of the Bass Strait facilities in the scope of the Producing EP.

An Area To Be Avoided (ATBA) excludes unauthorised vessels more than 200 tonnes or 24 metres in length from entering the area around the Bass Strait platforms.

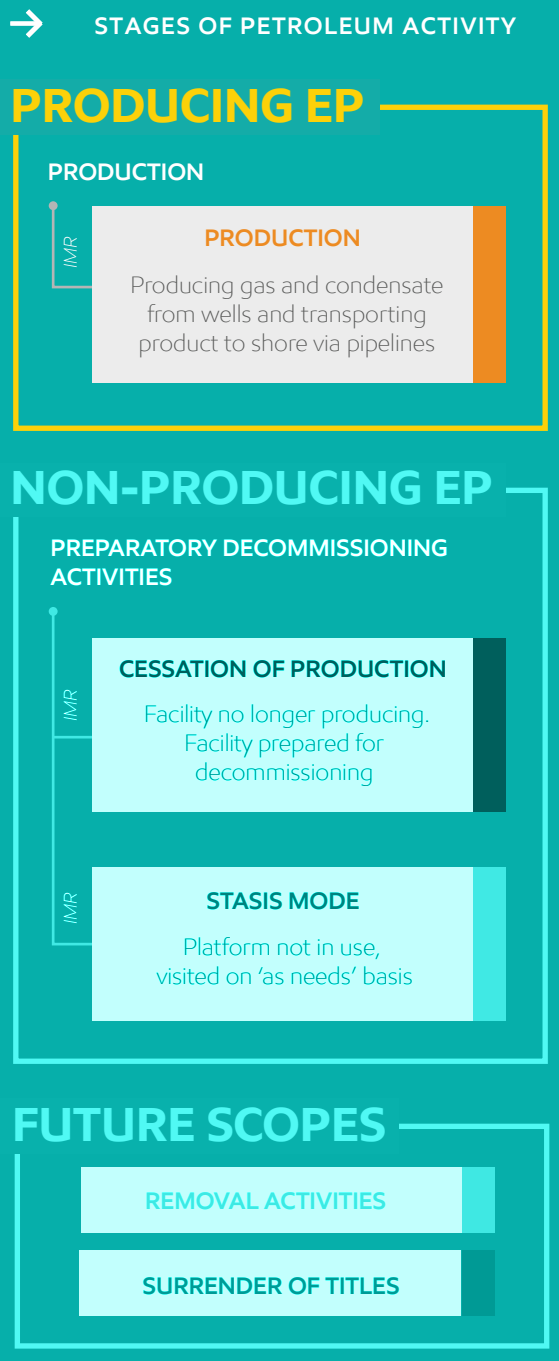
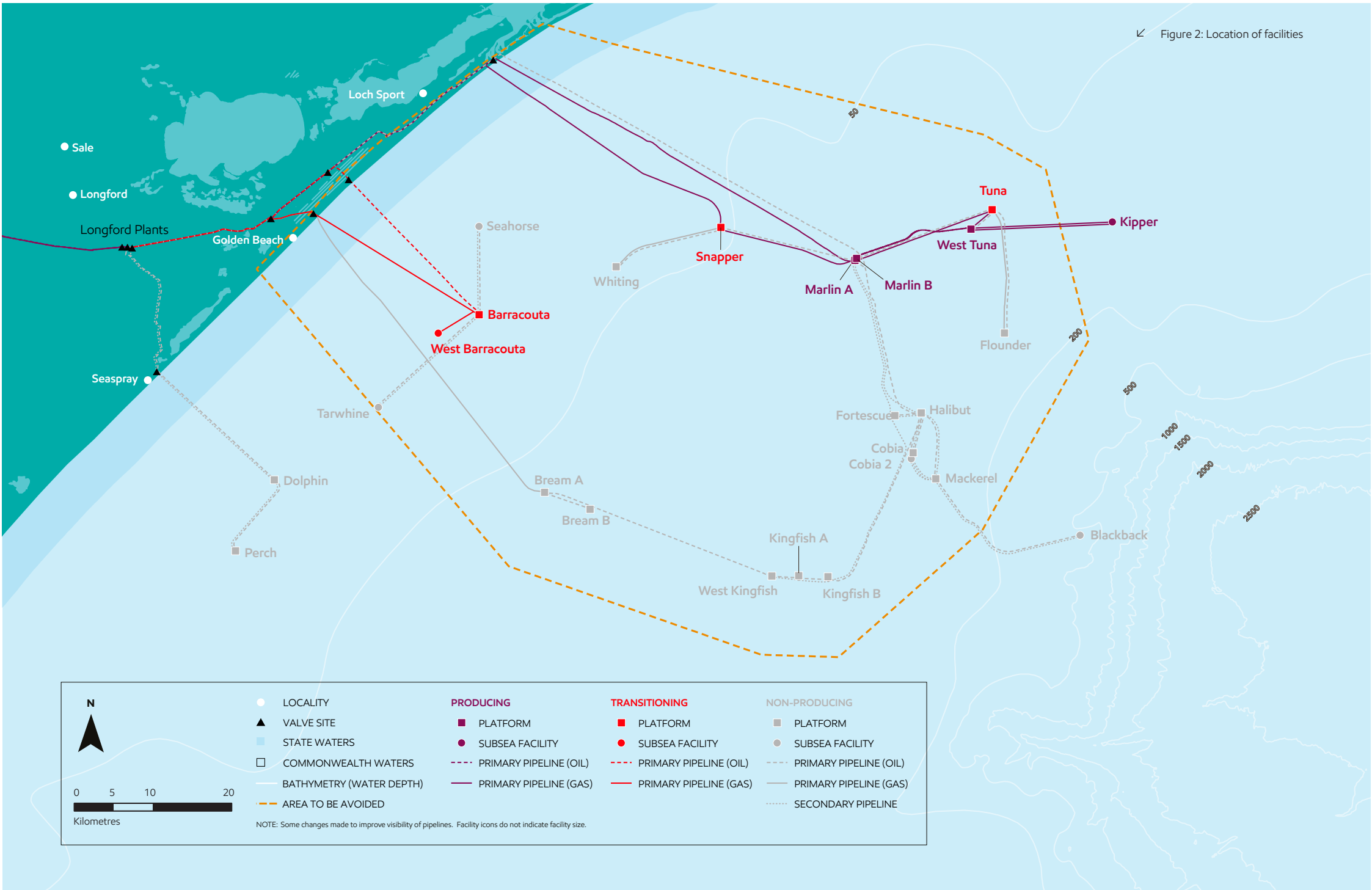


Figure 2: Location of facilities





↑ Workers at Marlin B platform

The ATBA is defined in Schedule 2 of the OPGGS Act and is administered by NOPSEMA. A traffic separation scheme operates to the south of the ATBA to control coastal shipping.

All Esso Bass Strait producing facilities are located within the ATBA, with the exception of the Kipper subsea facility, and associated pipelines.

## Facilities description

Bass Strait producing facilities contain staffed platforms and subsea facilities that have interconnecting pipelines and umbilicals.

## Activity description

The Producing EP will include all Production stage activities required for the facilities to produce hydrocarbons (now gas and condensate only), which is then distributed via pipelines. This includes all:

- operations, including platform, subsea facility and pipelines
- wellwork
- inspection, maintenance and repair (IMR), including well integrity testing, structural and corrosion control maintenance/repair as required, and checks on operating systems such as fuel gas, air compressors, crane and lifting equipment, open and closed piles, and safety systems
- support operations, including vessels, remotely operated vehicles (ROVs) and helicopters.

## Petroleum Safety Zones and Notice to Mariners

Each producing platform and subsea facility has a 500-metre Petroleum Safety Zone (PSZ), established by NOPSEMA, in accordance with Section 616 of the OPGGS Act. There is also a 200-metre operational zone around primary and secondary pipelines more than 3 nautical miles from shore (Commonwealth Waters). These PSZs and operational zones are in effect under the current BSEP and will not change in the Producing EP. As such, the existing Notice to Mariners issued by the Australian Hydrographic Service and AUSCOAST warnings issued by the Australian Maritime Safety Authority will continue to apply.

## Interaction with commercial fishing

The Producing EP activities are located within existing Commonwealth fisheries that may be used by commercial fishers.

The impacts to commercial fishing will be minimal as fishers are already required to avoid the established PSZs. Ongoing consultation will continue with the South East Trawl Fishing Industry Association and Seafood Industry Victoria on a quarterly basis.

## Oil Pollution Emergency Plan

In accordance with the OPGGS Act, Esso must demonstrate and document oil spill response arrangements. The Oil Pollution Emergency Plan (OPEP) forms part of the Producing EP submission and demonstrates Esso's capability to respond in the unlikely event of an oil spill.

Esso is a member of the Australian Marine Oil Spill Centre, a co-operative national oil spill response organisation, which provides access to additional oil spill response resources if required.

Esso's OPEP interfaces with national, state and industry response plans prepared and implemented by the Australian Government via the Australian Maritime Safety Authority (NatPlan), the Victorian Government (Maritime Emergencies (non-search and rescue) Plan), the Tasmanian Government (TasPlan), the NSW Government (NSW Marine Oil and Chemical Spill Contingency Plan) and the Australian Oil industry's Australian Marine Oil Spill Plan (AMOSPlan) administered by the Australian Marine Oil Spill Centre.

The OPEP defines spill response options which may be applied to a spill event. The selected spill response option(s) would depend upon the size and type of spill; environmental sensitivities within the spill path; prevailing weather conditions; access restrictions and available resources. In all instances, a Net Environmental Benefit Analysis is undertaken, in consultation with relevant government agencies, to determine the most appropriate spill response option.

## Potential impacts, consequences and control measures

Esso's aim is to minimise environmental and social impacts associated with the activities outlined in the Producing EP. As such, Esso has undertaken an initial assessment to identify potential impacts and consequences to the environment and relevant persons resulting from the activities.

For each potential impact, Esso has outlined control measures to assist relevant persons make an informed assessment of possible impacts to their functions, interests or activities.

**Table 1: Potential key environmental impacts and control measures - Operations, wellwork, IMR and support operations**

| POTENTIAL IMPACTS | POTENTIAL CONSEQUENCES | POTENTIAL CONTROL MEASURES |
|---|---|---|
| Physical presence - Seabed disturbance | Localised and temporary increase in turbidity; smothering/alteration of benthic habitats near the seafloor. | • ROVs will inspect the seafloor post wellwork and IMR activities to confirm that no unplanned equipment has inadvertently been left on the seafloor and is removed where practicable. |
| Physical interaction - Other marine users | Changes to the function, interests or activities of other users through disruption to activities: commercial fishing; recreational fishing; other marine users. | • PSZs are established in accordance with OPGGS Act.<br>• Relevant persons whose activities are within activity locations outside of PSZs will be informed in advance of the commencement of activities.<br>• Collaboration with the Australian Maritime Safety Authority in providing adequate warnings and Notices to Mariners. |
| Planned discharges to the marine environment[1] | Temporary and localised reduction in water quality; temporary change to predator/prey dynamics; injury/mortality to fauna. | • Routine discharges and vessel waste treatment systems are maintained to international standards.<br>• Food scraps will be macerated prior to discharge.<br>• Discharged bilge water will have less than 15 parts per million oil in water content.<br>• Chemicals planned for discharge will be evaluated to confirm suitability for discharge prior to use.<br>• Produced formation water start up procedures will be implemented if required (Marlin B only).<br>• Open and closed drains will remain fit-for-purpose. |
| Noise emissions | Temporary displacement of sound sensitive fauna around active vessels. | • Support vessels and helicopters will comply with Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) Part 8 Division 8.1 interacting with cetaceans.<br>• Noise adaptive management procedures will continue to be implemented where required. |
| Light emissions | Temporary and localised changes in ambient light; attraction of light sensitive species; change in fauna behaviour. | • Lighting will be kept to a minimum while still meeting navigational and workplace safety requirements.<br>• Lighting will be used in accordance with the *National Light Pollution Guidelines for Wildlife*. |
| Air emissions, flaring and venting | Temporary and localised reduction in air quality; contribution to the global greenhouse gas effect. | • Monitoring and reporting of greenhouse gas emissions.<br>• Ongoing maintenance of all emissions generating equipment onboard platforms and vessels.<br>• Implementation of emission reduction strategies.<br>• Efficient flare combustion. |
| Waste management | Contribution to onshore landfill; air, water and land pollution if waste is not managed appropriately. | • Waste management procedures will continue to be implemented and incorporate consideration of the waste hierarchy and ensure waste is handled, monitored and tracked in accordance with applicable legislation and transportation and Environment Protection Agency licencing requirements. |
| Unplanned introduction of invasive marine species | Displacement of native marine species and habitat domination. | • All vessels will implement a ballast water management plan.<br>• All vessels will comply with Australian biosecurity and ballast water management requirements and guidance. |

[1] Including treated sewage and food waste; treated bilge and deck wash; cement; cooling water and brine; produced formation water and operational fluids.

**Table 1: Potential key environmental impacts and control measures - Operations, wellwork, IMR and support operations continued**

| POTENTIAL IMPACTS | POTENTIAL CONSEQUENCES | POTENTIAL CONTROL MEASURES |
|---|---|---|
| Naturally occurring radioactive material (NORM) | Temporary exposure of marine fauna to radioactive material. | • If production tubing is removed from a well, it will be tested for NORM.<br>• Any NORM found will be treated as prescribed waste and transported to shore in accordance with the waste management procedures, and handled onshore in accordance with waste management protocols at Barry Beach Marine Terminal. |
| Unplanned interaction with marine fauna | Impacts to marine fauna. | • Support vessels will comply with Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) Part 8 Division 8.1 interacting with cetaceans.<br>• Injury/mortality of *Environment Protection and Biodiversity Conservation Act 1999* (Cth) - listed fauna will be reported to appropriate regulatory departments. |
| Accidental or unplanned release of materials, chemicals; hydraulic fluids, drain systems and/or waste/dropped objects | Temporary and localised change in water quality and marine ecosystems; physical harm to marine fauna resulting from ingestion, inhalation or skin contact with hydrocarbons; potential toxicity impacts; injury/mortality to fauna. | • Oil and chemical stores are bunded and located within a deck bund.<br>• Chemicals not approved for discharge are stored away from drains/piles.<br>• All personnel are made aware of spill cleanup requirements and spill kit locations during induction process.<br>• All equipment including level indicators and pumps undergo regular IMR per existing programs.<br>• Waste handling, storage and disposal procedures are in place.<br>• Lifting equipment will be certified and routinely maintained per IMR program.<br>• Lifting plans and procedures are in place.<br>• Subsea materials register is in place to track unplanned dropped objects that cannot be immediately retrieved.<br>• Bulk transfer equipment and procedures will meet the international *Guidelines for Offshore Marine Operations* requirements and equipment will be routinely maintained. |
| Vessel collision resulting in unplanned release of hydrocarbons (marine gas oil) | Impacts to water quality and marine ecosystems; temporary closure of areas (fishing grounds, beaches); visual amenity; physical harm to marine fauna resulting from ingestion, inhalation or skin contact with hydrocarbons. | • PSZs are established in accordance with the OPGGS Act.<br>• Navigational aids and communication systems are in place.<br>• Compliance with legislative requirements for the prevention of vessel collisions and safety and emergency arrangements.<br>• Emergency response preparedness plans are in place. |
| Loss of containment from a pipeline | Temporary and localised change in water quality; injury/mortality to fauna. | • Pipeline IMR program is implemented and includes corrosion and leak detection monitoring and annual integrity reporting.<br>• An OPEP is in place and will be implemented as required. |
| Loss of well control | Potential toxicity; oiling of fauna; reduction in visual aesthetic; socioeconomic impacts to the fishing and tourism industries. | • A NOPSEMA accepted Well Operations Management Plan is in place which provides well integrity assurance.<br>• Esso wellwork execution manual/surface well control equipment manual requirements, including details of well workover plans will be implemented.<br>• NOPSEMA accepted Safety Case including planned maintenance of pressure well control equipment, testing of well control equipment and validation of activity specific safety critical equipment will be in place prior to commencement of activities.<br>• Emergency Preparedness and Response Manual is in place and includes: OPEP, Operational and Scientific Monitoring Plan and Source Control Plan. |

## Environment That May Be Affected

The Environment That May Be Affected (EMBA) is the largest spatial extent where the activities could potentially have an environmental consequence (direct or indirect impact). For this activity, the broadest extent of the EMBA takes into consideration planned and unplanned activities and is determined by a highly unlikely release and exposure to hydrocarbon, including trace concentrations of oil in the water column, as a result of any spill from this activity.

This area takes into account the merged area of many possible paths a hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release. This means in the highly unlikely event a hydrocarbon release does occur, an individual spill would affect a significantly smaller area.

For this activity, Esso has defined the EMBA on the furthest feasible extent (lowest exposure zone) from the release location of all modelled scenarios where hydrocarbon thresholds, including surface, entrained and dissolved aromatic hydrocarbons could be exceeded.

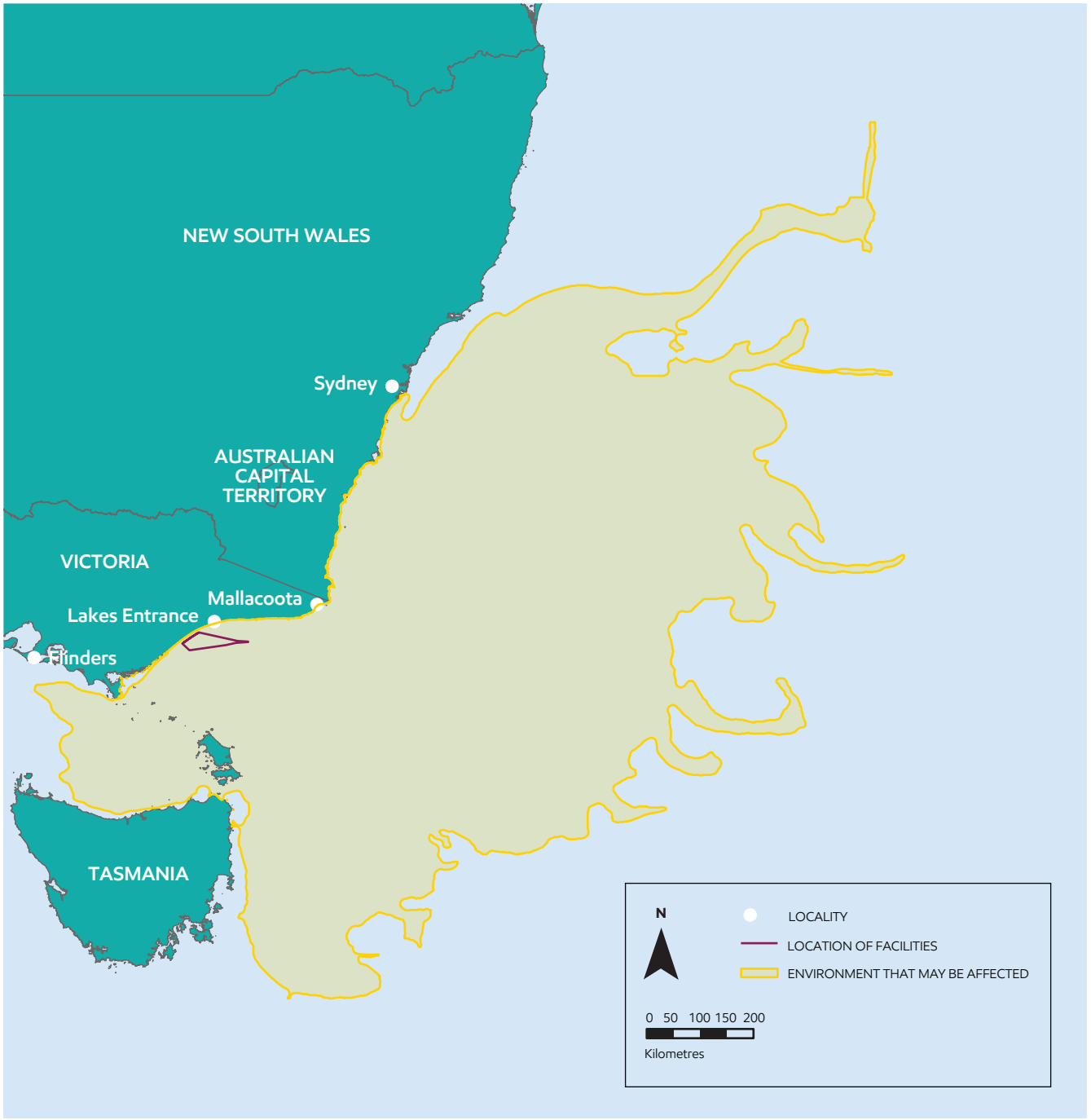
## Consultation

Esso is committed to ongoing engagement with the communities where we operate. Your functions, interests and activities may mean you, your business or your organisation are a relevant person for these activities. Your participation will help Esso to better understand the impacts and risks that may arise from the Producing EP activities. As such, we're seeking your feedback as we develop the Producing EP. Please note that your feedback and our response will be included in the Producing EP, which will be submitted to NOPSEMA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth).

Please let us know if your feedback is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA. Esso will communicate any material changes to the proposed activity to relevant persons as they arise.

If you would like to comment or would like additional information, please contact us.

Figure 3: Producing EP EMBA



## Acknowledgement of traditional owners

Esso acknowledges the Traditional Custodians of Country, and the land and sea upon which our operations are located.

We recognise the Traditional Custodians continuing connection to land, sea, culture and community, and pay our respects to Elders past and present.

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## How to contact us

For more information, visit our Consultation Hub using the QR Code below, or contact our Consultation team at:

T: +61 3 9261 0000

E: consultation@exxonmobil.com

W: corporate.exxonmobil.com/locations/australia

**Scan to access the Consultation Hub and Esso Consultation Questionnaire**

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# Appendix G-2 Email sent on 28 July 2025

**From:** EP Consultation /SM
**Sent:** Monday, July 28, 2025 10:23 AM
**Cc:** EP Consultation /SM
**Subject:** Esso Australia: Community Information Sessions August 2025

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

Gippsland Basin

ExxonMobil

# Decommissioning of oil and gas infrastructure in Bass Strait

Community consultation



Good afternoon,

Esso Australia Resources Pty Ltd (Esso), a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is committed to operating and decommissioning its Gippsland and Bass Strait facilities safely and effectively. After delivering energy to Australia for over 50 years, many of the Bass Strait oil and gas fields are now reaching the end of their productive life. As planning for decommissioning progresses, Esso is focused on safely shutting-down non-producing facilities and ensuring they stay safe throughout the entire decommissioning process.

## Community information sessions

If you'd like to know more about **decommissioning of platforms and pipelines** in Bass Strait, the Esso Consultation Team will be hosting community information sessions at the following locations:

| Location | Date | Address |
|---|---|---|
| Lakes Entrance | Monday 11 August 2025 | On the Wharf Café, Bullock Island, Lakes Entrance |
| Yarram | Tuesday 12 August 2025 | The Yarram Country Club, 322-340 Commercial Road, Yarram |
| Sale | Wednesday 13 August 2025 | The Criterion Hotel, 90 Macalister Street, Sale |
| Yanakie | Monday 18 August 2025 | Yanakie Hall, Millar Road, Yanakie |
| Foster | Tuesday 19 August 2025 | Foster War Memorial Arts Centre, 79 Main Street, Foster |
| Leongatha | Wednesday 20 August 2025 | Leongatha RSL, Cnr Smith Street & Michael Place, Leongatha |

All the above sessions will run from **5.00pm - 7.00pm** with a presentation about Esso's operations with a focus on decommissioning projects.

We encourage you to come along and ask questions or to raise any concerns you may have.

Please **register your attendance** by emailing: consultation@exxonmobil.com

If these dates and times don't suit, contact us at consultation@exxonmobil.com

or by phone on 03 9261 0000.

The Esso Team will also be available to discuss all current activities, including:

- Bass Strait Environment Plans
- Barracouta Plug and Abandonment Environment Plan
- Campaign #1A Environment Plan

## Like to be consulted about these activities?

Esso is working to identify and consult with relevant persons [stakeholders] whose functions, interests, or activities may be affected by one or more of Esso's proposed activities.

Complete the Esso Consultation Questionnaire (sli.do) in the Esso Consultation Hub to let us know if you'd like to be consulted or have any questions or feedback.

Refer to the NOPSEMA brochure Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au) to understand more about consultation on offshore petroleum environment plans assessed under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023.

Your feedback and our response will be included in the relevant regulatory application documentation and submitted to the regulator.

## Please connect us with other interested people

If there is anyone you know who may be interested in our activities, we encourage you to share this information with them.

---

Scan to access the Consultation Hub and Esso Consultation Questionnaire

## How to contact us


T: +61 3 9261 0000

E: consultation@exxonmobil.com

W: www.exxonmobil.com.au

Follow us @exxonmobil_aus


Esso acknowledges the Traditional Custodians of Country, and the land and sea upon which our operations are located. We recognise the Traditional Custodians continuing connection to land, sea, culture and community, and pay our respects to Elders past and present.


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# Appendix G-3 Community information session flyer (August 2025)

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Stakeholder Consultation Gippsland

# Community information sessions



Esso Australia Resources Pty Ltd (Esso), a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is committed to operating and decommissioning its Bass Strait offshore facilities safely and effectively.

If you'd like to know more about decommissioning of platforms and pipelines in Bass Strait, the Esso Consultation Team will be hosting community information sessions at the following locations:

- Monday 11 August in **Lakes Entrance**
  On the Wharf Café, Bullock Island
- Tuesday 12 August in **Yarram**
  Yarram Country Club, 322-340 Commercial Road
- Wednesday 13 August in **Sale**
  The Criterion Hotel, 90 Macalister Street
- Monday 18 August in **Yanakie**
  Yanakie Hall, Millar Road
- Tuesday 19 August in **Foster**
  Foster War Memorial Arts Centre, 79 Main Street
- Wednesday 20 August in **Leongatha**
  Leongatha RSL, Cnr Smith St & Michael Pl

All the above sessions will run from **5.00pm - 7.00pm** with a presentation about Esso's operations, focusing on decommissioning projects.

Please register your attendance by emailing consultation@exxonmobil.com

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## How to contact us

If none of these sessions work for you, feel free to contact us to ask a question, raise a concern or register your interest to be involved by:

T: +61 3 9261 0000

E: consultation@exxonmobil.com

## To find out more information

For more information about Esso's decommissioning activities and other projects, go to the Esso Consultation Hub using the QR Code below or visit:

https://corporate.exxonmobil.com/locations/australia/our-approach

## Like to be consulted about these activities?

Please fill in the Esso Consultation Questionnaire in the Esso Consultation Hub to let us know if you'd like to be consulted and any questions or feedback you may have.

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# Appendix G-4 Community information session flyer (November 2025)

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Stakeholder Consultation Gippsland

# Community information sessions



Esso Australia Resources Pty Ltd (Esso), a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is committed to operating and decommissioning its Bass Strait offshore facilities safely and effectively.

If you'd like to know more about decommissioning of platforms and pipelines in Bass Strait, the Esso Consultation Team will be hosting community information sessions at the following locations:

- Monday 10 November in **Lakes Entrance**
  On the Wharf Café, Bullock Island
- Tuesday 11 November in **Sale**
  The Criterion Hotel, 90 Macalister Street
- Tuesday 11 November in **Foster**
  Foster War Memorial Arts Centre, 79 Main Street
- Wednesday 12 November in **Leongatha**
  Leongatha RSL, Cnr Smith St & Michael Pl

All the above sessions will run from **5.00pm - 7.00pm** with a presentation about Esso's operations, focusing on decommissioning projects.

Please register your attendance by emailing consultation@exxonmobil.com

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## How to contact us

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https://corporate.exxonmobil.com/locations/australia/our-approach

## Like to be consulted about these activities?

Please fill in the Esso Consultation Questionnaire in the Esso Consultation Hub to let us know if you'd like to be consulted and any questions or feedback you may have.

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# Appendix G-5 Community information session presentation (August 2025)

August 2025

# Esso Australia Stakeholder Consultation

Energy lives here™



# Acknowledgement of Country

Kalimna, Koori

# Agenda

1. Changes to our Operations
2. Bass Strait Overview
3. Decommissioning Campaign 1
4. Decommissioning Campaign 1A
5. Bass Strait Environment Plans
6. Wrap up
7. Q&A




↑ Dolphin platform

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# Changes to our Operations

- ExxonMobil (EM) have announced that we will transfer operatorship of Gippsland Joint Venture (GBJV) to Woodside, subject to regulatory approvals
- EM maintain our 50% ownership of the GBJV and continue to supply all of our Gippsland gas to the Australian domestic market
- EM's team who have been performing the work will transfer to Woodside and Decommissioning activities will continue
- EM are committed to supplying essential energy to Australia, as we have for 130 years



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# Overview

# Esso Bass Strait overview

Bass Strait production network comprises:

- 19 platforms
- ~ 400 wells
- 6 subsea facilities
- ~ 800km of offshore subsea pipelines, including:
  - 34 primary pipelines (~650km)
  - Secondary pipelines (~190km )
  - Umbilicals and flexibles (~105km)
  - Ancillary subsea property

Some facilities have reached end of oil/gas production




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# Removal Activities Staged

Esso's decommissioning activities are staged and managed according to the infrastructure.

Now - 2030

- **Campaign #1**: Non-producing platform facilities and Onshore Reception Centre (ORC) at Barry Beach Marine Terminal (BBMT)
- **Campaign #1A:** Shallow buried umbilicals and flexibles

2030+

Future campaigns:

- Pipelines
- Concrete Gravity Structures (CGS)
- Remaining platforms (still in use) and Jacket Bases

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# Activity Overview

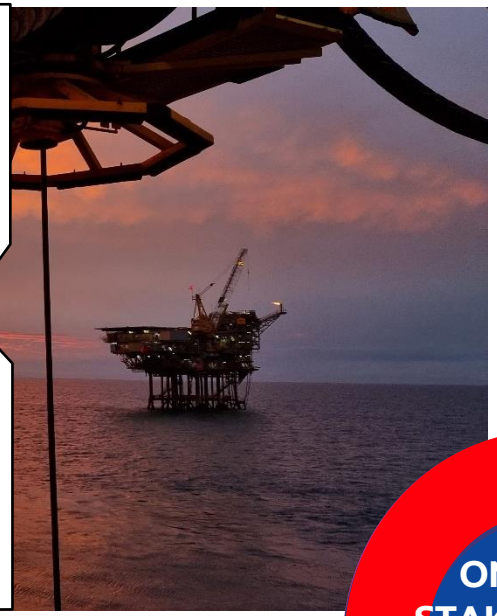
## BASE BUSINESS

Bass Strait Producing EP

Bass Strait Non-Producing EP

**Jack-up** Rig (JUR) to complete **plug and abandon (P&A)** of wells

Drilling Campaigns



## CAMPAIGN #1A

Includes full removal of specific **umbilicals** and **flexibles**



**ONGOING STAKEHOLDER COMMUNICATIONS & CONSULTATION**




## CAMPAIGN #1

13 platforms; upper jacket sections of 10 **Steel Piled Jackets (SPJs);** and 2 **monotowers**

Removed platforms will come to **Barry Beach Marine Terminal (BBMT)**



## FUTURE CAMPAIGNS

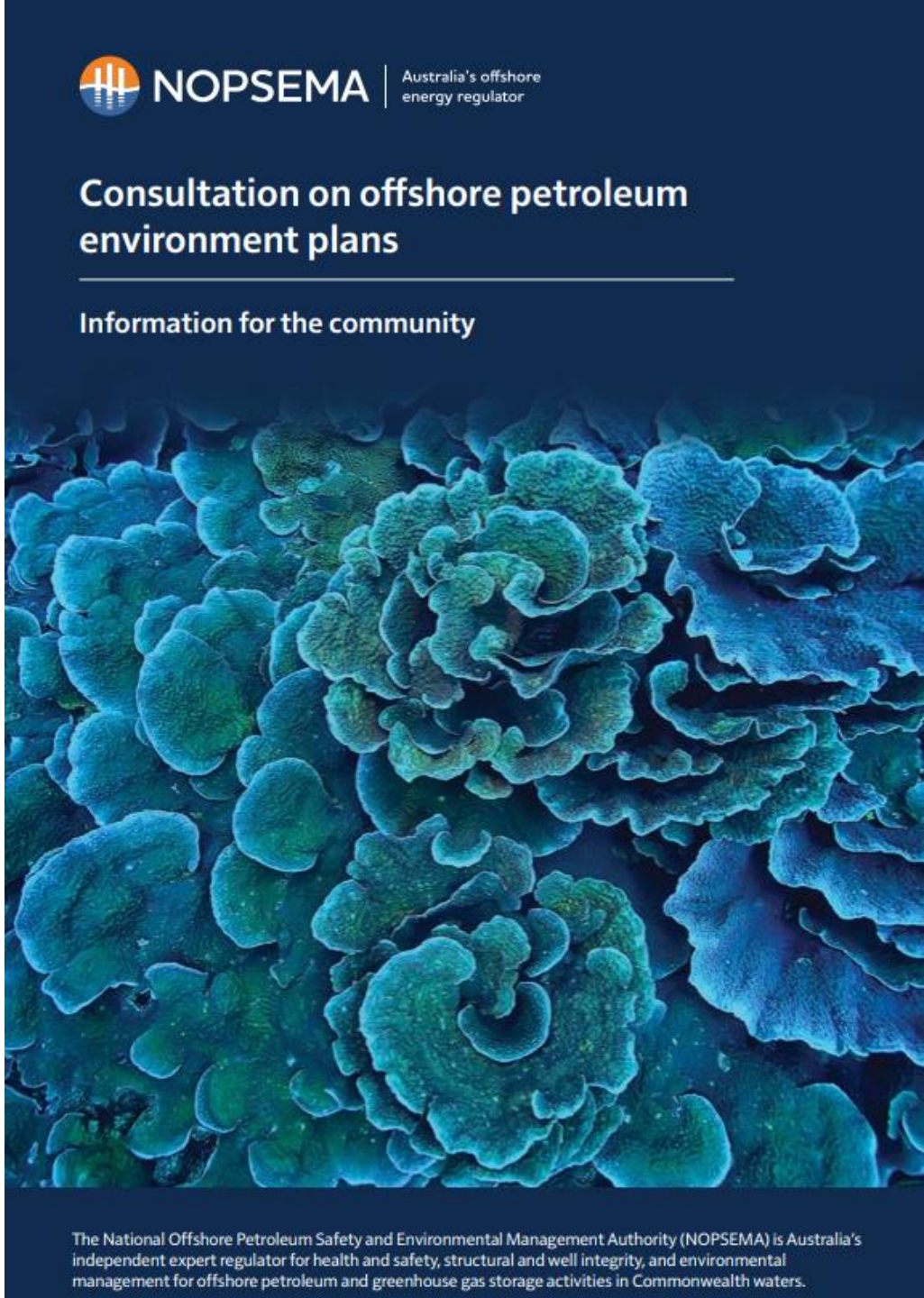
Pipelines

Concrete Gravity Structures (CGS)

Remaining platforms (still in use) and Jacket Bases

# What is an Environment Plan

- An Environment Plan (EP) is a comprehensive document that:
  - describes the existing environment
  - relevant persons
  - undertake activities to avoid, minimise or manage potential environmental impacts to As Low As Reasonably Practicable (ALARP)
  - meet regulatory criteria
- EPs require acceptance by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

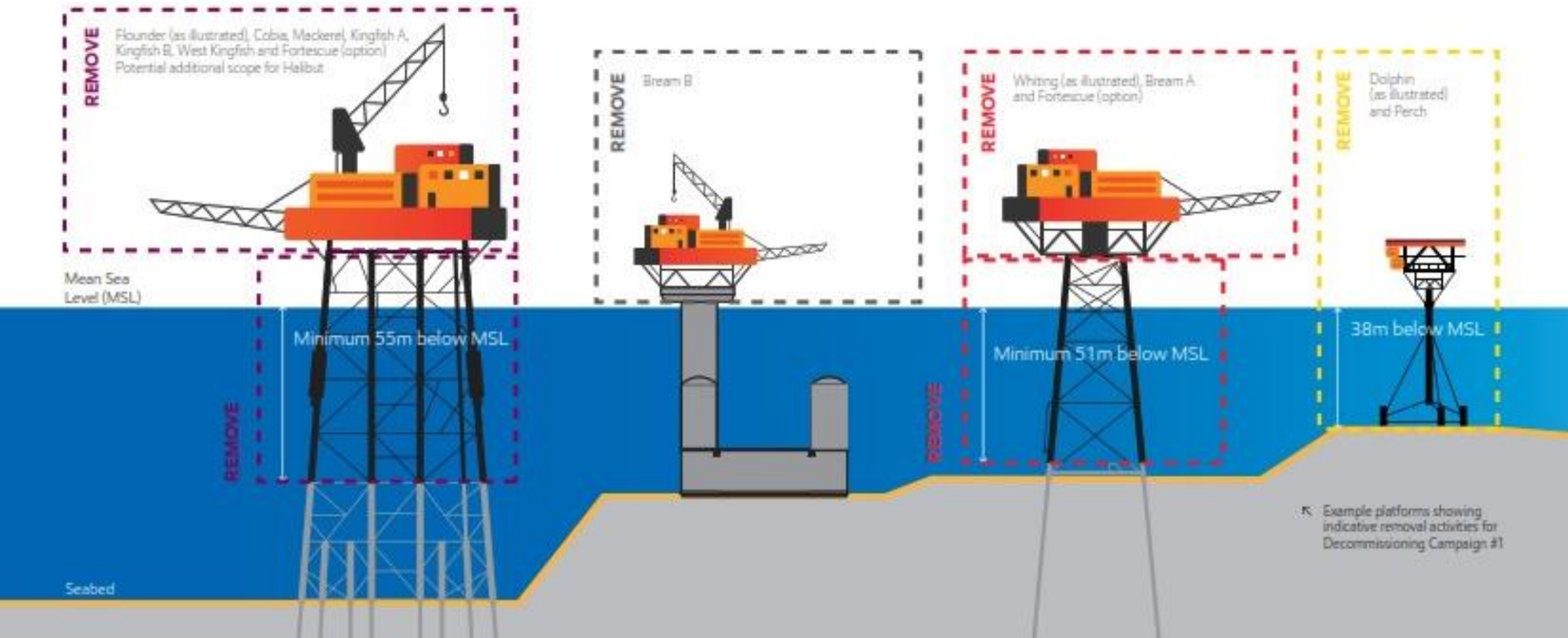



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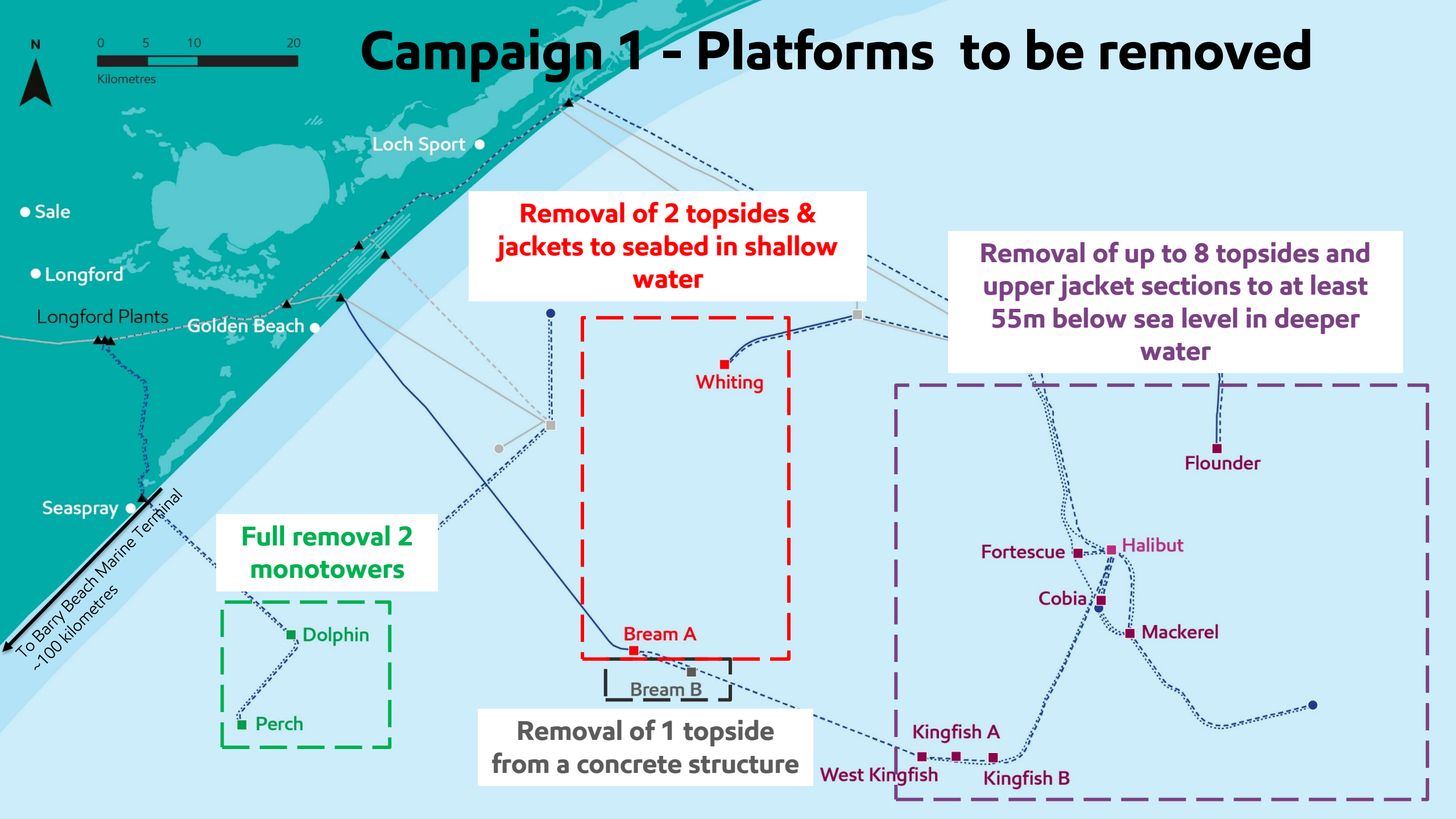
# Campaign #1 Project – Platform Decommissioning

# Decommissioning Campaign #1 Platforms

- Topside removal to commence September 2027



# Campaign 1 - Platforms to be removed



# *Pioneering Spirit*

- Esso has contracted Allseas to undertake removal activities using the Heavy Lift Vessel (HLV) *Pioneering Spirit*




↗ *Pioneering Spirit*

# Stage 2 – Transportation and Load In Operations

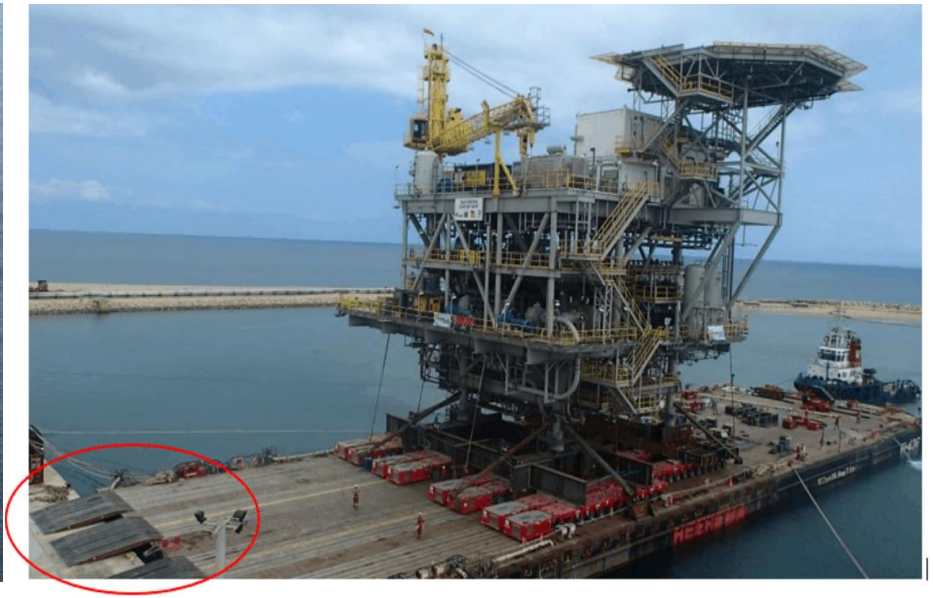
- Esso is progressing the next stage of the regulatory preparation activities as part of Decommissioning Campaign #1
- Stage 2 activities include:
  - Heavy Transport Vessel (HTV) / barge transport of structures to the Onshore Reception Centre (ORC) at BBMT
  - Load in structures from the HTV / barge and set down in the designated areas within the ORC
  - Short term storage and maintenance of structures prior to commencement of dismantling activities (Stage 3)



1970s jacket load out to Heavy Transport Vessel from BBMT

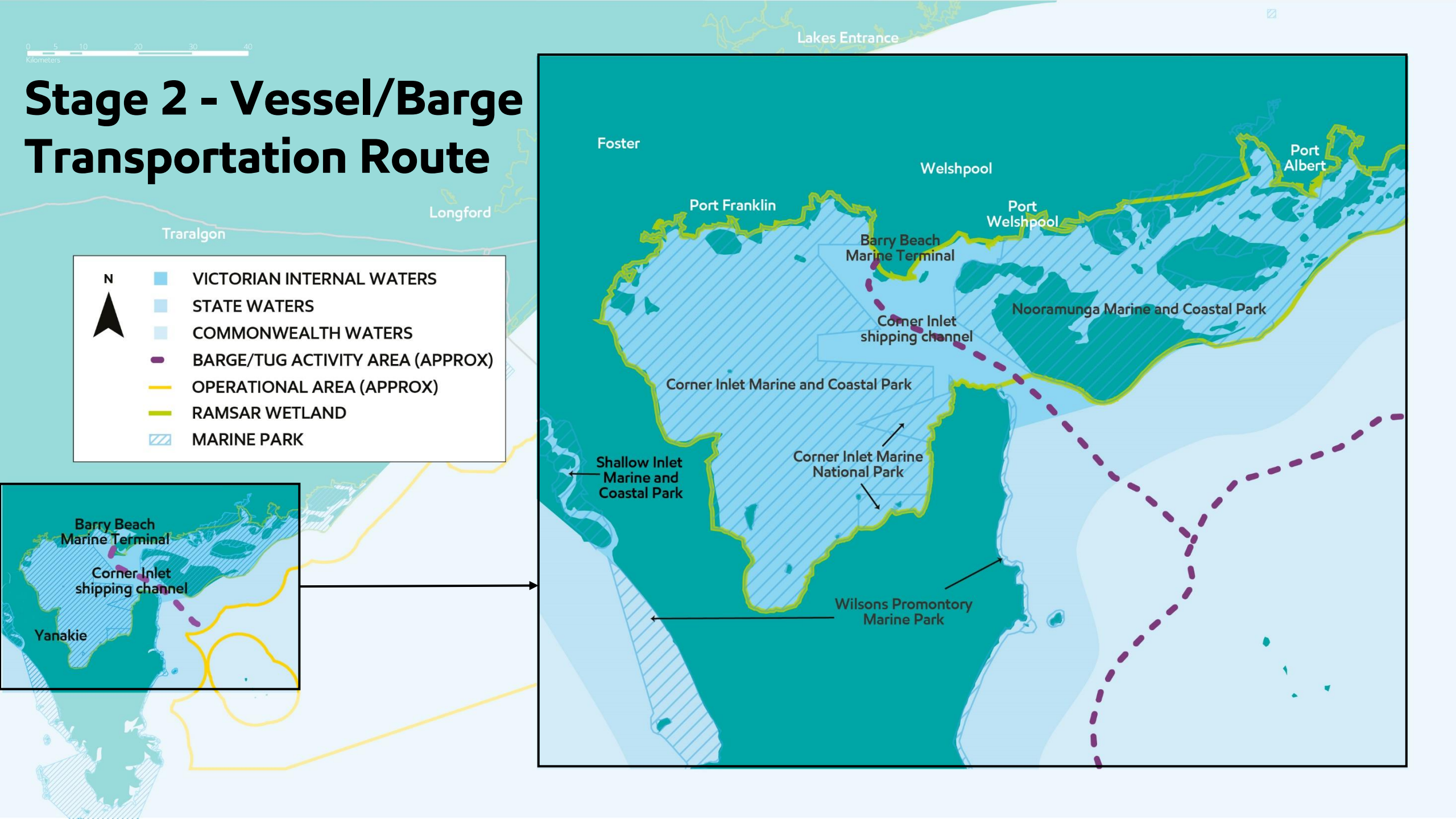


Modern Heavy Transport Vessel

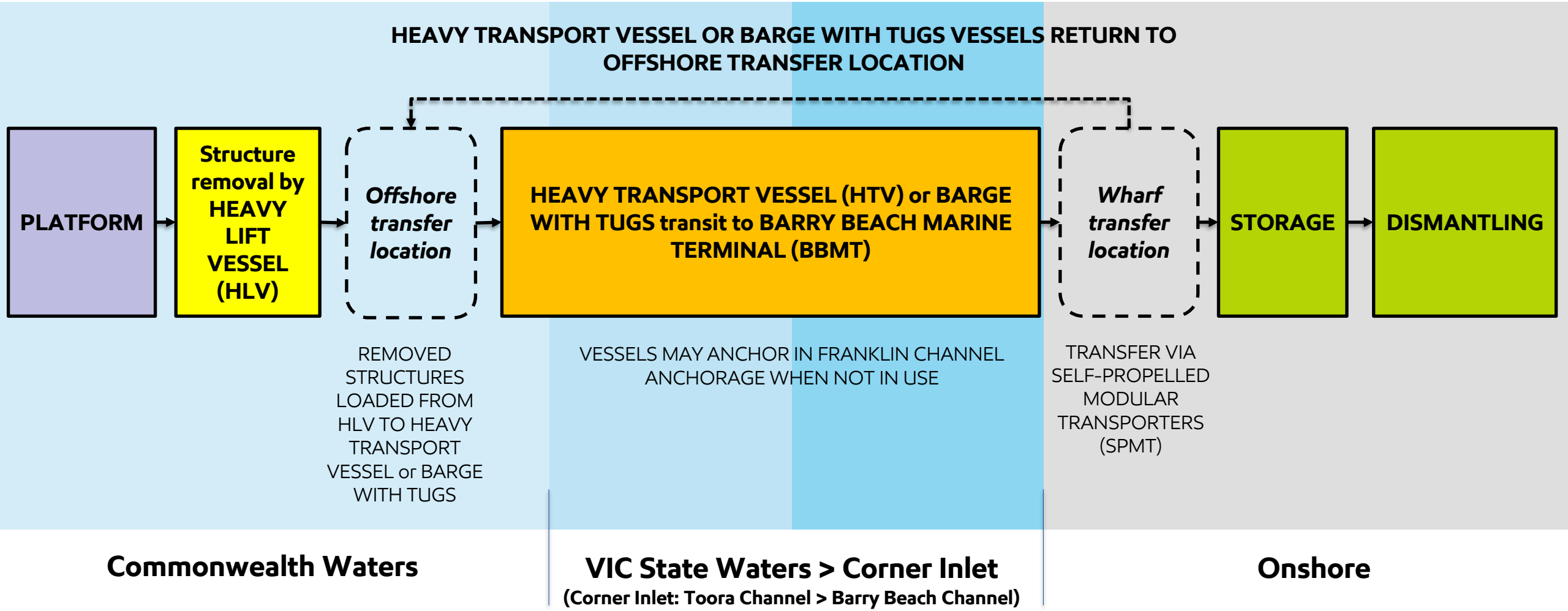


Topside load in using SPMTs with ramps

# Stage 2 - Vessel/Barge Transportation Route



# Stage 2 – Transportation and Load In Operations




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# ORC - Site Layout




↑ BBMT aerial view

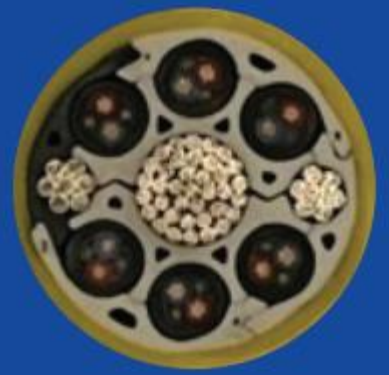
# Campaign 1A
# Umbilicals and flexibles removal

# What are umbilicals?

- Connect subsea equipment to a platform or connect between platforms
- Can include
  - electrical conductors
  - hydraulic and chemical lines/hoses
  - fibre optic cables
- Support power supply, fluid transfer and/or communications
- Buried at installation for protection (e.g. from fishing gear) and/or for stability
- Our shallow buried umbilicals are mainly less than 0.3m deep
- We are looking to remove them by "unzipping" without unburial

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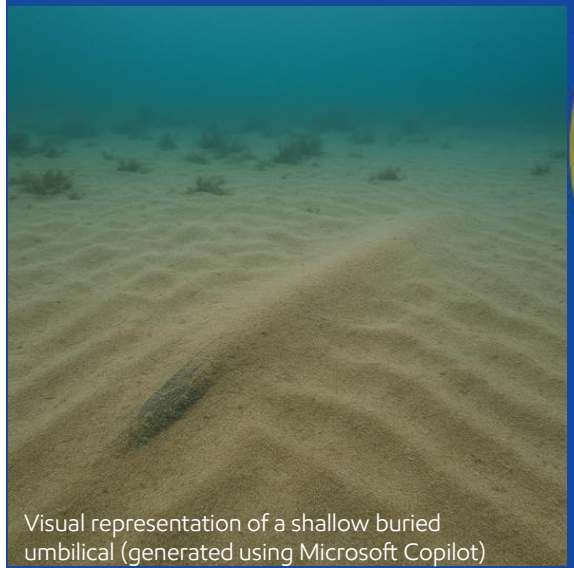
Typical Electrical umbilical cross-section



Typical Fluids umbilical cross-section



10cm or 4 inches



Visual representation of a shallow buried umbilical (generated using Microsoft Copilot)

# What are flexibles?

- Flexibles are mainly made of steel and special polymer layers

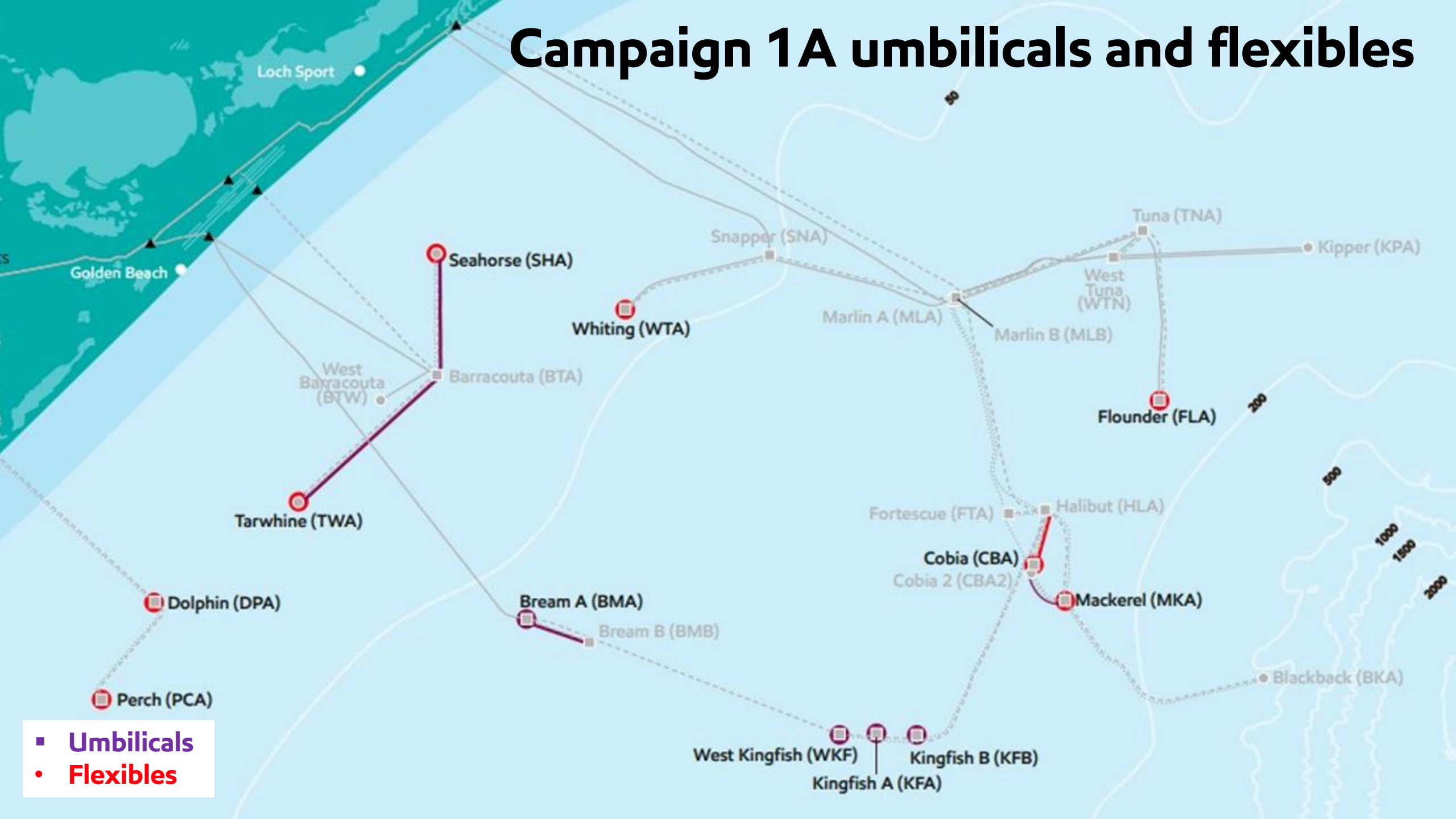
- Used to connect
  - offshore facilities and pipelines
  - between platforms
  - sub-sea wells, platforms and equipment



Visual representation of a flexible
(generated using Microsoft Copilot)

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# Campaign 1A umbilicals and flexibles




- Umbilicals
- Flexibles

# Cut and lift removal method

- Method involves cutting into sections on the seabed for recovery to the vessel
- Lengths will be cut on the seabed using specialised cutting tools (e.g. shears, diamond wire saws or chop saws) operated or assisted by an ROV
- Each section then lifted onto the vessel using recovery tools and the vessel crane
- Once onboard, the sections may be cut into shorter lengths




↑ Visual representation of the cut and lift removal method (generated using Microsoft Copilot)

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# Reverse reel-lay removal method

- Method involves recovering the umbilicals and flexibles to the vessel via a recovery system supported by ROV(s)
- Once on the vessel, the umbilical or flexible line will be spooled onto a reel or will be cut into sections for storage and transport



↑ Visual representation of the reverse reel-lay removal method (generated using Microsoft Copilot)

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# Marine growth removal

Sections of infrastructure may have accumulated marine growth that may need to be removed to assist recovery.

- Marine growth removal could occur
  - subsea
  - prior to entry into the recovery vessel's tensioning equipment
  - during handling and storage on the vessel deck
- Marine growth will either be
  - left in-situ
  - flushed to the marine environment at the recovery location
  - retained onboard the vessel for licensed disposal onshore

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# Marine Operations

- The vessels used for Campaign 1A will depend on the selected contractor and removal method
- The primary recovery vessel is likely to be a construction support vessel equipped with a umbilicals/flexibles recovery spread
- Ad–hoc support will be provided by a support or supply vessel, as required
- The recovery vessel will require periodic refuelling within the Operational Areas

# Potential key environmental impacts & risks

- **INTERACTION WITH OTHER MARINE USERS**
  - Changes to the function, interests or activities of other marine users through disruption to activities
- **SEABED DISTURBANCE & SEDIMENT DISPLACEMENT**
  - Temporary and localised smothering/alteration of benthic habitats & increase in turbidity near seabed
- **NOISE EMISSIONS**
  - Temporary impacts to noise sensitive fauna and amenity
- **LIGHT EMISSIONS**
  - Temporary & localised ambient light; & short-term attraction of light sensitive species
- **AIR EMISSIONS**
  - Temporary & localised reduction in air quality; & contribution to global greenhouse gas effect
- **PLANNED DISCHARGES:**
  **FROM VESSELS**
  - Temporary/localised impacts to water quality; & temporary change to predator/prey dynamics

  **FROM CUTTING & LIFTING OPERATIONS**
  - Temporary/localised water quality impacts & smothering/ alteration; potential toxicity impacts

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# Potential unplanned impacts & risks

- **INTERACTION WITH MARINE FAUNA FROM VESSEL STRIKE**
  - Impacts to marine fauna
- **INTRODUCTION OF IMS/ TRANSLOCATION OF NATIVE SPECIES**
  - Change in ecosystem dynamics
- **RELEASE OF MATERIALS AND WASTE**
  - Turbidity; burial of benthic habitat in immediate seabed area; and potential toxicity impacts
- **MINOR RELEASE OF HAZARDOUS OR NON-HAZARDOUS SUBSTANCES**
  - Impacts to water quality and marine ecosystems
- **RELEASE OF FUEL FROM A VESSEL COLLISION**
  - Tainting of fisheries species; injury and death of species such as fish, seabirds, cetaceans; and pathological effects on fish larvae and plankton

# Campaign 1A activity timing

- Date of commencement: ~2028 - 2032
- Field activities estimated to take: ~ 2 months
- Activities will be conducted: 24/7

- Timing and order of the activities may vary and is contingent on:
  - completion of Decommissioning Campaign 1
  - regulatory approvals
  - joint venture approvals
  - weather
  - vessel schedules




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# Remaining Pipelines

- Decommissioning options for remaining pipeline network still being assessed
- Risks, benefits and impacts will be considered for each option using a structured decision-making process (Multi Criteria Decision Analysis (MCDA) 4Q 2025)
- A separate environment submission will be prepared if required, targeting 2H 2026

# Bass Strait Operations

# Bass Strait Environment Plans

- Currently-accepted Bass Strait Environment Plan will be superseded by two Environment Plans (EPs):

**Bass Strait Producing Environment Plan**

- Includes six offshore platforms, two subsea facilities and associated pipelines
- Activities: operations; well work; ongoing maintenance works; and vessel and helicopter support operations

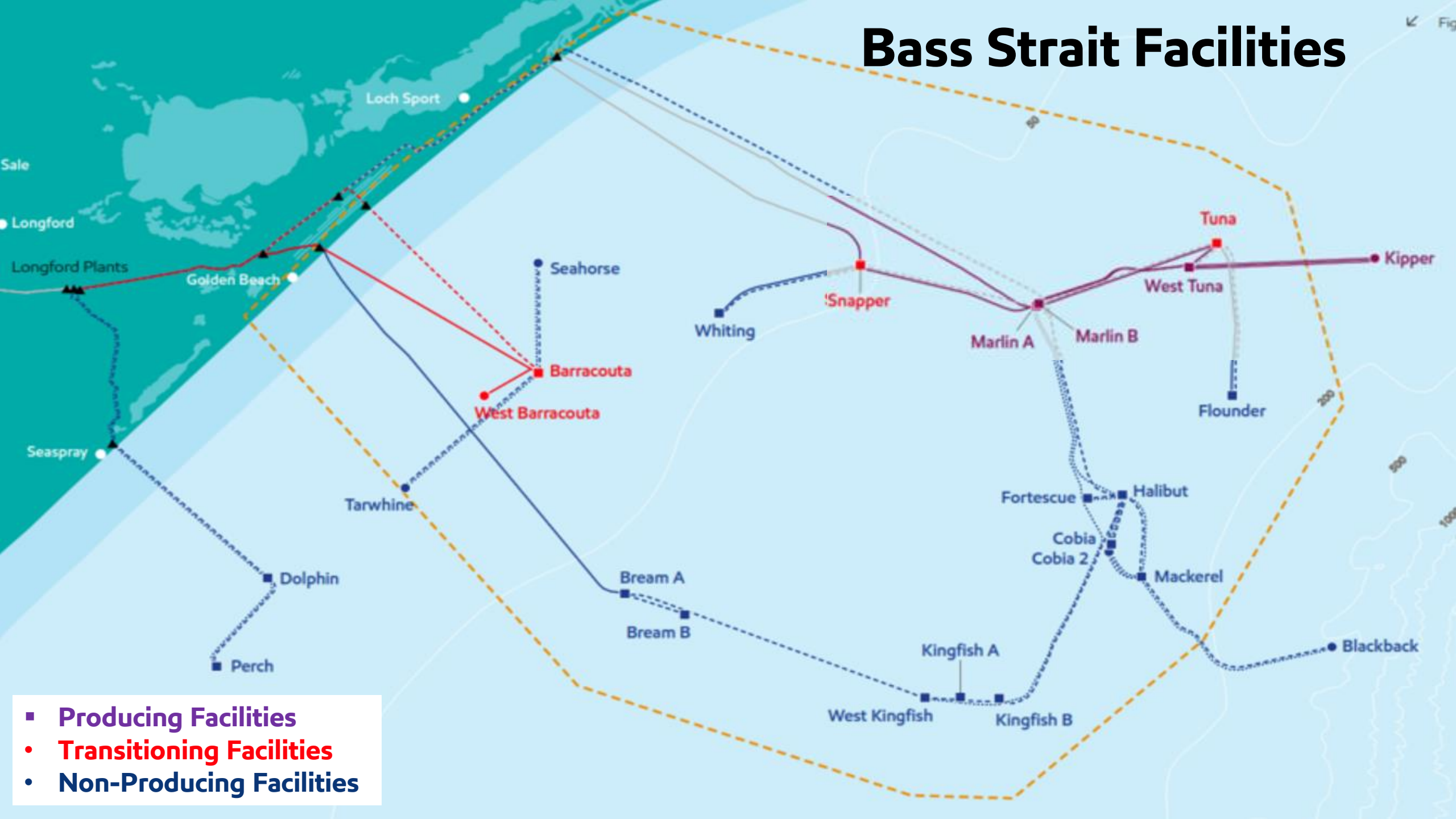
**Bass Strait Non-Producing Environment Plan**

- Includes 13 offshore platforms, four subsea facilities and associated pipelines
- Activities: well plug and abandonments; facility preparation for decommissioning works; ongoing maintenance works; and vessel and helicopter support operations

- Both will be valid for five years
- To be submitted to NOPSEMA by end of March 2026

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# Bass Strait Facilities




- Producing Facilities
- Transitioning Facilities
- Non-Producing Facilities

# Jack-Up Rig (JUR) – Wellworks at Barracouta platform

- Plug and Abandon (P&A) and well workover of up to 10 wells at Barracouta platform
- P&A - installing cement plugs in wells to permanently seal hydrocarbons from coming to the surface
- Workover – repair, clean or upgrade of equipment to restore or improve production
- Undertaken by JUR – floating mobile offshore drilling unit, with movable steel legs that can be jacked down to provide a stable working platform
- Activities to start in ~2Q 2026



↑ Jack-Up Rig

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# Other activities

| |
|---|
| **Bass Strait State Waters Environment Plan**<br>Updating the EP for petroleum activities in State waters, as required under the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010. |
| **Gippsland Basin Geophysical and Geotechnical Investigations Environment Plan**<br>Continuing to undertake G&G activities across multiple licence areas located within Commonwealth Waters in Bass Strait. |
| **Jack Up Rig Well Plug and Abandonment Environment Plan**<br>P&A 21 platform-based wells and five subsea wells in the Gippsland Basin. |
| **Kipper Subsea Drilling Environment Plan**<br>Undertaking a drilling campaign at the Kipper location which will be completed in 2025. |
| **Turrum Phase 3 Drilling Environment Plan**<br>Undertaking a drilling campaign from the Marlin Complex which will be completed in 2025. |

# Wrap up

# Community information sessions

For more detail on dates and locations:
Go to Esso Consultation Hub
https://corporate.exxonmobil.com/locations/australia/our-approach

Check your local media

Please email us
at consultation@exxonmobil.com to
register your attendance

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↑ Kingfish Platform

# Any questions?

If you have more questions email:

consultation@exxonmobil.com

For more information go to:

https://corporate.exxonmobil.com/locations/australia

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↓ Section of BMB250-BMA pipeline

# Thank you



# Appendix G-6 Community information session presentation (November 2025)

November 2025

# Esso Australia Stakeholder consultation

Energy lives here™



# Acknowledgement of Country

Kalimna, Koori

# Agenda

1. Changes to our operations
2. Overview
3. Campaign #1: Platform decommissioning
4. Campaign #1A: Umbilicals and flexibles removal
5. Future campaigns
6. Bass Strait operations
7. Wrap up
8. Q&A




↑ Dolphin platform

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# Changes to our operations

# Changes to our operations

**Recap:**

- ExxonMobil (EM) announced transfer of operatorship of the Gippsland Joint Venture (GBJV) to Woodside, subject to regulatory approvals
- EM maintains 50% ownership of the GBJV and continues to supply all our Gippsland gas to the Australian domestic market
- Our team who has been performing the work will transfer to Woodside
- EM are committed to supplying essential energy to Australia, as we have for 130 years

**Update:**

- EM and Woodside have formed transition teams comprising members from multiple business disciplines
- The transition teams are tasked with ensuring a safe, well-managed operator handover

We will continue to keep our stakeholders and the community updated

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# Overview

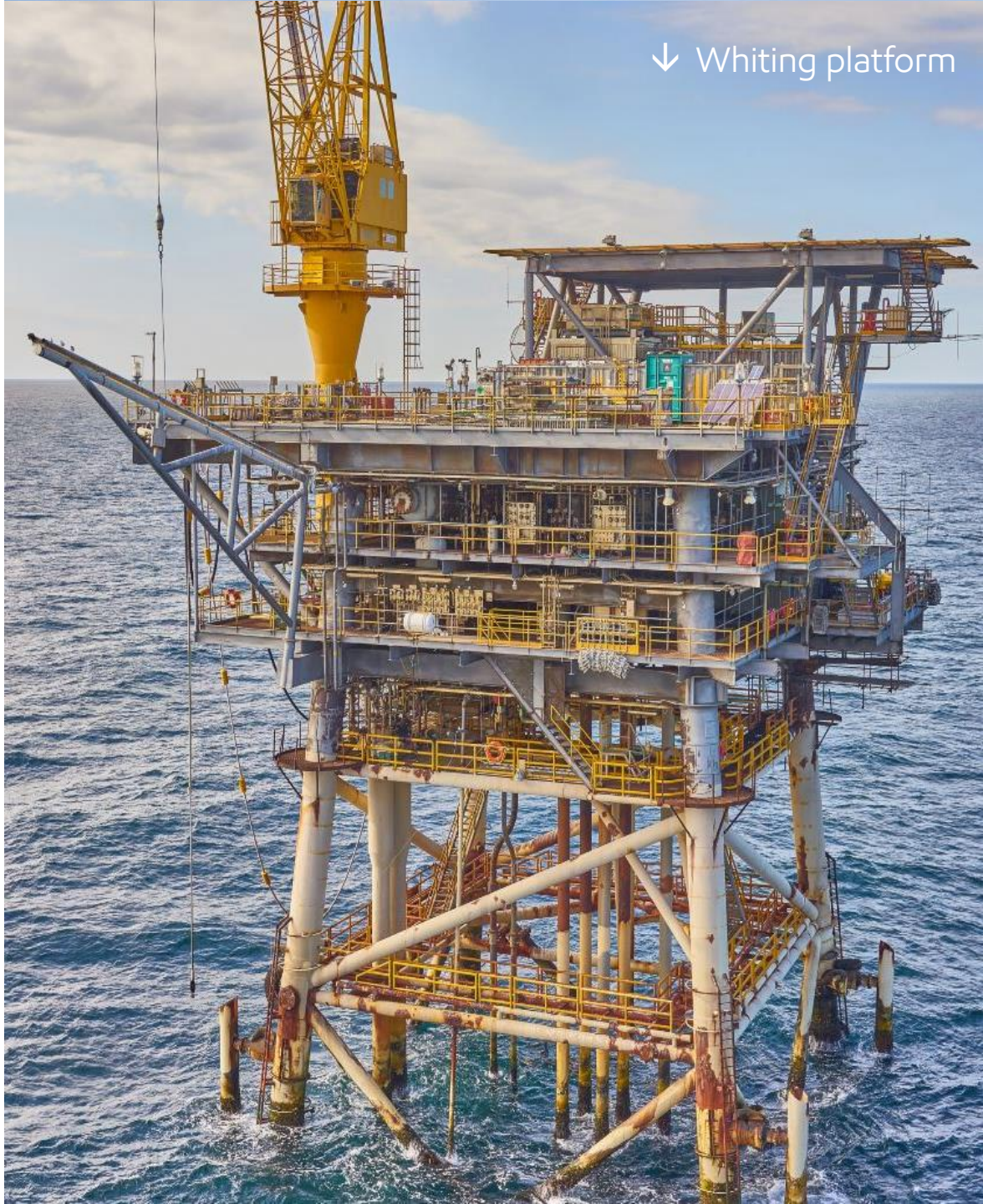
# Bass Strait operations

The Bass Strait production network comprises:

- 19 platforms
- ~ 400 wells
- 6 subsea facilities
- ~ 800km offshore subsea pipelines, including:
  - 34 primary pipelines (~650km)
  - Secondary pipelines (~190km )
  - Umbilicals and flexibles (~105km)
  - Ancillary subsea property

Some facilities have reached end of oil/gas production.

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# Removal activities staged

Esso's decommissioning activities are staged and managed according to the infrastructure.

Now – 2030:

- **Campaign #1**: Non-producing platform facilities and Onshore Reception Centre (ORC) at Barry Beach Marine Terminal (BBMT)
- **Campaign #1A**: Shallow buried umbilicals and flexibles

2030+ (**Future campaigns**):

- Pipelines
- Concrete Gravity Structures (CGSs)
- Remaining platforms (still in use) and jacket bases.




↑ *Skandi Darwin* – Esso's contracted Multi-Purpose Support Vessel

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# Activity overview



## BASE BUSINESS

- Bass Strait Producing Environment Plan
- Bass Strait Non-Producing Environment Plan
- Jack-up Rig (JUR) to complete plug and abandon (P&A) of wells
- Drilling campaigns

Consultation ongoing




## CAMPAIGN #1

- 13 platforms; upper jacket sections of 10 Steel Piled Jackets (SPJs) and 2 monotowers
- Removed platforms will come to Barry Beach Marine Terminal (BBMT)

Consultation ongoing



## CAMPAIGN #1A

- Full removal of specific umbilicals and flexibles

Consultation ongoing



## FUTURE CAMPAIGNS

- Pipelines
- CGSs
- Remaining platforms (still in use) and jacket bases

Consultation ongoing

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# Regulatory requirements













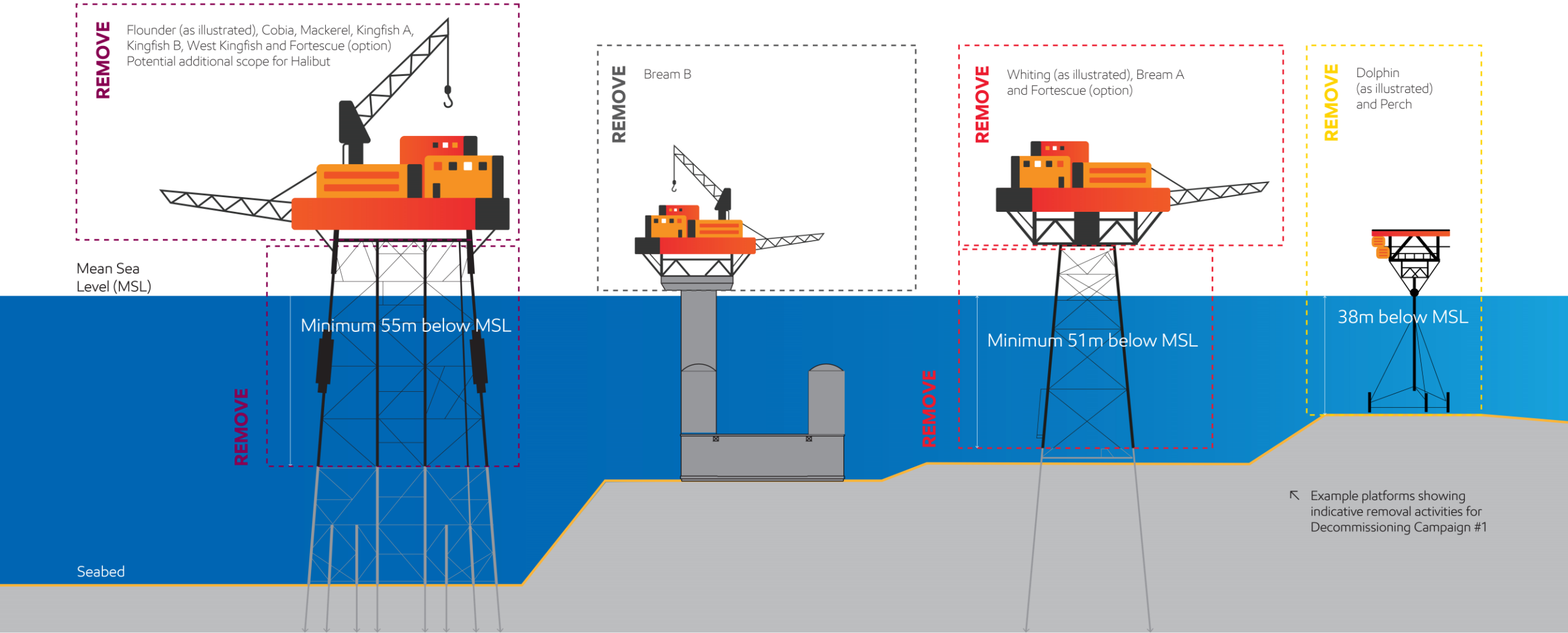
- Commonwealth waters (>3nm from coastline) are regulated by:
  - **National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)** under Offshore Petroleum & Greenhouse Gas Storage (Environment) Regulations 2009
  - **Department of Climate Change, Energy, the Environment and Water (DCCEEW)** under *Environment Protection (Sea Dumping) Act* 1981
  - **National Offshore Petroleum Titles Administrator (NOPTA)** under *Offshore Petroleum & Greenhouse Gas Storage Act* 2006 (OPGGS Act)
- State waters (<3nm from coastline) are regulated by:
  - **Department of Energy, Environment and Climate Action (DEECA)** under Offshore Petroleum & Greenhouse Gas Storage Regulations 2011 (Vic)
  - **Department of Climate Change, Energy, the Environment and Water (DCCEEW)** under *Environment Protection & Biodiversity Conservation Act* 1999
- Onshore areas are regulated by:
  - **Department of Transport and Planning (DTP)** under Planning and Environment Act 1987 and *Environment Effects Act* 1978
  - **Department of Climate Change, Energy, the Environment and Water (DCCEEW)** under *Environment Protection & Biodiversity Conservation* (EPBC) *Act* 1999
  - **Department of Energy, Environment and Climate Action (DEECA)** under *Environment Effects Act* 1978 & *Marine and Coastal Act* 2018
  - **South Gippsland Shire Council (SGSC)** under the *Planning and Environment Act 1987*
  - **Environment Protection Authority (EPA)** under the *Environment Protection Act 2017*

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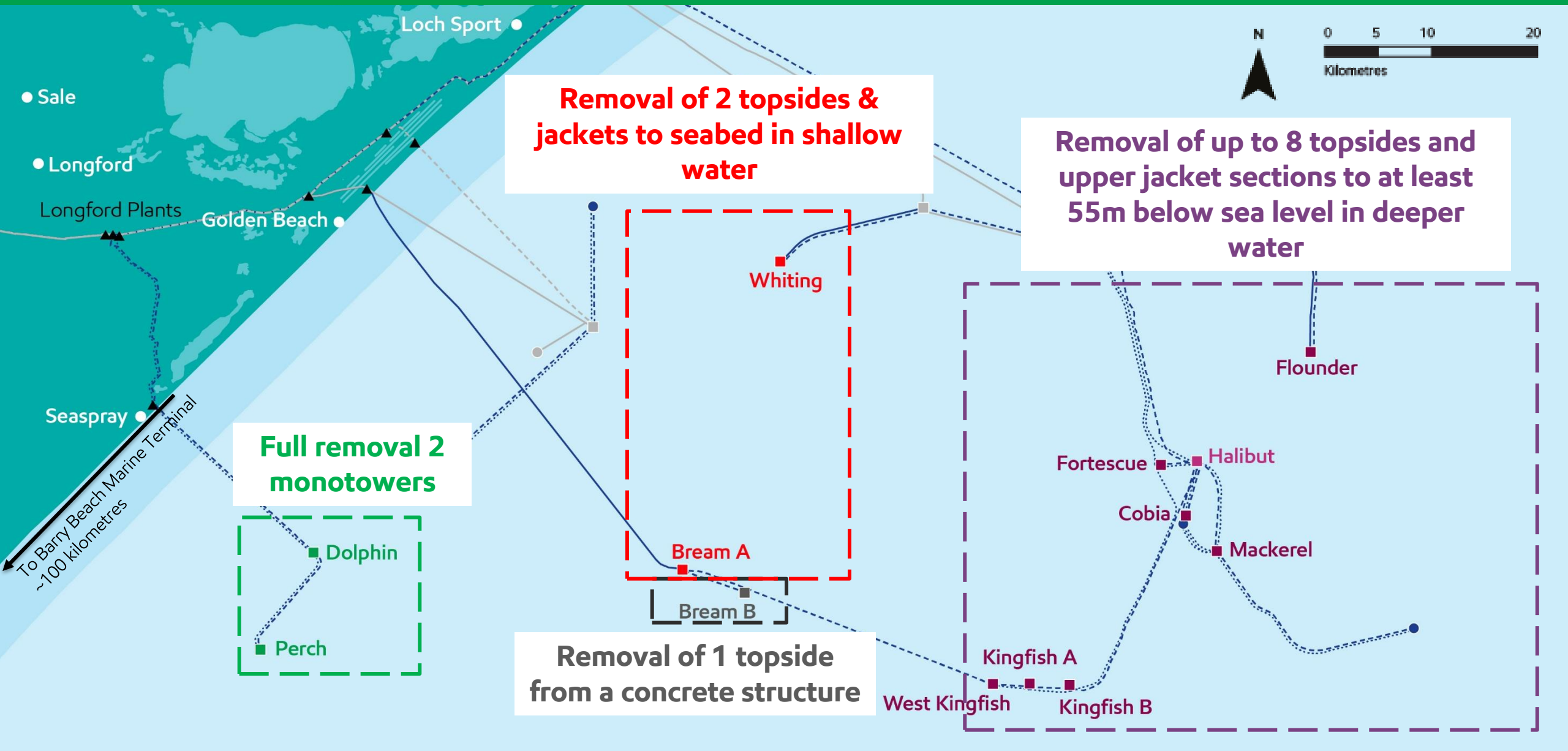
# Campaign #1:
# Platform decommissioning

# Campaign #1 overview

- Topside removal to commence September 2027



# Campaign #1 platforms to be removed



# *Pioneering Spirit*

- Esso has contracted Allseas to undertake removal activities using the Heavy Lift Vessel (HLV) *Pioneering Spirit*




↗ *Pioneering Spirit*

# Campaign #1 regulatory submission timeline

**Execution Environment Plan submitted to NOPSEMA**

**ORC Early Works commence ~1Q**

**Construction Support Vessel (CSV) expected to arrive in Bass Strait**





**HLV expected to arrive in Bass Strait**



**HLV expected to depart Bass Strait**

2024 | 2025 | 2026 | 2027 | 2028 | 2029

**Stage 1 : ORC Early Works (Site Readiness)**

- EPBC* Referral
- Marine and Coastal Act Consent
- Planning Permit (building & works)

**Stage 2: ORC Transportation and offloading operations**

- EPBC Referral
- Licence Amendment

**Stage 3: ORC Dismantling operations**

- EPBC Referral
- Licence Amendment

Submitted

Accepted

**Ongoing Stakeholder Communications and Consultation**

*Environment Protection and Biodiversity Conservation Act

# Stage 2 transportation and offloading operations

- Esso is progressing the next stage of the regulatory preparation activities as part of **Campaign #1**
- Stage 2 activities include:
  - Heavy Transport Vessel (HTV)/barge with tugs transport structures to the ORC at BBMT
  - Offloading structures from the HTV/barge and set down in designated areas within the ORC
  - Short term storage and maintenance of structures prior to commencement of dismantling activities (Stage 3)



↖ 1970s jacket load out to HTV from BBMT

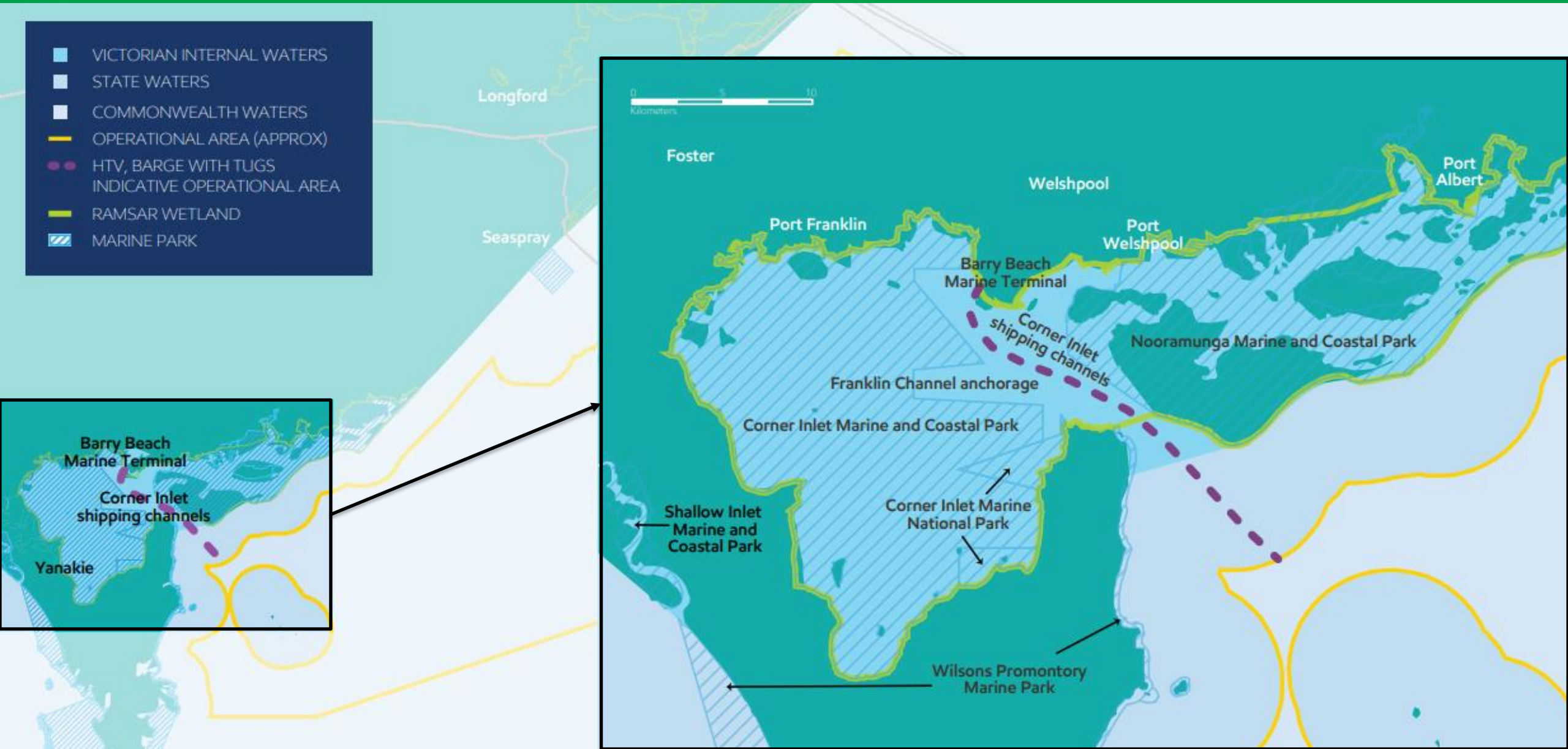




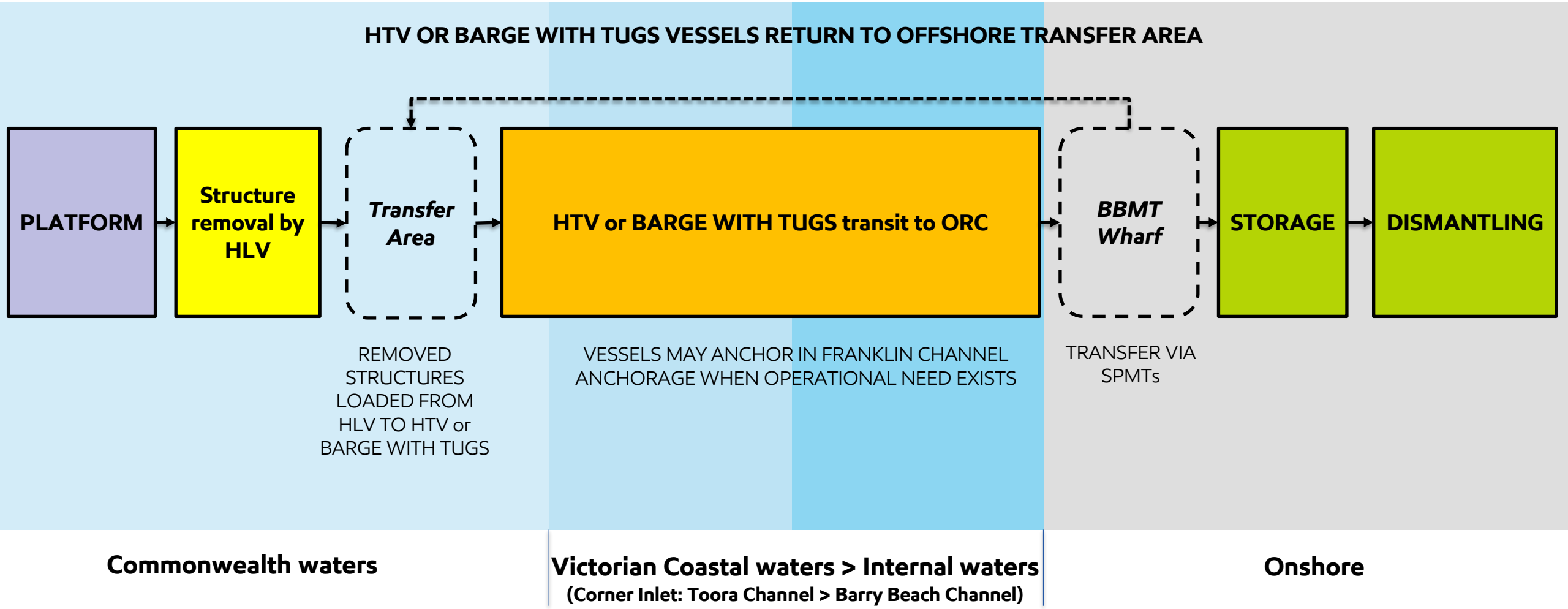


*SPMT = SELF-PROPELLED MODULAR TRANSPORTERS

# Stage 2 vessel/barge transportation route



# Decommissioning process flowchart




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# ORC site layout

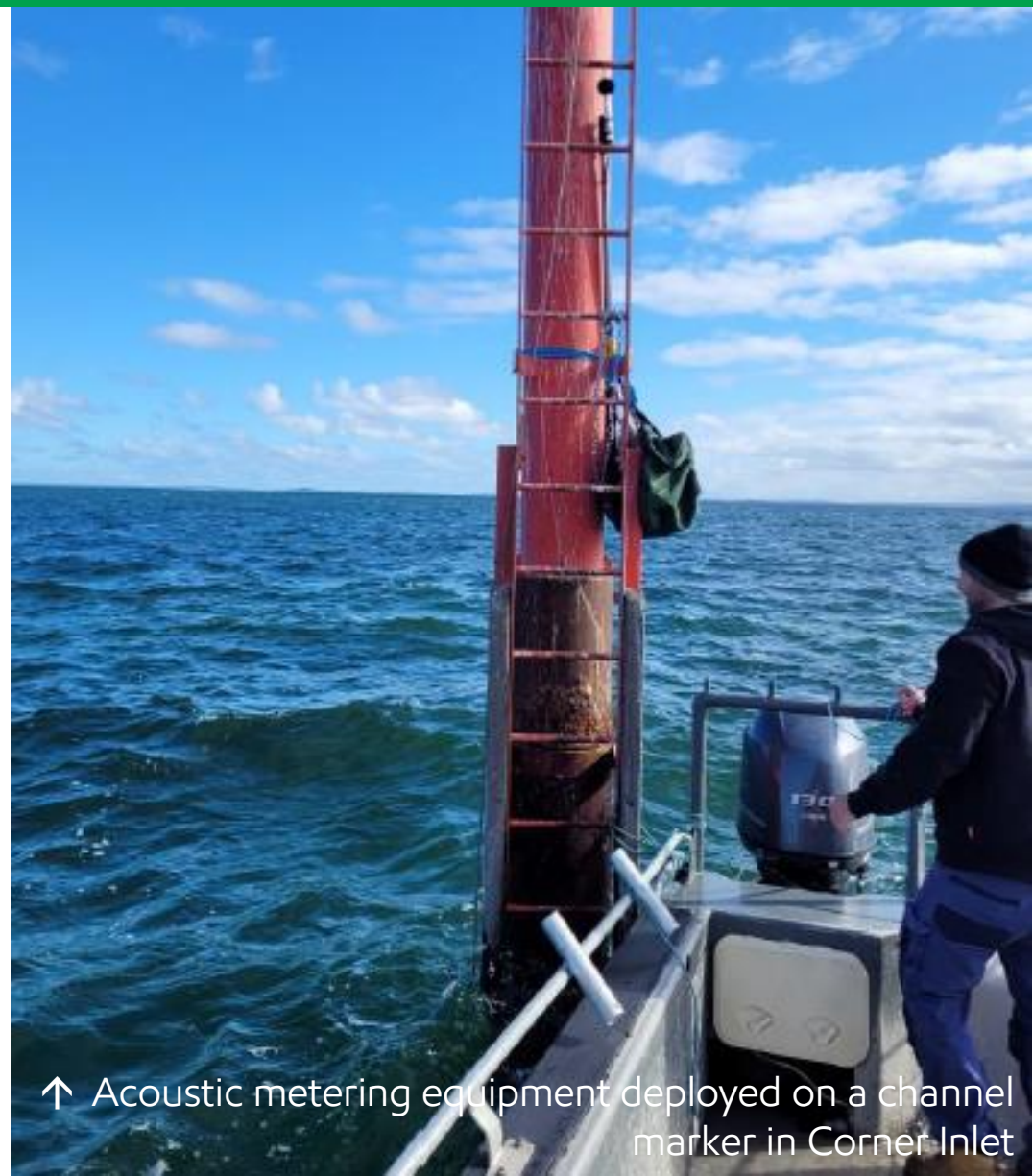



↑ BBMT aerial view

# Stage 2 studies

Esso has commissioned environmental studies to assess potential impacts and risks of this stage of activities. These studies include:

- underwater noise
- airborne noise
- invasive marine species
- artificial light
- odour
- terrestrial ecology
- marine ecology and avifauna.



↑ Acoustic metering equipment deployed on a channel marker in Corner Inlet

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# Stage 2 potential impacts and sources

- **Noise emissions**
  - Temporary impacts to noise sensitive fauna (for example shorebirds) and amenity
- **Light emissions**
  - Short-term attraction of light sensitive species; short-term change in fauna behaviour
- **Air emissions**
  - Temporary and localised impacts to air quality; contribution to the global greenhouse gas effect
- **Odour**
  - Temporary impacts to amenity
- **Invasive marine species**
  - Impact to Corner Inlet environmental values

↓ Acoustic metering equipment deployed on BBMT site





↑ Acoustic metering equipment deployed in location close to coastal shorebird habitat

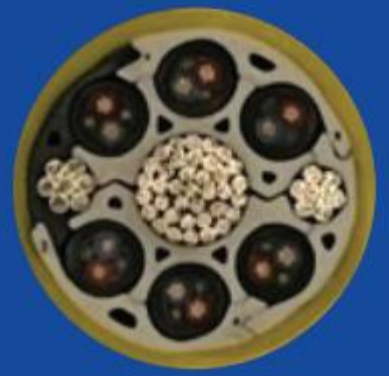
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# Campaign #1A:
# Umbilicals and flexibles removal

# Campaign #1A summary

- **Subsea asset recovery**: Removal of umbilicals, flexibles, and associated subsea infrastructure across approximately 47km
- **Preparation works**: Sediment relocation, infrastructure unburial, and marine growth removal to enable safe and effective recovery
- **Recovery techniques**: cut and lift and reverse reel-lay methods, supported by remotely operated vehicles (ROVs) and specialised tools
- **Marine operations**: Conducted using CSVs and supply vessels, with operations managed under ExxonMobil's marine integrity systems.

↓ Typical electrical umbilical cross-section



↓ Typical fluids umbilical cross-section






↑ Visual representation of a shallow buried umbilical (generated using Microsoft Copilot)



↑ Visual representation of a flexible (generated using Microsoft Copilot)

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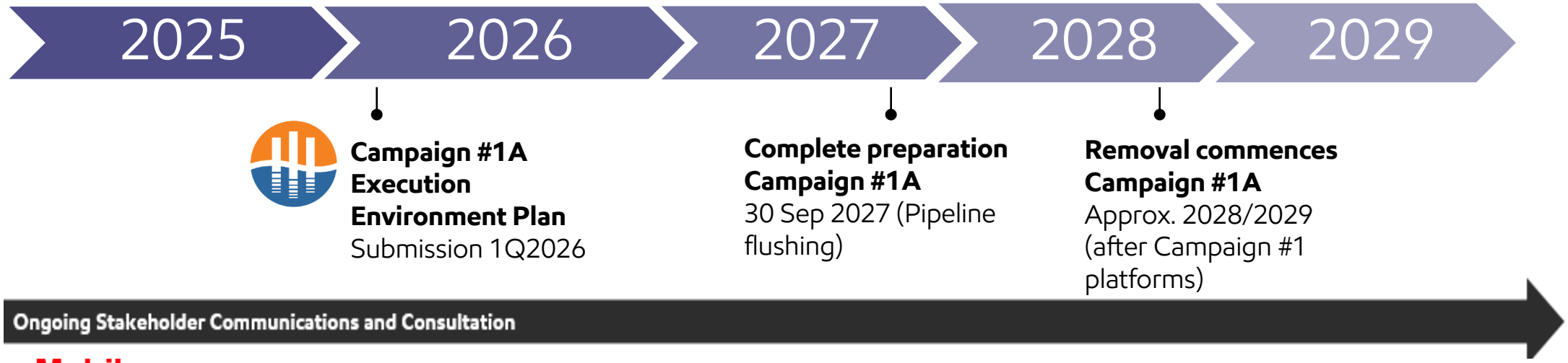
# Campaign #1A umbilicals and flexibles



# Campaign #1A activity timing

- Commencement date: ~2028 - 2032
- Field activities estimated to take: ~ 2 months
- Activities will be conducted: 24/7

- Timing and order of the activities may vary and are contingent on:
  - completion of **Campaign #1**
  - regulatory approvals
  - joint venture approvals
  - weather
  - vessel schedules.




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# Bass Strait operations

# Bass Strait Environment Plans

- Currently-accepted Bass Strait Environment Plan will be superseded by two Environment Plans:
  - **Bass Strait Producing Environment Plan**
    - 6 offshore platforms, 2 subsea facilities and associated pipelines
    - Activities: operations, wellworks (incl. P&As for wells no longer producing), ongoing maintenance works, vessel and helicopter support operations
  - **Bass Strait Non-Producing Environment Plan**
    - 13 offshore platforms, 4 subsea facilities and associated pipelines
    - Activities: well P&As, decommissioning preparation works, ongoing maintenance works, vessel and helicopter support operations, management of deep foundation piles beneath the seafloor

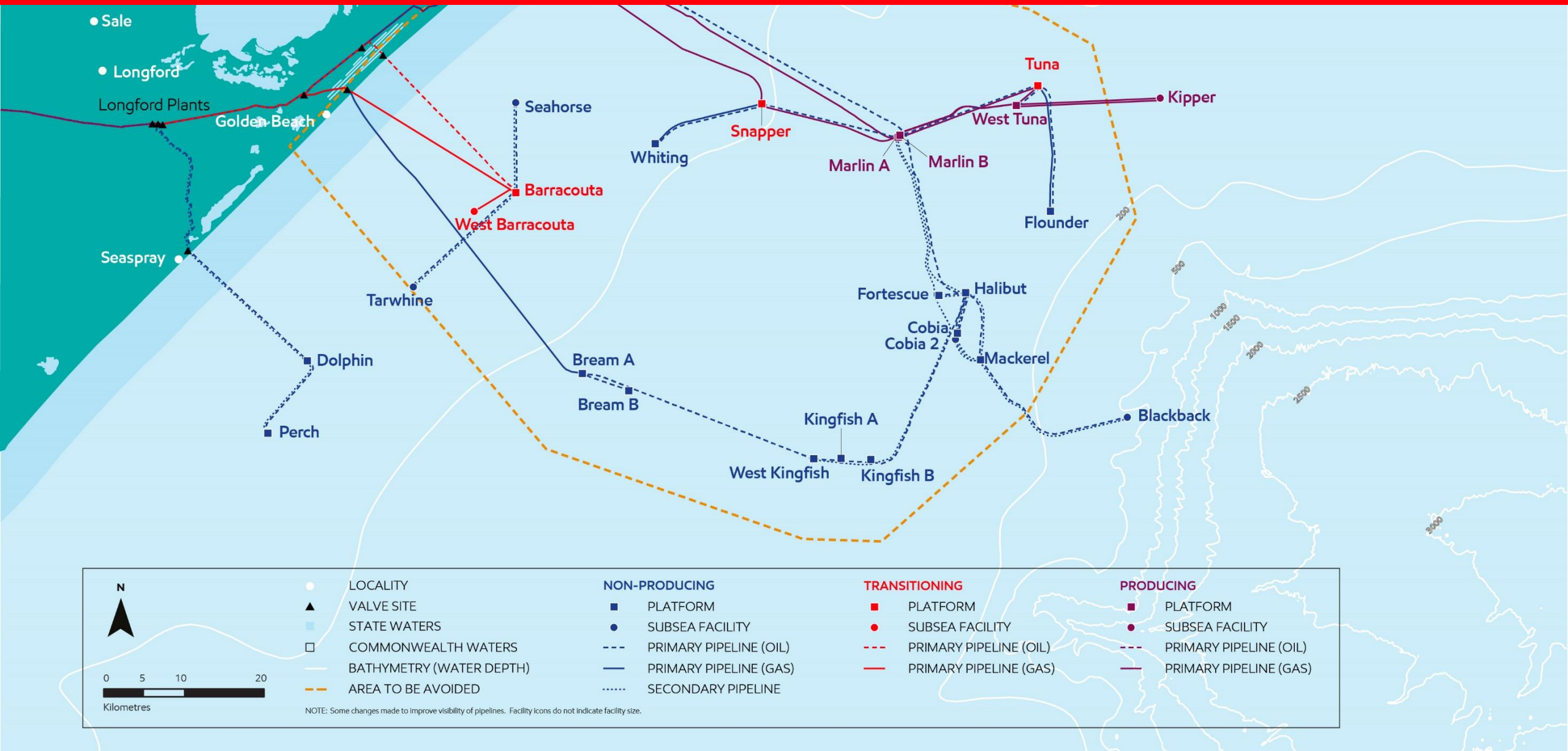
  Both EPs to be submitted to NOPSEMA 1Q26, valid for five years



↖ Marlin A platform

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# Bass Strait facilities



# Key potential impacts and sources in Environment Plans

- **Loss of well control**
  - Potential toxicity; oiling of fauna and reduction in visual aesthetic.
- **Loss of containment from a pipeline**
  - Temporary and localised change in water quality
- **Seabed disturbance**
  - Localised and temporary change of habitats near the seafloor caused by remotely operated vehicle operations
- **Noise emissions**
  - Temporary displacement of sound sensitive fauna around active vessels
- **Light emissions**
  - Temporary and localised changes in ambient light - attracting light sensitive species



↓ Example ROV imagery collected by Esso showing delicate soft-bodied invertebrates attached to structures

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# Future campaigns

# Remaining pipelines

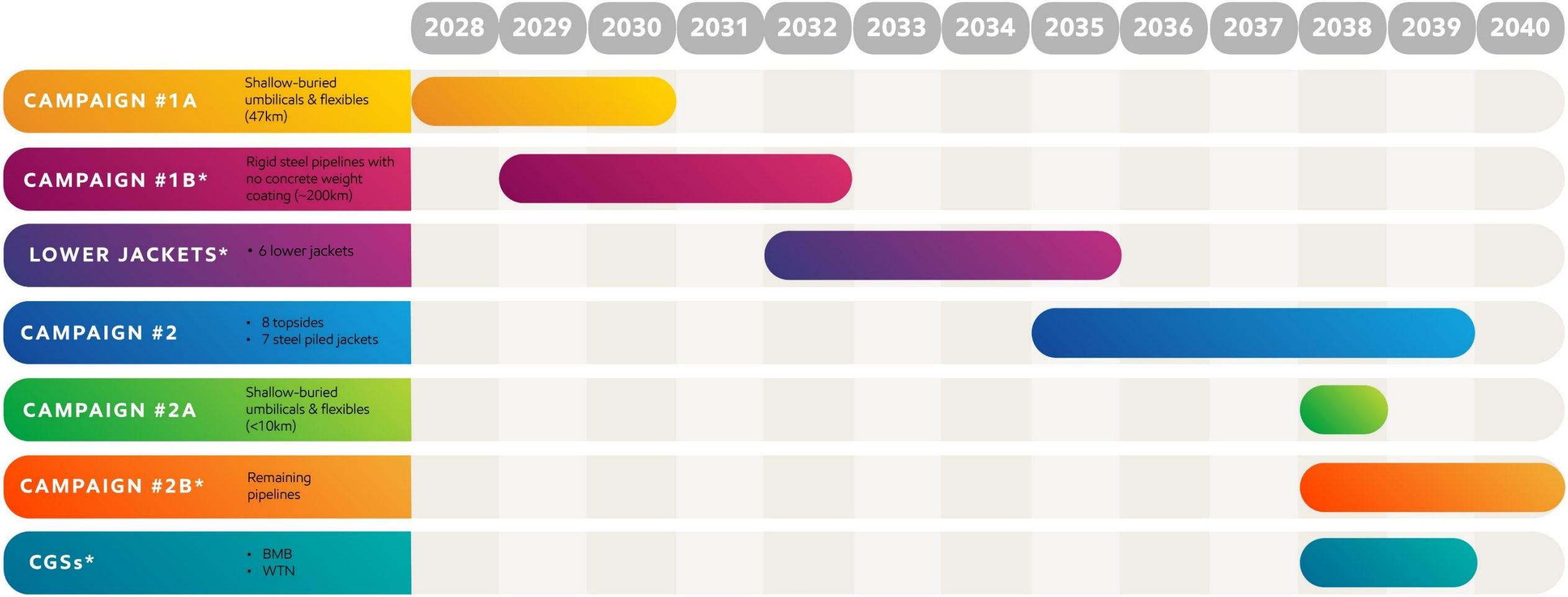
- Decommissioning options for remaining pipeline network still being assessed
- Risks, benefits and impacts will be considered for each option using a structured decision-making process (Multi Criteria Decision Analysis (MCDA) 4Q 2025)
- A separate environment submission will be prepared if required (~2027)



↓ The BMA350 pipeline

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# Future offshore decommissioning



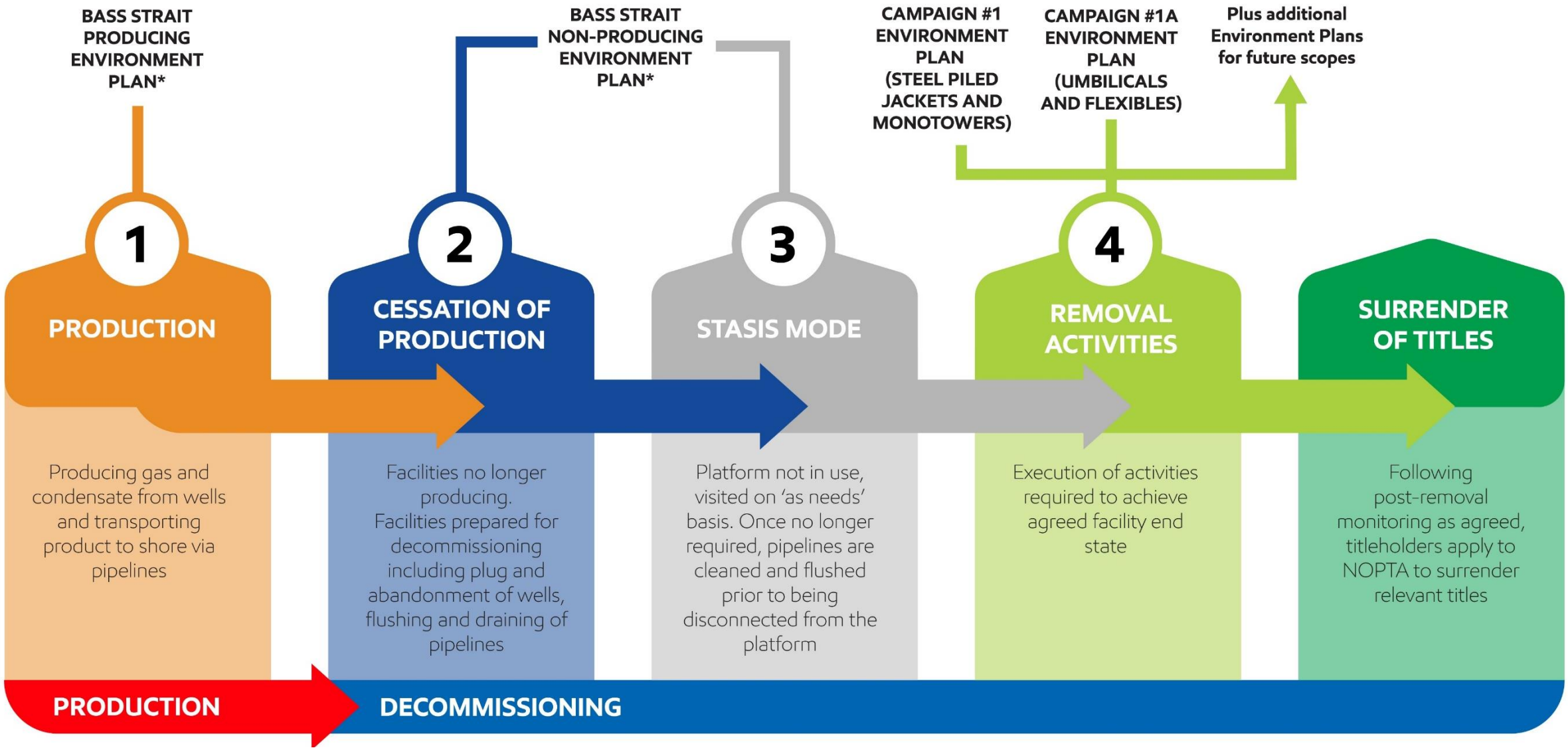

* End state dependent

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NOTE: Future campaigns will be dependent on gas cease of production timing.
CGS: Concrete Gravity Structure

# Wrap up

# Lifecycle of facilities




*The currently accepted **Bass Strait Environment Plan** will be superseded by two environment plans, known as the **Bass Strait Producing Environment Plan** and the **Bass Strait Non-Producing Environment Plan**.
National Offshore Petroleum Titles Administrator (NOPTA)
Maintenance will be continued throughout all phases until dismantling complete

# Other activities

| |
|---|
| **Jack Up Rig - Wellworks - Barracouta Environment Plan**<br>P&A and well workover of up to 10 wells at Barracouta platform, to start in 2026 – Environment Plan accepted. |
| **Bass Strait State Waters Environment Plan**<br>Updating the Environment Plan for petroleum activities in State waters, as required under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (Vic). |
| **Gippsland Basin Geophysical and Geotechnical Investigations Environment Plan**<br>Continuing to undertake geophysical and geotechnical activities across multiple licence areas located within Commonwealth waters in Bass Strait. |
| **Jack Up Rig Well Plug and Abandonment Environment Plan**<br>P&A 21 platform-based wells and five subsea wells in the Gippsland Basin. |
| **Kipper Subsea Drilling Environment Plan**<br>Currently undertaking a drilling campaign at the Kipper location. |
| **Turrum Phase 3 Drilling Environment Plan**<br>Undertaking a drilling campaign from the Marlin Complex which will be completed in 2026. |

# Community information sessions

For more detail on dates and locations:
Go to Esso Consultation Hub
https://corporate.exxonmobil.com/locations/australia/our-approach

Check your local media

Please email us
at consultation@exxonmobil.com to
register your attendance

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↑ Kingfish Platform

# Any questions?

If you have more questions email:

consultation@exxonmobil.com

For more information go to:

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↓ Section of BMB250-BMA pipeline

# Thank you



# Appendix H: Advertisement materials

# Appendix H-1 Newspaper advertisements – August 2025

# Kokoda trek a life changer

The eight 2025 East Gippsland Arthur Grassby Kokoda Scholarship winners have successfully completed the Kokoda Trail in what was a real test of endurance and resilience building for the individuals.

The group was joined by 24 other scholarship winners around the state and with 32 in total the trekkers were divided into two groups, half trekking south to north and half north to south. They met at the half way point for lunch.

All of the East Gippsland trekkers were on the north to south route.

Each student was allocated a soldier from the local East Gippsland area and carried his photo across the Trail. In most cases they were able to visit where 'their' soldier fell, or close to the location. Here they would also read a short speech to the group about the person, which would often include what they did prior to enlisting, what their interests were and how they died.

At the end of the trek they then visited his grave or memorial at the Bomana War Cemetery in Port Moresby for a private chat with 'their' soldier.

The students were asked to sit for some quiet reflection and make some commitments about how they intend to live the rest of their lives, given the person in the ground or with their name on the memorial gave his life for them, which is a powerful and emotional moment for the students.

The trek itself always presents some challenges and in the early stages in particular there were different levels of homesickness as some were on their first trip overseas.

Some of the students also battled general sickness, while others simply had to find the resilience required to complete the challenge, which can prove daunting in the terrain of constant steep climbs and descents.

Highlights included the dawn service at Isurava (one of the key battle sites), Brigade Hill battle site, Eora Creek where the Australian hospital was located as well as locations such as Templeton's Crossing, Kokoda Village and Ioribaiwa Ridge where other conflicts occurred.

Following are some of the comments provided by the students on their completion:

**Emily Junge:** Walking the Kokoda Trail was one of the most challenging and rewarding experiences of my life, and I'm deeply grateful to the sponsors that made it possible.

As someone from a rural area, this journey opened my eyes to the strength within me and to the sacrifices of those who came before us.

Standing at the Isurava Memorial I felt a deep connection to the values of courage, mateship, endurance and sacrifice – values I will now carry with me always.

Thank you for giving me this chance to grow and discover what I am truly capable of.

**Phoebe Seal:** Trekking Kokoda was one of the most rewarding and eye-opening experiences of my life.

While it was definitely one of the hardest challenges I've faced, it taught me what we were undertaking wasn't about us. It wasn't just about trying to push ourselves and having a once in a lifetime opportunity.

It was about honouring and learning about the soldiers and local Papua New Guinean people who gave their lives for us and so their sacrifices are never forgotten.

Along the way I was able to find an amazing, supportive group of friends, which further highlighted how mateship was such an important value amongst the Australian soldiers and Fuzzy Wuzzy Angels.




**The group having completed the nine day trek across the Kokoda Trail at Ower's Corner shortly before visiting Bomana War Cemetery.**



**Some of the students buying gifts off local Regina at Efogi Village, the half way point of the Trail.**

ExxonMobil
Community Consultation – decommissioning of oil & gas infrastructure in Bass Strait
Esso
An ExxonMobil Brand

Esso Australia Resources Pty Ltd (Esso), a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is committed to operating and decommissioning its Gippsland and Bass Strait facilities safely and effectively. After delivering energy to Australia for over 50 years, many of the Bass Strait oil and gas fields are now reaching the end of their productive life. As planning for decommissioning progresses, Esso is focused on safely shutting-down non-producing facilities and ensuring they stay safe throughout the entire decommissioning process.

**Community Information Sessions**

If you'd like to know more about decommissioning of platforms and pipelines in Bass Strait, the Esso Consultation Team will be hosting community information sessions at the following locations:

**Monday 11 August 2025 – Lakes Entrance**
On the Wharf Café
Bullock Island, Lakes Entrance

**Tuesday 12 August 2025 – Yarram**
The Yarram Country Club
322-340 Commercial Road, Yarram

**Wednesday 13 August 2025 - Sale**
The Criterion Hotel
90 Macalister Street, Sale

**Monday 18 August 2025 - Yanakie**
Yanakie Hall
Millar Road, Yanakie

**Tuesday 19 August 2025 - Foster**
Foster War Memorial Arts Centre
79 Main Street, Foster

**Wednesday 20 August 2025 - Leongatha**
Leongatha RSL
Cnr Smith St & Michael Pl, Leongatha

All the above sessions will run from **5.00pm - 7.00pm** with a **presentation** about Esso's operations, focusing on decommissioning projects.

We encourage you to come along and ask questions or raise any concerns you may have. Please **register your attendance** by emailing: consultation@exxonmobil.com

If these dates and times don't suit, contact us at consultation@exxonmobil.com or by phone on 03 9261 0000.

The Esso Team will also be available to discuss proposed activities, including:

- Bass Strait Environment Plans
- Barracouta Plug and Abandonment Environment Plan
- Campaign 1A Environment Plan

**Like to be consulted about these activities?**

Esso is working to identify and consult with relevant persons [stakeholders] whose functions, interests, or activities may be affected by one or more of Esso's proposed activities.

Complete the Esso Consultation Questionnaire (sli.do) in the Esso Consultation Hub to let us know if you'd like to be consulted or have any questions or feedback.

Refer to the NOPSEMA brochure Consultation on offshore petroleum environment plans brochure.pdf (nopsema.gov.au) to understand more about consultation on offshore petroleum environment plans assessed under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023.

Your feedback and our response will be included in the relevant regulatory application documentation and submitted to the regulator.

**Please connect us with other interested people**

If there is anyone you know who may be interested in our activities, we encourage you to share this information with them.

**To find out more information**

For more information about Esso's activities and other projects, go to the Esso Consultation Hub at:
https://corporate.exxonmobil.com/locations/australia/our-approach



# In the spotlight

East Gippsland may not have taken home a trophy at this year's Victorian Top Tourism Town Awards – held in Shepparton on Wednesday night – but being named a finalist in all three categories is a significant achievement.

It proudly reflects the region's rich character, community spirit and uncapped tourism potential.

Presented by the Victoria Tourism Industry Council (VTIC), these prestigious awards celebrate towns that offer outstanding visitor experiences and promote collaboration across tourism operators and local businesses.

The 2025 East Gippsland finalists included:

- Paynesville – Top Small Tourism Town (population 1500–5000). Won by Mount Beauty.

- Lakes Entrance – Top Tourism Town (population over 5000). Won by Warrnambool.

- Marlo – Top Tiny Tourism Town (population under 1500). Won by Trentham.

While the titles went elsewhere on the night, being recognised as finalists placed these three towns on the state-wide stage, offering a unique opportunity to showcase their strengths and share their charm with new audiences.

Council has warmly congratulated this year's deserving winners for their inspiring achievements.

East Gippsland offers visitors an incredible diversity of experiences: lakeside adventures, pristine beaches, lush national parks, wildlife encounters and warm country hospitality.

With strong foundations and growing recognition, East Gippsland continues to shine as one of Victoria's most remarkable tourism destinations.



**Paynesville was a finalist in the Victorian Top Tourism Town Awards Top Small Tourism Town (population 1500–5000).** (PS)



**EGCMA and GLaWAC working with Swifts Creek Primary School students on a revegetation project on the Tambo River**

# Connecting about waterways

East Gippsland Catchment Management Authority (CMA) will be hosting several community information sessions across the region to share updates on its latest environmental projects and initiatives.

"These events are a great opportunity for community members to connect with CMA staff, ask questions and discuss priorities for the region's environment and waterways," Bec Hemming chief executive officer of East Gippsland CMA said.

"Community members are encouraged to drop in for a friendly chat, enjoy a cuppa and let the CMA know what matters most to them."

Whether it's local waterway health, land management, or environmental conservation, your voice helps shape the future of East Gippsland's catchments.

For more information visit the EGCMA's website or follow us on social media.

**INFORMATION SESSIONS**

Bruthen – Thursday, July 31 – Bruthen Mechanics Hall

Lakes Entrance – Tuesday, August 5 - Gippsland Lakes Fishing Club

Buchan – Thursday, August 7 – Buchan Neighbourhood House

Swifts Creek – Tuesday, August 12 – Swifts Creek Hall

Cann River – Thursday, August 14 – Monaro Centre

Mallacoota – Tuesday, August 19 – Mallacoota Club Rooms

Orbost – Wednesday, August 20 – Orbost Senior Citizens Club

All sessions are 6-7.30pm

ExxonMobil

Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

Esso

An ExxonMobil Brand

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In store only. Upgrade to premium multifocal lenses for an additional $100 or elite multifocal lenses for an additional $200. Other lens types and options available at an extra cost. Use with other offers restricted. Subject to your policy's waiting periods, annual limits, fund rules and having the appropriate level of extras cover. Present your valid health fund membership in store to redeem.





CIAF 2025 Art Awards Innovation winner Alick Tipoti.



CIAF 2025 Art Awards Art Centre winner Hope Vale Art and Culture Centre.

# Excellence recognised with awards

QLD

THE 2025 Cairns Indigenous Art Fair (CIAF) Art Awards recognised excellence across Queensland's Aboriginal and Torres Strait Islander visual arts sector.

This year's top honour, the Premier's Award for Excellence, was awarded to Djabugay/Yirrgay artist Bernard Singleton (Yakal Creatives) for his commanding wood carving *Offering (2025)*, a work praised by judges for its technical mastery, cultural grounding, and robust response to CIAF's theme Pay Attention!.

The judges said they found *Offering (2025)* to "demonstrate a mastery in traditional carving technique, producing an arresting and commanding work that audiences pay attention to".

"The piece is rooted in Djabugay/Yirrgay knowledge, which speaks to Singleton's upbringing and inter-generational storytelling," they said.

"The work highlights reciprocal responsibility and the crucial role that relationships play in caring for Country, for one another, our futures, and both the tangible and intangible aspects of the world.

"The Hairy Men (known by many names) have a presence across Singleton's and Tropical North Queensland's forests as protectors of Country, their associated and diverse Lore also connects knowledge from across First Nations Australia and globally.

"Through techniques rooted in both traditional and contemporary experimentation, Singleton embodies CIAF's 2025 theme, Pay Attention!: Truth-telling through creativity.

"Singleton's contribution stands as both protest and invitation – urging people to pay attention to what is often unseen and unheard and to challenge them to reckon with the legacies and futures of Indigenous Sovereignty."

This year's Peoples' Choice award went to Dylan Sarra for his work '*Native Police Spears*'.

The collection of glass-tipped spears referenced the Queensland Native Police, which were established to carry out the expansion of colonial settlement across the state in the late 1800s.

The glass and stone-tipped spears represented cultural continuity, collective identity, and resistance rooted in Country.

"These spears assert presence and survival," Mr Sarra said.

"They are not weapons of conquest but markers of belonging.

"My work is about connecting to ancestral voices still embedded in place.

"By carving and creating, I am continuing a legacy interrupted by colonisation—one that carries strength, knowledge, and survival.

"This is not the whole story.

"Instead, it is the beginning."

Mr Ropeyarn said the work embodied this year's CIAF theme, Pay Attention!

Badu artist Alick Tipoti was awarded the Innovation Award for *Mawaw Danaka*, recognised by judges for its experimental approach, cultural depth and outstanding technical achievement, but beyond the awards, Alick was a central figure in CIAF's 2025 program, presenting work across multiple platforms and performances.



CIAF 2025 Art Awards Premier's Award for Excellence winner Bernard Singleton.



CIAF 2025 People's Choice Award winner Dylan Sarra (right) with Torres Strait Regional Authority chairperson George Nona.

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**Hopevale Arts & Culture Centre**
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Jamie Singleton enjoys spending time with the GLCH social support group The Lounge. (PS)



Gippsland Lakes Complete Health social support trainee Lucia Collins has enjoyed getting to know all of The Lounge members and being a regular part of their lives. (PS)

# Call for volunteer drivers

Every week in Lakes Entrance, a group of locals gather for gardening, shared cooking, gym sessions and the occasional fishing trip — but none of it happens without a driver.

Gippsland Lakes Complete Health is calling for volunteer drivers to help run its long-standing social support program in Lakes Entrance.

One of the programs, known as The Lounge, has been operating for 14 years and provides a space for people with disabilities to connect, learn new skills and be involved in community life.

Jamie Singleton is a regular participant.

"I think it's just mixing with each other and learning from one another," he said.

"Different days have different aspects. Whether it's the garden or the woodwork in the sheds. Just the community and mingling with each other."

Jamie said the program has helped him grow in confidence.

"I'm 56 years of age, and I'm still learning," Jamie said.

"When I did come here, I was a bit shy, it's just in my nature. It's like your first day of school, but then you warm up."

Jamie has a message for any new volunteer drivers, after a minor hiccup when the van nearly got bogged.

"As long as they're confident. We got bogged out there a few weeks ago, backing the bus on dirt, and had the spinning wheels," he said.

"We always carry first aid on the bus, and there's a shovel. We just had to do the old stick trick."

Lakes Entrance local Di McKinnon volunteers in the kitchen, three days a fortnight and says being part of the social support team has been rewarding.

In addition to looking for bus drivers, there are also other ways to volunteer with the social support group.

"I love to cook, and I have a helper. Someone picks each week what they are going to cook, and helps me prepare it," Di said.

"It's a lasagne today and the hordes will be here later to test if I've succeeded. So, it's busy, busy in the kitchen on Mondays.

"It's very satisfying and there's never a dull moment. I love the clients; they are a great bunch of people.

I do enjoy the cooking side of it and helping. I just feel it's my time to put into the community. I very much enjoy it."

The GLCH bus is a 12-seater and can be driven on a standard driver's licence.

Volunteer drivers are needed to help with morning (9–10am) or afternoon (1.30–3pm) shifts, and even one day a week or fortnight would make a big difference.




Volunteer Di McKinnon has been helping in the kitchen for the last four months. (PS)

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FATHERS DAY COMPETITION 2025

**Draw a picture of you and your dad or grandad or write a poem and tell us why he is the best for your chance to win him a great prize.**

*To enter, send your entries with your name, age, phone number, and the name of your father or grandfather to:*

**Father's Day Competition**
Email: competitions@jamesyeates.com.au or drop into our office at 65 Macleod St, Bairnsdale 3875
Entries Close 5pm Friday, 29th August 2025



**Terms & Conditions:**
*The winner will be contacted by phone and published the Papers on the 3rd September 2025*
*All entries published in our Fathers Day feature for 2025*

# Insurance stopping

East Gippsland Shire Council has advised voluntary Crown land committees of management (CoM) that it will stop providing insurance coverage for Crown-owned assets.

After careful consideration, the decision was made as part of an ongoing review into the appropriate allocation of council resources. It is effective from July 1, 2025.

The decision to remove insurance applies to 43 Crown (State Government) assets across the shire, ranging from public toilets, halls, and storage sheds through to pavilions, and provides council and ratepayers with a saving of more than $57,000.

The decision is consistent with the Department of Energy, Environment and Climate Action (DEECA)'s Committee of Management Guidelines (April 2024), which confirm that council is not obligated to insure state-owned assets.

Council does not and cannot provide public liability insurance to CoMs.

General manager place and community Chris Stephenson said the change is part of ensuring council is managing its resources well.

"The decision to stop providing insurance cover will not impact on the range of other supports council provides to Crown land committees," Chris said.

"Committees receiving annual allocations from us will receive their 2025-26 funding as usual. We are also maintaining our current commitments to ground maintenance for DEECA facilities where we have agreements in place and will continue to offer strategic and maintenance advice where needed.

"This is a $95,000 commitment from council to assist committees for assets that are state-owned. We know many other councils are not providing this support."

Voluntary Crown land reserve committees of management with insurance-related questions should contact DEECA.




**Indi Allen and Ewan Fotheringham proudly display their ribbons from the Baking Association of Australia National Donut Competition.**

# More accolades for Big Bears

## Local donut champions claim silver and bronze at national competition

Big Bears Donuts has just returned from the Baking Association of Australia National Donut Competition where they were successfully recognised in three categories.

Big Bears received silver in the ring donut section which means they have the second best in the country.

They also won bronze for their jam donut and bronze in the savoury creation category with a cob loaf donut.

The event was held in Sydney and when you consider their dough does not have any preservatives and were already nine hours old when they arrived at the competition, it was an impressive outcome.

Owner Ewan Fotheringham was proud of the results and also enjoyed meeting and speaking with many reps and owners in the industry.

As with many small businesses, the costs are forever rising and winter in particular can be a struggle. Big Bears have been busy doing markets and other events with their trucks well known all over Gippsland.

"The Light Up Lakes Winter Festival event was a good boost and we very much appreciate the support we receive from our local community throughout the year," Ewan said.

"Ingredient costs just keep going up, for example before Christmas one part of our Cadbury order was $104, in February it was $124 for the same quantity, now it is $156 and there will be another price rise in September.

"My reply when asked how we are going is 'as good as we can possibly hope for with the economy that we have'," Ewan said.

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# Parliament for first time

But, in regions like mine, roads and infrastructure still lag generations behind.

It's about levelling up opportunities for manufacturers and primary producers who depend on getting their products to market competitively.

I'll work with anyone who's prepared to walk the talk on making that investment. But our regions are tired of inaction. I'm not a veteran, but I am passionately committed to improving the lives of those who are. Local veterans, led by Bill and including Ben and Lindsay, Lyn, Bob and Christine, have taken the time to share their experiences with me, to my profound gratitude. We must properly address the care and sufficient repatriation to civilian life of those who sign up and are forever changed by that call to serve.

I commit myself now, until the end of my time in this place, to that effort.

My family moved to Upper Beaconsfield when I was around 12.

My parents ran a small business. I saw them work around the clock, with lean margins and high stress. I wanted to help them so much that I left school at 15 to work full time as a farm hand. I later went back and completed school.

But carting hay in 40 degree heat and doing feed runs in the freezing rain, fixing fences and digging out drains taught me more than I learned from the three university degrees that followed.

It taught me about hard work, about patience earnt from the monotony of doing things properly, and those lessons have seldom failed me in the years since.

It is where my passion for small and family businesses was ignited and why I have dedicated such a huge chunk of my working life to being a voice for mum and dad operators.

It's small business people who get out of bed every morning and put their house on the line just to give someone else a shot at a job. It's small business owners who give young people their first opportunity in the workplace. And it's small business owners who so often put their hands up to help out at our service clubs and put their hands back in their own pockets again and again to sustain our local sporting teams, even in tough times.

It's where innovation thrives without the constraints of corporate bureaucracy.

But the fact is, Australian small business people have never worked longer days for less reward or faced more risk and red tape.

While I may have grown up in a Liberal household, I am not a hater of the Labor Party.

In fact, my parents instilled in me a clear understanding that political opponents are not enemies, that while we have different - sometimes markedly opposite - views on policy, we all love Australia, and that there are good people on both sides.

There are Labor people who have been very generous to me. While I won't embarrass them, I would like to acknowledge the Hon. Martin Ferguson for his ongoing commitment to the Gippsland region, which I really just see as an extension of his old-school Labor values in support of blue collar workers and regional jobs. Those values seem a bit out of vogue these days.

During the election I had an older couple from the Latrobe Valley approach me at a listening post outside the little IGA in Trafalgar. "We're lifelong Labor voters; I've been a worker all my life," the gentleman said. "But we're going to vote for you, which means we're going to vote Liberal for the first time," the lady added. That couple at the IGA didn't so much feel as though they had left the Labor Party as that the Labor Party had left them, by forgetting their history and ignoring their future.

I say to that couple, and the many others in my community who shared similar sentiments with me: I will not let you down.

I express my deep concern that as a country we are losing the ability to respectfully disagree with one another on big national issues.

Our democracy depends on the premise that we should have big contests, because the ultimate responsibility of government is great. Voters should have a clear choice, and arguments on policy should be made boldly, not timidly. We need to change the tone of Australian political discourse, and as a newcomer to this place I commit to doing my small part constructively, boldly and respectfully in this regard.

I will not be shy about speaking up for regional industries that employ people. I believe that strong businesses sustain strong communities.

I am particularly passionate about our timber towns, farmers and small businesses. These people take great pride in their craftsmanship, environmental stewardship and community. They do not deserve to have a referendum on their future cast in faraway places that are immune to the outcome.

I'm a proud jack-of-all-trades. As a millennial - by the skin of my teeth, I might add! I have benefited from the breadth of several careers. As a passionate Gippslander, I've thrown myself into many community organisations over the years. From local hospital and community aged-care boards, plus organisations like Lifeline Gippsland, tertiary education boards and chairing the Gippsland United basketball league, I've seen the transformational impact of what community volunteers mean to regional Australia. I've gleaned many insights from the brilliance of others I've had the privilege of sharing a conversation with.

I owe everyone I've worked with in those various roles a huge debt for the generosity of their shared knowledge.

One of my greatest honours was as founding CEO of the Committee for Gippsland.

Anyone that's started something from nothing can relate to the small celebrations of getting a phone line connected or a sign painted.

Having been appointed to that role at the age of 27, I will remain forever grateful to those who took a chance on a young person with a few big ideas but few rungs on the ladder.

As one of our greatest prime ministers, John Howard once said, the Liberal Party is 'a broad church', but I like to think of it as a large family - loud, boisterous with bold arguments and real contests that those outside the family may not always understand but they're always for each other when it counts.

We are, though, the only party to aspire to represent Australians from all walks of life - every part of society whether you live in the city or the country; no matter if you're an entrepreneur or an employee; no matter who you love; or whether you are newly arrived to our shores, an eighth-generation Australian or part of the oldest continuing culture in the world. The Liberal Party stands for you.

I'm a Liberal whose instincts will always stretch to the empowerment of the individual. You will find in me someone who will protect your right to worship in a manner your beliefs instruct, just as I will stand for your right to love the person you choose. I believe in the rights of the individual and in free enterprise unencumbered by the temptation of government overreach. My Liberal Party does not prescribe the format of your family or curtail the rights of small business in favour of big corporations. My Liberal Party leads on the economy, with a focus on growth and productivity. My liberal values led me to join the party in Year 12 and volunteer at every election since, because I believe deeply in what we represent even if the principles by which we seek to govern are not always perfectly enlivened.

I do worry that Australia is losing its way. We are off course, we are leaving people behind and we are on the wrong track.

Australia used to be a leader in the OECD on productivity, yet we now lag in the late teens of the top 20. We now have more than half of the Australian public relying on governments for most of their income. There needs to be some tough national conversations ahead. My most recent experience working in the private sector with a focus on technology and cybersecurity provided a modern, clear-eye view of the world as it is.

The pace and scale of technology innovation is accelerating beyond the regional streets of our OECD neighbourhood and across the globe. We will either keep up or be left behind.

The cost of falling behind has profound ramifications for jobs, primary production, medical advancements, cybersecurity and defence.

We live in an uncertain Asia-Pacific region, where our security partners like Japan are more important than ever.

I am particularly enthusiastic about Aukus Pillar II and the opportunities that presents to Australian SME businesses to contribute their world-class innovation in specialised areas of cyber and technology.

I recognise that each day I spend in this place is a day closer to when I will leave.

I plan to make each day count by advancing the cause for which I am here, a passionate belief in the purpose and potential of the people of Monash.

To my electorate, I asked for your trust and confidence.

You have given me the opportunity of a lifetime.

I will work my heart out for you.



**Standing ovation:** Federal Member for Monash, Mary Aldred is applauded after making her maiden speech in the House of Representatives. Photograph supplied




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## Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

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GP1683532

# Reporting on Patterson's verdict day

By LIAM DURKIN

THE front page photo for the Express had been sorted.

With the newspaper celebrating its 60th anniversary, a whole staff photo seemed only appropriate to splash across the cover of the July 9, 2025 issue.

A decision from the Supreme Court however left me with no choice but to change that.

The message came through around 1.45pm on Monday, July 7 that the jury in the Erin Patterson trial had reached its verdict.

The verdict was scheduled to be read out just 30 minutes later.

In one of the great counts of fortune, the Express office is literally 100 or so metres from the Latrobe Valley courts.

Media were instructed to bring as little as possible in order to be whisked through security.

With that in mind, I took just a notepad, pen, my phone and wallet.

Upon arriving, a throng of cameras and reporters congregated in the court's foyer, as well as a sprinkling of people interested in the case.

Some even appeared to be ducking out from their day job to catch a glimpse.

Following the necessary 'flipping of the belt' after passing through security screens, I raced upstairs to the media overflow room - the place where journalists from across the country had made their office over the 10 weeks the trial had been going.

Some familiar faces were there ready to watch the livestream.

There was no time for pleasantries however. This was the biggest story of the year, and likely, the biggest of our careers.

Journalists are often criticised for being abrasive, even rude in how we communicate, yet when you are constantly 'on the go' and have deadlines roaming, every minute counts.

With time ticking closer to quarter-past two, anticipation rose.

Would she be guilty or not guilty?

For all that had happened across the 10 weeks, the verdicts were delivered in less than 30 seconds.

Guilty times four (three counts of murder, one of attempted murder).

Some gasps followed the first uttering of 'guilty', partly because the charge was for attempted murder.

Given the next three were all for murder, there was hardly any surprise to hear the word 'guilty' uttered thrice more.



**Mayhem:** Media outside court the day of Erin Patterson's guilty verdict. File photograph

The accused looked stone-faced and unemotional as each verdict was read out (even through the livestream), just as she had when speaking in court while giving evidence.

I had been fortunate enough to get a seat in court on a number of occasions during this period. Erin Patterson is not 'as big' in person as most published photos would have her appear.

Publishing photographs during the trial was tricky. To those wondering why the same photos were used over and over again - it's because there was only a select handful available.

No photography is permitted inside court, and Erin Patterson was brought to the courtroom via an underground passageway straight from the neighbouring cells at Morwell Police Station.

Cameramen deserve much praise for their patience during the trial. Some were stationed outside the gates at Morwell Police Station for hours on end with the task of getting even just one photo of Erin Patterson if she happened to step foot outside.

As one of them said to me: "90 per cent of this job is waiting".

Following some words from Justice Beale, thanking the jury for their service and granting them 15 years grace, it was back downstairs to the awaiting media circus.

Walking through the automatic doors at the court's entrance, one got a momentary sense of paparazzi treatment, as a line of cameras stood armed and ready.

Joining the pack with fellow Express journalist Aidan Knight, he managed to get a great shot of the defence walking out, as well as Erin Patterson's friend Ali Rose.

Art and science don't usually mix, yet there was a literal gravitational pull of journalists toward Ms Rose the second she entered the courtyard.

Covering a story of this magnitude requires a team effort. Helping the coverage was Express journalist, Stefan Bradley, who was busy working on the bulk of the story back in the office before the verdicts were read out.

This meant we simply had to fill in the gaps once the final details were known.

A lot of the time in major news, much of the story has already been written, or rehashed if it develops over multiple weeks.

Next time there is a natural disaster, you may notice the same sentences being trotted out: "Wind gusts of up to", "wild weather lashed the region", "the SES received x number of calls for help" etc.

Much of reporting is often simply a relaying of messages.

Back at the office, there was no question what the front page would be for the coming issue.

The lack of available photos however required some creativity.

Enter the Express production team, who cleverly replaced the letter 'T' in 'guilty' with a picture of a mushroom.

The Express needs to hit the press site by 5pm Mondays, and with less than two hours to turnaround a major news story, a mad but equally calculated scramble ensued.

There would be plenty of time in coming weeks to write about the reaction and reflection of the trial, for now, we just needed to get the main 'guilty' story out there.

Some reshuffling of pages saw us left with a double page spread to work with, which was filled with ease.

Time became even more critical after a number of requests for interviews and a few other loose ends needed tidying up.

The verdict came in at 2.15pm.

At 3.15pm I was simultaneously subbing a story on Gippsland Power women's footy.

The life and times of a country journo.

Further messages and calls were flicked between departments and other local media.

Our friends at the South Gippsland Sentinel Times (the paper most central to the case) called to see what I thought of the headline: 'Erin's cooked'. It was brilliant, if not devilish.

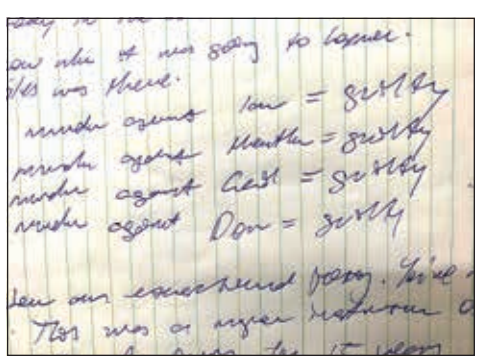
That Monday night was certainly a late one, so much so I had to cancel appointments and meetings the next day due to exhaustion.

"My brain is absolutely fried," I told the local cricket club committee group chat.

Leaving work that night, there was still television presenters operating in the fog, and they were back there the next day in the freezing early morning mist.

The Express may never cover another worldwide news event.

The one time we did it bumped us off our own front page.



**Insight:** Express reporter Liam Durkin's notes from inside court the moment the verdicts were handed down.

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POLICE COMMISSIONER LABELS HUMAN RIGHTS GROUNDS 'UNACCEPTABLE'

# PNG torture murder suspects freed



AMANDA HODGE
ASIA-PACIFIC CORRESPONDENT







Rosa Yakapus endured three days of torture before her murder; Commissioner David Manning; Governor Philip Undialu

Papua New Guinea's police commissioner has demanded the re-arrest of eight suspects in the torture and murder of a Western Highlands woman accused of sorcery after they were released on "human rights" grounds by a local court because police and prosecutors had failed to lay charges within the prescribed time.

The move has sparked fresh outrage in a country where violence against women and girls has become a national emergency, with Hela Province Governor Philip Undialu questioning official commitment to prosecute the case.

"The notion that such a serious case can be dismissed in just days is not only disappointing, it is dangerous," Mr Undialu said.

"We must ask; why did CID fail to prepare charges? Why were the suspects not remanded at Hawa prison?"

PNG Police Commissioner David Manning told The Australian the release last Friday of all eight men from the Tari district police lock-up – just under three weeks after they were surrendered by their own communities – was "unacceptable" but community unwillingness to provide witness statements over the horrific crime was part of the problem.

"I'm not here to make excuses. We are very frustrated and disgusted by the outcome and we will not let this go," Commissioner Manning said.

"It obviously does not instil any confidence in what the RPNGC (Royal PNG Constabulary) does in these cases but at the end of the day we are only as good as the communities we serve. A big part of enabling us to do our job is the community needs to be on board.

"We have issued a directive to the PPC (Provincial Police Commander) up there to bring these eight men into custody again. If he needs resources, we can send experienced investigators from Port Moresby."

The men were surrendered by village elders to police early this month after extremely distressing videos began circulating online showing the sexual-related torture over three days of a local mother of five, Rosa Yakapus, at the hands of a village mob in the Western Highlands province of Hela.

She was abducted in Ugu, Margarima district, after her estranged husband died of a suspected heat attack and his relatives accused her of sorcery.

Western Highlands people have not traditionally believed in witchcraft but sorcery accusation-related violence (SARV) there is now a huge problem that disproportionately affects women and girls amid resentment at uneven development, mass unemployment and soaring inter-tribal violence.

Graphic footage taken by Yakapus's torturers and multiple onlookers show her stripped naked and tied by her wrists and ankles to two poles, her legs spread wide and a fire burning beneath her.

In other videos she is being tortured with hot sticks and knives.

A final video shows her cowering at the edge of a village bridge before she is shot dead.

In a province where huge police and military resources are dedicated to protecting multi-billion-dollar goldmine and LNG projects, the case has raised questions over a failure to rescue a woman whose impending murder had been broadcast through viral video.

Australia has sunk billions of dollars into building up PNG's defence, police and legal institutions in the past decade, $637m this year alone in development assistance; and another $600m to support a Port Moresby-based team in Australia's National Rugby League – all in the interests of geostrategic security.

In December 2023, the federal government announced an extra $200m for PNG police training and judges as part of a new security pact designed to help foil China's regional ambitions, while last September the Australian Federal Police opened a joint policing office in Mount Hagen, in the Western Highlands.

Despite local police being alerted to the crime well ahead of her murder, there were no resources to save Yakapus, nor for many thousands of PNG women and girls every year who face beatings, torture and sorcery accusation-related mob killings.

Commissioner Manning told The Australian PNG had just 7000 regular police officers for a population of 12 million people, but the Western Highlands posed an even greater challenge because of its remoteness, high levels of poverty, violence and traditional beliefs.

The region hosts the country's largest and wealthiest resource development projects and some of PNG's most impoverished communities, all among the world's most hostile environments for women and girls.

"The whole country has moved on as it has modernised but unfortunately the region not only poses a law and order challenge for us but also a society challenge," Commissioner Manning said.

"There are influential people who would rather maintain the status quo than see communities transition to a more modern, lawful, fair and safe society."

ANU professor Miranda Forsyth, a director of the International Network Against Witchcraft Accusations, said the release of the eight suspects was "symptomatic of the ongoing failure of PNG's justice system to adequately apprehend, charge and prosecute those who commit sorcery accusation-related violence".

"Although Prime Minister James Marape's statements following the news of Ms Yakapus's torture focused on the need for new laws and heavier penalties, the reality is the current laws and penalties are adequate," she said.

"What is missing is the resources, training and institutional and political will to properly enforce the law that exists.

"Until this occurs, we are likely to witness ongoing impunity for those who commit these heinous acts."

# Rocky start for Thai, Cambodia ceasefire

SUY SE
SURIN, THAILAND

Thailand has accused Cambodia of violating an hours-old truce, saying clashes were continuing despite a deal meant to end the fighting along their shared border.

Following peace talks in Malaysia on Monday, both sides agreed an unconditional ceasefire would start at midnight to end fighting over a smattering of ancient temples in disputed zones along their 800km border.

"At the time the agreement took effect, the Thai side detected that Cambodian forces had launched armed attacks into several areas within Thai territory," said Thai army spokesman Winthai Suwaree.

"This constitutes a deliberate violation of the agreement and a clear attempt to undermine mutual trust. Thailand is compelled to respond appropriately, exercising its legitimate right to self-defence."

Cambodian defence ministry spokeswoman Maly Socheata insisted there had been "no armed clashes against each other in any regions".

Both sides said meetings were being held between opposing regional commanders along the border as part of the ceasefire or were scheduled to begin soon.

In Cambodia's Samraong city, 20km from the frontier, the sound of artillery fire stopped in the 30 minutes leading up to midnight.

"The frontline has eased since the ceasefire at 12 midnight," Cambodian Prime Minister Hun Manet said in a Tuesday morning social media message.

Jets, rockets and artillery have killed at least 38 people since last Thursday and displaced nearly 300,000 more, prompting intervention from US President Donald Trump over the weekend.

The flare-up was the deadliest since violence raged sporadically from 2008 to 2011 over the territory, claimed by both because of a vague demarcation made by Cambodia's French colonial administrators in 1907.

A spokesman for UN Secretary General Antonio Guterres said that "he urges both countries to respect the agreement fully and to create an environment conducive to addressing long-standing issues and achieving lasting peace".

Both sides are courting Mr Trump for trade deals to avert his threat of tariffs, and the US State Department said its officials had been "on the ground" to shepherd peace talks.

Hun Manet said China also had "active participation" in the ceasefire talks, hosted by Malaysian Prime Minister and ASEAN bloc chair Anwar Ibrahim.

Hun Manet thanked Mr Trump for his "decisive" support, while his counterpart, Thai Acting Prime Minister Phumtham Wechayachai, said it should be "carried out in good faith by both sides".

Thai King Maha Vajiralongkorn marked his 73rd birthday on Monday, but a notice in the country's Royal Gazette said public celebrations scheduled for Bangkok's Grand Palace had been cancelled because of the conflict.

Each side had already agreed to a truce in principle, while accusing the other of undermining peace efforts and trading allegations about the use of cluster bombs and targeting of hospitals.

Thailand says 11 of its soldiers and 14 civilians have been killed, while Cambodia has confirmed eight civilian and five military deaths. More than 138,000 people have fled Thailand's border regions, while around 140,000 have been driven from their homes in Cambodia.

**AFP**

EDITORIAL P10

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# It's not easy going green, despite the funding

EXCLUSIVE

PAUL GARVEY
SARAH ISON

Andrew Forrest's Fortescue secured hundreds of millions of dollars in government commitments, incentives and subsidies for clean-energy projects, including ventures since abandoned, underscoring the challenge facing the Albanese government in its efforts to fast-track the renewable energy transition.

The $55bn iron ore miner and its associates have received grants and commitments worth almost $190m from state and federal governments in Australia alone, including more than $110m for the Queensland hydrogen plans scrapped by the company in recent weeks.

The government assistance does not include money spent developing infrastructure to support Fortescue's projects, such as the $1bn spent on a water pipeline to Gladstone that was earmarked for use by green hydrogen projects.

The funding promises and incentives were secured by Fortescue and its partners at the same time as the miner paid out tens of billions of dollars in dividends, including more than $13bn in dividends to company founder Dr Forrest and his ex-wife Nicola.

The chief executive of Fortescue Metals and Operations, Dino Otranto, said the company had received $115m in grants since 2019 – just a small fraction of the $39bn in taxes and royalties it had paid over that time.

It was also a sliver of what he said were the $14.5bn in "subsidies to fossil fuel giants" in 2023-24.

"We shouldn't expect those who take on the challenge of building something new to go at it alone – it's a co-investment in Australia's economic growth," Mr Otranto said. "Government grants are a necessary investment to drive innovation, create jobs and position Australia at the forefront of global decarbonisation.

"Fortescue is leading the global effort to decarbonise heavy industry, developing and deploying technologies that don't yet exist at commercial scale. We are building a new industry from scratch, which comes with risk – but without risk, there is no progress."

The company's decision to pull the pin on its Queensland hydrogen electrolyser efforts sparked calls for Fortescue to hand back the state and federal taxpayer assistance it received for the project.

The company confirmed it had received $33.7m of the $44.5m of federal assistance promised for the Queensland project under the Modern Manufacturing Initiative, and $65.2 of $92.5m of Queensland government funding. It is in discussions with both the state and federal governments and "will return funds where required" under the grant agreements.

"The reality is not every investment delivers immediately and there are setbacks," Mr Otranto said. "What matters is backing those with the ambition to try and the track record of delivering real value for the nation.

"We won't decarbonise heavy industry, tackle climate change, or build the next great Australian success story by playing it safe."

A spokeswoman for Dr Forrest said Fortescue and his private companies Tattarang and Minderoo foundation were focused on "building a stronger Australia and leaving the planet liveable for future generations". "Together, they reflect Dr Forrest's commitment to investing in Australia and for Australians," she said.

Minderoo, she said, had dedicated more than $700m over the past three years to early childhood development, crisis response, helping communities, rare cancer research, delivery of humanitarian aid and ocean conservation.

Among the bigger grants received by Fortescue in Australia was $13.7m from the federal Australian Renewable Energy Agency towards a study for a green hydrogen and ammonia project at Gibson Island in Queensland. Fortescue completed the study and provided a final publicly available report to ARENA. Incitec Pivot has since sold the site.

ARENA also awarded Fortescue a $10m grant towards the development of fast-charger test units compatible with the miner's electric mining equipment. Fortescue is yet to receive any of that grant funding, which is tied to future milestones and incurred costs.

ARENA also promised to tip in $5m for Fortescue's $42.57m development of an electrolyser to help in the production of green iron and steel. That program is scheduled to wrap up in March 2026, and Fortescue has to date received just under $1m of the promised funding.

The CSIRO directed $2m towards Fortescue's plan to replace its diesel-fuelled buses at Christmas Creek with 10 hydrogen-powered coaches. That program cost $33.8m in total, and the hydrogen buses have been operational since 2023. Fortescue has collected $1.8m of the grant so far.



WILLIAM DEBOIS

**Fortescue executive chairman Andrew Forrest**

## SUBSIDIES v SUCCESS

| Project | Government funding | | Status |
|---|---|---|---|
| **AUSTRALIA** | | | |
| SA exploration and research grant | $200,000 | ✓ | Completed |
| SA gravity survey, Eastern Eyre, Curnamona | $120,000 | ✓ | Completed |
| SA gravity survey, Roopena | $194,000 | ✓ | Completed |
| Qld Gladstone Electrolyser initial federal funding | $44.95m | ✗ | Abandoned. Fortescue received $33.7m and is in 'discussions' over refund |
| Qld Gladstone Electrolyser state funding | $92.5m | ✗ | Abandoned. Fortescue received $65.2m and is in 'discussions' over refund |
| Qld Gladstone Electrolyser subsequent federal funding | $20m | ✗ | Was subject to conditions that were not met |
| WA Christmas Creek hydrogen mobility project | $1m | ✓ | Hydrogen-fuelled buses have been operating since August 2024 and Fortescue has to date received $1.8m of the grant |
| Qld Gibson Island hydrogen and ammonia project | $13.7m | ✗ | Incitec Pivot sold the site in November 2024. Fortescue prepared a final report for ARENA |
| Fast charger project | $10m | → | Fortescue will only receive funding if it meets future milestones |
| Low temperature reduction tech project | $5m | → | Fortescue has received $947,416 to date, future funds linked to milestones |
| **UNITED STATES** | | | |
| Michigan factory project | $45.5m | ? | Fortescue website for the project has been disabled |
| Arizona green hydrogen project | $50.2m | ✗ | The US Clean Hydrogen Production Tax Credit could have been worth up to $3/kg, although Fortescue had questioned its eligibility |

The mining heavyweight has also been the recipient of some modest grants from the South Australian government towards its early-stage minerals exploration in the state. Those grants were made under SA's Accelerated Discovery Initiative, in which the state and companies each contribute 50 per cent of the funding.

Arguably the biggest government incentives dangled in front of Fortescue never made it to the company, with the company's $US550m ($852m) Arizona green energy project formally abandoned and its Michigan battery factory looking increasingly unlikely. The US Clean Hydrogen Production Tax Credit would have been worth up to $US3 per kilogram of hydrogen production – the equivalent of more than $50m per year under Arizona's proposed output – but there were question marks over Fortescue's eligibility for the scheme and policy uncertainty from the Trump administration was the final nail in the project's coffin.

Back in Australia, a federal government spokeswoman noted that ARENA made grant decisions independent of government.

"The government is backing Australian innovation – and ensuring bang for buck for taxpayers by requiring projects to deliver milestones before unlocking funding as well as knowledge sharing as projects progress," she said.

Most of the grants secured by Fortescue were funded under the Morrison government.

Opposition energy spokesman Dan Tehan said the taxpayer rightfully demanded value for money when such grant programs were being rolled out.

"In any good program, value for money for the taxpayer is always evaluated, and if it's not being delivered, either needs to be adjusted or abolished," he said. "If we are repeatedly funding projects which failed to be delivered, the taxpayer rightfully deserves much better."

Fortescue is by no means the only large company to secure government assistance. Netherlands-headquartered Nyrstar on Tuesday secured a $135m rescue package from the federal, SA and Tasmanian governments to help keep its struggling smelters in Port Pirie and Hobart running.

Oil and gas producer Woodside Energy secured a $26m commitment from the West Australian government for carbon capture and storage efforts as part of its Burrup Hub project, as well as a $10m grant for its H2Perth hydrogen refuelling project in Rockingham. And a joint venture of Woodside, BlueScope, BHP, Rio Tinto and Mitsui won a $19.8m grant for its NeoSmelt green iron project, also in WA.

The Queensland government this year announced $21m of funding to support four gas exploration projects in the Bowen Basin. Victoria put $15m towards a Japanese program to produce hydrogen from brown coal.

The Albanese government has also made a $200m investment in the Gina Rinehart-backed Arafura Rare Earths, an investment that followed an $840m loans and grants package to the company.

Senior Fellow of the Energy Program at Grattan Institute, Tony Wood, said the government needed more "discipline" around the grant process and to be investing less money in more projects.

"Grant-based funding is a good approach for early stage technology, where the money involved is modest," he said. "Rather than helping deploy full-scale commercial technologies, you want the government to invest in a suite of technology, all of which prove before the event they have potential to deliver. Otherwise they shouldn't be supported."

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Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

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Important information for Westpac Customers

We're making some changes to the **Westpac Online Banking Terms and Conditions** and the **Westpac PayTo Terms and Conditions**.

The changes, as set out below, will be effective from 6 September 2025. The latest version of these terms and conditions are available from **westpac.com.au**, by calling us on **132 032**, or by visiting a branch.

| Document | Part Reference Section/Paragraph Reference | Change Description |
|---|---|---|
| Westpac Online Banking Terms & Conditions | Part 1 – Features, fees and Terms and Conditions<br>Section C – 5. Payments | PayTo® Payment Limits<br>Removed sub-heading 'PayTo Payment Limits' and Section 5.22 and Section 5.23 and replaced with:<br>5.22. From 6 September 2025, to increase the security of your PayTo service, we may impose limits on PayTo Payment Agreements or restrict your use of the PayTo service with a certain group of billers. These restrictions may relate to the value of the payment or the classification of the biller's business by the type of goods or services they provide, such as cash or cash equivalents and high value consumer goods. PayTo Payment Agreements may be rejected where they do not comply with these restrictions.<br>5.23. If a PayTo Payment Agreement is rejected, the biller will not be able to initiate a payment from your Account under that PayTo Payment Agreement. Rejected PayTo Payment Agreements will not appear in Online Banking.<br>5.24. PayTo payments are not included in your Daily Payment Limit or Business Daily Limit. |
| Westpac Online Banking Terms & Conditions | Part 4 – General information<br>Section 5 – Updating your contact details | Add paragraph "If you register a different number for receiving SMS Codes, you may also receive calls to this number, for example, redirected SafeCalls". |
| Westpac PayTo Terms & Conditions | Section 2 Creating a Payment Agreement | Removed sub-headline of 'PayTo Payment Limits' and the section beneath it and replaced with the following wording to reflect changes to the PayTo payment limits.<br>From 6 September 2025, to increase the security of your PayTo service, we may impose limits on PayTo Payment Agreements or restrict your use of the PayTo service with a certain group of billers. These restrictions may relate to the value of the payment or the classification of the biller's business by the type of goods or services they provide, such as cash or cash equivalents and high value consumer goods.<br>PayTo Payment Agreements may be rejected where they do not comply with these restrictions.<br>If PayTo Payment Agreement is rejected, the biller will not be able to initiate a payment from your Account under that PayTo Payment Agreement. Rejected PayTo Payment Agreements will not appear in Online Banking.<br>PayTo payments are not included in your account's daily limits on transactions. PayTo payments are not included as part of your value limits on transfers for Telephone Banking or Group Telephone Banking. |

Full Terms and Conditions are available from **westpac.com.au**, by calling us on **132 032**, or visiting a branch.

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If you are deaf, hard of hearing, or have speech/communication difficulty, you can message us within the Westpac App or communicate with us using the National Relay Service **accesshub.gov.au/about-the-nrs**.

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Visit **westpac.com.au/web-accessibility** for further information on our more accessible products and services for people with disability, who are neurodivergent or where English is not your preferred language.

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# Charity run to provide a helping hand

Erika Allen

STRATFORD distance runner Chris Dixon will champion community and charity when he embarks on a second mammoth fundraising run for Free 3D Hands this year.

Over 36 hours on October 17 and 18, Mr Dixon set a goal to run 300 kilometres, only looping around Lake Guthridge and Lake Gyatt in Sale.

He's going bigger and better for this Helping Hands Charity Run than he did in January, when he ran 220km in 24 hours between Sale and Phillip Island.

While Mr Dixon is no stranger to running hundreds, even thousands of kilometres solo, this time around, 50 other runners will run alongside him at staggered intervals.

"Hopefully there will be someone running with me throughout the whole distance of the event, all along the same course around the two lakes," Mr Dixon said.

"We'll have 50 people running different distances from 10km up to ultra marathons as well."

Having recently placed second overall in the Australian 24 Hour Track Invitational at the Australian Institute of Sport, where he ran 557 laps (224km) of an athletics track and the 100 miler (163km) Tarawera Ultra-Trail in New Zealand, Mr Dixon is no stranger to long-distance running. But it's the community aspect that has him excited about this next adventure, because at the heart of Mr Dixon's passion to run and raise funds is his daughter, Gracie, who was born with a limb difference.

"I think having a community - a local community - supporting the cause… It's really exciting," Mr Dixon said.

"For Gracie, my daughter, and everyone who has limb differences across the world. Raising money for them and the work that Free 3D Hands do, I think it's going to be super special."

The not-for-profit organisation Mr Dixon is championing, Free 3D Hands, is based in Phillip Island, where a team of altruistic engineers use three-dimensional printers to create assistive devices for people with hand and limb differences. They send them around Australia and across the world free of charge.

The global demand for assistive technology, including prosthetics, wheelchairs, hearing aids, prescription glasses, and orthotics, is rising. But their cost is prohibitive. The World Health Organisation reports that more than 2.5 billion people require at least one assistive product. However, these essential devices remain out of reach for up to 90 per cent of those in need.

Besides creating and distributing its own devices for free, Free 3D Hands founder Mat Bowtell told the *Gippsland Times* last year the organisation's most critical service was sharing its designs so other people can create them. All it needs is a 3D printer.

By open-sourcing designs, Mr Bowtell said about 10,000 other people were bringing Free 3D Hands designs to life globally.

Mr Dixon raised $6000 through his last run and is aiming to raise $50,000 this time around - $1000 per runner.

"But obviously the sky is the limit," he said.

"We'd love to get much more than that."

To donate visit **donorbox.org/helpinghandsrun-chris**




**The Helping Hands Charity Run, honouring Gracie (pictured) and anyone in the world with limb differences, will raise money for South Gippsland-based not for profit Free 3D Hands.**

Photo Contributed



**Chris Dixon and his daughter Gracie.**

Photo: Jarrod Chase

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GP1683534

# Locals to wait longer for Myki

**Stefan Bradley**

GIPPLAND train travellers east of Traralgon are once again facing a lengthy delay to be placed on the Myki network, with Rosedale, Sale, Stratford and Bairnsdale stations to stick with paper tickets for a while longer and be unable to access the forthcoming credit card 'tap and go' feature.

The eventual move to the improved Myki network will reportedly occur after all current Myki readers across Victoria are upgraded with technology enabling credit card and smartphone 'touch ons'.

Once the roll-out is complete, passengers can travel simply by touching on with a credit card as an option instead of topping up a Myki card or purchasing a Myki Pass. Currently, Myki can be used by Android smartphone users to touch on.

More than two years ago, the *Gippsland Times* received a confirmation from the state government that under the new contract for Myki with the American ticketing supplier Conduent Business Services, the smart ticketing system will be expanded to regional Victoria in areas it currently does not serve, finally replacing the paper ticket system.

At the time, the government didn't specify whether the entire V/Line system would be moved onto Myki, or which regional stations that Myki would be expanded to. The government also indicated it wouldn't rush to switch on the new system until it was tested and read to go.

The *Herald Sun* last week reported Rosedale, Sale, Stratford and Bairnsdale stations would be among the 37 regional stations to not be part of the first roll-out of the new upgraded Myki readers, which also includes Warrnambool, Swan Hill, Ararat, Shepparton and Albury.

But Paul Westcott, regional spokesperson for the Public Transport Users Association (PTUA), a non-profit group that advocates for public transport users in Victoria, told the *Gippsland Times* that passengers "almost never complain about the unavailability of Myki in most regional and rural areas".

"Given the problems Myki had, particularly in its early days, passengers often expressed relief that they weren't required to use Myki. It seems that sentiment might persist," Mr Westcott said.

"Of course, Myki was supposed to be a statewide system when it was being planned and introduced, but the Baillieu government confined it to Melbourne and the major regional centres to cut costs.

"While a lot of Myki hardware was installed at V/Line stations during the aborted initial roll out, we are unsure how much of it has been rendered unusable by time or later technological developments."

Mr Westcott said there hadn't been any real pressure from the non-Myki areas to have the system introduced.

"However, at the same time as the massive V/Line fare cut was announced, the then public transport minister, Ben Carroll, did undertake to have the system introduced state-wide. That part of the announcement was forgotten in the wake of the excitement about the fare cut, and the government seems to have forgotten about it as well, and/or maybe hopes people have forgotten," he said.

"We understand that the (*Herald Sun*) article arose from what the reporter felt was evasion by the state government when she inquired about the status of the expansion of Myki's coverage."

Nationals state MP Kim O'Keeffe, said regional Victorians were continuing to be disadvantaged by the "bungled Myki upgrade", saying it was "embarrassing" that paper tickets were still being used in Victoria's regional lines in 2025.

Twenty thousand new Myki readers are being installed as part of a $1.7 billion project that are expected to be switched on credit card payments early 2026.

A spokesperson from the Department of Transport told the *Herald Sun* it would eventually install new readers at V/Line stations which were currently serviced by paper tickets and eTickets.

"We're currently installing new myki readers across the myki rail network and the rollout is progressing well, with all readers expected to be installed before the end of the year," the spokesperson said.

Mr Westcott said it would still be preferable for the Myki system to be introduced state-wide as a unified ticketing system.

"Obviously that should include the option for credit card payment, although that aspect still awaits introduction in existing Myki areas. Assuming (bravely?) that it works as intended, it will be better for passengers, even if very few of them have expressed a strong preference for it," he said.

"The use of Myki on all regional and rural buses would be problematic because of the limited options for adding money to the card in remote and not-so-remote locations, but the ability to use credit cards should go some way to overcoming that."

An electronic ticketing system was introduced last year, allowing V/Line passengers to pay for an 'eTicket', allowing them to print the ticket or display it on their smartphone instead of picking up a physical paper ticket from the train station or having it mailed to their home. The paper ticketing system remains unchanged for those who prefer it.

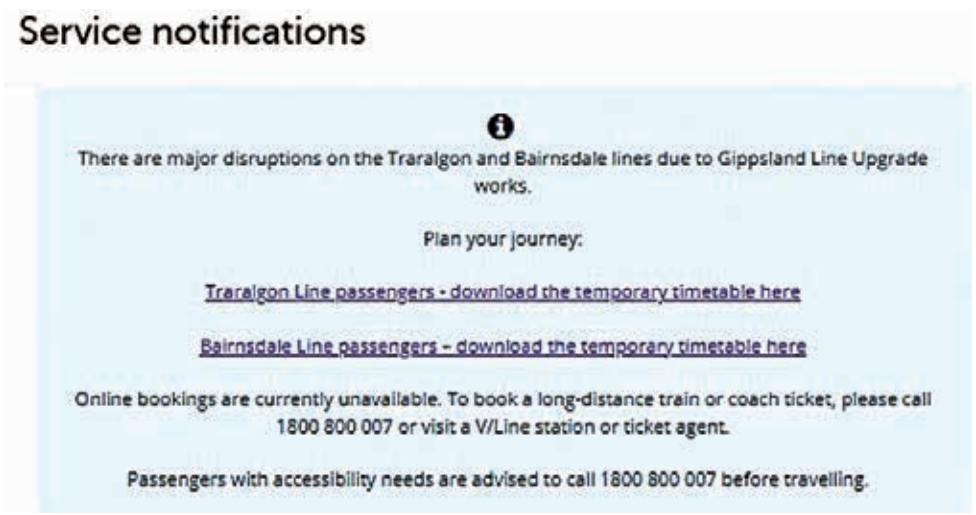
The eTicketing system is currently not available for the Gippsland Line, presumably because of the current works on a new signalling system for the trains that requires coach replacements until Wednesday, August 13.

Arguably the most pressing issue facing Gippsland public transport users is frequency of reliable services. The end of the works next month will complete the Gippsland Line, allowing weekday services on the Traralgon Line every 40 minutes, up from once an hour.

Once again, paper tickets or not, Gippsland passengers east of Traralgon will miss out.



Nationals state MP Kim O'Keeffe. Photo: Contributed




Online bookings currently unavailable for Gippsland Line. Image: V/Line




Sale train station without Myki. Photo: File



V/Line eTicket. Image: V/Line

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## Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

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GP1683534

# Changes to solar tariff hit hip pockets: O'Brien

AMENDMENTS to the Electricity Industry Act 2000, which took effect July 1, mean the Essential Services Commission (ESC) is no longer required to set a minimum solar feed-in tariff in Victoria.

This change means electricity retailers can now offer any feed-in rate at or above zero cents per kilowatt hour for excess solar energy exported to the grid.

State Member for Gippsland South Danny O'Brien said people had invested in solar panels with an expectation they would save money on their energy bills.

"Many local families and businesses are still paying off their solar systems and relied on the feed-in tariff to help reduce their costs," Mr O'Brien said.

"The removal of a guaranteed minimum rate creates uncertainty for these households and likely impacts the financial benefits they expected when they decided to invest in solar."

Mr O'Brien highlighted that with this change now in place, it was important for households to review their energy plans and make sure they were getting the best possible feed-in rates.

"In spite of this change, solar panels can still help reduce your energy bill," he said.

"Shopping around and comparing offers can help households find better rates including competitive feed-in tariffs."

Mr O'Brien also highlighted the value of using solar energy as it was generated.

"With no guaranteed minimum rate, households with solar will save more by using their solar power during the day," he said.

"Running appliances like washing machines or dishwashers when the sun is shining can make a real difference to electricity bills."

Mr O'Brien noted that while he acknowledged renewable energy had a part to play in Victoria's energy future, there was a crucial need for a reliable and affordable baseload energy supply.

"I support renewable energy, but it must be balanced with reliable and affordable baseload power to keep the system stable and energy prices reasonable," he said.

# Classic puts Marlo on the map

More than 50 teams have entered in the upcoming Vicbream Classic event in Marlo, which is set to be held on Saturday, August 16 and Sunday, August 17.

Marlo is sure to once again be a cracking event and with a cap of only 60 teams that can enter, you need to make sure you get those entries in as soon as possible to avoid disappointment.

The official pre-fish day will be on Friday, August 15 from 6am to 4pm, which will be followed by the briefing at the Marlo Hotel at 5pm.

Fishing on both Saturday and Sunday is from 7am to 2pm.

The classic is a lure and fly only event, with teams fish together for a combined bag limit of five bream per day weighed live then released.

Marlo has a population of around 300 residents and is a well kept secret on the most desirable of destinations list.

Just 15 minutes from Orbost and the Princes Highway, with wetlands, rain forest, sand dunes and backwaters, the estuary boasts some of the best perch and bream fishing to be found anywhere, along with yellow eyed mullet, trevally, tailor, luderick and other associated species.

Marlo is truly a fisherman's paradise, while winter also brings the excitement of trawling for salmon and tailor in the estuary.

The sheltered waters allow fishing year round in most weather conditions.

The event pays prize money to the top three teams, with teams placed fourth to 10th, receiving a product prize pack from all the tournament sponsors.

There are also prizes for best bag, biggest bream, junior winner and monster mover.



**Next weekend's Vicbream Classic, scheduled to take place in Marlo, is once again expected to be a cracking event, with more than 50 teams signing up to compete for a range of prizes. There are still some spots left for those interested in entering, with a cap of 60 teams.**

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**Ken and Marg Bridle recently received their life memberships for the Genoa hall committee after almost 40 years of dedication and community involvement. Marg has dedicated many years to both the old Genoa auction's as well as her doing a marvellous job as secretary for many years. Ken has been in many roles either as an executive member or vice president over the years and has been a massive help with working bees, Genoa auctions and especially with the clean up works after the Black Summer Bushfires.**



**Marlo was nominated for the Top Tiny Tourism Town (population under 1500) award at the recent Victorian Top Tourism Awards held in Shepparton. While Marlo didn't take out the top gong, it puts the town and the region on the map.**

# Marlo on show

East Gippsland may not have taken home a trophy at this year's Victorian Top Tourism Town Awards – held in Shepparton on Wednesday night – but being named a finalist in all three categories is a significant achievement.

It proudly reflects the region's rich character, community spirit and uncapped tourism potential.

Presented by the Victoria Tourism Industry Council (VTIC), these prestigious awards celebrate towns that offer outstanding visitor experiences and promote collaboration across tourism operators and local businesses.

The 2025 East Gippsland finalists included:

- Marlo – Top Tiny Tourism Town (population under 1500). Won by Trentham.
- Lakes Entrance – Top Tourism Town (population over 5000). Won by Warrnambool.
- Paynesville – Top Small Tourism Town (population 1500–5000). Won by Mount Beauty.

While the titles went elsewhere on the night, being recognised as finalists placed these three towns on the state-wide stage, offering a unique opportunity to showcase their strengths and share their charm with new audiences.

Council has warmly congratulated this year's deserving winners for their inspiring achievements.

East Gippsland offers visitors an incredible diversity of experiences: lakeside adventures, pristine beaches, lush national parks, wildlife encounters and warm country hospitality.

With strong foundations and growing recognition, East Gippsland continues to shine as one of Victoria's most remarkable tourism destinations.




**Gippsland East MP, Tim Bull, pictured next to one of the road craters on the Monaro Highway. Road works finished just short of this location and marks the start of a very rough stretch that he says is a State embarrassment.**

# Monaro Highway a State embarrassment

Once upon a time, not too long ago, crossing the border from New South Wales into Victoria meant entering a state with wider, smoother, and safer roads. It is something we could, and did, boast about.

"That is not the case anymore," says Gippsland East Nationals' MP, Tim Bull.

"Of recent times we have had just on two kilometres of road repairs right on the border, but 2.2 kilometres away the craters start and between the 44 kilometres from the border to Cann River there are almost 200 areas of broken surface," he said.

"Many of these are areas that have had temporary fixes that have quickly blown out to being potholes again, as the repairs were simply not done right.

"When I have raised this matter in Parliament, the Roads Minister, Melissa Horne, simply speaks about the miserly two kilometres that have been repaired. Why you would cart all that machinery up there and not fix the worst 10-15 kilometres is the question I would like answered, but in all honesty, we know the answer.

"Clearly it is a case of money and, when you cut roads funding over time and reduce the amount of road surface that is to be treated each year, this is the outcome you get."

Mr Bull said as soon as you leave the two kilometres of newly treated surface there is a massive crater (see picture) that is the start of a very poor stretch on what is a high use highway.

"Labor's own budget papers state they will be fixing less road area than they did last year, in a period where we need much more done," he said.

"This is the result of the State's finances being grossly mismanaged to the stage we are to hit a debt level of $192 billion with interest repayments alone of $28.8 million per day. This is the simple reason we are seeing cuts across the board.

"We need a government that will restore the State's balance sheet to a respectable level, because under Jacinta Allan it is out of control. Labor cannot manage money and Victoria's road users are paying the price."

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**Beyond Blue spokesperson Paul Milne, big wave surfing legend Ross Clarke-Jones, and performer Chris Pitman during the post-show panel discussion.**

# Shore Break crashing open the door to mental health

BERNINNEIT was a packed house last Wednesday night for 'Shore Break': a gripping solo theatre performance that not only succeeded in captivating the audience, but also sparked raw, honest conversations about men's mental health in the Bass Coast community and beyond.

The night opened with a speech by Cr Tim O'Brien, who didn't shy away from the confronting facts. Suicide rates in regional areas like Bass Coast are up to twice those of greater Melbourne. O'Brien spoke about the importance of simply asking the question – "Hey, you seem a bit out of whack, want to talk?" His words provided a great setup for the emotional punch that followed.

What came next was an extraordinary 75-minute monologue performed by acclaimed actor and writer Chris Pitman. His debut play 'Shore Break' is a poetic and haunting portrayal of an isolated man trying to make sense of his past while sitting by the ocean with nothing but his surfboard and his memories.

The show began quietly. The only sound was Pitman waxing his board as soft, reflective music played. He opened with a rhyming poem by Madge Morris Wagner, before switching into a completely different gear, speaking in gritty, authentic Australian vernacular. It set the tone for a performance that felt deeply personal and grounded in reality.

Pitman's character was foul-mouthed, yes, but also vulnerable and familiar. He meandered through stories of his life with honesty, humour, and pain, his natural style making it feel less like theatre and more like listening to a mate you haven't seen in years opening up. The minimal set, featuring just a chair, a crate, and a surfboard, helped keep the focus on his words, and his delivery never wavered. No sound effects. No lighting tricks. Just Pitman, alone, carrying the weight of the story on his shoulders.

Despite the intensity of the subject matter, Pitman found some space for humour. But when the mood did shift, it hit hard. Subtle changes in body language or a sudden rise in his voice were all it took to snap the audience back into silence.

And silent they were. Aside from occasional chuckles, the room was completely still, a sign of just how immersed everyone was.

Following the play, Beyond Blue's Paul Milne led a panel discussion with Pitman and big wave surfing legend Ross Clarke-Jones. Both men spoke openly about their own struggles.

"This play tonight smashed it. Amazing," he said.

The night didn't end when the curtain figuratively fell either. Viewers were invited to stay behind for pizza, drinks, and conversation with the panel. Private chill-out spaces and free counselling were made available, showing the organisers were just as committed to care as they were to art.

What Shore Break managed to do so well was start a conversation without preaching. It didn't offer solutions or lecture. Instead, it gave the audience space to reflect on themselves, on the men in their lives, and on what it means to struggle quietly. As Cr O'Brien said, "We each have a role." Sometimes that role is simply to listen.

For mental health support, contact Lifeline on 13 11 14 or Beyond Blue on 1300 22 4636.


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HM12875


# New sub-group seeks to raise profile of First Nations

RAISING the profile of Aboriginal culture, people, their creativity, resilience and their issues in Mirboo North and surrounds is the Mirboo North Reconciliation sub-group (MNRSG). The group falls under the Bass Coast South Gippsland Reconciliation Group (BCSGRG) and was formed following last year's 'voice' referendum and the storm damage to country in Mirboo North.

President of the BCSGRG Dr Marg Lynn, alongside MNRSG coordinator, Gail Margaret, helped to coordinate the yes campaign in South Gippsland.

"We had a lot of connections through that, and we were hearing from people that they wanted to not to let things drop, that they had been made so much more aware of indigenous issues of the history and culture of First Nations people and their aspirations," said Dr Lynn, which was the first major impetus to form the subgroup.

"And the other one was the massive storm in February last year in Mirboo North and the impact of that on Country; and our awareness that Aboriginal people have been caring for Country for millennia, 60,000 years, and so we, at that time, made a connection with the Kurnai elders, and we've been working with them ever since."

Over the past year, the new group have been very active and celebrated a Kurnai Cultural Expo in May, attracting over 100 attendees to the event.

"That was highly successful, and that was a small part of an expo that the Kurnai community ran in Warragul a couple of weeks ago, and that raised quite a lot of interest in Mirboo North."

"We had lots of great conversations. The Kurnai elders who were there had great conversations, and we did too," said Dr Lynn.

The sub-group has also been meeting with local educators, from childcare through to the secondary school, who have joined the reconciliation group with plans to work together.

An exhibition during NAIDOC week featuring 50 Years of NAIDOC Week posters was also held by the group.

"They were on show at the Mirboo North Market in June and that raised quite a bit of interest, with a number of people joining the group, and we had lots of valuable conversations with people about all sorts of issues. It was a worthwhile exhibition," said Dr Lynn.

The Mirboo North Reconciliation sub-group meets on the second Thursday of the month at 10am (August is an exception and the next meeting will be in September).

The Bass Coast South Gippsland Reconciliation Group has also been very active, most recently holding the Ngangga Community Festival on Milawul (Phillip Island) in honour of NAIDOC Week in July.

Coming up is a free screening of the documentary Murundak: Songs of Freedom, which will be shown at the State Coal Mine on Saturday, August 9 at 2pm.

The BCSGRG meets regularly on the third Thursday of the month at 1.30pm with two evening meetings per year. For more information contact marglynn@tpg.com.au.


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**Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait**

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The Yarram Country Club
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**Monday 18 August 2025 - Yanakie**
Yanakie Hall
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**Tuesday 19 August 2025 - Foster**
Foster War Memorial Arts Centre
79 Main Street, Foster

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Leongatha RSL
Cnr Smith St & Michael Place, Leongatha

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**The Newhaven College Youth Parliament Team, Tilly Stecher, Matilda Feehan, Miranda Zalunardo, Gabriel Di Falco, Nissa Campbell Walker and Jasmine Ruffin were very proud that their Bill passed in the chamber.**

# Leaders of the future in Newhaven College's Youth Parliament

NEWHAVEN College's Youth Parliament Team exhibited remarkable dedication and commitment during their participation in the Victorian Youth Parliament, held at the Legislative Council (Upper House of the Victorian Parliament) during the winter school holidays. The team displayed exceptional preparation, articulation and debating skills throughout the sessions.

The team presented their Bill, 'The Establishment of Community Gardens Initiatives 2025'. The Bill streamlines the process for establishing and maintaining community gardens across Victoria by simplifying permits and removing barriers. It provides essential resources and expert guidance to support sustainable gardening practices, integrates community gardening into the primary school curriculum to educate future generations, and prioritises environmental protection, including native wildlife and cultural heritage preservation. The Bill also promotes inclusivity by ensuring accessibility and offering opportunities for vulnerable groups to engage through community service.

The College Youth Parliament Team, consisting of Tilly Stecher, Matilda Feehan, Miranda Zalunardo, Gabriel Di Falco, Nissa Campbell Walker and Jasmine Ruffin, displayed exceptional leadership and teamwork. Notably, Matilda Feehan received the Chamber Spirit Award for enthusiastically participating and creating remarkable contributions throughout the entire week.

Year 12 student Miranda Zalunardo said of the experience, "Participating in Youth Parliament Victoria this year was an insightful experience that provided us with the opportunity to engage with a rich tapestry of young people, each with their own insights and perspectives."

Head of Senior School, Brett Torstonson, was impressed with the students' enthusiasm, "Our representatives at Youth Parliament in 2025 represented the College superbly. They proposed legislation that would increase accessibility to Community Gardens throughout Victoria. Their legislation passed with flying colours – 46 votes in favour and 2 votes against. The group worked incredibly hard throughout Term 2 to write and edit their Bill. They were required to attend guidance meetings after school and in the evenings in order to ensure their Bill was correctly written, formatted and proposed. My congratulations to the entire team for their hard work, dedication and preparedness."

Newhaven College's achievements in the Youth Parliament highlight the College's commitment to empowering students and nurturing their leadership potential. The College takes pride in its students' accomplishments and dedication to addressing important social issues.

# Fight to have a bank in Korumburra is not over yet

KORUMBURRA Save Our Bank working group and local councillors are continuing to push ahead in order to try and secure support from the Bendigo Bank for a Community Bank model.

The current Bendigo Bank in Korumburra is the last bank in town and is due to close on Friday, August 29, 2025.

Two weeks after meeting with the working group, South Gippsland Shire Councillors and Federal Member for Monash Mary Aldred, the Bendigo Bank remain tight-lipped on all fronts about the proposal.

"We've had a response which has been less than satisfactory. That means that they're going down the path of looking at the post office option for banking – and that's all," said SGSC Mayor John Schelling.

"But we haven't given up on that yet. I've asked the Economic Development team (from SGSC) to follow through, to see what they can come up with in response."

"We're very passionate about it. There's going to be no bank between Leongatha and Lang Lang, and Warragul and Wonthaggi. So, it's a fair chunk of land in the middle that's got nothing," the Mayor added.

The Bendigo Bank is, however, offering financial support to Milpara Community House to allow staff to support people requiring assistance with Services Australia and the closure of the bank and to prepare people to use the Bank@Post services.

"The idea is the bank is going to assist people in changing over to an account that has a card – they are only passbook holders," explained Noelene Cosson, spokesperson for the working group.

"We fear that they have to get their pension then changed into those new accounts, and that's the problem, because that's not easy to do.

"Milpara House is helping people that need assistance with getting their pension into the right account, so that they can then withdraw it at the post office, because the post office only operates with accounts with a card, not passbook accounts."

The bank itself will reportedly obtain a list of all the people that fit into the category of only having a passbook account and will be inviting those people to come into the Bendigo Branch before it closes, to open a new account.

Milpara House will provide a list of dates and times to the Bendigo Bank as to when those services are available and the bank will then inform their customers.

The Korumburra Save Our Bank working group are still pursuing the Community Bank option and are grateful to have the support and leadership that Council and the Economic Development team can provide.

"We are still pushing for a Community Bank facility. We feel it is extremely short-sighted to leave Korumburra and the surrounding area without a bank, when it could be a success if their business model wasn't set up to fail in Korumburra," said Noelene.

# SEC One-Stop-Shop Will Help You Slash Energy Bills

The Allan Labor Government is focused on what matters most – cutting your energy bills, not cutting the SEC.

Premier Jacinta Allan and Minister for the State Electricity Commission Lily D'Ambrosio announced that every Victorian family will be able to access the SEC's one-stop-shop – providing free, trusted and simple advice to families on how to save money on their bills.

Making the choice to reduce your energy bills by getting solar or upgrading appliances in your home is easy, but finding a trusted installer and knowing which rebates you can access can be hard.

That's where the SEC one-stop-shop comes in. The one-stop-shop is a free service that offers tailored plans for households to cut their energy bills with energy efficient electric appliances.

It calculates all the upfront costs, annual bill savings, return on investment, applies government discounts and rebates and connects users to trusted and verified SEC suppliers and installers.

Victorians can use the one-stop-shop through the digital planner or over the phone. They can connect with installers verified by the SEC and have them make a free house visit to provide a more detailed quote.

The service will make sure Victorian families have all the information they need to make their homes more energy efficient – whether that's for an appliance that has already broken down or planning for the future.

Households can reduce their annual energy bill by around $1,400 by going all electric – and the savings rise to more than $2,700 a year by adding solar.

The SEC-endorsed installers must meet important criteria covering professional certifications, licences, accreditations, experience, track record, product quality and warranties – giving Victorians peace of mind.

Once up and running, it's expected the SEC one-stop-shop will assist over 100,000 homes to upgrade electric appliances over the next 15 years.

The SEC one-stop-shop will expand the current customer service team based in Morwell as the program grows, and is expected support over 1,000 trades jobs as demand for installers and other trades grows too.

The SEC will soon open expressions of interest for trade and installer businesses that want to be a part of the one-stop-shop, which is expected to be up and running in 2026.

Eligible installer businesses should have expertise in either all efficient electric appliances for the home or specialist expertise in single appliances, including heat pump hot water, solar panels, heating and cooling.

To visit the SEC's digital planner visit, powerup.secvictoria.com.au.

Premier Jacinta Allan said:
"The SEC is back – and it's helping families slash their energy bills."
"Families want help with the cost of living, and I'm on their side. So is the SEC."

Minister for the State Electricity Commission Lily D'Ambrosio said:
"We know how much households can save when they switch to electric. That's why the SEC is building a service that will make sure Victorian families can get trusted expert advice to help them make the switch."
"The one-stop-shop will not only help families save money on their energy bills, it will also boost the numbers of trades and installers in Victoria."


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# Victoria: Powered By The SEC

The Allan Labor Government is focused on what matters most – cutting your power bills, not cutting the SEC.

Following the Victorian Budget 2025/26 which invested $302 million to drive down power bills, Premier Jacinta Allan and Minister for the State Electricity Commission Lily D'Ambrosio announced the signing of retail contracts to power all Victorian Government operations with cheap, renewable electricity.

From 1 July 2025, the SEC will be powering Victoria's schools, hospitals, museums, trains, trams, traffic lights and more with clean, reliable, publicly owned renewable energy.

It's the first time the SEC will deliver power to Victorians since it was sold off by the Liberals 30 years ago.

The SEC will light up classrooms across 1,468 public schools, kindergartens and TAFEs across the state. It will power our hospitals. It will power our large police stations, fire stations and our essential water infrastructure.

The SEC will keep the lights on at some of the state's most iconic sites, including the Melbourne and Olympic Parks precinct, Melbourne Zoo, NGV, Melbourne Museum, Flinders Street Station, Parliament House, Phillip Island's Penguin Parade, Mount Buller and Mount Hotham.

The SEC will power the way we move around the state. Over 350 million trips across the state each year on Victoria's train and tram network will run on clean, renewable energy. It will power the Metro Tunnel when it opens later this year. It will power our traffic lights and the freeway lights that guide us home.

The SEC will supply 100 percent renewable electricity generated by its own projects, as well as Victorian Renewable Energy Auction contracts, such as Berrybank Wind Farm, Cohuna Solar Farm, Dundonnell Wind Farm, Winton Solar Farm and Bulgana Green Power Hub.

The signing of the retail contracts means the SEC will enter the market servicing five percent of Victoria's electricity consumption – making it the fifth largest commercial and industrial electricity retailer in the state.

And later this year, the SEC will expand its retail offering to sell renewable electricity to commercial and industrial businesses – helping them switch to cheap renewable energy too.

All profits made by the SEC will be invested back into the SEC's projects that deliver more renewable energy and cheaper power bills for all Victorians.

The SEC is building 819 megawatts of solar and battery storage at the SEC Renewable Energy Park in Horsham and the Melbourne Renewable Energy Hub near Melton – this will pump more renewable energy into the grid, drive down energy prices for Victorians and slash emissions as we work towards net zero by 2045.

But it's all at risk under the Liberals. Liberal Leader Brad Battin's first policy announcement was to cut the SEC. The Liberals will sell off publicly-owned renewable energy at their first opportunity. You will pay the price.

Premier Jacinta Allan said:
"The SEC is back – and it's powering Victoria with cheap, reliable, publicly-owned renewable energy."
"Families want help with the cost of living, and I'm on their side. So is the SEC."

Minister for the State Electricity Commission Lily D'Ambrosio said:
"If Brad Battin and the Liberals are elected, they'll cut the SEC – just like how they sold off Victoria's energy and sent profits offshore in the 90s."
"The SEC will power Victorian Government operations with 100 per cent renewable electricity – with all profits being invested back into projects that will deliver more renewable energy and lower power bills for Victorian families."

# Works Completed

Remediation works addressing landslips on Grand Ridge Road have been successfully completed! As a result, all temporary load limits previously in place have been lifted, and the road is now open to all traffic.

Council appreciates the patience and cooperation of all road users during the course of these necessary repairs and we are pleased that the road can now be used to it's full extent once again.

Gippsland's Grand Ridge Road is one of the great tourist drives in Victoria. For 132 kilometres it snakes its way along the ridge of the Strzelecki Ranges, providing striking views across the emerald-green farmlands to the Latrobe Valley in the north and Bass Strait in the south.



# Funding Boost To Preserve Victoria's History

The Allan Labor Government is funding community groups across the state to capture, preserve and share the unique stories and histories of Victoria.

Minister for Acting Minister for Government Services Danny Pearson announced that 17 historical groups, museums, libraries and not-for-profits are the new recipients of the 2025 Local History Grants Program.

The Local History Grants Program is administered by Public Record Office Victoria, and supports community activities that preserve, record and share the local, social and community history of Victoria and Victorians.

Recipients this year include the Bonegilla Memory Project, awarded $11,490 for their work in collecting memories of ex-residents of the Bonegilla Migrant Camp via a digital platform. Memories will be shared with the wider community, highlighting the stories of this significant heritage site.

First Nations history will be highlighted in the new project William Barak's Visual and Material Legacy: A Catologue for Community delivered through $15,000 to the Wurrindjeri Woi Wurrung Cultural Heritage Aboriginal Corporation.

The Down Syndrome Association of Victoria has been awarded $12,623 for the archiving of their heritage collection, dating back to the Association's establishment in 1978, establishing a legacy to educate, inspire and inform all Victorians.

Victoria's important post-war migration story will also be further explored, with $14,850 granted to the Australian Jewish Historical Society Victoria for the project Community of Fate: Tales of German Jewish Migration to Melbourne (1938 – 1949).

The National Theatre, Melbourne's Digital History Project will come to life thanks to $6,520 in funding. The project aims to capture and share historical documents that tell the story of this seminal Victorian arts organisation.

Other funded projects include newspaper digitisations, oral histories, historical signage, and preservation equipment.

Acting Minister for Government Services Danny Pearson said:
"We're backing the historians and local heroes bringing Victoria's stories to life and out into the world."
"These projects will help us to understand our history for generations to come, ensuring that all Victorians can more easily access stories of their past."

Leongatha & District Historical Society Inc. received a grant for $1,158

Further details can be found at prov.vic.gov.au/community/grants-and-awards/local-history-grants-program


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# Premier Ag Tech Event Returns To Victoria In 2026

The Allan Labor Government is proud to welcome Asia Pacific's premier agrifood innovation event evokeAG to Melbourne – a forum bringing the brightest minds in agtech, food production, research and agricultural investment.

Led by AgriFutures Australia, evokeAG is a leading global agrifood technology and innovation event that unites the agrifood innovation community across the Asia Pacific and around the world.

Minister for Agriculture Ros Spence announced its return from 17-18 February 2026 at the Melbourne Convention Centre, where entrepreneurs and growing companies will showcase their work, together with live demonstrations, food and beverage experiences and interactive sessions designed to inspire, inform, and drive collaboration.

Across two days, the event promises to facilitate opportunities for the agriculture sector to innovate and commercialise solutions for key agricultural challenges. It will welcome over 2,000 delegates from more than 20 countries, 134 speakers and more than 50 startups to the state.

The event has a strong alignment to the Government's Economic Growth Statement, which identifies agribusiness as a priority growth sector and Victoria's standing as a leading global investment destination for Agtech and innovation.

Victoria's Primary producers and food manufacturers have delivered another year of record-breaking exports, leading the nation and hitting the state's $20 billion target six years ahead of schedule.

The 2023-24 Food and Fibre Export Performance Report, shows Victoria is Australia's top food and fibre exporter, capturing 27 per cent of the total national export value.

Victoria makes the ideal backdrop for the next edition of evokeAG as it is home to a quarter of Australia's farm businesses, 14 agricultural Research and Development centres, world-class universities, and a thriving business startup ecosystem.

Since its inception in 2019, evokeAG has brought together over 8,100 delegates, 391 investors, 577 speakers, and 1,122 primary producers to drive agriculture towards a better future.

For more information or to register your interest, visit www.evokeag.com

**Minister for Agriculture Ros Spence said:**
"Research and innovation are central to the success of Victoria's $20.2 billion agriculture sector, which is underpinned by farmers and a broader industry that embraces new technology."
"We are proud to support the return of this landmark event to Melbourne and to invest in the growth and innovation of Australian agriculture."

**Minister for Economic Growth and Jobs Danny Pearson said:**
"Our Economic Growth Statement highlights the importance of agribusiness to trade and investment growth in Victoria, this event brings together leaders in the sector from across the world to share their innovative ideas."

# Strengthening Victoria's World-Class Health System

The Allan Labor Government is delivering Victorians a better-connected health system – that ensures patients get the care they need, close to home.

Backed by record investments – including for frontline workforce recruitment and increased funding for hospitals, health services are coming together in partnership, with 12 new Local Health Service Networks commencing from 1 July.

The networks will drive improvements through health services working together across regions so that Victorians can access more of the care that they need, closer to where they live.

Each health service will retain its board and CEO, unique identity and connection to their community.

Each network will hit the ground running – by identifying and planning improvements to address the health needs of their local communities. This follows work over the past few months to identify early initiatives to improve access to care, better support the local health workforce, and improve the quality of care.

This work will help develop annual plans and three-year strategies addressing four priority areas:

Access, equity and flow – making it easier to access and navigate the health system through initiatives like regional waiting lists and support for aged care patients to stay out of hospital

Workforce – develop coordinated plans to develop and retain a skilled health workforce

Safety and quality – embedding evidence-based improvements for safer care

Shared services – identifying back-office efficiencies to ensure better use of available resources, minimise wasteful duplication, and share findings with other networks.

As the networks mature, they will begin to focus on additional priorities, including understanding the care needs of priority populations and addressing these in collaboration, improving integration with other parts of the health system, and improving access to research and clinical trials.

The Labor Government invested a record $31 billion in the Victorian Budget 2025/26 into the health system, including a record $9.3 billion boost to give every public hospital the certainty to plan for the future and keep delivering the world-class care Victorians rely on.

For more information, please visit health.vic.gov.au/local-health-service-networks.

# HECS debt scheme passes parliament

LABOR's policy to cut 20% of the HECS debt of students has passed through parliament. The bill was introduced during the first session of the 48th parliament.

But Gippsland MP Darren Chester said it fails to help more regional students pursue a university degree.

The Labor Party policy to cut student debts was promoted during the election campaign as a plan to "build a better and fairer education system", but Mr Chester has told Federal Parliament that it was industrial-scale vote buying which disproportionately benefited city families.

Mr Chester said the Albanese Government was spending $16 billion to buy votes rather than improve access to university for under-represented groups or invest in regional university campuses.

"Data from the Parliamentary Library indicates the average number of people who stood to benefit by the scheme in seats that were held by the Nationals in rural and regional Australia in the lead-up to the election was 13,384," Mr Chester told Parliament.

"However, in the seats held by the Greens in the city, which were the key targets for the Labor Party going into this election, the average number of people who stood to benefit was 32,288. There are two and a half times the number of beneficiaries in those inner-city seats.

"This was industrial-scale, tertiary-level vote buying, with working-class people picking up the tab for students who will earn more over their lifetime as a result of their university education.

"We know that the lifetime earnings of people with a university degree are, on average, at least $1 million more than those of people without the benefit of a taxpayer-subsidised university education.

"Just imagine if just some of that $16 billion went to address the barriers that exist for rural and regional students seeking to access a university degree."

Mr Chester said he would continue to advocate for Gippsland families struggling with the high cost of relocating to pursue further studies.

"The Albanese Government is doing nothing to improve access for regional students who are already struggling with the financial cost and geographic barriers of attending university," Mr Chester said.

"At least some of the money poured into buying votes in the city should have been quarantined to fix the Youth Allowance system, which still makes it harder for families in regional areas to support their children at university. We should also be investing more in regional campuses to reduce the need to relocate in the first place.

"The best way for us to attract and retain skilled workers in critical areas like health and education is to take a long-term view and train our own children.

"More financial assistance is required to support students who are forced to move away from home to complete their studies, and more resources need to be allocated to providing options for students to remain in their own communities and study."

**To advertise in The Bridge call Deb Lucas on 0448 871 213**




The Anglican Church of the Transfiguration at Hedley will hold its annual Patronal Festival on Sunday, August 17 at 11.00am.

# Singalong at Hedley Church

THE Anglican Church of the Transfiguration at Hedley will hold its annual Patronal Festival on Sunday, August 17 at 11.00am.

The service will be conducted by the Rev'd Canon Dr Fran Grimes, rector of the Parish of Corner Inlet. There will be lots of hymn singing to the accompaniment of the new organ, which was recently donated to the church by a visiting family after attending last year's Christmas Eve service at Hedley.

Michelle Gordon and her partner Kenneth Hayne, their son James Hayne and Michelle's mother Coral Gordon are from Melbourne but have enjoyed a long time association with South Gippsland.

They greatly enjoyed the service and music in the beautiful 104 year old rural church and wanted to give something back.

Organist Warren Peart had coaxed the aged organ into playing a grand accompaniment on the night, but this faithful instrument was nearing its end of life.

Travelling home from the service the visiting family's discussion led them to offer to donate a brand new keyboard organ to the church.

So thanks to this amazingly generous offer, the little church now has a new lease of musical life and can be heard in full action on the 17th of this month.

Everyone is welcome to attend the service and to stay for a light lunch in the Hedley Hall.

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# More Nesting boxes for Greater Gliders



The ground crew secure the Greater Glider nesting boxes and equipment for installation to a rope which was then hoisted up to their workmate 15 metres up the eucalypt tree on the livermores property at Woodside North.



A professional tree climber get hoisted up to a height of 15 metres before installing a nesting box for the Greater Gliders.

ALISON and John Livermore are doing their bit to for the Greater Glider.

The Greater Gliders have a high dependence on forest and large hollow-bearing trees, they eat mainly eucalypt leaves.

In recent years habitat has been lost in some areas due to clearing and bushfires in the area and they are enlisted as endangered. The population has declined by 80 percent in just 20 years.

However Alison and John have spotted some near their property.

"We have seen them in the Mullundung Forest which borders our property here so we decided to see if we could encourage even more to this area by installing nesting boxes in the trees on our property," Alison said

Alison had the nesting boxes made and enlisted the service of Pace Tree professionals to install them in one of her trees.

Watching these professionals assess the tree, then secure lines before being hoisted up more than 15 metres and assessing the best installation site, then having the nesting boxes hoisted up along with the equipment needed to secure to the tree was quite the sight.

"The nesting boxes needed to be installed in euclypts trees  at a preferred height of 15mtrs," Alison said.

Gliders are known to avoid boxes that sit on an angle or are poorly attached.  Boxes need to face east or sou to avoid overheating. Greater Gliders also seem to like sites on ridge lines or hills which will catch the breeze.

Alison and John have been investigating inspection cameras and the best way to go about checking inside the boxes in a way that does not upset or distract the nesting greater gliders.


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## Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

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# ‘The other Gallagher’ in trouble

The older brother of Oasis stars Liam and Noel Gallagher has been charged with rape and a string of other violent sexual offences.

As well as rape, Paul Gallagher, 59, is also accused of three counts of sexual assault, three counts of intentional strangulation, coercive and controlling behaviour, two counts of making threats to kill and assault occasioning actual bodily harm, British police have said.



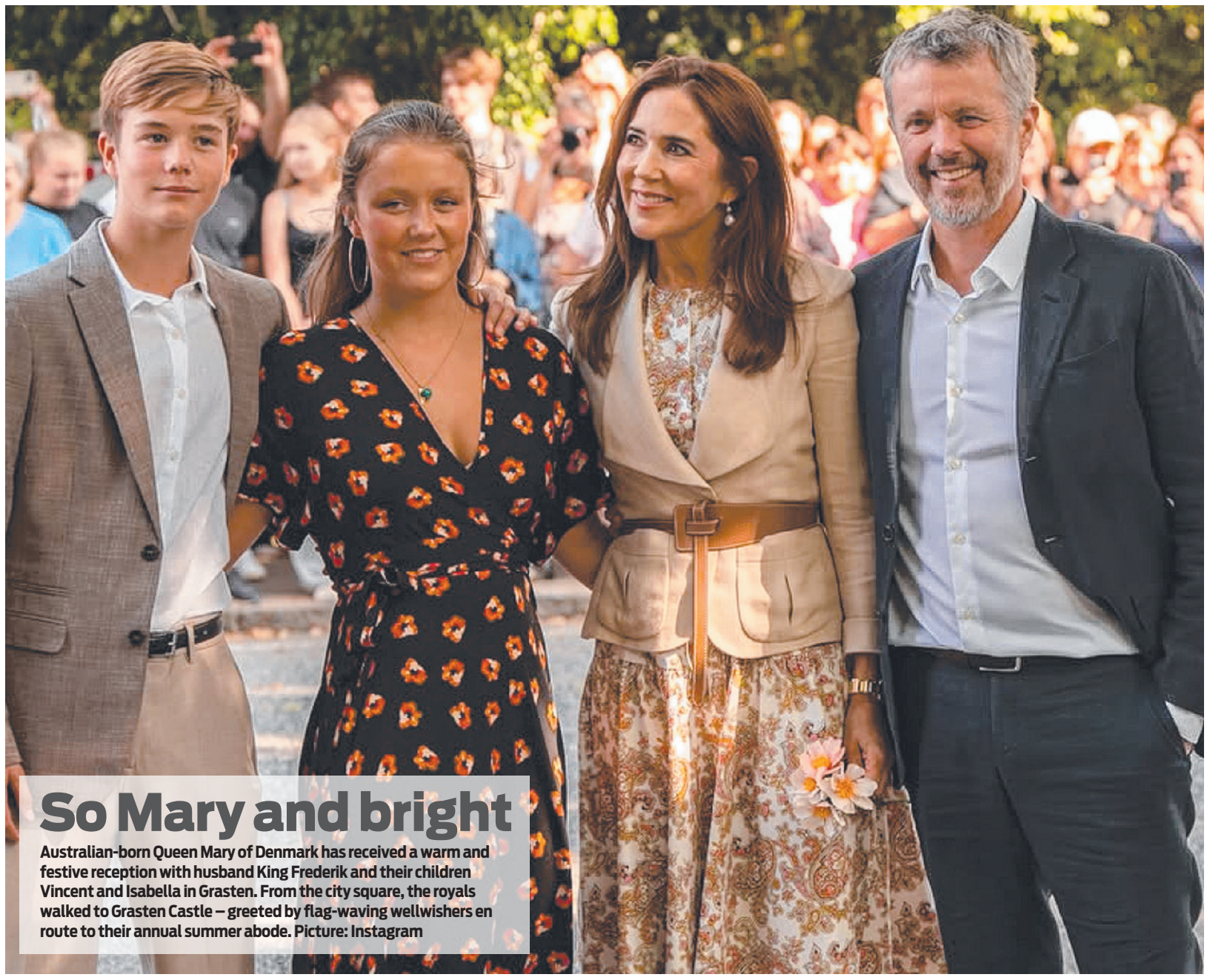
Paul Gallagher

Paul Gallagher is accused of offences said to have taken place between 2022 and 2024, and a woman is being supported by specially trained officers.

He is due to appear before Westminster Magistrates’ Court on August 27.

The charges come as Liam and Noel Gallagher continue to thrill audiences in the UK, playing to packed stadiums on their reunion.

While he has previously publicly denied being jealous of his younger siblings he has admitted being annoyed as being referred to as “the other Gallagher”.



## So Mary and bright

**Australian-born Queen Mary of Denmark has received a warm and festive reception with husband King Frederik and their children Vincent and Isabella in Grasten. From the city square, the royals walked to Grasten Castle – greeted by flag-waving wellwishers en route to their annual summer abode. Picture: Instagram**

# Banks’ $93m fees refund

## One million customers overcharged

**Sarah Simpkins**

Australian banks are set to pay more than $93m to nearly one million customers after the corporate regulator found excessive fees were draining the accounts of low-income earners.

In a review of 21 banks, including the big four, the Australian Securities and Investments Commission found they had charged high fees on transaction accounts for customers who received government concession payments, according to a new report released on Tuesday.

Some customers will receive refunds of up to $5000.

Customers who receive concession or pension payments – classified as low-income earners – are entitled to access low or no-fee accounts, according to the Banking Code of Practice.

But large numbers of these customers have had their limited funds “eroded” by remaining in high-fee transaction accounts which charged dishonour, overdraw and account keeping fees, ASIC’s report said.

Four banks have already refunded more than $33m to more than 150,000 customers, but a further $60m will be paid out to 770,00 customers after participating banks reviewed the impact of high-fee accounts on low-income customers.

ASIC chair Joe Longo said the banks needed to “ask themselves some difficult questions about what led to this situation”.

“We expect banks to regularly assess product design and distribution to ensure customers have the most appropriate products and that they are given the support they need.”

Previously, ASIC found the banks had processes for identifying low-income customers who were likely to be eligible for low-fee accounts, but they were mostly “opt-in” – requiring customers to take active steps to move from a high-fee to low-fee account.

Most banks also required customers to provide proof of a concession card in order to access a low-fee account, despite the fact they could identify the customers were receiving government concession payments.

Three out of four banks ASIC initially investigated last year have committed to refunding low-income customers nationwide: ANZ, Bendigo Bank and Westpac.

Meanwhile Commonwealth Bank and Bankwest have indicated they do not intend to make refunds to low-income customers outside a specific cohort – customers in regional and remote locations where there are significant Indigenous populations and customers who received ABSTUDY payments.

CBA (including Bankwest) data showed it charged about $270m in account-keeping, dishonour and overdraw fees to 2.2 million low-income customers who weren’t in the cohort between July 2019 to October 2024.

Some of the refunds which will be paid out included amounts ranging from $1200 to $5200, ASIC commissioner Alan Kirkland said.

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V1 - MHSE01Z01MA

## Donald endorses Sweeney's 'hot ad', unleashes on 'woke' Swift

# Trump agrees Sydney rocks perfect jeans

**Vanessa Marsh**
**Adrienne Tam**

Donald Trump has labelled Sydney Sweeney's controversial American Eagle campaign as the "hottest ad out there" at the same time as lashing "woke" Taylor Swift as being "no longer hot".

The US President said Republican Sweeney's campaign had jeans "flying off the shelves".

"Sydney Sweeney, a registered Republican, has the 'HOTTEST' ad out there," he told Truth Social.

"Go get 'em Sydney!"

It comes after the ad was lambasted as "Nazi propaganda" because of its play on the words "jeans" and "genes".

The denim brand and the 27-year-old actress have brushed off the criticism and stocks in American Eagle soared on Monday, with shares up nearly 18 per cent in afternoon trading.

The spike put the shares on pace for their highest close since May 13.

Between the ad's July 23 release and July 28, the stock climbed about 18 per cent.

Mr Trump said the ad was the antidote to "woke" advertisements by companies including Jaguar and Bud Lite.

"The (Jaguar) CEO just resigned in disgrace, and the company is in absolute turmoil," he said.

"Who wants to buy a Jaguar after looking at that disgraceful ad.

"Shouldn't they have learned a lesson from Bud Lite, which went woke and essentially destroyed the company."

He said companies "foolishly lost" billions of dollars with their "woke" campaigns before taking aim at pop superstar Swift.

"Or just look at woke singer Taylor Swift," he wrote.

"Ever since I alerted the world as to what she was by saying on TRUTH that I can't stand her (HATE!) she was booed out of the Super Bowl and became NO LONGER HOT.

"The tide has seriously turned – being WOKE is for losers, being Republican is what you want to be. Thank you for your attention to this matter!"

The 79-year-old politician has regularly attacked the 35-year-old singer, who has won 14 Grammy Awards and raked in more than $2bn in ticket sales during her worldwide Eras Tour, becoming the highest grossing tour in history.

In May, Trump wrote: "Has anyone noticed that, since I said "I HATE TAYLOR SWIFT," she's no longer "HOT?"

Swift endorsed Democratic Presidential candidate Kamala Harris late last year, saying she fought for the "rights and causes I believe need a warrior to champion them".

Meanwhile, Sweeney copped a roasting on social media over her red carpet outfit as she attended the Americana film premiere in Hollywood.

Sweeney wore a pale yellow frilly dress, with a matching yellow headband and shoes.

The outfit was styled by Molly Dickson, who also worked on the jeans commercial.

Comments on social media included: "Who's responsible for her bad fashion genes?" and "Her stylists hate her too it seems."

"Are you auditioning for Oklahoma?" wrote another commenter.

"Whoever styled her found out she's a Republican lol," said another, in relation to recent news that Sweeney is a registered Republican voter.

"The colour. The headband. The horror," was another comment.

Even Republicans were appalled – but still found issue with Democrats.

"NGL ... the dress is TOO MUCH & the extra wide headband is God AWFUL but don't get it twisted. She could be wearing a dang POTATO SACK & STILL would run circles around u BUTT UGLY AF LIBERAL WOMEN!! Y'all STILL UGLY & Sydney STILL HAS GORGEOUS JEANS!" wrote a commenter on X.

Sweeney was also heckled as she exited her vehicle at the event, with someone reportedly shouting: "Stop the (American Eagle) ad, that is being racist!".



Taylor Swift



President Trump



Sydney Sweeney in the American Eagle ad, left, and at the Americana premiere. Main picture: Getty Images

V1 - MHSE01Z01MA

## Your mother is to blame

**LONDON:** UK researchers say a mother's genes play a larger role than dad's in determining whether we will be obese.

University College London scientists looked at the body mass index (BMI) measurements, diet and genetic data from more than 2500 mother-father-child trios and say that our mum's BMI may be the most critical in determining our BMIs.

They say this is both due to the effects of genes that we inherit directly as well as indirect influences from genes that were not passed down.

Dads had very little effect on their child's BMI.

## Our sheet can do lab work

**SEOUL:** A flexible robotic sheet that can grasp objects and move across surfaces could improve autonomous systems in fields such as exploration and smart healthcare.

Korea Advanced Institute of Science and Technology researchers engineered a robotic folding sheet made with densely distributed heat-sensitive electrical elements that can change shape when exposed to heat.

They used it to crawl across a surface and grasp and lift objects in the lab, including a petri dish.

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# Appendix H-2 Newspaper Advertisements November-2025




**Les Williams was recently inducted into the Shell Rimula Hall of Fame at a ceremony in Alice Springs. The induction recognises individuals who have shown a lifelong commitment to the Australian trucking industry.** (PS)

# Trucking honour for Les

Local transport industry veteran, Les Williams, has received one of Australia's highest honours after being recently inducted into the prestigious Shell Rimula Wall of Fame in Alice Springs.

The induction ceremony, held at the National Road Transport Hall of Fame, recognises individuals who have shown a lifelong commitment and made an outstanding contribution to the Australian trucking industry. For those in the transport sector, having their name added to the Wall of Fame is considered the pinnacle of achievement.

Les was born in 1948 in Tallangatta, Victoria, and began driving trucks at 21 years old, hauling logs for Bonchi Bros in East Gippsland.

Throughout the years, he has worked for a number of timber and transport companies, driving AB180 Internationals, 1418 Benz and W-model Kentworths, often carting timber and livestock across Victoria, Melbourne and Sydney.

In the late 1980s, Les purchased his own trucks, including a G89 Volvo, F10 Volvo and T-Line International, hauling timber for up to 10 years on each vehicle.

For almost two decades, he drove for Steven Redenbach, managing timber and fringe van work.

At the age of 65, Les decided to hang up the keys and retire, but a call three months later from Cox Freight saw Les taking a load of veggies to Sydney.

Eleven years later and Les is still driving to Sydney for the same company.

More than just a successful operator, Les has been a mentor to many, generously sharing his vast knowledge and experience with the next generation of drivers.

His induction has been met with great pride within the local community and the wider transport industry.

# Easy exploring

As spring warms up, East Gippsland Shire Council is making it easier than ever to get out and explore with the launch of new visitor signage kiosks and the revamped Visit East Gippsland website.

The 25 kiosks, now installed in key locations including Paynesville, Raymond Island, Johnsonville, Howitt Park (Bairnsdale), Lakes Entrance, Lake Tyers Beach, and Nowa Nowa, highlight local attractions across four distinct designs representing the Gippsland Lakes, Alpine High Country, Snowy River Country, and Coastal Wilderness regions of East Gippsland. Each kiosk is designed to inspire visitors to explore more of the region.

Each sign features a QR code linking directly to the new Visit East Gippsland website, giving visitors instant access to everything the region has to offer.

The website provides a comprehensive guide covering where to eat, drink, and stay, as well as details on attractions and experiences. A trip planner tool allows users to build and share personalised itineraries, while locally curated blogs and itineraries provide inspiration from those who know East Gippsland best.

To enrich this experience, Council is encouraging collaboration between businesses and the community to create engaging blogs, itineraries, and other content to attract and inform visitors. A live business listing register is also available, enabling any East Gippsland tourism-related business to apply for a free 12-month listing with the Australian Tourism Data Warehouse (ATDW) – normally valued at $295. ATDW-listed businesses may also appear on sites such as Visit Gippsland and Visit Victoria.

Mayor Cr John White said the kiosks and website are the perfect tools for locals and visitors to take advantage of the warmer weather and explore the region's unique offerings.




**Visit signage kiosks have begun popping up all over East Gippsland in places such Howitt Park, Bairnsdale.**

"Spring is the ideal time to get out and discover East Gippsland, from our stunning coastline to the picturesque high country," Cr White said.

"These new kiosks and the Visit East Gippsland website make planning your adventures easier, helping you find hidden gems and experiences across the region."

Visitor Information Centres remain open, offering friendly and knowledgeable staff to help along the way. Together with the kiosks and website, they ensure everyone can easily explore the region this spring.

Visit the website today at visiteastgippsland.com.au and start planning your next adventure.

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# History's Mysteries



Can you identify the people in this photo from the East Gippsland Historical Society collection?

The photo is of a staff member at Foards circa 1973.

If you have any information, please contact the *Advertiser*. A new mystery will appear in next week's edition.

Information was received for the photo of the TAFE Board of Directors circa 1987. Back: Richard Warhurst, Bill Devink, Ray Griffiths, _, Paul MacIntyre. Front: Val McGoldrick, Esther Barton, _, Peter Veenker.






**Bairnsdale and District Diabetes Support Group's Janet O'Connell presented Alison Miller, of Life Box, with a gift in appreciation.** (PS)

# Life Box presentation

Alison Miller, founder of a business named Life Box Australia, was guest speaker at the October meeting of the Bairnsdale and District Diabetes Support Group.

Life Box is an emergency document box designed to hold pre and post death documents in one secure, accessible place that can be easily located by emergency personnel and carers.

Alison started her presentation with the lighting of a candle of remembrance, and then gave a brief outline of her background which included nursing, a celebrant for wedding and funerals, and currently as an aged care assessor, which led her to determine the need for and develop the Life Box.

A Life Box is a place to keep your important medical and end of life documents that can be accessed quickly to let the police and ambulance service know your details and wishes.

When a paramedic arrives at your home, they will know you have a Life Box when they see the sticker on the front window. Once inside they can go to your fridge to find a sticker with the details of where your Life Box is kept in the home.

Inside your Life Box are important documents, such as an advanced care directive which is a legal document recording values and wishes: Medical Treatment Decision Maker forms explain current medical information such as medications and conditions. It is a great idea to keep your emergency contact numbers in there as well; You may also like to keep any information about other end of life plans; Funeral arrangements, your will and executor details. It will assist those who are caring for you find these important documents quickly, and make sure that your wishes are carried out as you had so carefully planned; Reducing stress for everyone involved. Assistance is available through Gippsland Lakes Complete Health to complete an Advance Care Directive and Alison can assist in preparing a values directive.

It was suggested to keep a copy of your advanced care directive in your car, uploaded to your MyGov account, put into your phone, or even emailing it to your local hospital if you have arranged to go there.

This will information that your family or carers are not fully aware of.

She also mentioned that if you have pets or animals that information regarding them also be recorded to that they are not overlooked in an emergency with no-one to care for them. Further information can be found on her website.

Janet O'Connell, on behalf of the group, thanked Alison for the informative presentation and presented her with a small gift in appreciation.

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## Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

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Omeo District Health
Delivers better outcomes for our rural community

You are invited to ODH

134th Annual General Meeting

Guest Speaker, Dr Loren Sher Director of Victorian Virtual ED.

You can experience the taste of Maggie Beer inspired cuisine, freshly prepared in the ODH kitchen.




24 November, 2025
4:00pm - 6:30pm
ODH Meeting Room

Contact Us
(03) 5159 0114
12 Easton Street, Omeo

Please RSVP via QR code by the 19th November 2025

# Free ride for Gippsland commuters next month



Member for Eastern Victoria Tom McIntosh, Premier Jacinta Allan and Public and Active Transport Minister Gabrielle Williams at the announcement of free public transport.

Photo: Katrina Brandon

## What to expect

- Free travel on Gippsland line for commuters boarding between Nar Nar Goon and Bairnsdale all of November, 2025. Passengers starting or finishing their trip on a coach or local bus will also travel for free across the network.
- Summer weekend travel free from early December 2025 (TBC) to February 1, 2026, on all PTV services.

### How:

- Passengers boarding between Nar Nar Goon and Traralgon in November will be able to collect a Gippsland free travel voucher from station staff, or a conductor onboard, instead of tapping on with their Myki. Those boarding between Rosedale and Bairnsdale, (paper-ticketed area) can collect a free V/Line ticket from station staff when boarding, or book over the phone for free. On weekends over summer, all passengers can access public transport across the entire state without needing to tap their Myki.

### Ongoing perks:

- Children travel free under 18 on all PTV services from January 1, 2026
- Seniors travel free on weekends on all PTV services starting from January 1, 2026, for all valid Seniors Card holders.

More info at **ptv.vic.gov.au** and **vline.com.au**

From page 1

The *Gippsland Times* also asked Premier Allan if this increased usage, to which these perks and fare-cuts would likely contribute, would see any further development or additional services added in the South Gippsland area. Commuters there are currently limited to three coach departures on the Yarram-Melbourne route per day (either direction). The Public Transport Minister confirmed that "we are putting on more buses as part of the re-timetabling," that will take place in February as part of the 'Big Switch', when the Metro Tunnel is officially opened and integrated as the new heart of the public transport network.

"In addition to that, though, we have been working to boost our investment in bus services. A record investment last year of $180 million for additional and upgraded bus services, built on again in this latest budget with $160 million of funding into bus services," Minister Williams said.

"And that is work that is ongoing, because more and more the value of the bus network is being realised, particularly as we've invested so heavily in making sure that we're delivering more train services, 'turn up and go' corridors.

"Now I think buses really come into their own in being able to connect people to that world-class rail system that we've been busily building over the last decade."

Similarly, commuters further along the Gippsland Line corridor, east of Traralgon, feel somewhat left out, receiving only one new service in the hyped up works this year that saw 87 more services between Traralgon and Melbourne.

Minister Williams emphasised the new stabling yard in Bairnsdale was an indication of the government's commitment to the area, while the upgrade of tracks along that section of rail enabled the latest, fastest V/Locity trains to travel.

"I know what a difference that has made to the Bairnsdale community, if you look at the other communities too along that corridor, that have benefited from the reliability, the frequency of those services," Ms Williams said.

"And I know that the community has been talking to local member, Tom McIntosh, about how we can build on that. And I think for now, putting in place additional coach services is part of that, but it is all about understanding that regional communities get why regional public transport matters."

Mr McIntosh said the free travel announcement would provide relief for local families.

"This is fantastic news for local families, students and workers who rely on the Gippsland Line every day. Free travel will make a real difference to household budgets and give even more people a reason to jump on board," Mr McIntosh said.







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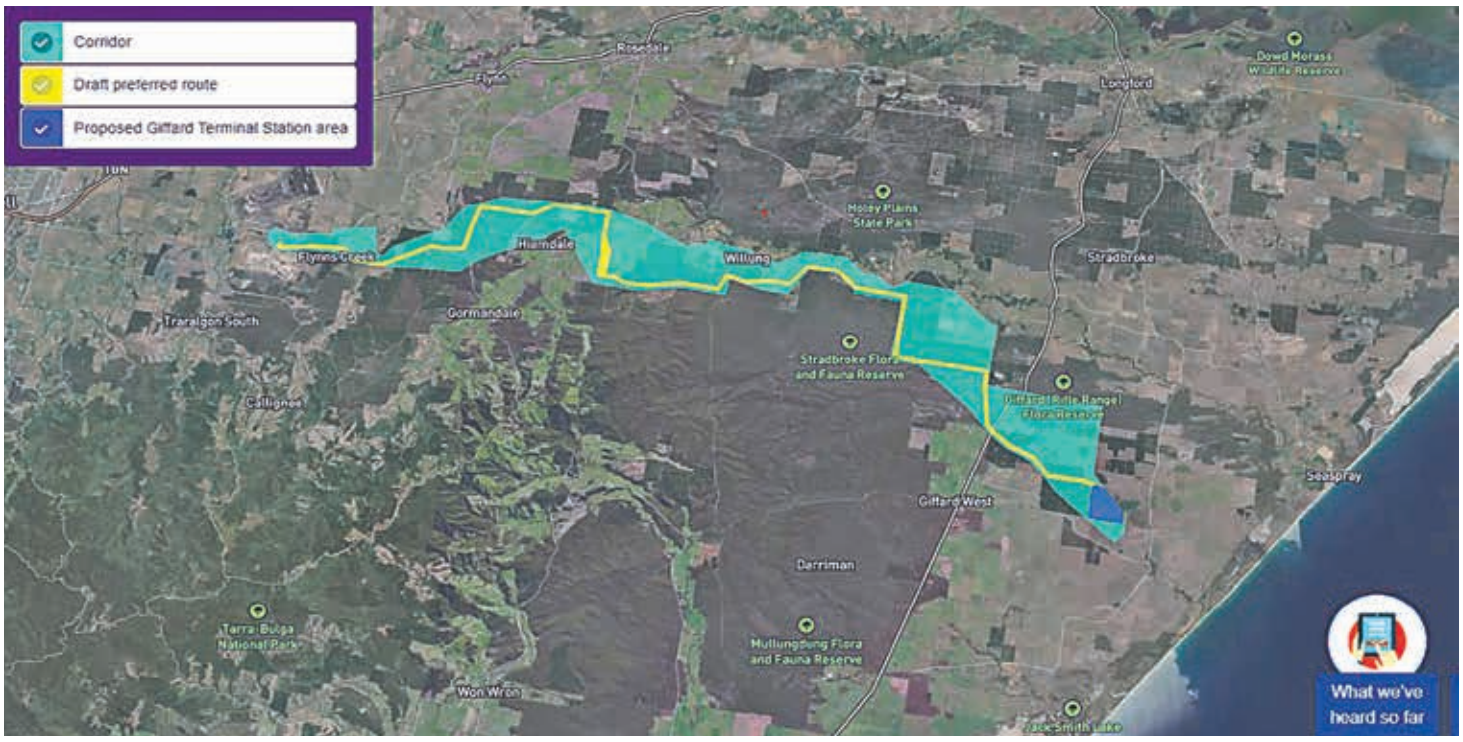
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GP1686112

# VicGrid unveils transmission corridor




**VicGrid has now identified a corridor and a draft preferred route that runs from near Giffard, northwest past Stradbroke, west to Willung, across to Flynns Creek and into the Loy Yang Power Station.** **Image: VicGrid**

**From page 1**

The state government says it is working to make sure locals get "real benefits", by introducing new community energy funds to improve local energy outcomes, landholder payments, neighbour payments and Traditional Owner funds.

VicGrid chief executive Alistair Parker said landholder input was instrumental in refining the study area.

"We've had really valuable input from locals about their properties, their farming practices and sensitive areas to avoid," he said.

"On a project like this, local insights play a crucial role in narrowing down the areas that are more suitable to host infrastructure and helping us minimise the impacts on local properties, farming operations and the environment.

"We want to thank everyone who has taken the time to share their local knowledge and we look forward to continuing those conversations as we keep refining the design of this infrastructure."

Over the coming months, VicGrid will keep refining the draft preferred route in consultation with landholders and technical experts with an intent to finalise the route in early 2026.

"Our team will be reaching out to landholders in the corridor so we can better understand important values on their properties and help refine the route for this infrastructure," Mr Parker said.

The VicGrid announcement "misses the point", according to Better Transmission Gippsland (BTG), which says the authority should be looking at how the transmission lines are built, not where they go.

BTG chair Kirra Bott said the decision to lock Victoria's offshore wind transmission into "outdated overhead technology" put every household's future energy security at risk.

"The technology they're planning on using is already proven to fail in extreme weather, exactly what we're seeing more of with climate change," she said.

"When towers fall, homes lose power, businesses close, and profits vanish."

Ms Bott said Victoria's politicians continued to hide behind cost-of-living excuses when the real difference between overhead and underground was around $27 a year per household, less than a third of a cup of coffee a month.

"For that small cost, Victorians could have transmission built to last, not built to fail," she said.

BTG says the government has never considered underground transmission.

"From day one, underground was ruled out. There has been no costing, no analysis, just the same insiders doing what's familiar and profitable," Ms Bott said.

"It protects corporate and union interests, not the public interest. It is short-sighted and sells our kids' future short."

Ms Bott said the irony was that the chosen route, with its hard bends and strain towers, would increase costs.

"Every turn adds risk and expense. It is the most complex and expensive way to do the cheapest job," she said.

"Victoria can't afford to keep doing what's easy and calling it progress. It's time to do better and build the secure underground energy network our future depends on."

People can find more details about the corridor and draft preferred route as well as details of next steps on the Engage Victoria website, **engage.vic.gov.au/offshore-wind-transmission**

# New planning role for VicGrid

**Erika Allen**

VICGRID announced last Tuesday it had assumed control of Victoria's electricity transmission network planning, taking over from the Australian Energy Market Operator's Victorian arm (AVP)

The announcement came just three days before VicGrid's release of its identified corridor and draft preferred route for the transmission line connecting Gippsland's offshore wind farms to the state grid.

The change, which took effect on November 1, established VicGrid as a state-owned corporation with an independent board appointed by Minister for Energy Lily D'Ambrosio.

Energy executive Steve Rieniets will chair the new board. Mr Rieniets, who has previously held senior roles at AGL Energy, also operates a 125-hectare Angus beef farm in the Latrobe Valley.

The deputy chair is Sarah Clarke, group general manager of sustainability with Mirvac, while other members include energy and finance executive David Stegehuis and former Clean Energy Council chief executive Kane Thornton.

Three additional members will be be appointed in the coming months.

Minister D'Ambrosio was contacted for comment, but a response was not received before publication deadline.

Before the change, VicGrid primarily acted as a policy and coordination body. It will now directly plan where and how transmission lines are built to connect renewable energy sources, such as solar, wind and battery projects, to the grid.

At the time of the announcement last Tuesday, the *Gippsland Times* enquired about VicGrid's immediate priorities, which include progressing the final transmission route to support the first two gigawatts of offshore wind generation in Gippsland and selecting a delivery partner for the project.

"The timely delivery of transmission infrastructure is crucial to make sure all Victorians have reliable and affordable power," VicGrid chief executive Alistair Parker said.

"But it's also crucial that this work is well planned and well-managed."

The state government has set the goal to reach its targets of 65 per cent renewable energy generation by 2030 and 95 per cent by 2035.

The Gippsland offshore wind zone is part of the 2025 Victorian Transmission Plan, which is a key component in achieving this goal. The plan outlines the transmission upgrades required over the next 15 years to replace coal-fired power stations with renewable energy generation and divides the state into six onshore energy zones (REZs), plus the Gippsland offshore zone.

These projects are in addition to existing transmission projects, such as the Victoria to New South Wales Interconnector West and Western Renewables Link, which VicGrid has also taken control of.

Asked how it saw setbacks to offshore wind impacting its responsibilities, VicGrid said there had been no changes to its transmission plans for Gippsland despite the Commonwealth's offshore wind auction being delayed by three months to the end of December. The agency said the plan accounts for multiple future energy scenarios and will be updated every four years to reflect market changes.

The responsibility for managing connections to the transmission network has now also transferred to VicGrid from AVP. Under its new framework, a priority of VicGrid will require renewable energy developers to meet stronger standards for community engagement and benefit sharing before connecting to the grid. The agency says this approach, described as "early and meaningful engagement", will ensure landholders, local councils and First Peoples are involved much earlier in the planning process.

"We need to really listen to landholders, local communities and key industries like agriculture so we can make good decisions, minimise impacts and deliver meaningful benefits for regional and rural people," Mr Parker said.

"We will be working hard to develop transmission infrastructure and renewable energy zones in a way that leaves a positive legacy for regional and rural communities, while at the same time keeping costs down for all Victorian energy users."





## Get your Golden Ticket in now

ENTRIES to the Gippsland Times' Golden Ticket must be received at the *Gippsland Times* office by noon this Monday, November 10.

Readers have the chance to share in $4000 worth of vouchers to shop at local businesses.

For your chance to win, readers needed to get a Golden Ticket from Sale Authorised Newsagency and the *Gippsland Times* office in Sale, and collect the pieces from five issues of the paper.

It's the *Gippsland Times*' way to support local people and businesses during these tough times.

The Golden Ticket, with the five pieces, can be dropped into the *Gippsland Times* office or posted to Gippsland Times, 74 McAlister St, Sale 3850.

The winners will be draw on Monday, and published in next week's *Gippsland Times*.

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GP1686112

# Asians are spicing up tour acts

**Nui Te Koha**

New concert attendance figures indicate an Asian invasion of music stars taking over at Melbourne Park.

"We're seeing ... more diverse genres and a rapid increase in Asian performers," Sam Eustace, a director at Melbourne and Olympic Parks, said.

"These shifts reflect Melbourne's own multicultural heartbeat and the new generation of music fans shaping our future."

The numbers, released Thursday, show acts from 14 nations played at Melbourne Park in the past year.

They include Bollywood and Indian favourites Arijit Singh and A.R. Rahman, Chinese pop performers JJ Lin and Eric Chou, K-Pop stars IVE and Taeyang, and Japanese pop acts XG and Hatsune Miku.

Meanwhile, K-Pop chart-toppers Twice will perform two shows at Rod Laver Arena this weekend.

Ten years ago, few Asian acts toured here; now Asian performers make up 15 per cent of the touring calendar, according to the figures.

"Melbourne audiences want variety ... acts that mirror the city's identity," Mr Eustrace said.

# Lupus breakthrough

## Melbourne scientists' drug works

EXCLUSIVE
**Robyn Riley**



Selena Gomez has spoken of her struggle with lupus; (below) Gomez receives a kidney transplant from friend Francia Raisa due to the condition.

Victorian researchers have developed a world-first RNA drug for lupus, an auto-immune disease that affects about 20,000 Australians.

A team led by Michael Gantier at the Hudson Institute of Medical Research said the drug successfully completed the first part of safety clinical trials and will next move to larger studies in patients with the chronic disease.

Associate Professor Gantier is an expert in innate immunity, the system our bodies use to detect and fight infections.

His team made a fundamental discovery about how extremely short RNA (a nucleic acid present in all living cells) fragments act as a natural anti-inflammatory system that is blocked in patients with lupus.

Together with Australian biotech Noxopharm they used the discovery to develop a topical cream applied to affected skin, to harness this natural anti-inflammatory system. Professor Gantier said about 70 per cent of patients with lupus would experience skin inflammation, so a topical cream targeting the disease in the skin was a good start.

"We knew we were on to something really important," he said. "Because this anti-inflammatory system is naturally occurring and it's essential to prevent you from getting systematic autoimmunity."

If successful, the new drug will be welcome news for patients as treatments for auto-immune diseases such as lupus are often associated with multiple side-effects and a poor patient response.

US actor Selena Gomez shared her diagnosis of lupus on social media in 2017 and documented a kidney transplant she said was needed because of the damage it caused.

Singer, songwriter and actor Lady Gaga is another celebrity who has used the spotlight to help raise global attention after she tested borderline positive for lupus. She does not have the condition.

Professor Gantier said his research harnessed the potential of RNA therapeutics, like those used in mRNA vaccines, to revolutionise auto-immune disease treatments, blocking disease at its source.

The beauty of a cream, he said, was that it penetrated the skin well and it was "gobbled up" by immune cells which dampened their activity.

Lupus is a chronic auto-immune illness where the body's immune system attacks its normal cells. It can affect different parts of the body, leading to skin problems, joint pain, fatigue and inflammation of major organs.

About 90 per cent of patients are women and it often develops in their reproductive years, affecting fertility and increasing risks during pregnancy and childbirth.

The Victorian government invested $100,000 towards the development of the new drug through its mRNA Victoria Research Acceleration Fund.

Economic Growth Minister Danny Pearson said that through its grant programs, mRNA Victoria has provided $30.6m to support 63 research projects which are unlocking medicines and vaccines.

"It's exciting to see this research making the leap from the lab to real-world clinical trials, offering hope for thousands of people," he said.

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# NO SOCIALS, NO STRESS

## Family is not missing out

**Taylor Penny**



Yoni and Tarryn with their children Gavi, 10, Eitan, 7, Ami, 3, and Dinah, 14, who have never used social media. Picture: Josie Hayden

**LET THEM BE KIDS**

For many teens, the new social media ban will mark a huge change in their daily lives.

But not 14-year-old Dinah Hersh – she has never used social media and believes other teens will be better off without it too.

Busy with school most days, she says her time outside of books is spent away from screens too.

"I love to read, go on walks, and I like to bake cakes and cupcakes," she said.

She said having no social media had not caused any issues in her social life.

Using a dummy phone, she is able to text but says she prefers to communicate with friends the old-fashioned way.

"We see each other every day at school, and we're still able to catch up on weekends and holidays," she said.

Dinah's mum, Tarryn, chose to never allow her four kids, aged three to 14, access to social media. She said she was concerned about their mental and physical wellbeing.

"Being a teenager and going through relationships and school is a huge process in itself," she said.

"I think social media has made childhood more challenging these days, and we just felt we needed to push through that."

Dinah said the forthcoming ban on social media being used by anyone under 16 in Australia, following News Corp's Let Them Be Kids campaign, would be a great way for teens to explore life outside of screens.

"Maybe it'd be a good time for people to find a new hobby or something they're interested in if they don't have the distraction of their phones," she said.

Amy Friedlander, co-founder of Wait Mate – a movement connecting parents who don't want their kids accessing social media – said 13,324 parents across 1,774 Aussie schools had pledged to stop their children accessing smartphones before the ban.

"Smartphones are designed to be addictive and are the gateway to social media and so much more," she said.

One of those parents is mum Andrea Aschner. She said she saw the benefits of no social media on her two kids.

With her 14-year-old daughter, Frankie, she made the choice to ban social media accounts after a safety conference showed the unknown dangers to parents.

"They talked about exposure to pornography and different content, and it really opened my eyes," she said.

Frankie said she thinks the ban might make it easier to communicate with other teenagers. "Sometimes it's hard to speak to people my age when they're always on their phones," she said.

Lack of social media never stopped her from maintaining friendships, she added.

**EDITORIAL, PAGE 26**

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# A breath of pollutants

If you're indoors right now, do you know how much of the air you're breathing is someone else's "breath backwash" or what pollutants it contains?

Australian Academy of Science president Chennupati Jagadish AC says Australia does not monitor indoor air to scientifically acceptable standards, despite much of our exposure to airborne pathogens and other pollutants occurring indoors.

"What we do know is that indoor air pollution has a negative impact on our health and there are solutions to address it," Professor Jagadish said.

# Energy company hit with $1m fine

**Sarah Perillo**

Utility giant EnergyAustralia has been slapped with more than $1m in fines for allegedly providing customers with shonky information about its best electricity deals.

The Essential Services Commission alleged the power retailer told more than 150,000 Victorians they were on its best plan despite having cheaper options available, costing customers the chance to save money.

The commission estimated that if all affected customers had switched to the best available offer, they could have collectively saved around $8m a year – about $56 a person.

The alleged conduct happened between March 2022 and August 2024. EnergyAustralia was fined $1,066,986.

Essential Services Commission chairman and commissioner Gerard Brody said as one of Australia's largest energy retailers, EnergyAustralia should have better systems in place to comply with the rules.

"To be issuing this penalty so soon after its previous breach ... is a real concern," he said.



MHSE02Z01MA - V1




# Mapping Maningrida

**Maningrida Elders and community share knowledge and stories from their Country with PhD candidate Sam Williams (centre with cap).** ***Picture: supplied.***


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NT

MULTIMEDIA and 3D technology are the latest tools being used by Elders in Maningrida to share their traditional knowledge and ancient stories, facilitated by a collaboration with Charles Darwin University (CDU) academics.

For the last two and a half years, PhD candidate Sam Williams, from CDU's Northern Institute, has worked with Elders in Maningrida to create videos telling stories about important places on their ancestral Country.

The result was 25 videos in six different languages about places along the coastline from Arla (Junction Bay) to Yinangarnduwa (Cape Stewart).

Alongside these videos, Mr Williams and the Elders gathered knowledge such as language areas, clan and location names, and archival information from old anthropologists.

With the Elders wanting to make this information accessible to students at Maningrida College, Mr Williams approached colleague Dr Rohan Fisher, who is a senior research fellow at CDU's Northern Institute, to use his experience with 3D printing and projection, augmenting landscapes to create the model.

"The model is a 3D printed map the size of a large table, with a projector over the top that brings the 3D map to life," Mr Williams said.

"You can choose to display different layers so that you can see roads, outstations, elevation, river catchments and floodplains or satellite imagery, but the really cool stuff is the knowledge input by the Elders."

Williams explained that the map is user friendly.

"There are little digital pins on the map of all the places we have made a video, so you can 'click' on a pin, and a video pops up of an Elder sitting at that very place and telling a story about it," Williams said.

"You could click on the place 'Amala-Arawirr' and see Samuel Gulwa telling the ancestral story of how a hollow-log coffin washed down the Goomadeer River in a flood and came to stop in Junction Bay where it can be seen now as a dangerous sacred site."

The map, which contains more than three hours of video footage, was delivered to Maningrida College's Lùrra Language and Culture Centre, who will integrate this resource into the cultural curriculum of the school.

Upon its installation, middle and senior classes were invited to interact with guidance from the Elders.

"Anyone who wants to – children, Elders, teachers or community members – can go there and use the map, watch videos, learn the names of places or just look at Country from a different perspective," Mr Williams said.

## Collaboration

"The Lùrra Language and Culture team, made up of Indigenous and non-Indigenous teachers, had loads of thoughts about how they could use the map within their curriculum and add to it over time. It was great to see the ownership taken of this resource."

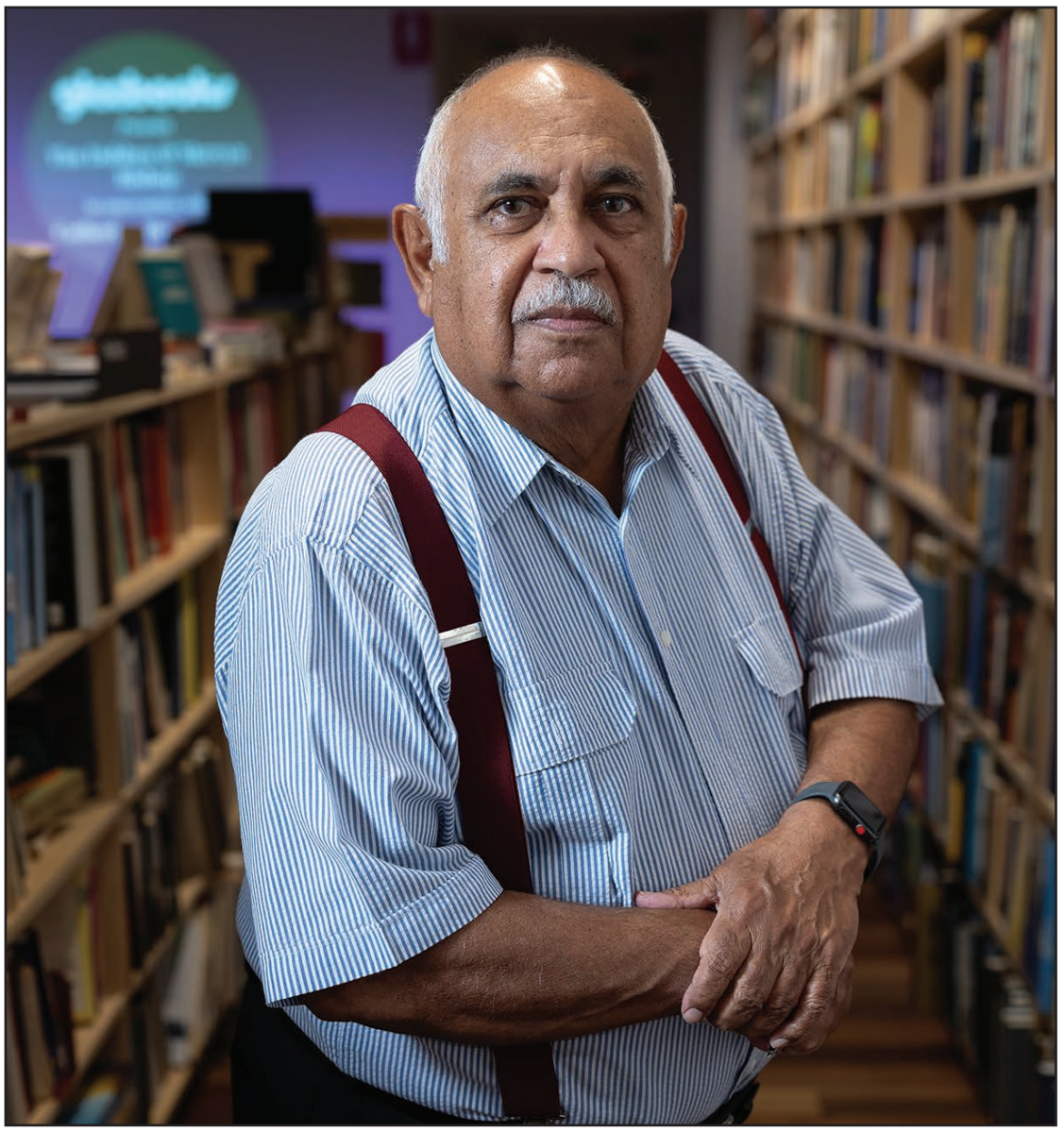
Dr Fisher, who has worked extensively to generate 3D simulation tools for rangers, emergency services and schools, said the cooperation showed how combining expertise could produce meaningful results.

"It was a wonderful example of a collaboration where Sam had already done the years of hard work with people on Country but needed a way to make sure all this hard work was brought back to the community and particularly the young people," Dr Fisher said.

"This project was an excellent example how some appropriate tech can elevate the stories and knowledge."

Creation of the 3D map and interface was funded by Maningrida College, the Bawinanga Rangers and the Northern Institute.

Research and fieldwork to film the videos was supported by funding from the Australian government as part of the Our Marine Parks grant program from Parks Australia.



Aboriginal photographer Mervyn Bishop is perhaps best known for his iconic 1975 image (right) of Gough Whitlam pouring red sand into the hands of Gurindji stockman Vincent Lingiari. *Picture: AAP.*

# Focusing the lens on Mervyn

By KEIRA JENKINS



AUS

THE photographs snapped by Mervyn Bishop over the years are likely countless.

None though are perhaps so iconic as his 1975 image of Gough Whitlam pouring red sand into the hands of Gurindji stockman Vincent Lingiari as portions of his land were returned to his people.

Mr Bishop had been working for the Department of Aboriginal Affairs when he took the well-known frame, after having made his mark as Australia's first Indigenous press photographer when he started at the *Sydney Morning Herald* in 1963 aged 17.

But his passion for photography began years before landing his first gig at the paper.

Mr Bishop recalls his mother Marjorie always carrying a little Kodak camera around with her when he was growing up in Brewarrina in north-western NSW, and on occasion he'd borrow it.

When 11, Mr Bishop remembers heading down to the aerodrome to take photos of the planes providing relief for those inundated by flooding in the region in 1956.

"When the film, the pictures, came back mum said 'why'd you take that picture?'," he said.

"She thought I was just wasting film but I've still got quite a few of those images left around and I said 'when I grow up I want to be a pilot'."

That dream didn't pan out but there have been myriad other highlights in Mr Bishop's stellar career, even if his talents are these days mostly confined to happy snaps of his family.

One that stands out is taking a photo that ran on the front of the *Herald* in 1971.

The image shows Sister Anne Byrne carrying a child into St Margaret's Hospital in Darlinghurst.

It was suspected the little one had swallowed his mother's prescription pills.

"That little boy is now an ear, nose and throat specialist," Mr Bishop says.

"I won the Australian news photographer of the year for that image."

The child in the photo is one of many who were interviewed for a book about Mr Bishop's life and career.

The biography and an exhibition at the NSW State Library featuring his most famous photographs alongside more personal family portraits, are lifting the curtain on the man behind the camera.

Called *Black, White and Colour*, the text was penned by journalist and long-time friend Tim Dobbyn.

The two met as children while Mr Bishop was at boarding school in Dubbo.

At the time, Mr Dobbyn's mother had rallied the sub-editors at the *Sydney Morning Herald*, where her husband worked, to contribute to a fund to assist Aboriginal young people's education.

When Mr Bishop wrote to them, thanking them for their support and telling them what he'd been doing at school, the Dobbyn family paid him a visit.

"I would always say they're my white family in the city when I went back to Brewarrina, telling my folks how nice it was to stay with the Dobbyn family," Mr Bishop says.

It started a multi-generational friendship that Mr Dobbyn says has made the privilege of telling Mr Bishop's story richly personal.

Mr Dobbyn started dropping hints he'd love to write Mr Bishop's story about a decade ago.

"I had this itch to scratch to write a book and I knew there was no better subject than Merv because I knew there was much more to his story than the little bits and pieces I picked up over the years," he says.

Mr Bishop agreed to the book eight years ago and the pair got to work, taking a road trip throughout the northwest, from Dubbo, where Mr Bishop now lives, to Brewarrina where he'd grown up, and surrounding areas.

There's a "recipe" to Mr Bishop's style of portrait photography, which Mr Dobbyn says he's tried to emulate in the book, not posing or positioning but providing an ease to the subject.

"I wanted it to be Mervyn in full," he says.

"It's a yarn, as Mervyn would say, it's a story, it's an easy read and it's got some beautiful images."

Mr Bishop says he's grateful to have had the chance to tell his story and happy Mr Dobbyn was the "scribbler" who composed it.


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**The six pool players judged the scones competition at the Lakes Entrance Senior Citizens' Seniors Week scone challenge.** (PS)



**At the end of a weary week, 20 club members enjoyed a cruise together.** (PS)

# Embracing the fun of Seniors Week

Seniors Week 2025 for Lakes Entrance Senior Citizens Club was a busy and fun time.

On top of their usual activities, members were able to mix and mingle on both Thursday and Friday and new members joined up and joined in the activities.

"Our inaugural Scone Challenge was a success because everyone chipped in to get things done," club president Judy Jerkins said.

"The clubhouse was decorated and ready for whatever happened. Not knowing exactly how many people to expect was a challenge, but I doubt anyone left the building hungry, or keen to eat more scones soon.

"We had them in all shapes and sizes and they were fabulous. Thank you to everyone who baked or came to eat and share the fun.

"Club members had been gathering 'advertising merchandise' for a few weeks beforehand, so when Rex Fish's old surf fishing rod went up into the air, with balloons dangling off it, I did a silent cheer. I thought it looked great, although I'm not sure Rex would have agreed.

"The two signs made for us by the Lakes Entrance Men's Shed were visible and useful and drew a crowd. Nearly 70 people came to eat scones and be sociable."

The day was full of scones, music and lots of chatter. Line dancers put on a display, and the square dancers did too, making everyone tap their feet. Joy and laughter rang loudly throughout the hall all day long.

"In the kitchen, the smooth efficiency was amazing," Judy said.

"Volunteers whipped cream, spread butter and jam and got scones and cuppas out into the hall at a rapid pace. Having a fully equipped kitchen makes all the difference.

"Our pool players Ron, Eddie, Jeff, Keith, Frank and Barry loved their aprons and bow ties but may never want to eat another scone again. They had trouble tasting everything but ultimately chose scones baked by: June Gudgin - 'Sweet', Olivia Gourley - 'Schools', Meryl Hammond - 'Wow that's different', Trena Norda - 'Plain' and Ailsa Murray - 'Savoury,' as the winners.

"June Gudgin's scones had the most votes on the day and she now has bragging rights to claim she makes the best scones in Lakes, although this may be disputed by Mel Fredericks who shared her recipe with June a long time ago."

Twenty club members enjoyed a leisurely cruise down to Metung and back on the *Lonsdale*, hugging the shoreline to keep out of the wind the following day.

"Tony and Mel's cruises never disappoint, so it was a lovely way to slow down, sit quietly and smile, together," Judy said.




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**The Metung Bloodhounds are selling their 'Bare to Care' calendars at local markets in the lead up to Christmas.** (PS)

# Get your copy

The Metung Bloodhounds are well on their way to achieving their goal of raising $40,000 for the emergency department at the Bairnsdale Hospital.

They are selling their 'Bare to Care' Calendars at the local markets until Christmas for $20 each.

Tell your family and friends to pop into one of the markets and pick up a calendar or two - they will make great Christmas or Kris Kringle gifts and support the local hospital.

During November and December they will be at:

- Metung Market, Saturday, November 8 and December 13
- Paynesville Market, Saturday, November 22
- Howitt Park Market, Sunday, November 23
- Lakes Entrance, Sunday, December 7

The added benefit of buying a calendar at one of the markets is that you go into the draw for a $100 Woolworths voucher.

That would make it an even merrier Christmas.



# Maryvale expanding specialist care

MARYVALE Private Hospital has announced a significant milestone for eye care in the region, with the introduction of paediatric and adult strabismus surgery, commonly known as squint surgery.

This surgery will be performed by Ophthalmologist Dr Raghu Kini.

This specialised procedure is a first for Gippsland, treating misaligned eyes, a condition where one eye turns inward toward the nose or outward toward the ear.

The surgery works by tightening or loosening specific eye muscles to align the eyes, helping them move and focus together. In adults, the procedure can also correct double vision, significantly improving comfort and visual function.

Dr Kini said the addition of this service means children and families no longer need to travel to Melbourne for treatment.

"It's wonderful to be able to offer this surgery locally," he said.

"For children, strabismus can affect not only their vision but also their confidence and development at school and in social settings. Being able to correct that close to home is a huge step forward for families in Gippsland."

Dr Kini explained that while strabismus can affect both children and adults, early diagnosis and treatment in childhood is particularly important.

"When other treatments such as glasses haven't worked, surgery can restore proper alignment," Dr Kini added.

"Correcting eye misalignment early in life can make a lasting difference to a child's visual development and self-esteem."

Maryvale Private Hospital Chief Executive Daniel Scholtes said the new service reflects the hospitals commitment to expanding specialist care for local families.

"We're proud to partner with Dr Kini to make this important paediatric and adult eye surgery available locally," he said.

"This initiative reflects Maryvale's ongoing commitment to improving access to high-quality specialist care for the Gippsland community."

Those experiencing ongoing eye misalignment, particularly children whose eyes remain misaligned despite other treatments, can now be referred by their optometrist or general practitioner to Dr Kini for assessment and, if suitable, strabismus surgery at Maryvale Private Hospital.

Dr Kini consults locally at ValleyCare Eye Doctors, with appointments available by phoning (03) 5176 4994.




**Specialist:** Dr Raghu Kini has joined Maryvale Private Hospital, and can perform complex eye surgeries. Photograph supplied

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GP1686113




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STRONG MINDS COMPASSIONATE HEARTS

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**LIMITED PLACES NOW AVAILABLE**

**For further information please contact**

**PH:** 5174 7355 **Email:** registrar@lavalla.vic.edu.au **Website:** www.lavalla.vic.edu.au

GP1686751

# Halloween: legitimate event or American nonsense?

By LIAM DURKIN

IT'S close to midnight, something evil's lurking in the dark …

Front yards were transformed into cemeteries for Halloween around the region, as locals got into the spooky spirit.

As night fell, kids took their chances trick or treating, while the occasion also presented the perfect opportunity to throw on a scary movie.

With October 31 falling on a Friday this year, an array of local establishments also hosted Halloween-style events.

The *Express* even paid a visit to a real murder house - Erin Patterson's Leongatha address of course.

The house was (somewhat disappointingly) devoid of any Halloween decorations, although that did little to disperse any chills that greeted drivers on the approach.

Halloween's popularity in Australia has taken off in the last decade, although there is still conjecture over whether or not it is a legitimate event and not just something hijacked by American pop culture.

Australian retail chains have cashed in, with the holiday bringing in more than $450 million annually in costumes, decorations and confectionary.

Like a scene out of *Mean Girls* however, Halloween parties have become little more than an excuse for people a certain age to get drunk and wear as little clothing as possible. ("I'm a mouse, duh").

Before all this, Halloween's origins go back more than 2000 years to Celtic Pagan times.

October 31 marked the end of the year when crops had been harvested and the darkest period of the year began.

People would light bonfires and wear costumes to ward off evil spirits.

Pope Gregory III designated November 1 as All Saints Day, and the evening before came to be known as All Hallows Day, later Halloween.

So technically, Halloween could be classed as a Christian holiday.

Like Christmas and Easter however, its true meaning has been lost amid commercialisation and the general tomfoolery now commonplace with these times of year.

Christmas Eve and Easter Thursday are two of the biggest nights for pubs and nightclubs, while Christmas Day itself is little more than Boxing Day Test Eve for many sporting-mad locals (usual Boxing Day itinerary: 7am train - Royal - cricket, Crown - King Street).

# False alarm for missing pump

By PHILIP HOPKINS

AN innovative turbine water pump worth tens of thousands of dollars that was invented by a Heyfield farmer, Fred Sundermann, has been found after being reported stolen from his property.

In a misunderstanding, a consultant came to Mr Sundermann's property, located between Heyfield and Cowwarr, and took away the turbine.

Consultant John Mitchell, a former Latrobe Valley municipal leader and Gippsland Water chairman, who is a director of Mr Sundermann's company, said it was obviously a mistake.

"The turbine needed to be repaired, but there was no consultation. The contractor picked it up and did not tell Fred," he said. "Fred was having a bad bout of health then, and it slipped his mind."

Mr Mitchell said when they thought it was stolen, they began working on insurance issues and reported it to the police.

"There was a communication failure between Fred, the contractor and the people who did the repair. The turbine is back."

The turbine is being assessed by Southern Rural Water and potentially Melbourne Water for potential use in pumped hydro projects and renewable energy programs.

"We are still negotiating with Southern Rural Water. There is a potential interest to organise a demonstration for a potential water user," Mr Mitchell said.

The Sundermann technology can pump the water back uphill without using fossil fuel energy, hence its potential use in renewable energy programs. The turbine, which can pump and lift the water, can be used in a remote location without powerlines.

Mr Mitchell said the company was encouraged by positive discussions.

"We think someone is interested in financial involvement," he said.

"The turbine has been returned, and another can be built with specifications that suit the demonstration site. This will improve the public understanding and help agriculture and other uses."

Mr Sundermann's turbine promises to be far more efficient than traditional pumped hydro technology, which involves storing water, pumped from a lower reservoir, into an upper reservoir. Power is generated by releasing the stored water through turbines, but when power demand is low, the upper reservoir is recharged by using lower-cost electricity from the grid to pump the water back to the upper reservoir.

In Victoria, the electricity was traditionally sourced from the Latrobe Valley's brown coal power stations;

"We've designed a turbine that's slow-revving. We have done one that produces 25 horsepower drive and a five horsepower turbine that turns into a pump. With a one-metre head on the larger one, we can push the water up 12 metres fossil-free," said Mr Sundermann.

"We don't have to have a generator like now; we can do it via turbine to turbine, which saves the loss of electricity and is much more efficient."

Mr Sundermann's private company, Sundermann Water Power, has been looking for a manufacturer to mass produce the turbine, but first needs commercial interest from users.

The company approached Southern Rural Water as a potential customer or for joint venture arrangements. SRW's manager of strategy and business planning, Craig Smith, in a letter to Mr Mitchell, said SRW was currently looking at renewable energy-generating opportunities across the organisation, of which there are many, including in-line and pumped hydro.

Another director on Mr Sundermann's team is Dr Ulrich Hartig, a chemical engineer and former senior manager of the BASF Group, who has more than 35 years' experience in Australia, France, Germany, South Korea, Brazil and Canada.

# FedUni tops the charts

FEDERATION University Australia has been named the Number 1 university in Victoria for social equity in the 2026 Good Universities Guide ratings, also garnering recognition as a national leader in several disciplines.

The results revealed Federation is a national leader in several undergraduate fields of study, with the university's rehabilitation offerings also rated Number 1 in Australia for skills development and student support and Number 2 in Australia for learner engagement and learning resources.

For the first time ever, creative arts courses were rated Number 1 in the country for learner engagement and skills development, while social work offerings rated Number 1 in Australia for overall educational experience and Number 2 in Australia for skills development and teaching quality.

In health services and support, Federation is rated Number 2 in Australia for teaching quality and Number 2 for learning resources.

Federation University Vice Chancellor and President, Professor Duncan Bentley was proud of the results.

"We know that students living outside our major cities can face barriers to education, like geographical distance, financial hurdles, work and family commitments, and we are proud to be embedded in those communities to help students from all backgrounds give life to their aspirations," he said.

"These results demonstrate that Federation is not only supporting students to access education but providing them with a high-quality teaching and learning experience when they get here, equipping them with the skills they need to enter the workforce in critical industries like health and social work."

The annual Good Universities Guide ratings break down how Australian universities are ranked across a variety of areas including teaching quality, graduate outcomes, student support and overall satisfaction.

Federation University was rated five stars for:

- Social equity;
- Undergraduate learning resources;
- Undergraduate student support, and;
- Postgraduate full-time employment.


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GP1686113



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GP1686913

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# Vintage flair and creative cocktails hit Leongatha's Quirky Bar

NEW Leongatha venue Quirky Bar, opening on Friday, brings a retro theme with a 60s and 70s vibe, but won't be locked into any musical genre or era and will offer an exciting range of cocktails, many of which are the creation of Sonia Webber, who has established the business with husband Steve.

The couple are already well known to locals as the owners and operators of Elsie's Florist and while they were ready for a change, aren't short on hospitality expertise, Steve being an experienced chef and Sonia having spent a couple of years honing her cocktail skills.

"I started making cocktails at home, creating them," she said, having also undertaken distilling courses with hopes of venturing into that field in the not-too-distant future.

The venue offers that possibility, but bringing the bar to life seemed a logical starting point.

There'll be around 30 cocktails on the menu, including Sonia's recipes and some traditional varieties.

"I like creating the different flavours," she said.

Local beer, wine and spirits will be offered, but those wanting mainstream brands will also be looked after.

Food will include platters, toasted sandwiches, jaffles, porcupine meatballs that get their name from the appearance of the rice on them, and Pigs in a Blanket, as well as nachos.

"Everything about it is quirky, like the furniture; we've been collecting all these bits and pieces from Marketplace and op shops and friends and family," Sonia said.

The idea is to create a "nanna's loungeroom" feel right down to a print identical to one Sonia's grandmother had on her wall.

While recorded music playing will be from the 60s and 70s, a wide variety of live music performances will feature, with efforts being made to organise weekly Sunday sessions and other gigs once a month.

"We're open to anything with music," Sonia said, whether that be an acoustic guitar player, a band or other possibilities.

There'll be no easing into the new business, with Sonia and Steve encouraging people to book their Christmas functions at Quirky Bar, with a customisable finger food menu available.

Sonia created the business's logo that provides a lively beach feel, featuring a classic car topped with a surfboard, combined with musical notes and summery colours.

"I love all things old," she said, Steve quipping that includes him.

It's been a busy period getting everything ready, with fitting out the kitchen and bar among the last challenges undertaken, but Steve and Sonia were confident everything was on track when Sentinel-Times popped in for a chat just over a week from the opening.

Quirky Bar is located at 48 Bair Street and opens at 3pm on Friday, November 7.




**Steve and Sonia Webber are ready to welcome people to Quirky Bar.** A18_4425

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# NEW BAR OPENING!

## Friday November 7 from 3pm

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Helen Donellon celebrated her 80th birthday, surrounded by her friends and fellow workers at the Orbost Op Shop last week. (PS)



Orbost Regional Health's Elizabeth Barnes was on hand to provide check-ups at the recent "Relax by the River" event held at Bronwyn Llewelyn's farm. (PS)

# Supporting locals

During October Orbost Regional Health (ORH) attended four events to support local community members.

On Saturday, October 11 Orbost Golf Club hosted a mental health day, with presentations by local doctor Edwina Brown, ORH Social Worker Glyn Jones, and the East Gippsland Mental Health and Wellbeing Local Community Engagement Officer Susie Bady.

Diabetes Educator and Chronic Disease Nurse Elizabeth Barnes provided physical health checks.

Andrew Phillips, who supported the Golf Club to host the event said "This is the third year that ORH supported the mental health event at the Golf Club.

"Our guest speakers provided mental health education and explained where to access services. We received great feedback that these presentations supported attendees to manage their mental health".

The following weekend, Jarrahmond Landcare Group hosted a very popular "Relax by the River" gathering to strengthen the health and well-being focus of local residents.

This event received a grant from Ag Vic's 'Look over the farm gate program'.

Held in a paddock at Bronwyn Llewelyn's farm, under a huge shady plane tree, about 40 locals enjoyed relaxing with old friends and meeting new people.

Respected local farmer Royston Nettleton shared a moving and heartfelt personal journey with mental illness.

ORH's wellbeing team leader Jacque Archer spoke to attendees about how to access local services.

ORH psychologist Hannah Rumpf increased participant's shared Mental Health First Aid information to support attendees to pick up signs of people struggling and how to approach them and offer help.

Elizabeth Barnes spoke about general health with excellent information on diet, heart health, and diabetes.

"This was the most interactive and engaged group and I performed the highest number of health checks at any event I've attended on behalf of ORH," Elizabeth said.

ORH was delighted to be invited to support Orbost Kinder's annual fete on Saturday, October 25.



ORH's Hannah Rumpf, Elizabeth Barnes and Jacque Archer were thrilled with the attendance at the "Relax by the River" event. (PS)

The families who attended enjoyed delicious hummus dips and vegetable sticks provided by ORH.

Local farmers Vanessa Ingram Daniel, Jules Henderson and Royston Nettleton organised a screening of the *Just a Farmer* movie on Friday, October 31 at Lochiel Park.

They strongly encourage the local community to register to attend this event.

The movie's producer Leila McDougall is excited to share with the Orbost community her realistic portrayal of the challenges and triumphs of a resilient farmer in rural Australia. Leila will also be available to answer attendee's questions.

This movie tells the story of a mother who has recently lost her husband.

She is left caring for her alcoholic father-in-law and their failing farm, but despite these enormous struggles, she creates a new path for her family.

ORH's Wellbeing Team Leader Lea Thomas and Susie Bady from the East Gippsland Mental Health and Wellbeing Local will both support film screening attendees to navigate local mental health options.

"We hope that this movie encourages important conversations about mental health, and empowers attendees to seek out the support that is available to them," Vanessa Ingram Daniel said.

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Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

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# Insights helping local farmers

Over the past two years, the Future of Orbost and District project has explored water availability, access and demand across the district, with a focus on optimising water security as a key enabler of agricultural growth.

A central insight emerging from this work is that while water alone may not trigger expansion, it is a critical enabler of innovation, diversification and long-term sustainability in the region's agriculture sector.

In 2024, the Agriculture Innovation Working Group (IWG) engaged a consultant to survey local farmers on current and future water needs.

The findings informed a series of recommendations presented to Southern Rural Water (SRW), which prompted discussions about licensing arrangements, transfer and leasing opportunities, and strategies to encourage more active water trading within the district.

SRW manages water under regulated frameworks and confirms that no new water licences are currently available on the Snowy River.

However, it is important to note that existing licences can be transferred or leased — either permanently or temporarily (for up to five years).

This means there are opportunities to access underutilised water allocations through trading.

Farmers interested in exploring these options are encouraged to begin with the Victorian Water Register, a government-owned platform that, similar to land ownership records, provides transparent information on water entitlements and past trading activity (access fees may apply).

SRW also provides guidance on water trading for unregulated river systems and groundwater via its website, which includes a factsheet, process guidance, and a dedicated Facebook group that connects licence holders who may be looking to buy or sell water. Local SRW representatives are also available to assist.

To initiate a trade, an application must be submitted to SRW.

Groundwater trades require a hydrogeological assessment to ensure there are no adverse impacts on other users or the environment.

Most trades are processed within 12 weeks, with shorter timeframes common for temporary trades. Repeat trades may be completed more quickly where previous assessments remain valid.

"Whilst there might be a range of longer-term options for maximising water utilisation, which will also require significant community support and advocacy to drive policy change, there are options and mechanisms currently available," chair of the Future of Orbost and District governance group, Liz Mitchell said.

The Future of Orbost and District project is a response to the impacts of the end of native timber harvesting in Victoria's state forests, and the need to transition the local economy.

The purpose of the project is to build on to Orbost and district's existing strengths and leverage opportunities for supporting positive economic, social and environmental outcomes.

The project is delivered by the Orbost and District Chamber of Commerce and Industry, which is overseen by a community-led governance group and supported by the State Government.



**According to Howitt Society president, Peter Flinn, climate change does not cause bushfires.**

# The cause of bushfires

In recent media, climate change has been blamed for the rising frequency and intensity of bushfires, however, climate change does not cause bushfires, according to Howitt Society president, Peter Flinn, who says hiding behind climate change does not provide a practical strategy to combat the increasing number and severity of bushfires.

"Fire requires three elements – an ignition source, oxygen, and fuel. Once a fire starts, the meteorological conditions of temperature, wind, slope, etc and the fuel quantity will determine how it burns. The only factor we can influence is the amount of fuel available when a fire starts," Mr Flinn said.

"While our climate is indeed becoming warmer and drier, it's not this that's making fires more intense or harder to control. Instead, it's the unprecedented accumulation of fuel in our forests, a result of poor land management practices over recent decades.

"Scientific facts support this reality: without fuel, fires cannot burn. The less fuel present, the less intense and destructive a fire becomes. Even with a complete global halt to fossil fuel burning tomorrow, the warming effects of climate change will not reverse overnight."

In the meantime, Mr Flinn stresses the urgent need to adapt land management methods to the conditions faced today and reduce the fuel.

"Reducing fuel loads across large forested areas must be our focus," he said.

"Technologies and techniques for fuel reduction have been developed and are well understood by land managers. What's needed now is a policy shift at the government level and dedicated funding to achieve at least five per cent of the forest area fuel reduced annually — aligned with recommendations from the Royal Commission after the 2009 fires.

"A comprehensive, well-funded fuel mitigation campaign is the most effective step we can take now to lower fire frequency, severity and protect lives, property, and our ecosystems in an era marked by increasing warmth and dryness.

"It's time to prioritise proactive land management and policy action to reduce wildfire risks before more lives, property and landscapes are lost."

Orbost Regional Health

***The Orbost Regional Health Board of Directors***

cordially invite you to attend the

**2025 ANNUAL GENERAL MEETING**

**When**

2pm Monday 24th November 2025

**Where**

Orbost Regional Health Board Room
104 Boundary Road Orbost

**Presentations**

Establishment of the Gippsland Local Health Service Network
Commonwealth Aged Care Assessments

***Incorporating:***

***Presentation of the 2024-2025 Annual Report***

***Recognition of Staff Service***

Please RSVP to Carol Harrison on 5154 6615

*or email carol.harrison@orh.com.au*

by Thursday 20th November

***Afternoon tea will be provided***

ExxonMobil

Esso

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## Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

Esso Australia Resources Pty Ltd (Esso), a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is committed to operating and decommissioning its Gippsland and Bass Strait facilities safely and effectively. After delivering energy to Australia for over 50 years, many of the Bass Strait oil and gas fields are now reaching the end of their productive life. As planning for decommissioning progresses, Esso is focused on safely shutting-down non-producing facilities and ensuring they stay safe throughout the entire decommissioning process.

**Community Information Sessions**

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**Lakes Entrance**

On the Wharf Café
Bullock Island, Lakes Entrance

**Tuesday 11 November 2025**

**Sale**

The Criterion Hotel
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**Foster**

Foster War Memorial Arts Centre
79 Main Street, Foster

**Wednesday 12 November 2025**

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- Bass Strait Environment Plans
- Campaign 1A Environment Plan

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# Landcare Grants That Transforms Our Environment

The Allan Labor Government is boosting the outstanding work Landcare and environmental volunteer groups do to help protect and enhance our land and waterways with a new round of grants.

Minister for Environment Steve Dimopoulos today announced the 2025 Victorian Landcare Grant recipients, with each funded project making a difference to enhance and protect Victoria's great outdoors.

This year $3.6 million in grants will support 509 Landcare and environmental volunteer groups across the state, helping fund on-ground works, community education and engagement activities, group development, and small grants supporting administrative functions, including insurance, incorporation and operational costs.

Landcare grants deliver lasting benefits to the environment, the funding will help Landcare groups restore and protect vital habitats and waterways, and grow strong, connected communities that will continue to care for the land for generations to come.

Grants were available to all Victorian Landcare and environmental volunteer groups, including Landcare and Friends groups, Conservation Management Networks, Committees of Management, Coastcare groups and Traditional Owner or Aboriginal groups and organisations working on Country.

This year's projects include restoring waterways and habitat at Cape Woolamai on Phillip Island, surveying for fauna to understand the positive impacts of 30 years of restoration at Five Mile Creek in Woodend and education and revegetation of the much-loved Werribee Gorge Circuit Walk.

South Gippsland Landcare Network received $20,000 for Plants, bikes and bugs - bringing Landcare to the people! Poowong-Triholm Landcare Group and Loch-Nyora Landcare Group also each received $500.

The grants will be delivered in partnership with Melbourne Water and nine Catchment Management Authorities across Victoria.

For more information, visit environment.vic.gov.au/grants/victorian-landcare-grants

Minister for Environment Steve Dimopoulos said:

"Landcare and environmental volunteer groups make a significant contribution to our communities managing projects that restore and enhance our parks, coastlines, nature reserves and waterways."

"Over many years these grants have delivered incredible value to Victoria and we're proud to continue supporting their work to protect our environment for generations to come."


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# Fresh Oysters To Create Fresh Jobs For Victorians

Victorian seafood consumers are one step closer to enjoying locally grown oysters thanks to an aquaculture trial, backed by the Allan Labor Government.

Minister for Outdoor Recreation Steve Dimopoulos celebrated the excellent results from the first three years of the trial in the Gippsland Lakes to determine how well Sydney Rock Oysters (Saccostrea glomerata) grow in the system.

The trial has been assessing the viability, growth rates, eating quality and food safety of Sydney Rock Oysters, which are native to Gippsland, at four sites around Flannagans and Rigbys Islands, west of Lakes Entrance.

Oysters produced in the Gippsland Lakes trial so far are growing at similar rates to established oyster farms in the estuaries of southern New South Wales at Merimbula and Pambula.

The $250,000 trial is part of the Allan Labor Government's $96 million package to improve aquaculture, fishing, boating and piers and has been boosted more recently by a $400,000 investment from the Fisheries Research and Development Corporation, on behalf of the Australian Government, to aid its expansion.

The trial is a partnership between the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) and the Victorian Fisheries Authority (VFA). GLaWAC and the VFA are expanding the trial this month through the addition of 60,000 oysters that will find homes in two of the existing growing sites and three new ones nearby, all in water less than one metre deep.

The expansion will improve understanding of the commercial viability of the project and oyster growth under higher stocking densities, typical of commercial operations.

A native oyster industry in the Gippsland Lakes would create jobs for Gunaikurnai, support regional tourism and supply fresh, local and sustainable seafood. This could see Victorian-grown Sydney Rock Oysters back on the menu for seafood lovers, which would be a huge win for Victoria.

Existing oyster aquaculture interstate is worth over $100 million, so if the trial is successful and permanent oyster farming becomes established, it could lead to significant economic prosperity for Gippsland Lakes towns.

For more information visit www.vfa.vic.gov.au/oystertrial

Minister for Outdoor Recreation Steve Dimopoulos said:

"This trial is laying the groundwork for local jobs, skills and opportunities, leading to long-term benefits for the region – and we're backing it every step of the way because we're on your side."

"There's nothing better than fresh, local seafood – and it's exciting to think that Victorians could soon enjoy oysters grown right here in the Gippsland Lakes."

Interim CEO Gunaikurnai Land and Waters Aboriginal Corporation Charee Smith said:

"This expansion is another step toward a self-determined future for Gunaikurnai people - grounded in Country, guided by culture, and driven by our own priorities. But this isn't just for us. If we get it right, it creates jobs, skills and opportunities that flow right across the region."

# Planning For Safer And Smoother Travel For Nyora

The Allan Labor Government is helping plan for better traffic flow and safer connections in Nyora, giving locals and freight operators improved access in and around the growing town.

Minister for Roads and Road Safety and Minister for Ports and Freight Melissa Horne announced works on the Nyora Transport Infrastructure and Connectivity Study will begin – helping to determine what future road and transport upgrades could be considered for funding and delivery.

The study will identify opportunities for road widening, new intersection upgrades and improved pedestrian links, while also supporting efficient freight connections to the South Gippsland Highway.

The project is being delivered with a grant from the Labor Government's Flexible Local Transport Solutions Program, alongside the South Gippsland Shire Council, which will lead the study.

The project will aim to improve safety, encourage active transport and support the efficient movement of freight.

The Flexible Local Transport Solutions Program provides funding to local governments and community organisations for small-scale transport projects, feasibility studies and innovative transport service trials.

For more information on the Program, visit the vic.gov.au/local-transport-victoria.

**Minister for Roads and Road Safety and Minister for Ports and Freight Melissa Horne said:**

"This study will become the blueprint for how transport and traffic infrastructure can support Nyora's fast-growing community."

"This is a great partnership between the Allan Labor Government and South Gippsland Shire Council, and we're looking forward to identifying the best transport solutions for the future."

**Member for Eastern Victoria Tom McIntosh said:**

"This study is about planning ahead to make it easier and safer for Nyora locals to get where they need to go, while supporting the town's growth into the future."

# Compassion And Dignity For Terminally Ill Victorians

The Allan Labor Government is updating Victoria's voluntary assisted dying (VAD) laws to make the process clearer and more compassionate for terminally ill Victorians who are living in pain.

Minister for Health Mary-Anne Thomas introduced legislation into the Victorian Parliament to amend the Voluntary Assisted Dying Act 2017 – which has allowed 1,683 terminally ill Victorians to make their own decisions about their death since 2019.

The new legislation will remove unnecessary barriers to accessing VAD, improve clarity for practitioners, strengthen safety measures and make the system fairer and more compassionate.

The reforms will maintain the strong safeguards that have been a cornerstone of Victoria's approach, ensuring that decisions are voluntary, the person has decision-making capacity, and they are free from coercion.

There are 13 proposed amendments to the legislation, with proposed key changes to include:

•Removing the 'gag clause' so that registered health practitioners are allowed to raise VAD with their patients during discussion about end of life options

•Requiring registered health practitioners who conscientiously object to provide minimum information

•Extending the prognosis requirement (life expectancy limit for eligibility) from six months to 12 months

•For people with neurodegenerative diseases (like motor neurone disease), they'll no longer need a third prognosis if their expected lifespan is between six and 12 months

•Introducing a new administering practitioner role to expand the workforce able to support VAD.

The proposed amendments follow the release of an independent review into the first five years of VAD in Victoria which found the service is working safely and as intended – however, it also identified challenges in accessing VAD.

Victoria led the nation in 2017 by becoming the first state or territory in Australia to legalise VAD – since then other jurisdictions have followed suit and, in many cases, improved the service.

The proposed amendments would bring Victoria's VAD legislation into line with these other states where they have been operating safely and effectively for several years, and do not go further than those in other jurisdictions.

**Premier Jacinta Allan said:**

"People who are terminally ill and suffering in pain deserve the choice to live out their last days with dignity."

"Under our Government, Victoria was the first state to introduce voluntary assisted dying – now we're reforming it to make it clearer and more compassionate for patients and their families, while keeping the safeguards secure."


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# Game-Changing Huts To Boost Recreational Deer Hunting

The Allan Labor Government is building and upgrading remote huts, giving recreational deer hunters the perfect basecamp and making hunting trips easier and even more rewarding.

Minister for Outdoor Recreation Steve Dimopoulos announced a $1,000,000 investment to establish new huts equipped with meat safes in some of Victoria's most beautiful and remote deer hunting areas and biodiversity hotspots.

The huts will feature basic facilities and secure meat safes, allowing recreational hunters to safely and sustainably harvest more deer, store venison and extend their trips. The huts would also be available to bush walkers, four-wheel drivers, mountain bikers and adventurers of all kinds.

With better meat storage, recreational hunters can bring home more venison, helping to reduce deer populations that can cause damage to native vegetation, agriculture and forest ecosystems – a win for the environment and the local economy.

Keeping venison cool and protected is critical to ensure it remains safe and high-quality to eat. Until now, recreational hunters have had to rely on game bags. These new meat safes will change the game, ensuring high-quality, hygienic storage.

Meat safes offer greater control over hygiene, air flow, chilling and food safety than game bags – ensuring wild game is safely harvested, handled and served.

Made of simple timber construction with fly screening, the safes are designed to securely store meat and promote airflow while protecting against dirt, pests and contamination.

The Labor Government will collaborate with hunting and community groups to help guide how the huts are delivered, including determining the number and locations of the huts, ensuring these new outposts meet the needs of Victoria's recreational hunters.

This pilot builds on the Labor Government's announcement in July to expand recreational deer hunting in East Gippsland's Errinundra and Snowy River National Parks, as well as the Victorian Deer Control Strategy – a state-wide plan to manage deer populations to minimise impacts on biodiversity, agriculture and public safety.

Victorians wishing to recreationally hunt deer in Victoria must hold a current Victorian Game Licence issued by the Game Management Authority (GMA).

For more information, visit www.gma.vic.gov.au

**Minister for Outdoor Recreation Steve Dimopoulos said:**

"We're building safe, responsible and sustainable hunting experiences."

"These huts will help manage deer populations to protect our environment and boost local economies –supporting recreational hunters and local communities alike."

# Supporting Cyber Careers To Protect Victorians

The Allan Labor Government is calling all cyber security graduates looking to kick-start their careers and learn how to help protect Victorians from cyber threats.

Minister for Government Services Natalie Hutchins announced that expressions of interest have opened for acceptance into the third round of the Cyber Internship Program, which will run from February to August 2026.

Building on the success of the 2024 and 2025 intakes, the six-month paid internship offers an opportunity for participants to work alongside cyber security experts mitigating threats to Government departments and the broader community, to develop their cyber security skills and experience.

As part of the program, interns will have the opportunity to build skills in cyber incident response, threat intelligence, and security operations, among other areas of expertise.

Participants will be selected from graduates of Certificate IV in Cyber Security, a course delivered through the Labor Government's Free TAFE program, which addresses skilled labor shortfalls across a range of professions by offering free access to more than 80 TAFE qualifications and short courses.

The internship has already produced successful outcomes for participants in its first two years of operation, with nine of the 12 interns who completed the program going on to related roles within the Victorian Government.

The development of a robust cyber security sector is crucial to Australia's ability to combat the growing threat of home-grown and global cyber criminals.

According to the Commonwealth Government's annual cyber threat report, there were more than 84,000 reports of cybercrime in the 2024–25 financial year, an average of one every six minutes.

The Cyber Internship Program aims to grow Victoria's cyber workforce and help reduce the cyber skills shortage. Applications for the program closed 2 November 2025. For more information or to apply, visit careers.vic.gov.au

**Minister for Government Services Natalie Hutchins said:**

"There are hundreds of cyber-attacks every day in Australia, so investing in the future of Victoria's cyber security industry is important as more of our everyday services move online."

"The Cyber Internship Program will provide Victoria's newest cyber professionals with hands-on experience safeguarding our state against cyber threats."

# JLL faces Fair Work claim from former HR boss

BEN WILMOT

Real estate agency JLL is facing a legal claim from former human resources head Julie Skinner alleging that she was sidelined from her job before being abruptly sacked as a review into the company's culture was undertaken.

The claim, filed with the Fair Work Commission, details a series of events in which Ms Skinner alleges she was mistreated after overseeing an investigation into a sexual harassment complaint against James Jorgensen, a former director in the firm's Victorian industrial property business.

Ms Skinner, who was the company's human resources chief for Australia, New Zealand and South East Asia, had recommended his sacking to former JLL chief executive Dan Kernaghan, as some allegations were substantiated. However, her advice was not followed and Mr Jorgensen was instead sanctioned.

Ms Skinner did not take the problem to the global echelons of the firm, claiming there was no policy to do so, and when senior executives descended on Australia, they repeatedly said there was "no playbook" to take it up the line. The handling of Mr Jorgensen was blown open when a separate complaint was lodged to JLL global CEO Christian Ulbrich and global chief human resources officer Laura Adams. The Australian's Margin Call column revealed the reversal of Mr Kernaghan's decision to keep him. Ms Skinner found herself squeezed out of key meetings of the firm's Australian executive as the crisis escalated, and was then pushed out shortly after being interviewed by British law firm Clyde & Co as it undertook a cultural review into the firm.

The human resources boss says in legal filings that she handled her job in a competent and appropriate manner and noted the firm did not have a policy nor any procedures for taking such matters up the chain.

She had twice raised Mr Jorgensen's conduct with her local boss early into the investigation. Ms Skinner said a decision to ignore the media frenzy piled stress and reputational damage on her and she was cut out of meetings ahead of Mr Kernaghan's sacking. He is suing separately for up to $14m in entitlements.

Ms Skinner emailed senior executives defending her position and complaining of being excluded. Despite being told she was not under investigation, she was suspended after being interviewed by the law firm and cut off from the agency's computer system.

Ms Skinner then complained to global chief Mr Ulbrich about his level of involvement in the Australian business given the crisis and criticised the firm's dismissal of Mr Kernaghan, saying the global team had lurched from inaction into fear-based over-reaction, dubbing its response immature.

She said she had been ostracised and engaged lawyers Maurice Blackburn last month.

She was told this month she had been terminated but not given a reason. "If JLL is serious about examining its culture and failings, it would start by acknowledging that its treatment of Ms Skinner was disgraceful," Maurice Blackburn lawyer Mia Pantechis said.

"Instead of retaining a senior HR professional who demonstrated competence and skill, JLL turned on her for complaining about her treatment, and did so in the most damaging way to her reputation and career."

A JLL spokeswoman said the firm understood that a claim had been filed with the Fair Work Commission.

# Equity Trustees cuts options in wake of scandal

CLIONA O'DOWD



O'Brien

Equity Trustees will follow Macquarie in culling investment options on its platforms in the wake of the Shield and First Guardian fund failures.

Speaking on the sidelines of Equity Trustees' annual meeting in Melbourne on Thursday, managing director Mick O'Brien told The Australian the number of investment options available to investors would be cut as it sharpens up its criteria for funds to remain on its platforms.

"There will be a reduction (in fund options). It's not going to be as material as what Macquarie is doing, which seems excessive, but there will be a reduction," he said.

"Many of the funds (in the market) are well regarded and they fulfil a purpose. So there'll be a bit of a change but I don't think it'll be dramatic. I don't think we'll cut hundreds of funds," he said.

Mr O'Brien was speaking after shareholders voted resoundingly in favour of the company's remuneration report at its AGM despite the Shield and First Guardian scandals hanging over the company.

Shield and First Guardian were both managed investment schemes that were put into liquidation in the past year, leaving 12000 investors at risk of losing up to $1bn in super savings. Equity Trustees is one of four trustees caught up in the scandal and the only one to have put both funds onto its platforms. Macquarie was the second trustee that had Shield on its platform, while First Guardian was also on platforms hosted by Netwealth and Diversa.

Macquarie has already compensated investors put into Shield through its platform to the tune of $321m and last week moved to dump more than 200 investment options as it looks to put the reputational damage from Shield firmly in the rear-view mirror.

The corporate regulator is suing Equity Trustees for alleged due diligence failures in relation to the Shield fund but the company has denied the allegations.

Mr O'Brien said Equity Trustees had tightened up its criteria for funds to remain on the platform. Without detailing what this criteria was, he spoke of the risks posed by funds having internal responsible entities. With both Shield and First Guardian, the responsible entities were run by the same people investing the fund's money.

"The critical point of failure in the value chain was the responsible entities of the two schemes," Mr O'Brien said.

"The set-up we have here in Australia (in terms of managed investment schemes) isn't good enough, and Treasury knows it," he said, adding that Equity Trustees had written to the financial services minister and Treasury recommending key changes to the legislation that would require responsible entities governing managed investment schemes to be independent.

Earlier in the meeting, Mr O'Brien told shareholders Equity Trustees was not responsible for the losses suffered by Shield and First Guardian investors, putting the blame for the scandal on every other link in the chain including the responsible entities of the schemes, the fund managers, the advisers and licensees.

Mr O'Brien also called out the regulator's delay in investigating the two funds, as he confirmed Equity Trustees was preparing an application to seek financial assistance from the government to compensate investors as much as $235m. Equity Trustees was the trustee of two super funds that offered the Shield and First Guardian schemes on their platforms: NQ Super and Super Simplifier. The company's exposure to Shield sits at about $160m, while investors put about $70m into First Guardian through these two platforms.

"There is no doubt that those members have been terribly let down by multiple parties in the value chain. In particular, we believe that the biggest single source of failure were the responsible entities of the two managed investment schemes," Mr O'Brien said.

"The responsible entities were closely followed by the fund managers of the schemes, the lead generators, the financial advisers and the licensed dealer groups that authorised the financial advisers.

"I reiterate: Equity Trustees Superannuation Limited did not have any relationship with these parties. Most of these parties were the holders of Australian Financial Service Licences or their authorised representatives, with the licences provided by ASIC."

He also pointed to the regulator's delays in probing the advisers and lead generators involved in getting more investment into the funds, some of whom were allegedly paid millions of dollars by the funds. "We welcome ASIC's work in taking action against the responsible entities, fund managers and advisers. We note however that ASIC has not sought compensation or remediation for members from any of these parties," Mr O'Brien said. "We have concerns that warnings around lead generators and the activities of some adviser groups were circulating as early as 2020."

Super trustees are now pushing the government to make Shield and First Guardian investors whole, at a potential cost of about $600m.

# NOTICES

www.theaustralian.com.au

## ADVERTISEMENT REGARDING DEED OF REVOCATION

**Notice to all creditors** of CyberCX Holdings Pty Ltd (ACN 629 361 806), CyberCX Midco Pty Ltd (ACN 634 834 343), CyberCX Pty Ltd (ACN 629 363 328), CyberCX Finco Pty Ltd (ACN 629 362 956), Shearwater Solutions Pty Ltd (ACN 083 648 524), TSS Cyber Pty Ltd (ACN 151 241 253), Alcorn Security Group Pty Ltd (ACN 604 540 070), Diamond Cyber Security Pty Ltd (ACN 601 212 846), Yell IT Group Pty Ltd (ACN 606 981 533), Asterisk Information Security Pty. Ltd. (ACN 151 171 783), Enosys Solutions Management Pty Ltd (ACN 636 365 903), Enosys Solutions Pty Ltd (ACN 151 771 872), Sense of Security Pty Limited (ACN 098 237 908), CQR Consulting Pty Ltd (ACN 107 258 640), CQR Consulting Australia Pty Ltd (ACN 141 058 022), Identity Solutions Australia Pty Ltd (ACN 117 677 219), Assurance Services Pty Ltd (ACN 637 143 812), Klein & Co. Computer Forensics Pty. Ltd. (ACN 140 855 330), Foresight IT Consulting Pty Ltd (ACN 119 675 204), Xello Pty Ltd (ACN 626 482 040), Cloudten Industries Pty Ltd (ACN 601 905 104), CyberCX Airlock Pty Ltd (ACN 659 570 608) and Phriendly Phishing Pty Ltd (ACN 666 287 047) (**Entities**).

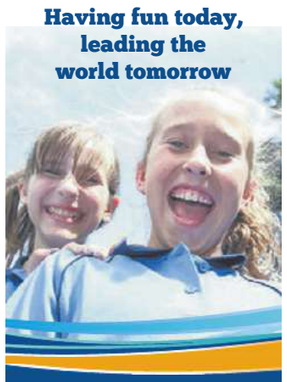
The Entities are parties to a Deed of Cross Guarantee dated 24 June 2020 (as amended from time to time and includes any assumption deeds) pursuant to *ASIC Corporations (Wholly-owned Companies) Instrument 2016/785* (**Deed**).

On 22 October 2025, the Entities executed and subsequently lodged with ASIC a revocation deed which will have the effect of removing each of CyberCX Airlock Pty Ltd (ACN 659 570 608) and Phriendly Phishing Pty Ltd (ACN 666 287 047) from the Deed and releasing each company from its covenants under the Deed.

The revocation deed will take effect on 22 April 2026.

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SURF LIFE SAVING CHAMPIONS CLUB MONTHLY BONUS DRAW

$50,000 CASH PRIZE

Winner:
Mr R, FANNIE BAY, NT.

Hunt & Hunt Lawyers act for the estate of the late Ronald Richard Watts, who passed away on 8 December 2020.

We are currently trying to get in touch with Trudi Ann Thompson in relation to the above-named estate.

If this is you, or if you are able to provide any information to assist us in making contact, please contact us at 08 8924 2600 or email contact@huntnt.com.au

**LEGAL NOTICE – CALL FOR SHAREHOLDER IDENTIFICATION**

Notice is hereby given that ANSELL PARK PTY LTD is seeking to identify and confirm all people who may have an interest as shareholders in the company.

Claims must be submitted no later than 30 days from the date of publication of this notice.

Please email publicofficer@ansellpark.com.au or call 0423606678

Dated: 31 October 2025

Re: In search of

**BARBARA ANN TAYLOR**

WOULD Ms Barbara Ann Taylor, daughter of John Henry Taylor please contact **State Trustees Limited** A.C.N. 064 593 148, 1 McNab Avenue, Footscray VIC 3011 (Ref. No. 6694468) within the next 14 days regarding their entitlement to the estate of Mr Rodney John Austin who died in Camberwell, Victoria on 16 February 2024. gemma.higgins-dewar@statetrustees.com.au

FSS151

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## Community Consultation - decommissioning of oil & gas infrastructure in Bass Strait

Esso Australia Resources Pty Ltd (Esso), a wholly owned subsidiary of ExxonMobil Australia Pty Ltd, is committed to operating and decommissioning its Gippsland and Bass Strait facilities safely and effectively. After delivering energy to Australia for over 50 years, many of the Bass Strait oil and gas fields are now reaching the end of their productive life. As planning for decommissioning progresses, Esso is focused on safely shutting-down non-producing facilities and ensuring they stay safe throughout the entire decommissioning process.

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# $8.5m for AI-driven platform

JARED LYNCH

Two former Canva high-flyers have raised $8.5m for their new venture that is leveraging their experience in scaling technology to tackle chronic disease, creating the 'operating system for human health'.

Kate Lambridis and Georgia Vidler secured the funding to fuel their "Precision Health OS", an artificial intelligence-powered platform that aims to empower the millions of people living with chronic conditions globally.

They have received backing from LocalGlobe, Airtree, Kim Jackson and Scott Farquhar's Skip Capital, Aliavia, and Scale Investors, which participated in the raise, underscoring a growing trend of seasoned tech professionals applying their expertise to complex societal issues.

In Australia, over half the population manages a long-term illness, while the UK reports similar figures, with nearly half of adults experiencing persistent health issues. These statistics highlight a global crisis where healthcare capacity is collapsing, leaving patients to navigate fragmented care with limited support.

"Our mission is simple: to give everyone access to personalised healthcare.

"Right now, too many people are left in limbo; stuck on waiting lists, repeating their stories to different doctors, and trying to make sense of complex conditions without the right tools. Human Health is designed to change that," Ms Lambridis said, whose son Leo has autism and an associated acute condition.

The $8.5m funding will fuel Human Health's international growth, enhance its AI-driven product intelligence, and scale research partnerships through a new platform called Human Evidence.

# Chaney: new tax would scare investment away

*Continued from Page 13*

Back Australia
It's good for all of us

"It is very disappointing that our political leaders seem unwilling to address this. It's time to think about the long-term needs of Australia and stop worrying about near-term political risks."

Mr Chaney, who will make way for former BHP chair Ken MacKenzie next year, also referenced bullish investors that have sent Wesfarmers shares 37 per cent higher in the past 12 months, saying some of this was due to "increased exuberance in the stock market".

He also highlighted the overbearing regulation on economic development, and that it was heartening to see consensus on this at the Commonwealth economic roundtable.

"But doing something material about it will require strong political will in the face of some stakeholders' protests. In that respect, it is very encouraging to hear of the discussions between the Commonwealth and West Australian governments about streamlining major project approvals, removing duplication which increases costs and delays investment."

Turning to Wesfarmers' operating businesses, which include Bunnings, Kmart, Target and Officeworks, chief executive Rob Scott said in a trading update that demand had remained positive, but cost of living pressures were a challenge for some households and that consumers had maintained a cautious outlook.

He said year-to-date sales at Bunnings were ahead of growth recorded in the second half of financial 2025 and sales at Kmart and Target were broadly in line with the second half.

But Officeworks interim earnings would be lower by $15m to $25m due to restructuring initiatives and other costs that would crunch margins.

"Our strong balance sheet ensures we have capacity to invest in our businesses, adapt in dynamic markets and take advantage of opportunities as they arise. Compared to this time last year, our businesses are more productive and efficient, and they have more growth opportunities."

The Wesfarmers boss also detailed the shocking rise in crime and violent assaults at the conglomerate's stores.

"Over 12 months, we recorded 13,500 customer threatening incidents in our retail stores – including more than 1000 instances of physical assault and several hundred threats of serious harm, often with a weapon.

"Customer threatening incidents at Kmart Group increased 29 per cent.

"At Bunnings, incidents involving threats of serious harm increased 66 per cent."

In response, Wesfarmers has strengthened security in higher risk locations, increased training for employees including in de-escalation, and deployed body worn cameras where appropriate. It was important for government to now act on the crisis.

"We share intelligence with our retail peers, governments and police – because they also have important roles to play in addressing this growing hazard. We support sensible reform – including tougher, nationally consistent penalties for violent retail crime and a national conversation to enable controlled, responsible use of technology to exclude known violent offenders from retail environments, which is in the community interest.

"Our position is clear – our team members must be safe and respected at work. We will keep investing, partnering and advocating until we see sustained improvement."

It comes as Bunnings was found by the privacy commissioner to have breached laws when it introduced crime-busting facial recognition technology; Bunnings is challenging the finding in the Administrative Review Tribunal.

# Brazil's new trade weapon: fertiliser in the Amazon

SAMANTHA PEARSON

In Autazes, Brazil, the heart of the Amazon rainforest, workers are preparing to dig a vertical shaft as wide as a subway tunnel 800m into the ground.

It isn't gold or oil hidden here in a grassy clearing between indigenous lands, but fertiliser – something arguably just as precious to this vast farming nation.

As global trade tensions flare, Brazil has replaced a growing share of US agricultural exports to China, which has shunned American soybeans in response to Trump administration tariffs. The Trump administration's imposition of 50 per cent tariffs on Brazil this year raised the stakes for the country's globally dominant agriculture industry to carry Latin America's largest economy through the trade war.

Yet fertiliser remains Brazil's achilles' heel. Brazil imports 90 per cent of the nitrogen, phosphorus and potassium nutrients it needs, primarily from Russia, whose war in Ukraine plus Western sanctions have made supplies precarious.

A solution lies in the world's largest rainforest. The Toronto-based miner Brazil Potash Corp is investing $US2.5bn ($3.8bn) to build an underground potash mine near the town of Autazes, a few kilometres from the banks of the Madeira River, tapping into the vast Amazon Potash Basin, one of the world's largest.

Discovered by accident more than 50 years ago when Brazil's state oil company Petrobras was drilling for oil, the pinkish-orange slab of potassium chloride stretches for some 400km deep beneath the jungle – the dried-up remnants of an ancient ocean.

Production at the company's Autazes mine, estimated at 2.4 million tonnes a year, is slated to begin in 2030. Destined entirely for use in Brazil, that output would supply roughly a fifth of the country's potash needs over the mine's 30-year lifespan. The basin itself holds enough deposits to allow Brazil to become close to self-sufficient in potash.

A dedicated potash supply would help shield Brazil's harvests from geopolitical shocks like Russia's 2022 invasion of Ukraine, when record potash prices sent panic through the country's farm belt. In turn, it would give Brazil an edge at times like this, when US-China tensions are rerouting trade flows and raising demand for Brazil's agricultural products.

"We have a gift from God here, and we need to make the most of it," said Raphael Bloise, head of the project in Brazil.

The US-listed miner plans another site at Fazendinha, close to where the Madeira meets the Amazon River, Bloise said.

Brazil needs more fertiliser than other agricultural giants to sustain its current output. Blessed with a climate that allows year-round farming, Brazil's soils are quickly depleted of nutrients. Its clay-rich soil also struggles to retain fertiliser during heavy rains.

Chinese investors have already shown interest in the project, which includes a port terminal and 160km-long power line. Under a potential swap agreement, Beijing could agree to acquire potash from the mine on behalf of Brazilian farmers in exchange for guaranteed future deliveries of their crops such as soybeans and cotton, the company said.

Yet the location of the Autazes project in the state of Amazonas is both a blessing and a curse. Amazonas neighbours Mato Grosso state, Brazil's largest producer of soybeans and a major fertiliser consumer – some 650km away through dense rainforest, but still closer than Russia.

Trucks already haul Mato Grosso's harvest north to river barges bound for ports on Brazil's Atlantic coast. Once the mine opens, they could return to Mato Grosso's farmlands loaded with potash instead of empty.

"Brazil is a massive exporter of agricultural goods to China, but they're exposed to all these geopolitical risks that impact their fertiliser supply – having a secure source of potash in their backyard is essential," said Matt Simpson, chief executive of Brazil Potash.

Digging a giant hole in one of the world's most environmentally and culturally sensitive regions is no easy task, said Bloise, who spent much of his career developing Carajás, the world's largest iron-ore mine, also in the Amazon.

Brazil Potash has spent the past decade fighting lawsuits and trying to win over everyone from the local mayor to the village priest. The company finally has permission to go ahead. Brazil Potash plans to mine only in areas outside the lands of Mura, the indigenous group whose territory overlaps with parts of the potash deposits.

The Mura were initially suspicious. Since colonial times, they've had to fight off violent incursions, first from Portuguese colonisers and more recently illegal goldminers.

Today, about 35 of the 40 Mura villages in the region support the mine, won over by the company's promises of a better future, according to the Mura Indigenous Council. Brazil Potash has invested in a local school and soccer team, and promised to help the Mura expand income from fish farming, small-scale agriculture and handicrafts.

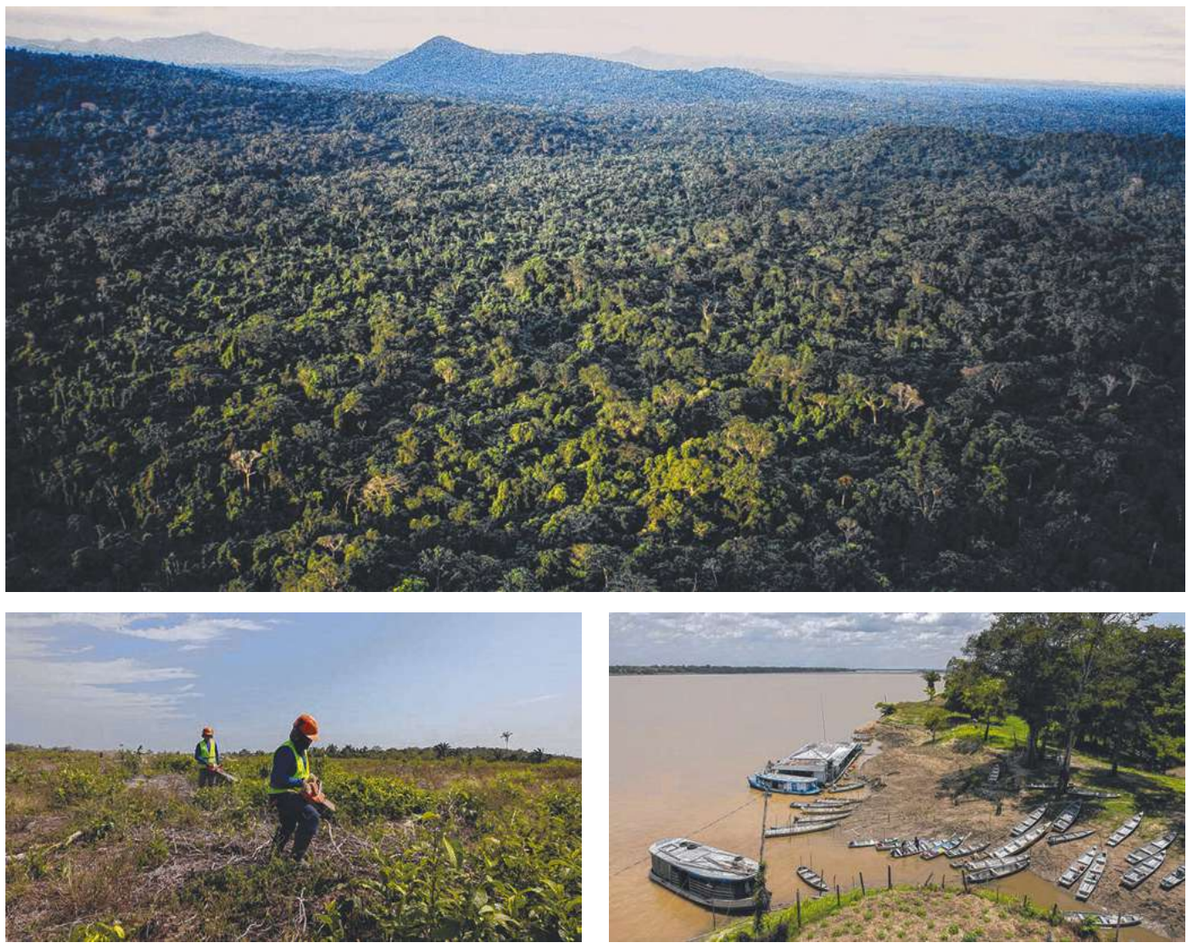
In Urucurituba, a riverside community of about 500 families closest to the mine, poor sanitation has led to frequent bouts of diarrhoea. The dock collapses when the river floods, and pirate attacks have become common as drug traffickers push deeper into the Amazon. There is no police presence, and while the town has a health clinic, doctors visit only every other week.

"We don't want this for our children," said Aldinelson Moraes Pavao, the Mura chief of Urucurituba, adding that indigenous communities also wanted what other Brazilians want. "Who doesn't want to drink a glass of chilled water from the fridge, or have a car, or sleep in a room that's air-conditioned?" he said.

The mine cuts to the core of Brazil's dilemma over the future of the rainforest and its people, as world leaders convene in the Amazon this month for the UN climate summit.

Environmentalists say even legal mining could set a dangerous precedent in the Amazon, paving the way for deforestation, land grabbing and social conflict.

In Autazes, a town of about 50,000 people, most families depend on government jobs or welfare payments, mayor José Thomé Neto said. The proposed mine would create several thousand jobs during construction and operation, along with as many as 30,000 indirect jobs across the region, he said. Local officials expect the town's population to double over the mine's 30-year lifespan.



PICTURES: MARÍA MAGDALENA ARRÉLLAGA

**Amazon rainforest in north Brazil, top; boats on the Madeira River, Urucurituba, lower right; clearing land in Urucurituba**


# NOTICES

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# Notice to Members

**Beyond Bank wishes to advise members of the interest rates on the following deposit accounts, current as at 7 November, 2025.**

| monEsaver | |
|---|---|
| Tier | Current Rate (% p.a.) |
| $0 - $4,999 | 1.55 |
| $5,000 - $199,999 | 1.85 |
| $200,000 + | 2.10 |

| Purple Bonus Saver | |
|---|---|
| Tier | Current Rate (% p.a.) - with Bonus |
| $0 - $200,000 | 3.90 |
| > $200,000 | 0.01 |

| Community Reward Account | |
|---|---|
| Tier | Current Rate (% p.a.) |
| $0 - $4,999 | 1.90 |
| $5,000 - $199,999 | 2.20 |
| $200,000 + | 2.30 |

| Retirement Account (incl Everyday 55 Account) | |
|---|---|
| Tier | Current Rate (% p.a.) |
| $0 - $4,999 | 0.85 |
| $5,000 - $48,599 | 1.05 |
| $48,600 + | 1.50 |

| BU Account | |
|---|---|
| Tier | Current Rate (% p.a.) |
| All balances | 2.55 |

| Community Account Cash Management Account | |
|---|---|
| Tier | Current Rate (% p.a.) |
| $0 - $4,999 | 0.01 |
| $5,000 - $19,999 | 0.05 |
| $20,000 - $99,999 | 0.55 |
| $100,000+ | 0.80 |

| Bank Guarantee Facility Account | |
|---|---|
| Tier | Current Rate (% p.a.) |
| All balances | 3.20 |

| Bonus Saver Account / Bonus Youth Account | |
|---|---|
| Tier | Current Rate (% p.a.) - with Bonus |
| $0 - $4,999 | 1.45 |
| $5,000 + | 1.65 |

| Double Interest Saver Account | |
|---|---|
| Tier | Current Rate (% p.a.) - with Bonus |
| $0 - $4,999 | 1.48 |
| $5,000 + | 1.68 |

| Junior Saver Account | |
|---|---|
| Tier | Current Rate (% p.a.) |
| All balances | 2.35 |

| Junior Saver Bonus Account | |
|---|---|
| Tier | Current Rate (% p.a.) - with Bonus |
| All balances | 2.35 |

| Home Saver Account | |
|---|---|
| Tier | Current Rate (% p.a.) - with Bonus |
| All balances | 1.80 |

| Christmas Club Account | |
|---|---|
| Tier | Current Rate (% p.a.) |
| All balances | 1.75 |

Rates are current as at 7 November 2025 and are subject to change. Terms & conditions apply. Beyond Bank Australia Limited ABN 15 087 651 143 AFSL/Australian Credit Licence 237856.

There have been several changes to Beyond Bank's savings accounts interest rates this year. Unfortunately, we have become aware that some members may not have received the individual notices that we sent regarding changes to these rates. We sincerely apologise for any inconvenience this may have caused. In case you missed any of our notices, our current rates are available above.

To find out more information relating to your account visit our website at **www.beyondbank.com.au.**

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# Seaspray community calls for clearer offshore wind visual and government-led engagement

THE Seaspray community has called for greater transparency and accuracy following a public meeting hosted by Blue Mackerel (owned by Parkwind/Jera Nex) at the Seaspray Surf Life Saving Club on Saturday October 11, where visuals of the company's proposed offshore wind farm were presented.

The session, facilitated by Blue Mackerel and its engagement consultancy JBS&G and attended by about 100 interested and engaged locals, aimed to provide residents with an understanding of how the proposed turbines might appear within their licence 10km from the 90 Mile Beach coastline, specifically directly in front of the Seaspray Surf Life Saving Club.

However, attendees expressed concern that the visual materials presented were incomplete, inconsistently scaled, and did not reflect the true scope or scale of the proposed development.

Community members noted that turbine locations were incorrectly located during the presentation and that visual simulations lacked context landmarks, night-time imagery and clarity on turbine height.

The location co-ordinates of the windfarm zone, published on Blue Mackerel's own website, clearly state the eastern end of the zone is located directly in front of the Seaspray Surf Club, however Saturday's presentation showed the turbines offset from the Seaspray township to the south and physically gestured in the same direction by the proponents.

And the highest turbine height presented in Blue Mackerel's visuals was 271 metres, despite industry reports suggesting turbines of up to 353 metres could be installed.

Seaspray resident Andrew Lee raised technical concerns about the visual height calculations, referencing comparative data from the Great Eastern Offshore Wind Project – Preliminary Visual Appraisal (Hansen Partnership, 2023) as inappropriate.

While Blue Mackerel representatives acknowledged that visual impact assessments would be completed later in the planning process, local attendees expressed frustration at being asked to provide feedback on visuals they felt were neither complete nor accurate.

In a statement following the meeting, representatives from the Seaspray Windfarm Strategy Group (SWSG) said the community understands that only Blue Mackerel's 70-turbine project currently has visual representations available.

However, residents are seeking clarity on how this project will interact visually with other licensed offshore wind zones proposed along the 90 Mile Beach coastline.

"The community wants to see the full picture," a SWSG spokesperson said.

"We need to understand what the combined impact of multiple offshore wind projects will look like along our coastline, not just one section in isolation."

The group has urged the Federal and State governments - specifically the Department of Climate Change, Energy, the Environment and Water (DCCEEW), Offshore Wind Energy Victoria (OWEV), and VicGrid - to lead public engagement around the visual and environmental impacts of the proposed offshore wind developments.

"It's unreasonable to expect small coastal communities to negotiate individually with multiple commercial developers," the spokesperson added.

"We are calling on Ministers Bowen and D'Ambrosio to ensure that comprehensive, government-led consultation occurs before any decisions are finalised."

The Seaspray community reaffirmed its support for renewable energy in principle (no less than 25km), while stressing the importance of transparent consultation and accurate representation of the projects' long-term visual and environmental impacts.




Yarram CFA members welcome visitors to their Fire Station during an Open Day recently.

# Yarram CFA open day

YARRAM CFA held an open day on Saturday October 4.

The purpose of the day was to promote Being Fire Ready as the summer fire season approaches.

Visitors to the open day were given a tour of the station and a pack with lots of information about how to prepare your property for summer.

Children were gifted a bright red fire helmet and given a close up look at the fire trucks.

A barbecue was available and appreciated by all.


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# Gardens grow, kids thrive

THE Nationals Member for Gippsland South, Danny O'Brien is celebrating a win for local schools, with five Gippsland South primary schools successful in securing a VicHealth and Stephanie Alexander Kitchen Garden Foundation grant.

Alberton, Welshpool & District and Toora Primary School along with Korumburra Primary School and Araluen Primary School will each receive $1,500 for kitchen and garden equipment, and a two-year membership to the Stephanie Alexander Kitchen Garden Program.

Mr O'Brien said the grants will help students develop practical cooking and gardening skills while building confidence and healthy habits.

"This is fantastic news for these schools and their students," Mr O'Brien said.

"Hands-on learning in the kitchen and garden gives children skills they will use for life and encourages healthy, confident choices from a young age.

"I congratulate the principals, teachers and students on this achievement.

"It's terrific to see our local schools leading the way in food education and making a real difference in our community.

"These grants will empower our kids to learn about healthy eating, sustainability, and the joy of cooking all while having fun in the garden."

Alberton Primary School principal Ashton Webster said his school was thrilled to be announced the grant recipients of Our Kitchen Garden Program.

"The $1,500 grant will help support and expand our much-loved garden initiative," he said.

"The program has long been a source of pride for our school, with staff and students working together to grow, harvest, and cook fresh produce. Despite having limited resources, the commitment and creativity of everyone involved have allowed the gardens to flourish and become an important part of our learning environment."

Mr Webster added that his staff and students do an amazing job with the little resources they have had their veggie gardens.

"This so much-needed grant will give us the flexibility to step up and really provide a high-quality, inclusive program," he said.

"The funding will go towards improving garden infrastructure, purchasing tools and seedlings, and enhancing opportunities for hands-on learning across all year levels."

Alberton Primary is looking forward to seeing the continued growth of the garden, both in produce and in the skills and enjoyment it brings to students.

Mr O'Brien highlighted that the grants are part of a state-wide initiative by VicHealth and the Stephanie Alexander Kitchen Garden Foundation, aimed at supporting schools to provide practical food education and lifelong skills to young Victorians.



The Nationals Member for Gippsland South, Danny O'Brien with Welshpool and District Primary School teacher, Chloe Wade.

## Free public transport for Gippsland line passengers

The Allan Labor Government is saying thank you to passengers along the Gippsland Line with free travel throughout November – celebrating the completion of the Gippsland Line Upgrade.

Premier Jacinta Allan and Minister for Public and Active Transport Gabrielle Williams visited Traralgon Station recently to announce that public transport will be free for passengers starting their journey at any station on the Gippsland Line between Nar Nar Goon and Bairnsdale.

"Free travel on the Gippsland Line in November is our way of saying thank you for your patience while we delivered this major upgrade," Premier Jacinta Allan

Passengers travelling from stations between Nar Nar Goon and Traralgon will be able to collect a Gippsland free travel voucher from station staff, or a Conductor onboard the train instead of tapping on with their myki.

Passengers starting or finishing their trip on a coach or local bus will also travel for free across the network – with connecting services included as part of the Gippsland free travel offer.


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# Appendix I: JASCO Sound Modelling 2023 and 2025 Addendum

# Esso Bass Strait Operations Modelling

## Assessing Marine Fauna Sound Exposures

JASCO Applied Sciences (Australia) Pty Ltd

28 March 2023

Submitted to:

Offshore Environmental Engineer
Esso Australia Pty. Ltd.
Contract 4501679853

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The results presented herein are relevant within the specific context described in this report. They could be misinterpreted if not considered in the light of all the information contained in this report. Accordingly, if information from this report is used in documents released to the public or to regulatory bodies, such documents must clearly cite the original report, which shall be made readily available to the recipients in integral and unedited form.

# Contents

Executive Summary ..... 1
1. Introduction ..... 3
1.1. Modelling Scenarios ..... 3
2. Marine Mammal Noise Effect Criteria ..... 7
2.1. Marine Mammals ..... 7
2.1.1. Behavioural Response ..... 8
2.1.2. Injury and Hearing Sensitivity Changes ..... 8
3. Methods and Parameters ..... 9
3.1. Sound Sources ..... 9
3.1.1. Production Platforms ..... 9
Vessels ..... 10
3.1.3. Jack-Up Drill Rig ..... 12
3.2. Sound Propagation Model and Configuration ..... 13
3.3. Accumulated SEL ..... 13
4. Results ..... 15
4.1. BTA and KFB Platforms with/without One or Two Vessels ..... 16
4.2. Offshore Supply Vessel, Platforms with One or Two Vessels ..... 18
4.3. Generic Platform with/without One or Two Vessels ..... 20
4.4. Jack-Up Drilling Rig and an Attendant Support Vessel, with/without an OSV ..... 21
5. Discussion and Conclusion ..... 22
5.1. BTA and KFB Platforms with One or Two Vessels ..... 22
5.1.1. Comparison with Modelling Results for the Seahorse/Tarwhine Plug and Abandonment Campaign ..... 23
5.2. Supply Vessel alone and Platforms with One or Two Vessels ..... 25
5.3. Generic Platform with/without and one or Two Vessels ..... 26
5.4. Jack-up Drilling Rig and an Attendant Vessel, with/without an OSV ..... 26
Glossary ..... 27
Literature Cited ..... 36
Appendix A. Acoustic Metrics ..... A-1
Appendix B. Methods and Parameters ..... B-1

# Figures

Figure 1. Overview of the Esso Bass Strait Operations modelling study area. ..... 4
Figure 2. Layout used in modelling a platform with one and two vessels alongside. Vessel 1 is the MPSV and Vessel 2 is the OSV, both vessels are under DP. ..... 5
Figure 3. Monopole Source Level (MSL) spectra representing (left) the BTA and (right) the KFB platforms in isolation (blue), with one (red) and with two (yellow) attendant vessels (the *Skandi Feistein* and the *MMA Leeuwin*). ..... 10
Figure 4. Monopole Source Level (MSL) spectra representing the BTA (blue) and the KFB platforms (red) and the generic platform (yellow). ..... 10
Figure 5. Photographs of the *Skandi Feistein* (left; photo credit Marine Traffic) and the MMA Leeuwin (right; photo credit MMA Offshore Limited). ..... 11
Figure 6. Monopole Source Level (MSL) spectra representing the vessels used in multiple scenarios. ..... 12
Figure 7. Monopole Source Level (MSL) spectra representing the jack-up rig during drilling operations (blue), with the offshore supply vessels (red) and the attendant support vessel transiting within the standby box (yellow). ..... 12
Figure 8. *Scenarios 1 to 3, BTA alone, with the Skandi Feistein, and also with the MMA Leeuwin*: Sound level contour map ..... 16
Figure 9. *Scenarios 4 to 6, KFB, Skandi Feistein, and MMA Leeuwin*: Sound level contour map ..... 17
Figure 10. *Scenarios 7 to 9, BTA, with MPSV, and also with OSV*: Sound level contour map ..... 18
Figure 11. *Scenarios 10 to 12, KFB, with MPSV, and also with OSV*: Sound level contour map ..... 19
Figure 12. *Scenarios 13 to 15, Generic Platform, with MPSV, and also with OSV*: Sound level contour map ..... 20
Figure 13. *Scenarios 16 to 17, BTA, OSV under DP, and support vessel under transit in standby box*: Sound level contour map ..... 21
Figure 14. Monopole Source Level (MSL) spectra representing a diamond wire saw operated via a remotely operated vehicle (ROV cutter; McPherson and Koessler 2020). ..... 22
Figure 15. Monopole Source Level (MSL) spectra representing the BTA production platform in isolation (blue) and the jack-up rig *Tom Prosser* (red) modelled under normal drilling operations (McPherson and Koessler 2020). ..... 24
Figure 16. Monopole Source Level (MSL) spectra representing the BTA production platform with one attendant vessel (blue) and the supply vessel (red) modelled for the Seahorse/Tarwhine P and A Campaign (McPherson and Koessler 2020). ..... 25

Figure A-1. Decidecade frequency bands (vertical lines) shown on a linear frequency scale and a logarithmic scale. ..... A-2
Figure A-2. Sound pressure spectral density levels and the corresponding decidecade band sound pressure levels of example ambient noise shown on a logarithmic frequency scale. ..... A-3
Figure A-3. Auditory weighting functions for functional marine mammal hearing groups used in this project as recommended by Southall et al. (2019). ..... A-6
Figure B-1. Bathymetry in the modelled area. ..... B-1
Figure B-2. The sound speed profiles used for modelling: The daily and median profiles for the first 100 m from Global Ice Ocean Prediction System (GIOPS) ..... B-2
Figure B-3. The N×2-D and maximum-over-depth modelling approach used by MONM. ..... B-4
Figure B-4. Sample areas ensonified to an arbitrary sound level with $R_{max}$ and $R_{95\%}$ ranges shown for two different scenarios. ..... B-5

# Tables

Table 1. List of modelled scenarios. ..... 6
Table 2. Criteria for effects of non-impulsive noise exposure, including vessel noise, for marine mammals: Unweighted SPL and $SEL_{24h}$ thresholds. ..... 7
Table 3. *Scenarios 1 to 6:* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1. ..... 16
Table 4. *Scenarios 7 to 9 (near BTA):* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1. ..... 18
Table 5. *Scenarios 10 to 12 (near KFB):* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1. ..... 19
Table 6. *Scenarios 13 to 15, Generic Platform:* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1. ..... 20
Table 7. *Scenarios 16 and 17, BTA:* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). ..... 21
Table 8. Distances (m) to permanent threshold shift (PTS) and temporary threshold shift (TTS) of low-frequency cetaceans (LFC), and marine mammal behavioural response for the current study (BTA platform) and the Seahorse/Tarwhine P and A Campaign (Jack-up rig Tom Prosser; McPherson and Koessler 2020). ..... 23

Table A-1. Parameters for the auditory weighting functions used in this project as recommended by Southall et al. (2019). ..... A-6
Table B-1. Geoacoustic profile at the BTA platform. ..... B-3
Table B-2. Geoacoustic profile at the KFB platform. ..... B-3

# Executive Summary

JASCO Applied Sciences (Australia) performed a modelling study of underwater acoustic noise levels related to Esso's base business operations and future decommissioning operations in Bass Strait. This study considers the operation of Esso's Barracouta (BTA) and Kingfish B (KFB) production platforms, the operation of a generic production platform, and the operations associated with a future drilling campaign involving a generic jack-up rig. These operations were modelled with three similar classes of vessels: an offshore supply vessel (OSV), a multi-purpose supply vessel (MPSV), and an attendant vessel (representing a non-specific offshore vessel attending a platform or drill rig). The OSV and MPSV were modelled while alongside the production platforms, using dynamic positioning (DP) system to keep station. The OSV was also modelled alone, using DP while away from the platforms. The attendant support vessel was modelled supporting the jack-up drilling rig, and was considered in standby near the rig, transiting through a defined standby box near the jack-up rig; in total 17 scenarios were modelled.

The results are presented as distances from the platform, vessel or drill rig at which underwater sound levels reached thresholds associated with potential injury and behavioural response in marine mammals. The primary species of interest are pygmy blue, southern right and humpback whales, common and bottlenose dolphins, and Australian fur seals, therefore the functional hearing groups considered were for low- and high-frequency cetaceans and other carnivores (including otariids) in water.

Further to the Noise Monitoring Study conducted in March-April 2021 (McPherson et al. 2022), distances to the pertinent sound level thresholds were modelled for the BTA and KFB platforms on their own, with one attendant vessel (the *Skandi Feistein*) and with two attendant vessels (the *Skandi Feistein* and the *MMA Leeuwin*, Scenarios 1–6). The results show that noise levels from production platforms in isolation do not produce noise levels high enough for potential injury, and the distances to the behavioural response threshold are relatively small (30 m at BTA; 55 m at KFB). The presence of attendant vessels under DP (*Skandi Feistein* and *MMA Leeuwin*) close to the platforms, however, results in TTS exceedance up to 290 m from the platform, with PTS not predicted. The distances to potential behavioural response increase significantly with the presence of attendant vessels: up to 2.16 km at the KFB platform with two attendant vessels.

Results at the BTA platform were compared to results from the modelling study for the Esso Seahorse/Tarwhine Plug and Abandonment (P and A) Campaign (McPherson and Koessler 2020). In general, the distances to the effect thresholds were greater in the prior study than at the BTA platform. This can be attributed to two main factors: the difference in the jack-up rig versus production platform MSL spectra, and the difference in the attendant vessel spectra.

The second set of scenarios (Scenarios 7 to 12) assesses distances associated with an offshore supply vessel (OSV) alone under DP, the platforms with a Multi-Purpose Supply Vessel (MPSV) under DP permanently alongside, and the platforms with an MPSV plus an OSV both under DP alongside for periods of 1 and 2 h. The results show that the distance to potential TTS to marine mammals around the OSV is similar to the length of the vessel when that vessel is stationary for 24 h; the distance to behavioural response is on the order of 555 m. The presence of the MPSV at the platform results in short distances to potential PTS (up to 60 m) and TTS (up to 380 m) only on the side of the platform the vessel is on; distances are shorter or nil in the other directions. The presence of the OSV for periods of 1 to 2 h does not significantly change the distances to potential PTS and TTS, and increases the distance for behavioural response by up to 300 m (from 2.4 to 2.7 km at the KFB platform).

Results from this second set of scenarios show longer distances to injury and behavioural response thresholds than the first set of scenarios because the monopole sound level (MSL) spectra used to represent the vessels was derived from monitoring of the vessel under DP in isolation to the platforms. This is contrast to using the combined measurements of vessels and platforms together (the vessel

being at the platform). This because the applied power, or the maximum continuous rating (MCR) level used by the vessels operating close a platform was likely lower than while operating at DP, away from any platform. Results for Scenarios 7 to 12 are therefore considered realistically conservative.

The third set of scenarios (Scenarios 13 to 15) considers a generic production platform in isolation, with an MPSV permanently alongside under DP, and with an MPSV permanently alongside plus an OSV alongside for periods of 1 and 2 h under DP. Results show no potential for marine mammal PTS or TTS, and potential behavioural response up to 30 m from the platform in isolation. The presence of the MPSV and the OSV resulted in distances to low-frequency cetacean TTS and marine mammal behavioural thresholds that are similar, but slightly longer than those estimated for the KFB platform in the second set of scenarios. This increase in distances is partly due to the difference in water depth between the two locations.

The last set of scenarios in this study (Scenarios 16 and 17) relates to a future drilling campaign; they represent drilling operations at the jack-up rig, with an attendant vessel (an offshore support vessel similar to the *Skandi Feistein*) standing by in a nominal 2 km × 4 km box under slow transit, 500 m from the rig. The last scenario adds an OSV under DP (again similar to the *Skandi Feistein*) performing resupply alongside the rig for periods of 2 and 8 h. The results show distances to potential TTS of up to 190 m around the rig for low-frequency cetaceans. This distance is only slightly influenced by the presence of an OSV and does not change with the location of the attendant support vessel. The distance to behavioural response threshold, however, is largely influenced by the location of the vessel in relation to the jack-up rig; it varied between 2.95 and 3.70 km when the support vessel was at its closest and farthest location from the rig.

# 1. Introduction

JASCO Applied Sciences (Australia) performed a modelling study of underwater acoustic noise levels related to Esso's base business operations and future decommissioning operations in Bass Strait. The modelling study considered the operation of Esso's Barracouta (BTA) and Kingfish B (KFB) production platforms, the operation of a generic production platform, and the drilling operation of a generic jack-up rig. These operations were modelled with three similar classes of vessels: an offshore supply vessel (OSV), a multi-purpose supply vessel (MPSV), and an attendant vessel (representing a non-specific offshore vessel attending a platform or drill rig). The OSV and MPSV were modelled while alongside the production platforms, using dynamic positioning (DP) system to keep station. The OSV was also modelled alone, using DP while away from the platforms. The attendant support vessel was modelled supporting the jack-up drilling rig, and was considered in standby near the rig, transiting through a defined standby box near the jack-up rig. For these operations, the noise levels at the source were based on measurements obtained during a Noise Monitoring Study conducted in March-April 2021 (McPherson et al. 2022). The likely impact of simultaneous underwater cutting activities on the modelled results is also discussed; this type of activity was not measured during the Noise Monitoring Study. The modelled scenarios are detailed in Section 1.1.

The modelling study predicted the distances from the platform or rig at which underwater sound levels reached thresholds associated with potential injury and behavioural response in marine mammals. The primary species of interest are pygmy blue, southern right and humpback whales, common and bottlenose dolphins and Australian fur seals, therefore the functional hearing groups considered were for low- and high-frequency cetaceans and otariids. The marine mammal noise effect criteria used in this study are discussed in Section 2.

In this report, Section 3 summarises the methods and parameters used to model the sound fields. Section 4 presents the results as tables of distances to sound level thresholds associated with the possibility of permanent threshold shift (PTS), temporary threshold shift (TTS) and behavioural response. Maps are also used to show the noise footprints associated with the modelled activities. Section 5 discusses the results; a comparison between the presented results and previous modelling estimates is included. More details about the terminology used in this report can be found in the Glossary or in Appendix A; more details about the methodology used is provided in Appendix B.

## 1.1. Modelling Scenarios

Bass Strait is located off the Gippsland coast, south-eastern Australia; Figure 1 shows an overview of the study area. The BTA platform lies 26 km off the coast in 46 m water depth, and the KFB platform is located approximately 78 km offshore in 76 m water depth.

Further to the Noise Monitoring Study conducted in March-April 2021 (McPherson et al. 2022), distances to the pertinent sound level thresholds (listed in Section 2) were modelled for the BTA and KFB platforms on their own (Scenarios 1 and 4), with one attendant vessel (*Skandi Feistein*) under DP (Scenarios 2 and 5), and with two attendant vessels (*Skandi Feistein* and *MMA Leeuwin*) under transit (Scenarios 3 and 6). For these first six scenarios, listed in Table 1, the acoustic source was modelled at the centre of the platform. The source levels were derived during the Noise Monitoring Study (McPherson et al. 2022). These levels represent the sound emitted from all sources in each scenario (i.e., the platform and one or two attendant vessels in proximity to the platform in Scenarios 2, 3, 5 and 6). In Section 5.1.1, the results from these scenarios are compared to those from JASCO's modelling study for the SHA/TWA P&A campaign (McPherson and Koessler 2020).

The second set of scenarios (Scenarios 7 to 12; Table 1) are used to assess distances associated with a solo Offshore Supply Vessel (OSV) under DP (the *Skandi Feistein*), the platforms with a Multi-Purpose Supply Vessel (MPSV) under DP permanently alongside, and the platforms with an MPSV

plus an OSV alongside. The layout used for modelling the platform with one or two vessels alongside is presented in Figure 2. While the MPSV (vessel 1 in Figure 2) is assumed alongside for at least 24 h, the OSV is assumed stationary under DP (away from the platform) for periods of 2 h and 24 h (Scenarios 7 and 10), and alongside the platform (vessel 2 in Figure 2) for periods of 1 h and 2 h (Scenarios 9 and 12).

A generic production platform is considered in the third set of scenarios (Scenarios 13 to 15; Table 1). The acoustic source levels for this platform were derived from the analysis of the spectra for the BTA and KFB platforms, and it was located between the BTA and BTA and KFB platforms, in 60 m of water. Here again, the platform was modelled alone (Scenario 13), with one OSV under DP permanently alongside (Scenario 14) and with two OSVs under DP alongside, the second being there for a duration of 1 and 2 h. The same sound source layout as for Scenarios 7 to 12 was used (see Figure 2).

The last set of scenarios (Scenarios 16 and 17) are related to a future drilling campaign and considers the drilling operations of a jack-up rig, an attendant support vessel and a supply vessel. Here, the attendant support vessel is assumed to be keeping station within a nominal 2 km × 4 km box, just outside the 500 m zone around the jack-up rig, whilst the OSV under DP is assumed alongside the rig (vessel 1 in Figure 2) for periods of 2 h and 8 h.

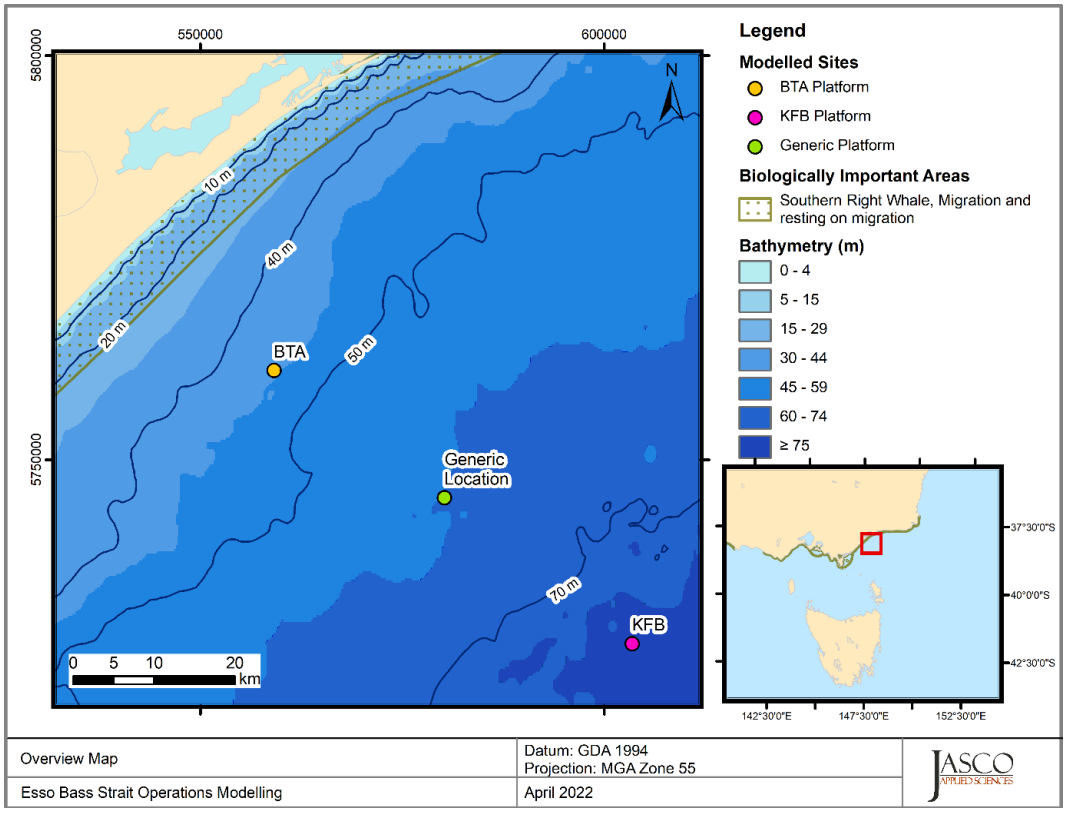



Figure 1. Overview of the Esso Bass Strait Operations modelling study area.

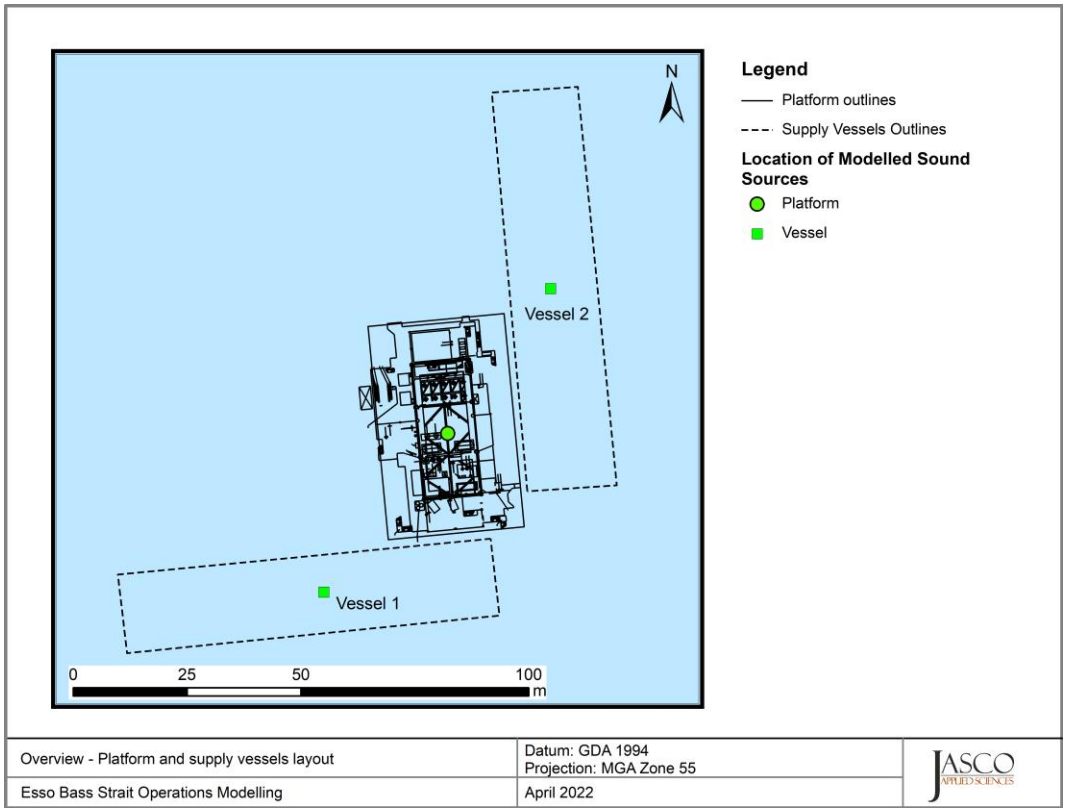



Figure 2. Layout used in modelling a platform with one and two vessels alongside. Vessel 1 is the MPSV and Vessel 2 is the OSV, both vessels are under DP.

Table 1. List of modelled scenarios. BTA: Barracouta platform; KFB: Kingfish B platform; OSV: offshore supply vessel; MPSV: multi-purpose supply vessel.

| Scenario | | | Main sound source location | | | |
|---|---|---|---|---|---|---|
| Group | # | Description | Name | Latitude, Longitude | Easting, Northing UTM Zone 55S | Water depth (m) |
| Platforms with/without one or two attendant vessels | 1 | BTA platform | BTA | 38° 17' 47.796" S, 147° 40' 33.708" E | 559114, 5761059 | 44 |
| | 2 | BTA platform with one attendant vessel | | | | |
| | 3 | BTA platform with two attendant vessels | | | | |
| | 4 | KFB platform | KFB | 38° 35' 49.524" S, 148° 11' 17.124" E | 603462, 5727264 | 75 |
| | 5 | KFB platform with one attendant vessel | | | | |
| | 6 | KFB platform with two attendant vessels | | | | |
| Supply vessel alone, platforms with one and two vessels | 7 | OSV stationary for 2 and 24 h periods, no platform included | BTA area | 38° 19' 34.586" S, 147° 42' 39.964" E | 562156, 5757744 | 49 |
| | 8 | BTA platform with MPSV permanently alongside | BTA | 38° 17' 47.796" S, 147° 40' 33.708" E | 559114, 5761059 | 44 |
| | 9 | BTA platform with an MPSV permanently alongside and an OSV alongside for 1 and 2 h periods | | | | |
| | 10 | OSV stationary for 2 and 24 h periods, no platform included | KFB area | 38° 33' 32.332" S, 148° 10' 13.724" E | 601982, 5731513 | 76 |
| | 11 | KFB platform with MPSV permanently on location | KFB | 38° 35' 49.524" S, 148° 11' 17.124" E | 603462, 5727264 | 75 |
| | 12 | KFB platform with an MPSV permanently on location and an OSV on station for 1 and 2 h periods | | | | |
| Generic platform with/without supply vessels | 13 | Generic platform | Generic location between BTA and KFB | 38° 26' 12.581" S, 147° 55' 08.855" E | 580217, 5745316 | 60 |
| | 14 | Generic platform and MPSV vessel permanently alongside | | | | |
| | 15 | Generic platform with an MPSV permanently on location and an OSV on station for 1 and 2 h periods | | | | |
| Jack-up rig and attendant vessel with/without supply vessel | 16 | Jack-up rig drilling and an attendant support vessel permanently on location | Generic location between BTA and KFB | 38° 26' 12.581" S, 147° 55' 08.855" E | 580217, 5745316 | 60 |
| | 17 | Jack-up rig drilling with an attendant support vessel permanently on location and a supply vessel alongside for 2 and 8 h periods | | | | |

# 2. Marine Mammal Noise Effect Criteria

To assess the potential effects of a sound-producing activity, it is necessary to first establish exposure criteria (thresholds) for which sound levels may be expected to have a negative effect on animals. Whether acoustic exposure levels might injure or disturb marine fauna is an active research topic. Since 2007, several expert groups have developed SEL-based assessment approaches for evaluating auditory injury, with key works including Southall et al. (2007), Finneran and Jenkins (2012), Popper et al. (2014), United States National Marine Fisheries Service (NMFS 2018) and Southall et al. (2019). The number of studies that investigate the level of behavioural disturbance to marine fauna by anthropogenic sound has also increased substantially.

Two sound level metrics, SPL and SEL, are commonly used to evaluate non-impulsive noise and its effects on marine life. In this report, the duration of the SEL accumulation is defined as integrated over a 24 h period. Appropriate subscripts indicate any frequency weighting applied (see Appendix A.4). The acoustic metrics in this report reflect the ANSI and ISO standards for acoustic terminology, ANSI S1.1 (S1.1-2013) and ISO 18405:2017 (2017).

The following thresholds and guidelines for this study were chosen because they represent the best available science, and sound levels presented in literature for fauna with no defined thresholds:

1. Frequency-weighted accumulated sound exposure levels (SEL; $L_{E,24h}$) from Southall et al. (2019) for the onset of permanent threshold shift (PTS) and temporary threshold shift (TTS) in marine mammals for non-impulsive sound sources.
2. Marine mammal behavioural threshold based on the current interim US National Oceanic and Atmospheric Administration (NOAA) (2019) criterion for marine mammals of 120 dB re 1 µPa (SPL; $L_p$) for non-impulsive sound sources.

Section 2.1 and Appendix A.3 expand on the thresholds for marine mammals.

## 2.1. Marine Mammals

The criteria applied in this study to assess possible effects of non-impulsive on marine mammals are summarised in Table 2. Cetaceans were identified as the hearing group requiring assessment. Details on thresholds related to auditory threshold shifts or hearing loss and behavioural response are provided in Appendix A.3, with frequency weighting explained in detail in Appendix A.4. Of particular note, whilst the newly published Southall et al. (2021) provides recommendations and discusses the nuances of assessing behavioural response, the authors do not recommend new numerical thresholds for onset of behavioural responses for marine mammals.

Table 2. Criteria for effects of non-impulsive noise exposure, including vessel noise, for marine mammals: Unweighted SPL and $SEL_{24h}$ thresholds.

| Hearing group | NOAA (2019) | Southall et al. (2019) | |
|---|---|---|---|
| | Behaviour | PTS onset thresholds (received level) | TTS onset thresholds (received level) |
| | SPL ($L_p$; dB re 1 µPa) | Weighted $SEL_{24h}$ ($L_{E,24h}$; dB re 1 µPa$^2$·s) | Weighted $SEL_{24h}$ ($L_{E,24h}$; dB re 1 µPa$^2$·s) |
| Low-frequency (LF) cetaceans | 120 | 199 | 179 |
| High-frequency (HF) cetaceans | | 198 | 178 |
| Other carnivores (including otariids) in water | | 219 | 199 |

$L_p$ denotes sound pressure level period and has a reference value of 1 µPa.
$L_E$ denotes cumulative sound exposure over a 24 h period and has a reference value of 1 µPa$^2$·s.

### 2.1.1. Behavioural Response

The NMFS non-pulsed noise criterion was selected for this assessment because it represents the most commonly applied behavioural response criterion by regulators. The distances at which behavioural responses could occur were therefore determined to occur in areas ensonified above an unweighted SPL of 120 dB re 1 µPa (NMFS 2014, NOAA 2019). Appendix A.3 provides more information about the development of these criteria.

### 2.1.2. Injury and Hearing Sensitivity Changes

There are two categories of auditory threshold shifts or hearing loss: permanent threshold shift (PTS), a physical injury to an animal's hearing organs; and temporary threshold shift (TTS), a temporary reduction in an animal's hearing sensitivity as the result of receptor hair cells in the cochlea becoming fatigued.

To assist in assessing the potential for effect on marine mammals, this report applies the criteria recommended by Southall et al. (2019), considering both PTS and TTS (see Table 2). Appendix A.3 provides more information about the Southall et al. (2019) criteria.

# 3. Methods and Parameters

JASCO's Marine Operations Noise Model (MONM-BELLHOP), in combination with the various operations' source level spectra, was used to predict the site-specific underwater acoustic sound fields. This section provides a high-level description of the model inputs. It is divided into subsections detailing the sound sources considered, the applied modelling technique and the project-specific configuration. The terminology used is defined in the Glossary and in Appendix A. More details about the methods and the input parameters can be found in Appendix B.

## 3.1. Sound Sources

In this study, operational underwater sound is produced by production platforms, vessels, and a jack-up drill rig. The various monopole source level (MSL) spectra used to model the 17 scenarios and their provenance are described in Sections 3.1.1 to 3.1.3.

### 3.1.1. Production Platforms

The equipment operating onboard any platform can contribute to underwater sound; it is expected that the dominant pathway for sound generation is structure-borne (i.e., vibration from machinery passing through the legs or hull) as opposed to air-born (Spence et al. 2007). Fixed platforms and jack-up rigs have lower radiated sound levels than floating platforms (Spence et al. 2007). The equipment on floating platforms can be located below the water line, while the machinery on elevated platforms is located above the waterline. Underwater noise produced from platforms standing on metal jack-up legs is also lower given the small surface areas available for sound transmission compared to that of the hull of a floating platform.

#### 3.1.1.1. BTA and KFB Platforms

The BTA platform is a fixed installation consisting of an eight-legged steel piled jacket with 10 conductor slots; the Kingfish B platform is a fixed installation consisting of an eight-legged steel piled jacket with 21 conductor slots. During the monitoring program (McPherson et al. 2022), the BTA and KFB platforms operated normally. The monopole source level spectra for the platforms in isolation were derived during the monitoring project; these spectra (see Figure 3) were used in scenarios 1 (BTA) and 4 (KFB), as well as Scenarios 7 to 9 (BTA) and 10 to 12 (KFB).

The spectral levels for the BTA platform (broadband MSL of 150.1 dB re 1 µPa; 20 Hz to 63 kHz) present higher levels at for higher frequencies (≥ 10 kHz) which is likely due to the sound of snapping shrimps. On the other hand, the KFB platform (broadband MSL of 153.2 dB re 1 µPa; 20 Hz to 63 kHz) presents higher levels at low frequencies (< 80 Hz), likely due to mooring flow noise.

As for the back propagation of the received levels in the monitoring project, the monopole sound sources representing the platforms in this study were placed in the middle of the water column, that is, at 22 m for the BTA platform and 38 m for the KFB platform.

Distances to PTS, TTS, and behavioural thresholds were also calculated for the platforms in operation with one and two attendant vessels in the vicinity of the platforms (Scenarios 2, 3, 5 and 6). For these scenarios, the source level spectrum for the platform in isolation (used for Scenarios 1 and 4) was replaced by the MSL spectrum representing all sound sources, i.e., the platform plus one or two attendant vessels, which were also derived during the monitoring project (McPherson et al. 2022). The first attendant vessel was the *Skandi Feistein* and the second was the *MMA Leeuwin* (extended details are provided in Section 3.1.2). In these scenarios, since the vessels are the main sources of sound, the modelled monopole source was located at 3.6 m, the mean depth at which cavitation would

occur for recorded vessels. Figure 3 compares these spectra to the spectrum for the BTA (left) and KFB (right) platforms in isolation.

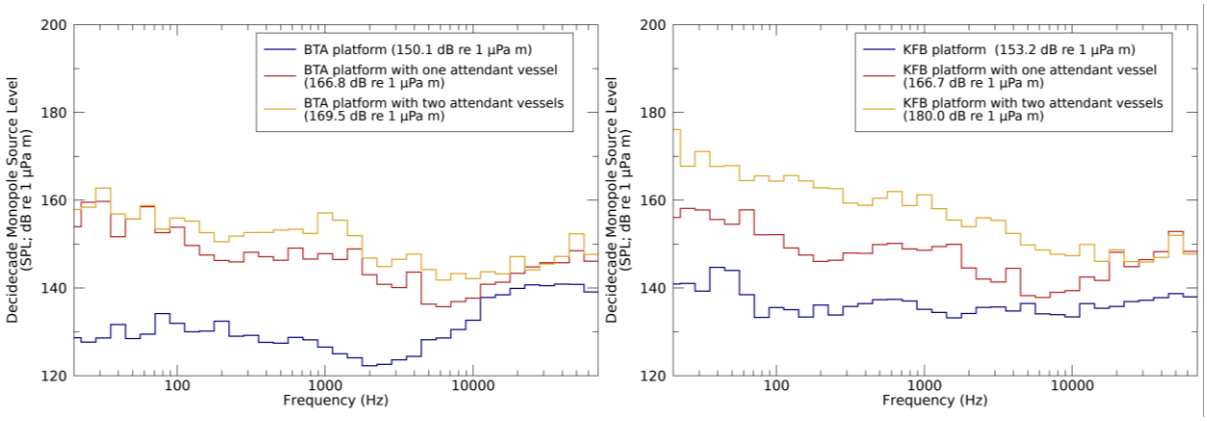
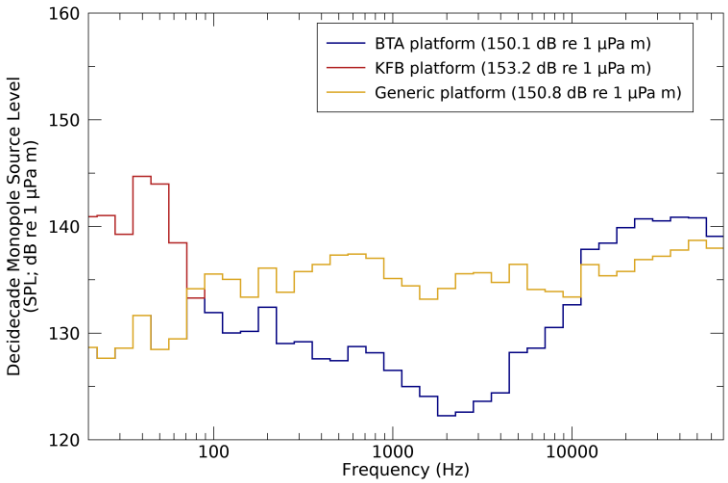



Figure 3. Monopole Source Level (MSL) spectra representing (left) the BTA and (right) the KFB platforms in isolation (blue), with one (red) and with two (yellow) attendant vessels (the *Skandi Feistein* and the *MMA Leeuwin*).

### 3.1.1.2. Generic Platform

The monitoring program recommended the creation of a composite platform MSL spectrum to better represent a generic platform. To create a conservative, but generic spectra, the BTA platform spectral levels were used at frequency ≤ 80 Hz and the level for the KFB platform were used at all higher frequencies. This eliminates the possible flow noise at low frequencies, and the noise from snapping shrimps at high frequencies, as mentioned above (Section 3.1.1.1). The monopole source representing the generic platform was also modelled in the middle of the water column, i.e., at a depth of 30 m. Figure 4 compares the spectra for the BTA, KFB and generic platforms.




3.1.

Figure 4. Monopole Source Level (MSL) spectra representing the BTA (blue) and the KFB platforms (red) and the generic platform (yellow).

## Vessels

Underwater sound that radiates from vessels is produced mainly by propeller and thruster cavitation, with a smaller fraction of noise produced by sound transmitted through the hull, such as by engines, gearing, and other mechanical systems. In general, a vessel produces broadband acoustic energy

with most of the energy emitted below a few kilohertz. Sound levels tend to be the highest when thrusters are used to position the vessel and when the vessel is transiting at high speeds. Sound from onboard machinery, particularly sound below 200 Hz, dominates the sound spectrum before cavitation begins (Spence et al. 2007). A vessel's sound signature depends on the vessel's size, power output, propulsion system (e.g., conventional propellers vs. Voith Schneider propulsion), and the design characteristics of the given system (e.g., blade shape and size).

Three similar classes of vessels were modelled in this study: an offshore supply vessel (OSV), a multi-purpose supply vessel (MPSV), and an attendant support vessel. The OSV and MPSV were modelled while alongside the production platforms, using dynamic positioning (DP) system to keep station (Scenarios 8 to 17). The OSV was also modelled alone, using DP while away from the platforms (Scenarios 7 and 10). The attendant support vessel was modelled while on standby, transiting through a defined standby box near the jack-up rig (Scenarios 16 and 17 only).

During the monitoring program, measurements from two vessels were analysed (McPherson et al. 2022), and the derived decidecade MSL spectra were used in this study. The OSV and the attendant support vessel spectra were derived from measurements of the *Skandi Feistein* (Figure 5; left), a DP Class 2 vessel operated by the DOF Group (DOF Group 2022). Measurements of the *Skandi Feistein* while using DP were used derived the average decidecade MSL of the OSV. Measurements for the same vessel transiting at 11.6 and 10.9 knots were averaged and scaled for a speed of 4 knots using the recommended speed scaling factor for tugs (the most similar vessel category to the *Skandi Feistein*) by MacGillivray and Li (2018).

The MPSV spectra were derived from measurements of the *MMS Leeuwin*, a DP Class 2 vessel operated by *MMA* Offshore Limited (MMA Offshore Limited 2022). Figure 6 compared the MSL spectra of the vessels used in this study. Note that the OSV modelled at the KFB platform is defined by more conservative MSL then at the BTA platform. Therefore, it was also used with the generic platform (Scenario 15) and the jack-up rig (Scenario 17).

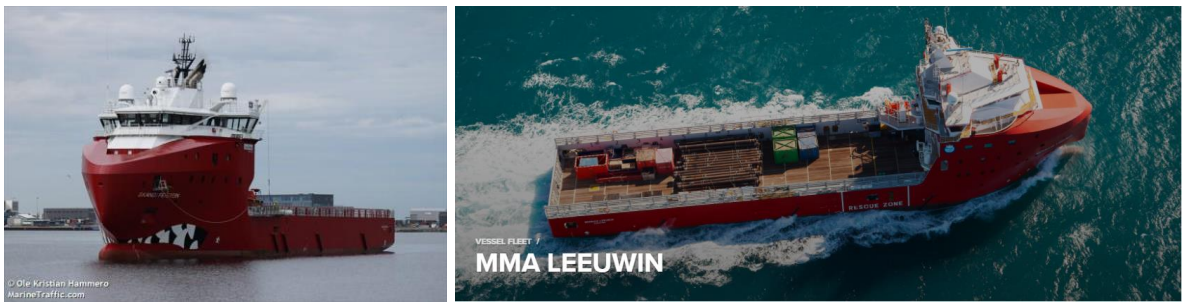



Figure 5. Photographs of the *Skandi Feistein* (left; photo credit Marine Traffic) and the MMA Leeuwin (right; photo credit MMA Offshore Limited).

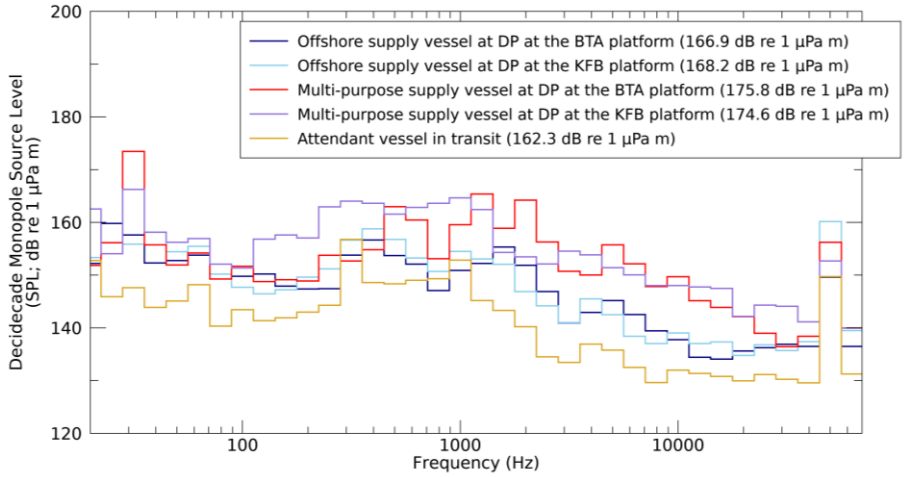



Figure 6. Monopole Source Level (MSL) spectra representing the vessels used in multiple scenarios.

## 3.1.3. Jack-Up Drill Rig

Jack-up rigs are a type of mobile offshore drilling unit; they are not fixed, like the BTA and KFB platforms, and are usually less self-sufficient than fixed platforms. Therefore, they usually require an attendant vessel standing-by within a certain distance from the rig.

Todd et al. (2020) reported on the near-field recordings of underwater noise from the sides of a jack-up rig during drilling operations in the North Sea (water depth of 40 m). Measurements were made of the *Noble Kolskaya*, a three-legged cantilever type jack-up rig, 69 m long and 80 m wide (Todd et al. 2020, Wikipedia 2022). The reported decidecade received levels for drilling operations (25 Hz to 12.5 kHz) were back propagated assuming spherical spreading over a distance of 60 m, to provide conservative estimates of the MSL. The spectrum was extrapolated by continuing the attenuation of the last decidecade, that is assuming a 10 dB per decade at frequencies below 25 Hz, and 25 dB per decade at frequencies above 12.5 kHz. Figure 7 compares the spectrum for the jack-up drilling rig to the spectra for the OVS and the attendant support vessel modelled in operation with the rig (Scenarios 16 and 17).

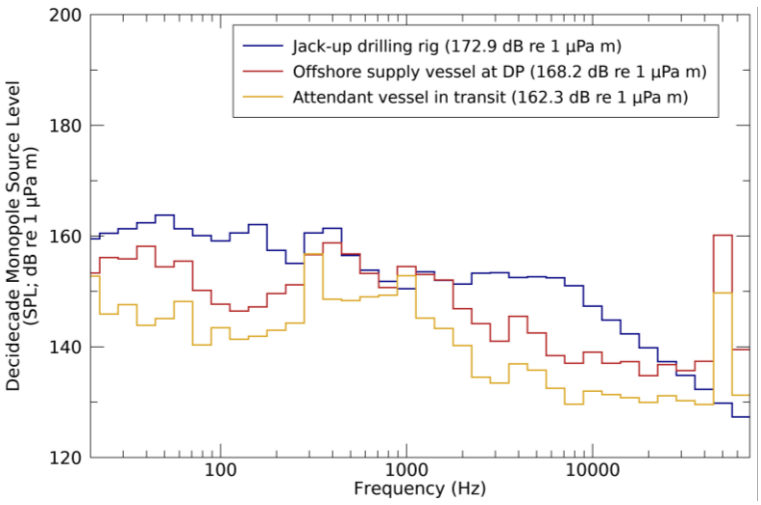



Figure 7. Monopole Source Level (MSL) spectra representing the jack-up rig during drilling operations (blue), with the offshore supply vessels (red) and the attendant support vessel transiting within the standby box (yellow).

## 3.2. Sound Propagation Model and Configuration

JASCO's Marine Operations Noise Model (MONM-BELLHOP; see Appendix B.2.2) was used to predict the underwater acoustic propagation loss at the modelled sites at frequencies of 20 Hz to 63 kHz. This model considers the environmental variations along the propagation path (see Appendix B.1). The final acoustic fields combine the acoustic source levels (see Section 3.1) with the site-specific propagation loss fields.

To assess sound levels with MONM-BELLHOP, the sound field modelling calculated propagation losses up to distances of 100 km from the source in each cardinal direction, with a horizontal separation of 20 m between receiver points along the modelled radials. The sound fields were modelled with a horizontal angular resolution of $\Delta\theta$ = 2.5° for a total of N = 144 radial planes. Receiver depths were chosen to span the entire water column over the modelled areas, from 1 m to a maximum of 2700 m, with step sizes that increased with depth. To supplement the MONM results, high-frequency results for propagation loss were modelled using BELLHOP (Porter and Liu 1994) for frequencies from 1.25 to 63 kHz. The MONM and BELLHOP results were combined to produce results for the full-frequency range of interest.

To produce the maps of the sound footprint, received level isopleths, and to calculate distances to specified sound level thresholds, the sound field on radial planes are resampled (by linear triangulation) to produce a regular Cartesian grid (with a cell size of 20 m) and the maximum-over-depth level is calculated at each grid point within the modelled region. The sound field grids from all sources are then summed (see Equation A-3) to produce the cumulative sound field grid. The contours and threshold ranges are calculated from these flat Cartesian projections of the modelled acoustic fields.

## 3.3. Accumulated SEL

While the criterion for potential behavioural responses is based on SPL, the criteria for potential PTS and TTS are based on dose-type measurements, i.e., the SEL accumulated over a 24 h period. Platforms, drill rigs and vessels continuously produce sound while in operation. The reported source levels are usually in terms of sound pressure levels (SPL), representing the average acoustic level of each source that could be recorded at any time during specific operations. It is equivalent to the SEL accumulated over 1 s (more details are provided in Appendix A.1). The evaluation of the cumulative sound field (e.g., in terms of 24 h SEL) depends on the number of seconds of operation during the accumulation period (e.g., 24 h), as well as the sound source location.

For sound sources that are stationary (i.e., the platforms, the jack-up rig and the vessels while at DP), the 1-s sound field is simply accumulated over the duration of the operation within the prescribed accumulative period of 24 h. For vessels in transit (i.e., the attendant support vessel in Scenarios 16 and 17), it would be computationally prohibitive to perform sound propagation modelling for every vessel position with an interval of 1 s over a period of 24 h. In the present case, the vessel speed (2 m/s or 4 knots) and, therefore, the distance between consecutive vessel positions, is small enough that the environmental parameters that influence sound propagation are virtually the same for many positions. Consequently, the acoustic fields can be modelled for a subset of vessel positions over the 24 h period. After sound fields from representative vessel locations are calculated, they are adjusted to account for the nearby positions. For Scenarios 16 and 17, 18 positions of the attendant support vessel (i.e., one position every 8 minutes) were selected using the random walk method to simulate the vessel keeping station within a 2 km × 4 km box.

Although estimating the cumulative sound field with the described approach is not as precise as modelling sound propagation at every vessel position, small-scale, site-specific sound propagation features tend to blur and become less relevant when sound fields from adjacent positions are

summed. Larger scale sound propagation features, primarily dependent on water depth, dominate the cumulative sound field. The accuracy of the present method acceptably reflects those large-scale features, thus providing a meaningful estimate of a wide area SEL field in a computationally feasible framework.

# 4. Results

The maximum-over-depth sound fields for the 17 modelled scenarios (described in Section 1.1) are presented below in two formats: as tables of distances to sound levels thresholds and, where the distances are long enough, as contour maps showing the directivity and extent of the various sound level isopleths. The tabulated distances were calculated from the centre of the platform or rig. When vessels are alongside, this distance is maximal in the direction of the vessel and may not be as long in the opposite direction.

Section 4.1 presents the results for Scenarios 1 to 6: the operation of the BTA and KFB production platforms in isolation, with one attendant vessel, and with two attendant vessels (the *Skandi Feistein* and the *MMA Leeuwin*). These results are later compared with modelling results conducted before the monitoring program (see Section 5.1.1).

Section 4.2 presents the results for Scenarios 7 to 12: a stationary OSV in isolation, the BTA and KFB platforms with an MPSV permanently alongside, and the platforms with an MPSV plus an OSV alongside for 1 h or 2 h. Unlike for Scenarios 1 to 6, the sound sources for the platforms and vessels were modelled separately and the individual fields were summed to create the composite sound fields. This method allows the specific positioning of the vessels alongside the platform (10 m separation was assumed between the edge of the platform and the vessel) and for limiting the duration of the supply operations to less than 24 h.

Section 4.3 presents the results for Scenarios 13 to 15: a generic production platform in isolation, with an MPSV permanently alongside, and with an MPSV plus an OSV alongside for 1 h or 2 h. The same modelling method as for Scenarios 7 to 12 was used here. The generic platform was positioned in 60 m of water, between the BTA and the KFB platforms, and representative of the Esso Bass Strait platforms and assets in general.

Finally, Section 4.4 presents the results for Scenarios 16 and 17: a jack-up rig during drilling operation with an attendant support vessel on standby, and with an OSV alongside the jack-up rig for 2 h and 8 h. The attendant support vessel is assumed to be transiting at a speed of 4 knots within a 2 km x 4 km box, with one of its boundaries 500 m from the jack-up rig. Here, distances to behavioural response thresholds are given for two limiting cases: when the attendant support vessel is closest and farthest from the rig.

## 4.1. BTA and KFB Platforms with/without One or Two Vessels

Table 3. *Scenarios 1 to 6:* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1.

| Effect thresholds | | | Scenario | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BTA platform | | | | | | KFB platform | | | | | |
| | | | 1 (Platform) | | 2 (with one vessel) | | 3 (with two vessels) | | 4 (Platform) | | 5 (with one vessel) | | 6 (with two vessels) | |
| | | | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ |
| Injury | LFC | PTS | – | – | – | – | – | – | – | – | – | – | – | – |
| | | TTS | – | – | 30 | 30 | 90 | 100 | – | – | 45 | 45 | 285 | 290 |
| | HFC | PTS | – | – | – | – | – | – | – | – | – | – | – | – |
| | | TTS | – | – | – | – | 20 | 20 | - | - | 20 | 20 | 30 | 30 |
| | OCW | PTS | – | – | – | – | – | – | – | – | – | – | – | – |
| | | TTS | – | – | – | – | – | – | – | – | – | – | – | – |
| Behavioural response | | | 30 | 30 | 360 | 395 | 710 | 745 | 55 | 55 | 280 | 290 | 2095 | 2160 |

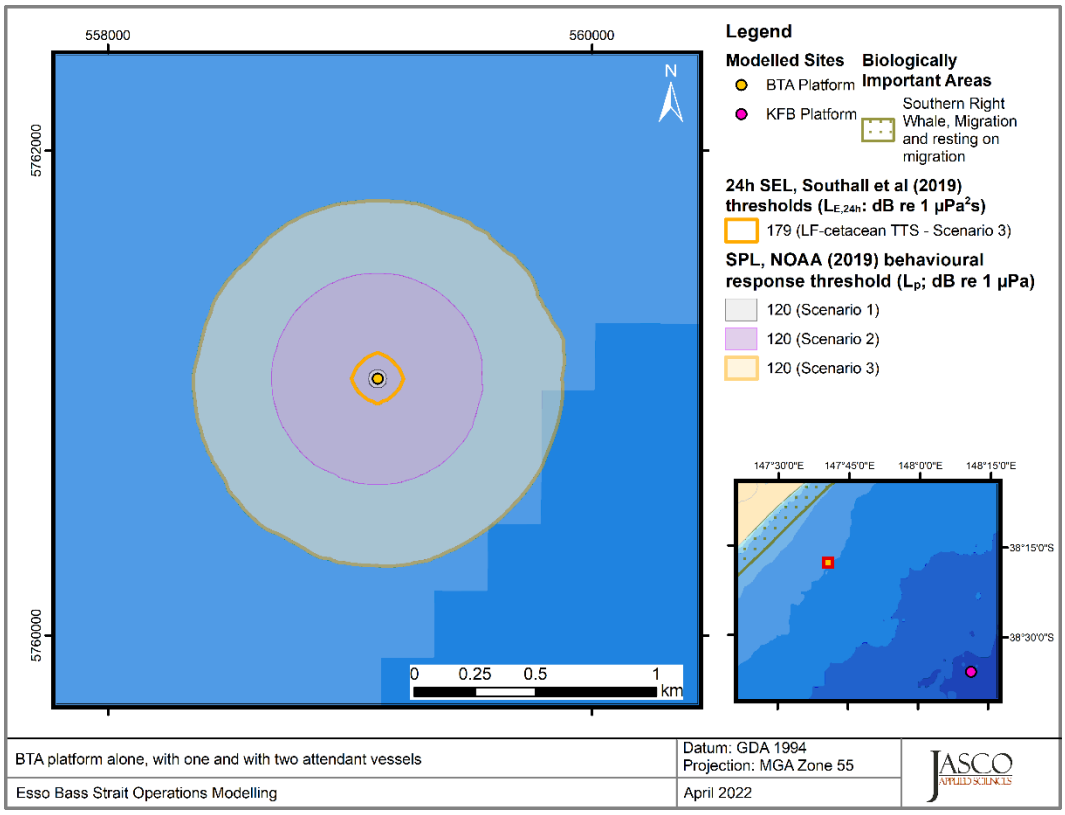



Figure 8. *Scenarios 1 to 3, BTA alone, with the Skandi Feistein, and also with the MMA Leeuwin*: Sound level contour map showing isopleths to injury (frequency-weighted maximum-over-depth SEL 24 h) and behavioural response (unweighted maximum-over-depth SPL) thresholds. Scenarios detailed in Table 1.

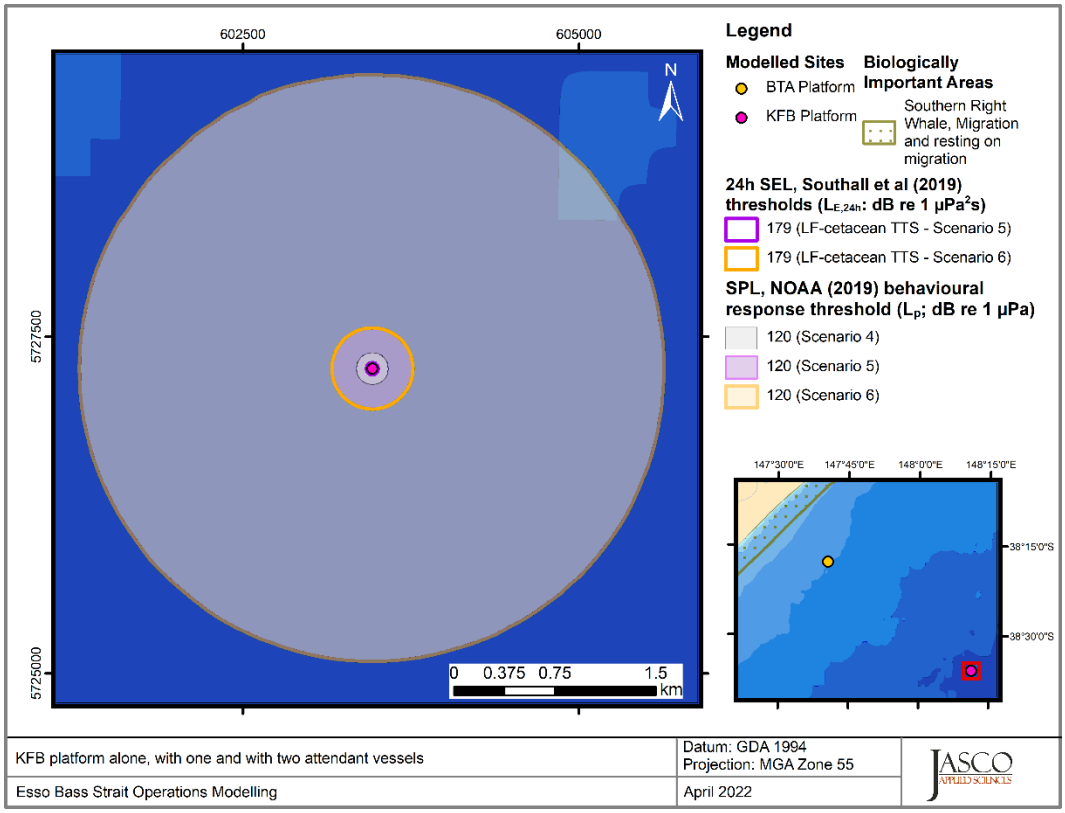



Figure 9. *Scenarios 4 to 6, KFB, Skandi Feistein, and MMA Leeuwin*: Sound level contour map showing isopleths to injury (frequency-weighted maximum-over-depth SEL 24 h) and behavioural response (unweighted maximum-over-depth SPL) thresholds. Scenarios detailed in Table 1.

## 4.2. Offshore Supply Vessel, Platforms with One or Two Vessels

Table 4. *Scenarios 7 to 9 (near BTA):* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1.

| Effect thresholds | | | Scenario | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 7 (2 h)* (OSV) | | 7 (24 h)* (OSV) | | 8 (Platform and MPSV) | | 9 (1 h)* (Platform, MPSV and OSV) | | 9 (2 h)* (Platform, MPSV and OSV) | |
| | | | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ |
| Injury | LFC | PTS | – | – | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| | | TTS | – | – | 70 | 70 | 300 | 330 | 300 | 330 | 300 | 330 |
| | HFC | PTS | – | – | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| | | TTS | – | – | – | – | 75† | 75† | 75† | 75† | 75† | 75† |
| | OCW | PTS | – | – | – | – | – | – | – | – | – | – |
| | | TTS | – | – | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| Behavioural response | | | 490 | 515 | 490 | 515 | 1460 | 1640 | 1670 | 1800 | 1670 | 1800 |

* During the accumulation period of 24 h, the OSV is operating for 1 or 2 h, the other sources are operating continuously.
† Distance from the centre of the platform, toward the MPSV vessel permanently alongside, n/a in the other directions.

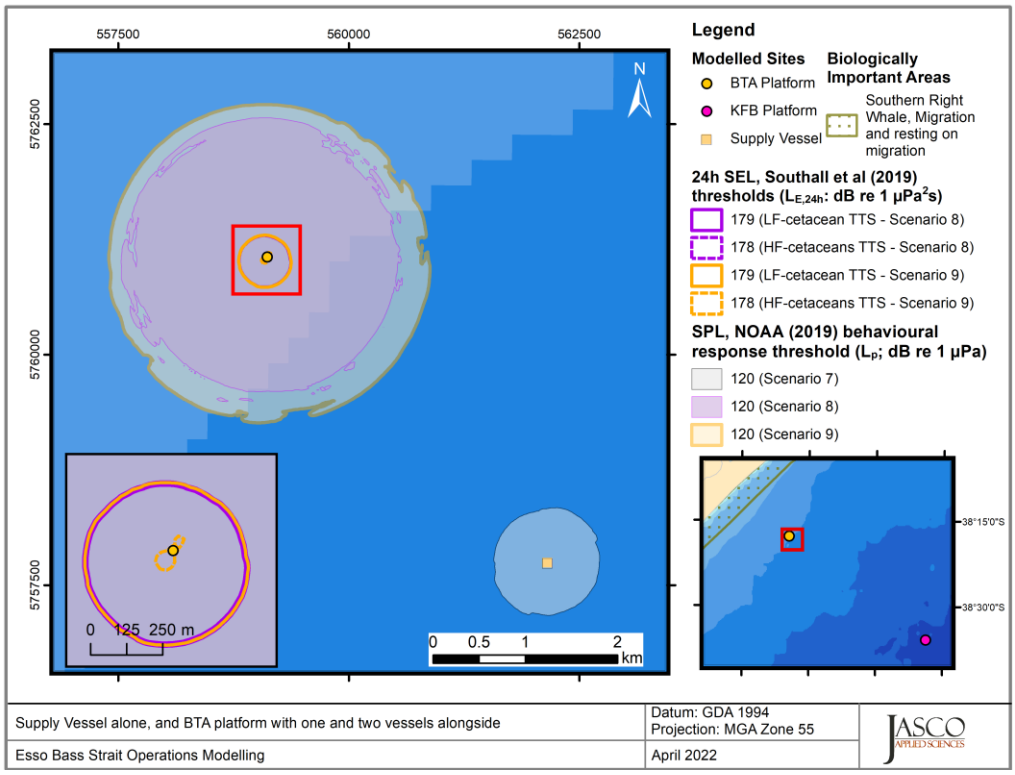



Figure 10. *Scenarios 7 to 9, BTA, with MPSV, and also with OSV*: Sound level contour map showing isopleths to injury (frequency-weighted maximum-over-depth SEL 24 h) and behavioural response (unweighted maximum-over-depth SPL) thresholds. Scenarios detailed in Table 1.

Table 5. *Scenarios 10 to 12 (near KFB):* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1.

| Effect thresholds | | | Scenario | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 10 (2 h)* (OSV) | | 10 (24 h) (OSV) | | 11 (Platform and MPSV) | | 12 (1 h)* (Platform, MPSV and OSV) | | 12 (2 h)* (Platform, MPSV and OSV) | |
| | | | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ |
| Injury | LFC | PTS | – | – | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| | | TTS | 20 | 20 | 85 | 85 | 350 | 375 | 350 | 380 | 350 | 380 |
| | HFC | PTS | – | – | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| | | TTS | – | – | 30 | 30 | 75† | 75† | 75† | 75† | 75† | 75† |
| | OCW | PTS | – | – | – | – | – | – | – | – | – | – |
| | | TTS | – | – | – | – | 60† | 60† | – | – | – | – |
| Behavioural response | | | 500 | 555 | 500 | 555 | 2420 | 2765 | 2725 | 2820 | 2725 | 2820 |

* During the accumulation period of 24 h, the OSV is operating for 1 or 2 h, the other sources are operating continuously.
† Distance from the centre of the platform, toward the MPSV permanently alongside, n/a in the other directions.

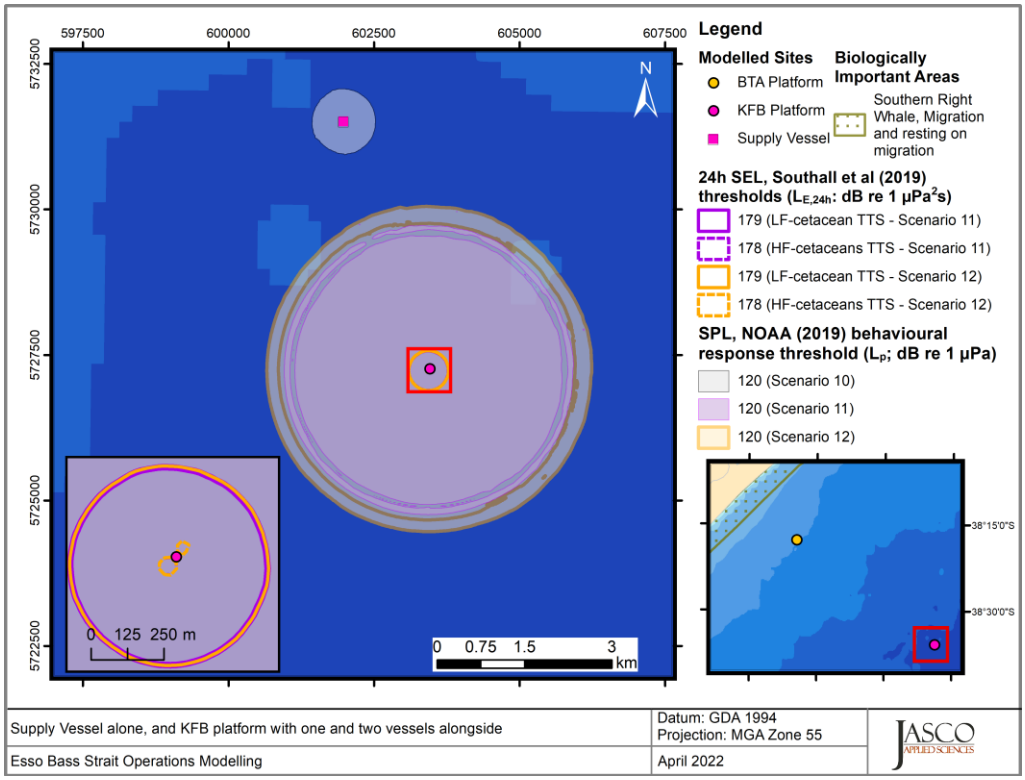



Figure 11. *Scenarios 10 to 12, KFB, with MPSV, and also with OSV*: Sound level contour map showing isopleths to injury (frequency-weighted maximum-over-depth SEL 24 h) and behavioural response (unweighted maximum-over-depth SPL) thresholds. Scenarios detailed in Table 1.

## 4.3. Generic Platform with/without One or Two Vessels

Table 6. *Scenarios 13 to 15, Generic Platform:* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). Scenarios detailed in Table 1.

| Effect thresholds | | | Scenario | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 13 (Platform) | | 14 (Platform and MPSV) | | 15 (1 h)* (Platform, MPSV and OSV) | | 15 (2 h)* (Platform, MPSV and OSV) | |
| | | | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ |
| Injury | LFC | PTS | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| | | TTS | – | – | 400 | 435 | 400 | 435 | 400 | 435 |
| | HFC | PTS | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| | | TTS | – | – | 75† | 75† | 75† | 75† | 75† | 75† |
| | OCW | PTS | – | – | – | – | – | – | – | – |
| | | TTS | – | – | 60† | 60† | 60† | 60† | 60† | 60† |
| Behavioural response | | | 30 | 30 | 2485 | 2715 | 2720 | 3090 | 2720 | 3090 |

* During the accumulation period of 24 h, the supply vessel is operating for 1 or 2 h, the other sources are operating continuously.

† Distance from the centre of the platform, toward the MPSV permanently alongside, n/a in the other directions.

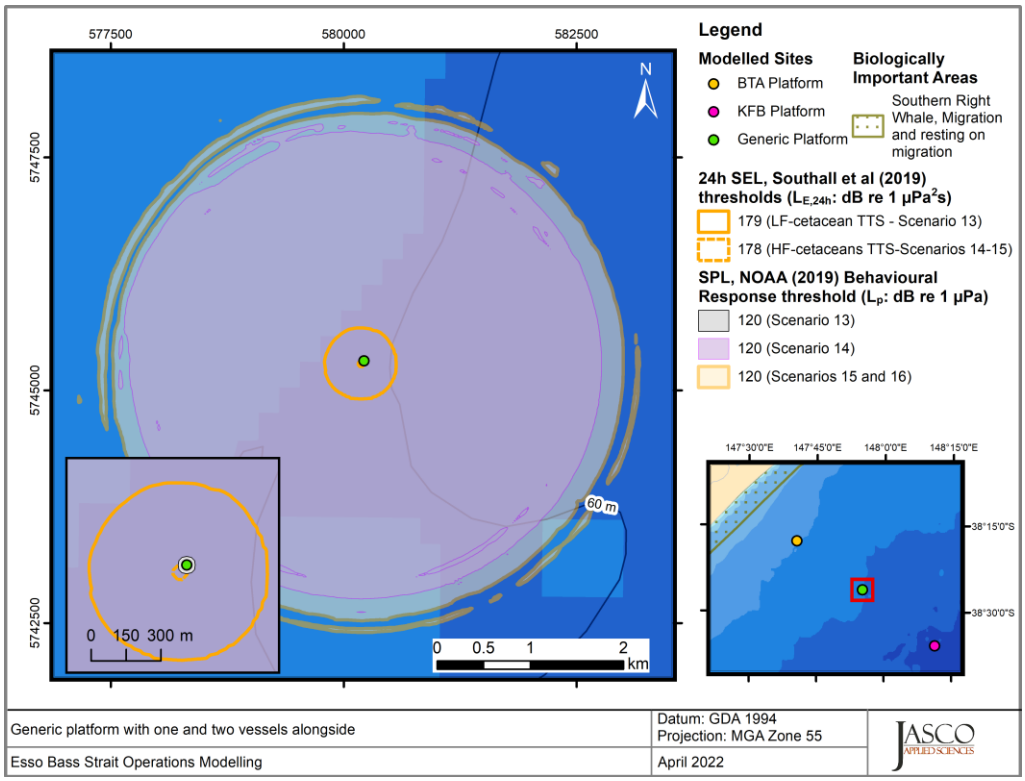



Figure 12. *Scenarios 13 to 15, Generic Platform, with MPSV, and also with OSV*: Sound level contour map showing isopleths to injury (frequency-weighted maximum-over-depth SEL 24 h) and behavioural response (unweighted maximum-over-depth SPL) thresholds. Scenarios detailed in Table 1.

## 4.4. Jack-Up Drilling Rig and an Attendant Support Vessel, with/without an OSV

Table 7. *Scenarios 16 and 17, BTA:* Distances (m) to permanent threshold shift (PTS), temporary threshold shift (TTS), and behavioural response of low-frequency cetaceans (LFC), high-frequency cetaceans (HFC), and other carnivores in water (OCW). All distances are calculated from the centre of the platform. Scenarios detailed in Table 1.

| Effect thresholds | | | Scenario | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 16 (Jack-up with support vessel) | | 17 (2 h)* (Jack-up, support vessel and OSV) | | 17 (8 h)* (Jack-up, support vessel and OSV) | |
| | | | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ |
| Injury | LFC | PTS | – | – | – | – | – | – |
| | | TTS | 160 | 170 | 165 | 170 | 185 | 190 |
| | HFC | PTS | – | – | – | – | – | – |
| | | TTS | – | – | – | – | 30 | 30 |
| | OCW | PTS | – | – | – | – | – | – |
| | | TTS | – | – | – | – | – | – |
| Behavioural response | Attendant vessel closest to the jack-up rig | | 2570 | 2755 | 2800 | 2945 | 2800 | 2945 |
| | Attendant vessel farthest from the jack-up rig | | 2840 | 3670 | 2950 | 3700 | 2950 | 3700 |

* During the accumulation period of 24 h, the OSV is operating for 2 or 8 h, the other sources are operating continuously.

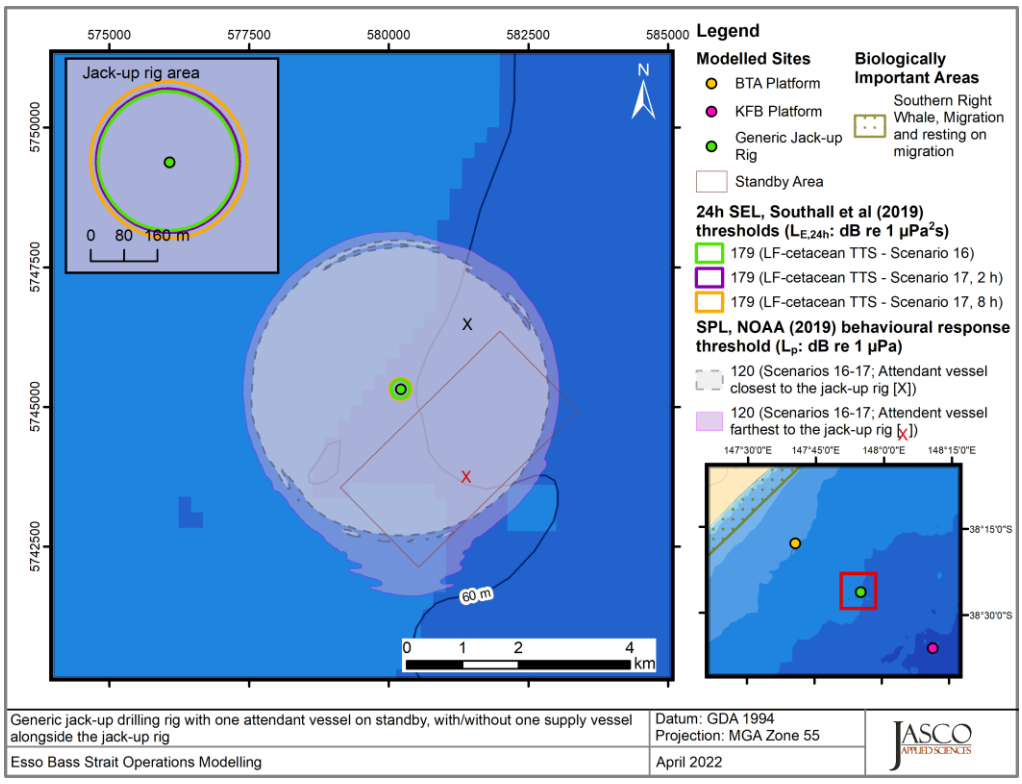



Figure 13. *Scenarios 16 to 17, BTA, OSV under DP, and support vessel under transit in standby box*: Sound level contour map showing isopleths to injury (frequency-weighted maximum-over-depth SEL 24 h) and behavioural response (unweighted maximum-over-depth SPL) thresholds. Scenarios detailed in Table 1.

# 5. Discussion and Conclusion

This modelling study predicted underwater sound levels associated with production platforms, a jack-up drilling rig and the associated attendant vessels. Maximum and 95$^{th}$ percentile distances ($R_{max}$ and $R_{95\%}$) were computed to marine mammal PTS, TTS, and behavioural response thresholds. This section discusses the modelled results and the possible effects of simultaneous cutting operations.

For the purpose of discussing the possible effects of simultaneous cutting operations, the spectrum derived by McPherson and Koessler (2020) for a diamond wire saw operated via a remotely operated vehicle (ROV) is considered. This spectrum peaks at 10 kHz, with a broadband MSL of 161.4 dB re 1 µPa m.

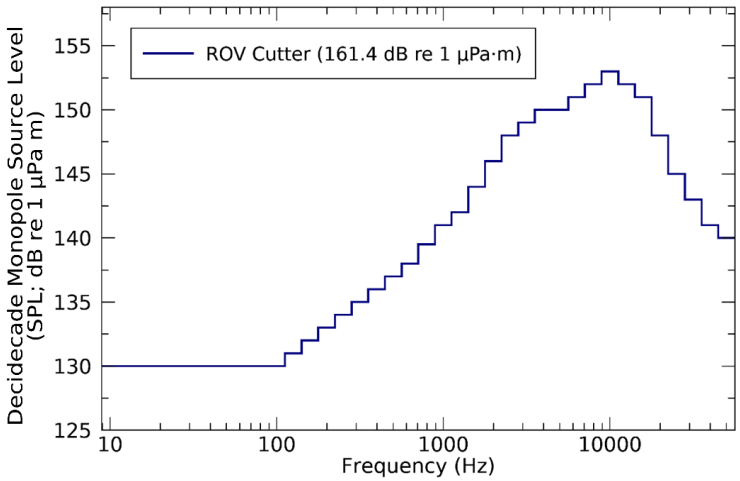



Figure 14. Monopole Source Level (MSL) spectra representing a diamond wire saw operated via a remotely operated vehicle (ROV cutter; McPherson and Koessler 2020).

## 5.1. BTA and KFB Platforms with One or Two Vessels

Further to the Noise Monitoring Study conducted in March-April 2021 (McPherson et al. 2022), distances to the pertinent sound level thresholds (listed in Section 2) were modelled for the BTA and KFB platforms on their own (Scenarios 1 and 4), with one attendant vessel under DP (*Skandi Feistein*) (Scenarios 2 and 5) and with two attendant vessels under DP (*Skandi Feistein* and *MMA Leeuwin*) (Scenarios 3 and 6). For these first six scenarios, listed in Table 1, the acoustic source levels were derived during the Noise Monitoring Study (McPherson et al. 2022).

Distances to marine mammal effect thresholds were modelled to further the Noise Monitoring Study conducted in March-April 2021 (McPherson et al. 2022). The results show that noise levels from production platforms in isolation do not results in levels high enough for potential injury, and the distances to behavioural response are relatively small (30 m at BTA; 55 m at KFB).

The presence of attendant vessels at the platforms, however, results in TTS exceedance close to the platform, with PTS not predicted. The distances to TTS thresholds are shorter at BTA (30 to 100 m for low-frequency cetaceans and ≤ 20 m for high-frequency cetaceans) than at KFB (45 to 290 m for low-frequency cetaceans and 20 to 30 m for high-frequency cetaceans). The distances to potential behavioural response increase significantly with the presence of vessels, with distances of up to 2.16 km at the KFB platform with two vessels present.

If cutting operations were to happen at the BTA or KFB platforms, at least one vessel (operating the ROV) would be present near the platform. Based on the ROV cutter spectrum (Figure 14) and the spectra for the platforms with one and two vessels (Figure 3; red and yellow lines), sound levels may

increase at frequencies between approximately 3 and 20 kHz. Since MSL at low frequencies (below a few 100 Hz) remain the dominant frequencies, distances to effect thresholds for low-frequency cetaceans are not expected to increase in a meaningful way. Distances to injury thresholds for high-frequency cetaceans, however, may increase slightly (likely by less than 100 m). Distances to behavioural response are not expected to increase significantly, with changes likely to be in the tens of metres.

### 5.1.1. Comparison with Modelling Results for the Seahorse/Tarwhine Plug and Abandonment Campaign

In September 2020, JASCO presented a modelling study of underwater sound levels associated with the Esso Seahorse/Tarwhine Plug and Abandonment (P and A) Campaign. In this study, the jack-up rig *Tom Prosser* was modelled under normal drilling operations (McPherson and Koessler 2020):

- Scenario 1: jack-up rig in isolation,
- Scenario 2: with an attendant vessel 1 km from the platform under DP (25% MCR),
- Scenario 3: with an attendant vessel 1 km from the platform under DP (25% MCR), a ROV vessel next to the platform (25% MCR), and ROV cutting tools under the platform
- Scenario 4: with an OSV under DP next to the platform (45% MCR).

At the jack-up rig, the water depth was 41 m, similar to that at the BTA platform (44 m). Scenario 1 for the Seahorse/Tarwhine P and A Campaign is therefore comparable to Scenario 1 for the current study. Scenarios 2 and 3 for the Seahorse/Tarwhine P and A Campaign are not comparable to the scenarios in the current study since the attendant vessel for the jack-up rig was assumed stationary at 1 km from the rig, whilst more operationally relevant mobile slow transit representations are now used. The attendant vessel near the BTA platform was recorded when it was conducting resupply operations at the platform, therefore Scenario 4 for the Seahorse/Tarwhine P and A Campaign modelling can be compared to current Scenario 2 (BTA platform with one vessel). Table 8 compared the distances to marine mammal effect thresholds modelled in the current study and for the Seahorse/Tarwhine P and A Campaign.

Table 8. Distances (m) to permanent threshold shift (PTS) and temporary threshold shift (TTS) of low-frequency cetaceans (LFC), and marine mammal behavioural response for the current study (BTA platform) and the Seahorse/Tarwhine P and A Campaign (Jack-up rig Tom Prosser; McPherson and Koessler 2020).

| Effect thresholds | | | Scenario | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | BTA platform | | | | Jack-up rig *Tom Prosser* | | | |
| | | | 1 (Platform) | | 2 (Platform and one vessel) | | 1 (Jack-up rig) | | 4 (Platform and one vessel) | |
| | | | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ | $R_{95\%}$ | $R_{max}$ |
| Injury | LFC | PTS | - | - | - | - | n/a | - | n/a | 30 |
| | | TTS | - | - | 30 | 30 | n/a | 30 | n/a | 550 |
| Behavioural response | | | 30 | 30 | 360 | 395 | 210 | 220 | 4510 | 3870 |

In general, the distance to the effect thresholds is greater for the jack-up rig than the BTA platform. This can be attributed to two main factors: the difference in the rig vs. platform MSL spectra, and the difference in the attendant vessel spectra.

The MSL spectrum derived from measurement for the BTA platform is different from the spectrum used in modelling the jack-up rig. The broadband MSL for the BTA platform was measured to be 150.1 dB re 1 µPa m, approximately 10 dB lower than for the jack-up rig *Tom Prosser* (160.4 dB re 1

µPa m), which was based on measurements of the jack-up rig *Endeavour* operating in Cook Inlet, Alaska (Illingworth and Rodkin Inc. 2014). The jack-up rig spectrum also presents peaks in the MSL around 63 and 300 Hz, and between 3 and 7 kHz. The MSL spectrum for the BTA platform is relatively flat below 10 kHz, with maximum levels above 20 kHz. Since frequencies in different regimes (e.g., low- vs. high-frequency regimes) propagate differently (Jensen et al. 1994), these two spectra (compared in Figure 15) are expected to lead to different distances to the assessed marine mammal noise effect thresholds.

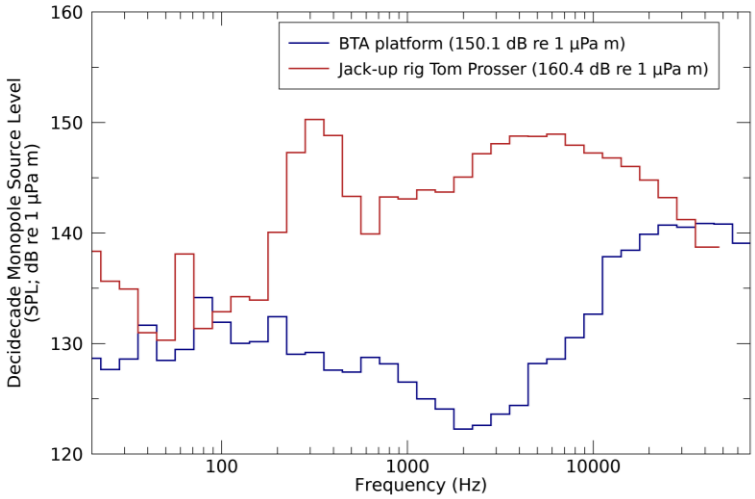



Figure 15. Monopole Source Level (MSL) spectra representing the BTA production platform in isolation (blue) and the jack-up rig *Tom Prosser* (red) modelled under normal drilling operations (McPherson and Koessler 2020).

In the Seahorse/Tarwhine P and A Campaign, because of the absence of vessel-specific operational data, the supply vessel was modelled using the specification of the *Skandi Feistein* at a conservative 45% maximum continuous rating (MCR) (defined by Esso), to adjust measurements of the dive support vessel *DSV Fu Lai* (MacGillivray 2006). This method leads to a broadband MSL of 177.6 dB re 1 µPa m. However, recordings of the *Skandi Feistein* at DP when stationary in isolation resulted in a broadband MSL of 166.9 dB re 1 µPa m (McPherson et al. 2022) and the recordings of the same vessel operation close (< 150 m) to the BTA platform (in combination with the platform) resulted in a broadband MSL of 166.8 dB re 1 µPa m. (The MCR level used by the *Skandi Feistein* operation close to the BTA platform was likely lower than while operating at DP away from the platform; the exact MCR is however unknown due to the record keeping intervals.) Although the difference in broadband MSL is approximately 9 dB, the MSL spectrum of the supply vessel (based on the *DSV Fu Lai*) presents much lower levels (by more than 10 dB) at frequencies below 100 Hz, and much higher levels (up to 15 dB) at frequencies above 100 Hz. Figure 16 presents the MSL spectrum for the BTA platform with one attendant vessel under DP (the *Skandi Feistein*) derived from the Monitoring Study and used in Scenario 2 of the current modelling study; it is compared to the spectrum for the OSV under DP used in Scenario 4 for the Seahorse/Tarwhine P and A Campaign.

The significant difference in decidecade MSL leads to much shorter distances to PTS, TTS, and behavioural response thresholds at the BTA platform than modelled in Scenario 4 for the Seahorse/Tarwhine P and A Campaign (compare Scenarios 2 and 4 in Table 8). This spectral difference is likely due to the supply vessel spectrum being based on that of the *DSV Fu Lai* (MacGillivray 2006), an older vessel than the *Skandi Feistein*, with not only bow and stern thrusters but also a pair of variable pitch propellers. Although the two vessels are similar in length, draft, and power used at DP, the measurement campaign has demonstrated that they have a different signature. The MCR statistics for the *Skandi Feistein* used during the monitoring study during resupply was not calculated, however the data shown in Figure 83 of McPherson et al. (2022) for radiated noise level

(RNL) vs. engine power for *Skandi Feistein* at BTA indicates that none of the three motors driving the propellors used more than 120 kW of power each, and often less, therefore the total percentage of MCR used was significantly less than the 45% considered for the Seahorse/Tarwhine P and A Campaign assessment.

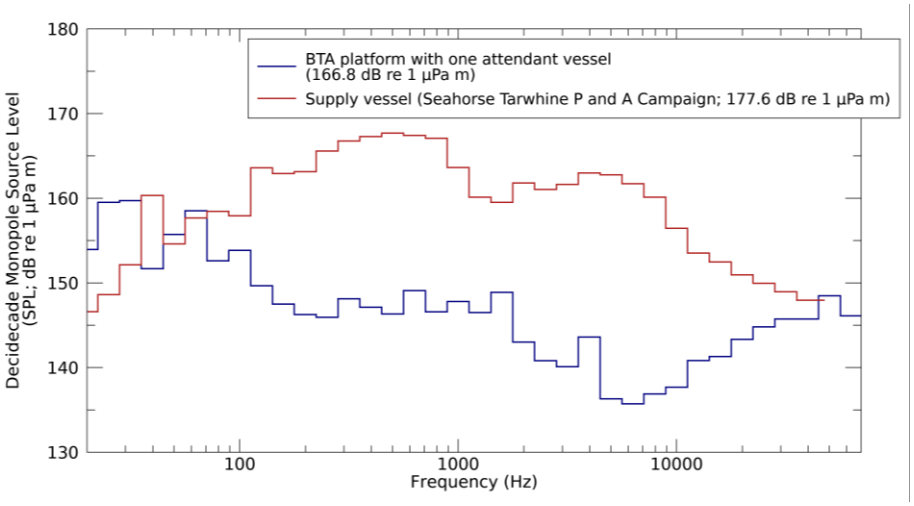



Figure 16. Monopole Source Level (MSL) spectra representing the BTA production platform with one attendant vessel (blue) and the supply vessel (red) modelled for the Seahorse/Tarwhine P and A Campaign (McPherson and Koessler 2020).

## 5.2. Supply Vessel alone and Platforms with One or Two Vessels

In Scenarios 7 and 10, the OSV, based on the measurements of the *Skandi Feistein*, was modelled stationary under DP for 2 and 24 h. The results show that the potential for TTS to marine mammals is relatively low since the longest distance (85 m for TTS to low-frequency cetaceans near KFB) is similar to the length of the recorded vessel (87.9 m). The distance to behavioural response is more significant: on the order to 515 to 555 m, depending on the vessel's location (BTA or KFB respectively).

Scenarios 8, 9, 11 and 12, representing the platforms with an MPSV under DP permanently alongside, with and without an OSV present, result in the similar distances to potential TTS. This similarity shows that the presence of an OSV for a short period (up to 2 h) does not change significantly that sound field already produced by the BTA or KFB platforms with an MPSV permanently alongside. The presence of the OSV, however, increases the $R_{95\%}$ distances to the threshold for marine mammal behavioural response by up to 300 m (see Tables 4 and 5); this distance does not depend on the operational period.

Scenarios 8, 9, 11 and 12 results in longer distances to injury and behavioural response thresholds than Scenarios 2, 3, 5 and 6 (BTA and KFB platform measured with one or two attendant vessels under DP). This difference is caused by the vessels in Scenarios 8–12 being modelled alongside the platforms with MSL spectra derived from monitoring while at DP, in isolation to the platforms. As mentioned in Section 5.1.1, the MCR level used by the vessel operating close to the BTA platform was likely lower than while operating at DP, away from the platform. Results for Scenarios 8, 9, 11 and 12 are therefore considered realistically conservative.

If cutting operations were occurring simultaneously, it is unlikely that the modelled distances to effect threshold would increase since the MPSV spectral levels (Figure 6) are far higher than that of the ROV cutter (Figure 14).

## 5.3. Generic Platform with/without and one or Two Vessels

Scenarios 13 to 15 represent the operation of a generic production platform within the Esso Bass Strait field. Here, environmental parameters similar to those at the KFB platform were used, but the water was shallower (60 m, as opposed to 75 m at the KFB platform).

The distances estimated for the generic platform in isolation are similar to those of the BTA platform in isolation: no potential for marine mammal PTS or TTS, and potential behavioural response up to 30 m from the platform. This similarity is due to reduction in MSL at low frequencies (< 80 Hz) compared to the KFB platform; these high MSL at KFB are likely due to tidally induced mooring flow noise (see Sections 3.1.1.1 and 3.1.1.2).

For Scenarios 14 and 15, the estimated distances to low-frequency cetacean TTS and marine mammal behavioural thresholds are similar, but slightly longer than those estimated for Scenarios 11 and 12, at the KFB station. This is caused by the combination of various sound propagation effects and to difference in water depth. Here again, the addition of an OSV for up to 2 h does not increase distances to PTS or TTS thresholds and increases the distance to the behavioural response threshold by about 14% (300 m).

If cutting operations were occurring simultaneously, it is unlikely that the modelled distances to effect threshold would increase since the MPSV spectral levels (Figure 6) are far higher than that of the ROV cutter (Figure 14).

## 5.4. Jack-up Drilling Rig and an Attendant Vessel, with/without an OSV

The last two scenarios in this study are related to a future drilling campaign and represent the drilling operations at the jack-up rig, including the presence of a attendant vessel standing by between 0.5-3.5 km from the rig; the last scenario adds a supply vessel under DP alongside the rig for periods of 2 and 8 h.

The results show that distances to TTS are slightly larger around the rig when the OSV is present for longer periods (see Figure 13). This distance does not change based on the location of the attendant vessel, and only slightly increases with the presence of the supply vessel (by up to 12% or 20 m).

The distance to behavioural response threshold increases slightly (by up to 7% or 190 m) with the presence of the OSV. The location of the attendant support vessel increases this distance: by up to 26%, or 755 m (see Figure 13 and Table 7).

In comparison with the generic production platform, the jack-up rig's broadband MSL is significantly higher (22 dB) than that of the platform. Therefore, the distances to potential injury thresholds are longer for the jack-up rig (Scenario 16) than for the generic production platform (Scenario 13). The presence of the supply vessel has little influence on the distances at the jack-up rig because its MSL is comparable to that of the jack-up rig, and it is present for less than half the accumulation period. At the production platform, however, the MPSV, present in Scenarios 14 and 15, has higher MSL than the platform and it is present for the entire accumulation period (24 h). Its presence has therefore a significant influence on the distances to TTS.

# Glossary

Unless otherwise stated in an entry, these definitions are consistent with ISO 80000-3 (2017).

### 1/3-octave

One third of an octave. *Note*: A one-third octave is approximately equal to one decidecade (1/3 oct ≈ 1.003 ddec).

### 1/3-octave-band

Frequency band whose bandwidth is one one-third octave. *Note*: The bandwidth of a one-third octave-band increases with increasing centre frequency.

### 90 %-energy time window

The time interval over which the cumulative energy rises from 5 to 95 % of the total pulse energy. This interval contains 90 % of the total pulse energy. Symbol: $T_{90}$.

### 90 % sound pressure level (90 % SPL)

The sound pressure level calculated over the 90 %-energy time window of a pulse.

### A-weighting

Frequency-selective weighting for human hearing in air that is derived from the inverse of the idealized 40-phon equal loudness hearing function across frequencies.

### absorption

The reduction of acoustic pressure amplitude due to acoustic particle motion energy converting to heat in the propagation medium.

### acoustic noise

Sound that interferes with an acoustic process.

### acoustic self-noise

Sound at a receiver caused by the deployment, operation, or recovery of a specified receiver, and its associated platform.

### ambient sound

Sound that would be present in the absence of a specified activity, usually a composite of sound from many sources near and far, e.g., shipping vessels, seismic activity, precipitation, sea ice movement, wave action, and biological activity.

### attenuation

The gradual loss of acoustic energy from absorption and scattering as sound propagates through a medium.

### auditory frequency weighting

The process of applying an auditory frequency weighting function. In human audiometry, C-weighting is the most commonly used function, an example for marine mammals are the auditory frequency weighting functions published by Southall et al. (2007).

**auditory frequency weighting function**

Frequency weighting function describing a compensatory approach accounting for a species' (or functional hearing group's) frequency-specific hearing sensitivity. Example hearing groups are low-, mid-, and high-frequency cetaceans, phocid and otariid pinnipeds.

**azimuth**

A horizontal angle relative to a reference direction, which is often magnetic north or the direction of travel. In navigation it is also called bearing.

**background noise**

Combination of ambient sound, acoustic self-noise, and sonar reverberation. Ambient sound detected, measured, or recorded with a signal is part of the background noise.

**bandwidth**

The range of frequencies over which a sound occurs. Broadband refers to a source that produces sound over a broad range of frequencies (e.g., seismic airguns, vessels) whereas narrowband sources produce sounds over a narrow frequency range (e.g., sonar) (ANSI S1.13-2005 (R2010)).

**bar**

Unit of pressure equal to 100 kPa, which is approximately equal to the atmospheric pressure on Earth at sea level. 1 bar is equal to $10^5$ Pa or $10^{11}$ µPa.

**broadband level**

The total level measured over a specified frequency range.

**cavitation**

A rapid formation and collapse of vapor cavities (i.e., bubbles or voids) in water, most often caused by a rapid change in pressure. Fast-spinning vessel propellers typically cause cavitation, which creates a lot of noise.

**cetacean**

Any animal in the order Cetacea. These are aquatic species and include whales, dolphins, and porpoises.

**compressional wave**

A mechanical vibration wave in which the direction of particle motion is parallel to the direction of propagation. Also called primary wave or P-wave.

**conductivity-temperature-depth (CTD)**

Measurement data of the ocean's conductivity, temperature, and depth; used to compute sound speed and salinity.

**continuous sound**

A sound whose sound pressure level remains above ambient sound during the observation period . A sound that gradually varies in intensity with time, for example, sound from a marine vessel.

**decade**

Logarithmic frequency interval whose upper bound is ten times larger than its lower bound (ISO 80000-3:2006).

### decidecade

One tenth of a decade. *Note*: An alternative name for decidecade (symbol ddec) is “one-tenth decade”. A decidecade is approximately equal to one third of an octave (1 ddec ≈ 0.3322 oct) and for this reason is sometimes referred to as a “one-third octave”.

### decidecade band

Frequency band whose bandwidth is one decidecade. *Note*: The bandwidth of a decidecade band increases with increasing centre frequency.

### decibel (dB)

Unit of level used to express the ratio of one value of a power quantity to another on a logarithmic scale. Unit: dB.

### ensonified

Exposed to sound.

### far field

The zone where, to an observer, sound originating from an array of sources (or a spatially distributed source) appears to radiate from a single point.

### Fourier transform (or Fourier synthesis)

A mathematical technique which, although it has varied applications, is referenced in the context of this report as a method used in the process of deriving a spectrum estimate from time-series data (or the reverse process, termed the inverse Fourier transform). A computationally efficient numerical algorithm for computing the Fourier transform is known as fast Fourier transform (FFT).

### flat weighting

Term indicating that no frequency weighting function is applied. Synonymous with unweighted.

### frequency

The rate of oscillation of a periodic function measured in cycles-per-unit-time. The reciprocal of the period. Unit: hertz (Hz). Symbol: $f$. 1 Hz is equal to 1 cycle per second.

### frequency weighting

The process of applying a frequency weighting function.

### frequency-weighting function

The squared magnitude of the sound pressure transfer function. For sound of a given frequency, the frequency weighting function is the ratio of output power to input power of a specified filter, sometimes expressed in decibels. Examples include the following:

- *Auditory frequency weighting function*: compensatory frequency weighting function accounting for a species’ (or functional hearing group’s) frequency-specific hearing sensitivity.
- *System frequency weighting function*: frequency weighting function describing the sensitivity of an acoustic acquisition system, typically consisting of a hydrophone, one or more amplifiers, and an analogue to digital converter.

### geoacoustic

Relating to the acoustic properties of the seabed.

### hearing group

Category of animal species when classified according to their hearing sensitivity and to the susceptibility to sound. Examples for marine mammals include very low-frequency (VLF) cetaceans, low-frequency (LF) cetaceans, mid-frequency (MF) cetaceans, high-frequency (HF) cetaceans, very high-frequency (VHF) cetaceans, otariid pinnipeds in water (OPW), phocid pinnipeds in water (PPW), sirenians (SI), other marine carnivores in air (OCA), and other marine carnivores in water (OCW) (NMFS 2018, Southall et al. 2019). See **auditory frequency weighting functions**, which are often applied to these groups. Examples for fish include species for which the swim bladder is involved in hearing, species for which the swim bladder is not involved in hearing, and species without a swim bladder (Popper et al. 2014).

### hearing threshold

The sound pressure level for any frequency of the hearing group that is barely audible for a given individual for specified background noise during a specific percentage of experimental trials.

### hertz (Hz)

A unit of frequency defined as one cycle per second.

### high-frequency (HF) cetacean

See **hearing group**.

### intermittent sound

A sound whose level abruptly drops below the background noise level several times during an observation period.

### impulsive sound

Qualitative term meaning sounds that are typically transient, brief (less than 1 s), broadband, with rapid rise time and rapid decay. They can occur in repetition or as a single event. Examples of impulsive sound sources include explosives, seismic airguns, and impact pile drivers.

### isopleth

A line drawn on a map through all points having the same value of some quantity.

### knot

One nautical mile per hour. Symbol: kn.

### level

A measure of a quantity expressed as the logarithm of the ratio of the quantity to a specified reference value of that quantity. Examples include sound pressure level, sound exposure level, and peak sound pressure level. For example, a value of sound exposure level with reference to 1 $\mu Pa^2$ s can be written in the form *x* dB re 1 $\mu Pa^2$ s.

### low-frequency (LF) cetacean

See **hearing group**.

### masking

Obscuring of sounds of interest by sounds at similar frequencies.

### median

The 50th percentile of a statistical distribution.

### mid-frequency (MF) cetacean

See **hearing group**.

### monopole source level (MSL)

A source level that has been calculated using an acoustic model that accounts for the effect of the sea-surface and seabed on sound propagation, assuming a point-like (monopole) sound source. Also see **radiated noise level**.

### M-weighting

See **auditory frequency weighting function** (as proposed by Southall et al. 2007).

### mysticete

A suborder of cetaceans that use baleen plates to filter food from water. Members of this group include rorquals (Balaenopteridae), right whales (Balaenidae), and grey whales (*Eschrichtius robustus*).

### non-impulsive sound

Sound that is not an impulsive sound. A non-impulsive sound is not necessarily a continuous sound.

### octave

The interval between a sound and another sound with double or half the frequency. For example, one octave above 200 Hz is 400 Hz, and one octave below 200 Hz is 100 Hz.

### odontocete

The presence of teeth, rather than baleen, characterizes these whales. Members of the Odontoceti are a suborder of cetaceans, a group comprised of whales, dolphins, and porpoises. The skulls of toothed whales are mostly asymmetric, an adaptation for their echolocation. This group includes sperm whales, killer whales, beluga whales, narwhals, dolphins, and porpoises.

### otariid

A common term used to describe members of the Otariidae, eared seals, commonly called sea lions and fur seals. Otariids are adapted to a semi-aquatic life; they use their large fore flippers for propulsion. Their ears distinguish them from phocids. Otariids are one of the three main groups in the superfamily Pinnipedia; the other two groups are phocids and walrus.

### other marine carnivores in air (OCA)

See **hearing group**.

### other marine carnivores in water (OCW)

See **hearing group**.

### parabolic equation method

A computationally efficient solution to the acoustic wave equation that is used to model propagation loss. The parabolic equation approximation omits effects of back-scattered sound, simplifying the computation of propagation loss. The effect of back-scattered sound is negligible for most ocean-acoustic propagation problems.

### peak sound pressure level (zero-to-peak sound pressure level)

The level ($L_{p,pk}$ or $L_{pk}$) of the squared maximum magnitude of the sound pressure ($p_{\mathrm{pk}}^2$).
Unit: decibel (dB). Reference value ($p_0^2$) for sound in water: 1 μPa$^2$.

$$L_{p,\mathrm{pk}} := 10\log_{10}\left(p_{\mathrm{pk}}^2/p_0^2\right)\mathrm{dB} \; = 20\log_{10}\left(p_{\mathrm{pk}}/p_0\right)\mathrm{dB}$$

The frequency band and time window should be specified. Abbreviation: PK or Lpk.

### peak-to-peak sound pressure

The difference between the maximum and minimum sound pressure over a specified frequency band and time window. Unit: pascal (Pa).

### permanent threshold shift (PTS)

An irreversible loss of hearing sensitivity caused by excessive noise exposure. PTS is considered auditory injury.

### phocid

A common term used to describe all members of the family Phocidae. These true/earless seals are more adapted to in-water life than are otariids, which have more terrestrial adaptations. Phocids use their hind flippers to propel themselves. Phocids are one of the three main groups in the superfamily Pinnipedia; the other two groups are otariids and walrus.

### point source

A source that radiates sound as if from a single point.

### pressure, acoustic

The deviation from the ambient pressure caused by a sound wave. Also called sound pressure. Unit: pascal (Pa).

### pressure, hydrostatic

The pressure at any given depth in a static liquid that is the result of the weight of the liquid acting on a unit area at that depth, plus any pressure acting on the surface of the liquid. Unit: pascal (Pa).

### propagation loss (PL)

Difference between a source level (SL) and the level at a specified location, PL(x) = SL − L(x). Also see **transmission loss**.

### radiated noise level (RNL)

A source level that has been calculated assuming sound pressure decays geometrically with distance from the source, with no influence of the sea-surface and seabed. Also see **monopole source level**.

### received level

The level measured (or that would be measured) at a defined location. The type of level should be specified.

### reference values

standard underwater references values used for calculating sound **levels**, e.g., the reference value for expressing sound pressure level in decibels is 1 µPa.

| Quantity | Reference value |
|---|---|
| Sound pressure | 1 µPa |
| Sound exposure | 1 µPa$^2$ s |
| Sound particle displacement | 1 pm |
| Sound particle velocity | 1 nm/s |
| Sound particle acceleration | 1 µm/s$^2$ |

### rms

abbreviation for root-mean-square.

### shear wave

A mechanical vibration wave in which the direction of particle motion is perpendicular to the direction of propagation. Also called a secondary wave or S-wave. Shear waves propagate only in solid media, such as sediments or rock. Shear waves in the seabed can be converted to compressional waves in water at the water-seabed interface.

### sensation level

Difference between the sound pressure level and hearing threshold at a specified frequency. Unit: decibel (dB).

### sound

A time-varying disturbance in the pressure, stress, or material displacement of a medium propagated by local compression and expansion of the medium.

### sound exposure

Time integral of squared sound pressure over a stated time interval. The time interval can be a specified time duration (e.g., 24 h) or from start to end of a specified event (e.g., a pile strike, an airgun pulse, a construction operation). Unit: Pa$^2$ s.

### sound exposure level

The level ($L_E$) of the sound exposure ($E$). Unit: decibel (dB). Reference value ($E_0$) for sound in water: 1 µPa$^2$ s.

$$L_E := 10 \log_{10}(E/E_0)\,\mathrm{dB} = 20 \log_{10}\left(E^{1/2}/E_0^{1/2}\right)\,\mathrm{dB}$$

The frequency band and integration time should be specified. Abbreviation: SEL.

### sound exposure spectral density

Distribution as a function of frequency of the time-integrated squared sound pressure per unit bandwidth of a sound having a continuous spectrum. Unit: Pa$^2$ s/Hz.

### sound field

Region containing sound waves.

### sound intensity

Product of the sound pressure and the sound particle velocity. The magnitude of the sound intensity is the sound energy flowing through a unit area perpendicular to the direction of propagation per unit time.

### sound pressure

The contribution to total pressure caused by the action of sound.

### sound pressure level (rms sound pressure level)

The level ($L_{p,\mathrm{rms}}$) of the time-mean-square sound pressure ($p^2_{\mathrm{rms}}$). Unit: decibel (dB). Reference value ($p_0^2$) for sound in water: 1 μPa$^2$.

$$L_{p,\mathrm{rms}} := 10\log_{10}(p^2_{\mathrm{rms}}/p_0^2)\ \mathrm{dB} = 20\log_{10}(p_{\mathrm{rms}}/p_0)\ \mathrm{dB}$$

The frequency band and averaging time should be specified. Abbreviation: SPL or Lrms.

### sound speed profile

The speed of sound in the water column as a function of depth below the water surface.

### soundscape

The characterization of the ambient sound in terms of its spatial, temporal, and frequency attributes, and the types of sources contributing to the sound field.

### source level (SL)

A property of a sound source obtained by adding to the sound pressure level measured in the far field the propagation loss from the acoustic centre of the source to the receiver position. Unit: decibel (dB). Reference value: 1 μPa$^2$m$^2$.

### spectrogram

A visual representation of acoustic amplitude compared with time and frequency.

### spectrum

An acoustic signal represented in terms of its power, energy, mean-square sound pressure, or sound exposure distribution with frequency.

### surface duct

The upper portion of a water column within which the sound speed profile gradient causes sound to refract upward and therefore reflect off the surface resulting in relatively long-range sound propagation with little loss.

### temporary threshold shift (TTS)

Reversible loss of hearing sensitivity. TTS can be caused by noise exposure.

### thermocline

The depth interval near the ocean surface that experiences temperature gradients due to warming or cooling by heat conduction from the atmosphere and by warming from solar heating.

### transmission loss (TL)

The difference between a specified level at one location and that at a different location, TL(x1,x2) = L(x1) − L(x2). Also see **propagation loss**.

**unweighted**

Term indicating that no frequency weighting function is applied. Synonymous with flat weighting.

**very high-frequency (VHF) cetacean**

See **hearing group**.

**very low-frequency (VLF) cetacean**

See **hearing group**.

**wavelength**

Distance over which a wave completes one cycle of oscillation. Unit: metre (m). Symbol: λ.

# Literature Cited

[ANSI] American National Standards Institute and [ASA] Acoustical Society of America. S1.1-2013. *American National Standard: Acoustical Terminology*. NY, USA. https://webstore.ansi.org/Standards/ASA/ANSIASAS12013.

[ANSI] American National Standards Institute and [ASA] Acoustical Society of America. S1.13-2005 (R2010). *American National Standard: Measurement of Sound Pressure Levels in Air*. NY, USA. https://webstore.ansi.org/Standards/ASA/ANSIASAS1132005R2010.

[DoC] Department of Commerce (US) and [NOAA] National Oceanic and Atmospheric Administration (US). 2018. Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Site Characterization Surveys off of Delaware. *Federal Register* 83(110): 26416-26432. https://www.federalregister.gov/d/2018-12225.

[HESS] High Energy Seismic Survey. 1999. *High Energy Seismic Survey Review Process and Interim Operational Guidelines for Marine Surveys Offshore Southern California*. Prepared for the California State Lands Commission and the United States Minerals Management Service Pacific Outer Continental Shelf Region by the High Energy Seismic Survey Team, Camarillo, CA, USA. 98 p. https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB2001100103.xhtml.

[ISO] International Organization for Standardization. 2006. *ISO 80000-3:2006 Quantities and units – Part 3: Space and time*. https://www.iso.org/standard/31888.html.

[ISO] International Organization for Standardization. 2017. *ISO 18405:2017. Underwater acoustics – Terminology*. Geneva. https://www.iso.org/standard/62406.html.

[NMFS] National Marine Fisheries Service. 2014. *Marine Mammals: Interim Sound Threshold Guidance* (web page). National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/threshold_guidance.html.

[NMFS] National Marine Fisheries Service (US). 1998. *Acoustic Criteria Workshop*. Dr. Roger Gentry and Dr. Jeanette Thomas Co-Chairs.

[NMFS] National Marine Fisheries Service (US). 2016. *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts*. US Department of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-55. 178 p.

[NMFS] National Marine Fisheries Service (US). 2018. *2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts*. US Department of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59. 167 p. https://www.fisheries.noaa.gov/webdam/download/75962998.

[NOAA] National Oceanic and Atmospheric Administration (US). 2013. *Draft guidance for assessing the effects of anthropogenic sound on marine mammals: Acoustic threshold levels for onset of permanent and temporary threshold shifts*. National Oceanic and Atmospheric Administration, US Department of Commerce, and NMFS Office of Protected Resources, Silver Spring, MD, USA. 76 p.

[NOAA] National Oceanic and Atmospheric Administration (US). 2015. *Draft guidance for assessing the effects of anthropogenic sound on marine mammal hearing: Underwater acoustic threshold levels for onset of permanent and temporary threshold shifts*. NMFS Office of Protected Resources, Silver Spring, MD, USA. 180 p.

[NOAA] National Oceanic and Atmospheric Administration (US). 2016. *Document Containing Proposed Changes to the NOAA Draft Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Threshold Levels for Onset of Permanent and Temporary Threshold Shifts*. National Oceanic and Atmospheric Administration and US Department of Commerce. 24 p.

[NOAA] National Oceanic and Atmospheric Administration (US). 2019. *ESA Section 7 Consultation Tools for Marine Mammals on the West Coast* (web page), 27 Sep 2019. https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/esa-section-7-consultation-tools-marine-mammals-west. (Accessed 10 Mar 2020).

[ONR] Office of Naval Research. 1998. *ONR Workshop on the Effect of Anthropogenic Noise in the Marine Environment*. Dr. R. Gisiner, Chair.

Aerts, L.A.M., M. Blees, S.B. Blackwell, C.R. Greene, Jr., K.H. Kim, D.E. Hannay, and M.E. Austin. 2008. *Marine mammal monitoring and mitigation during BP Liberty OBC seismic survey in Foggy Island Bay, Beaufort Sea, July-August 2008: 90-day report*. Document P1011-1. Report by LGL Alaska Research Associates Inc., LGL Ltd., Greeneridge Sciences Inc., and JASCO Applied Sciences for BP Exploration Alaska. 199 p. ftp://ftp.library.noaa.gov/noaa_documents.lib/NMFS/Auke%20Bay/AukeBayScans/Removable%20Disk/P1011-1.pdf.

Austin, M.E. and G.A. Warner. 2012. *Sound Source Acoustic Measurements for Apache's 2012 Cook Inlet Seismic Survey*. Version 2.0. Technical report by JASCO Applied Sciences for Fairweather LLC and Apache Corporation.

Austin, M.E. and L. Bailey. 2013. *Sound Source Verification: TGS Chukchi Sea Seismic Survey Program 2013*. Document 00706, Version 1.0. Technical report by JASCO Applied Sciences for TGS-NOPEC Geophysical Company.

Austin, M.E., A. McCrodan, C. O'Neill, Z. Li, and A.O. MacGillivray. 2013. *Marine mammal monitoring and mitigation during exploratory drilling by Shell in the Alaskan Chukchi and Beaufort Seas, July–November 2012: 90-Day Report*. *In*: Funk, D.W., C.M. Reiser, and W.R. Koski (eds.). Underwater Sound Measurements. LGL Rep. P1272D–1. Report from LGL Alaska Research Associates Inc. and JASCO Applied Sciences, for Shell Offshore Inc., National Marine Fisheries Service (US), and US Fish and Wildlife Service. 266 pp plus appendices.

Austin, M.E. 2014. Underwater noise emissions from drillships in the Arctic. *In*: Papadakis, J.S. and L. Bjørnø (eds.). *UA2014 - 2nd International Conference and Exhibition on Underwater Acoustics*. 22-27 Jun 2014, Rhodes, Greece. pp. 257-263.

Austin, M.E., H. Yurk, and R. Mills. 2015. *Acoustic Measurements and Animal Exclusion Zone Distance Verification for Furie's 2015 Kitchen Light Pile Driving Operations in Cook Inlet*. Version 2.0. Technical report by JASCO Applied Sciences for Jacobs LLC and Furie Alaska.

Austin, M.E. and Z. Li. 2016. *Marine Mammal Monitoring and Mitigation During Exploratory Drilling by Shell in the Alaskan Chukchi Sea, July–October 2015: Draft 90-day report*. *In*: Ireland, D.S. and L.N. Bisson (eds.). Underwater Sound Measurements. LGL Rep. P1363D. Report from LGL Alaska Research Associates Inc., LGL Ltd., and JASCO Applied Sciences Ltd. For Shell Gulf of Mexico Inc, National Marine Fisheries Service, and US Fish and Wildlife Service. 188 pp + appendices.

Carnes, M.R. 2009. *Description and Evaluation of GDEM-V 3.0*. US Naval Research Laboratory, Stennis Space Center, MS. NRL Memorandum Report 7330-09-9165. 21 p. https://apps.dtic.mil/dtic/tr/fulltext/u2/a494306.pdf.

Collins, M.D. 1993. A split-step Padé solution for the parabolic equation method. *Journal of the Acoustical Society of America* 93(4): 1736-1742. https://doi.org/10.1121/1.406739.

Collins, M.D., R.J. Cederberg, D.B. King, and S. Chin-Bing. 1996. Comparison of algorithms for solving parabolic wave equations. *Journal of the Acoustical Society of America* 100(1): 178-182. https://doi.org/10.1121/1.415921.

Coppens, A.B. 1981. Simple equations for the speed of sound in Neptunian waters. *Journal of the Acoustical Society of America* 69(3): 862-863. https://doi.org/10.1121/1.382038.

DOF Group. 2022. *Skandi Feistein* (web page). DOF Group. Skandi Feistein. (Accessed April 2022).

Dunlop, R.A., M.J. Noad, R.D. McCauley, L. Scott-Hayward, E. Kniest, R. Slade, D. Paton, and D.H. Cato. 2017. Determining the behavioural dose–response relationship of marine mammals to air gun noise and source proximity. *Journal of Experimental Biology* 220(16): 2878-2886. https://jeb.biologists.org/content/220/16/2878.

Dunlop, R.A., M.J. Noad, R.D. McCauley, E. Kniest, R. Slade, D. Paton, and D.H. Cato. 2018. A behavioural dose-response model for migrating humpback whales and seismic air gun noise. *Marine Pollution Bulletin* 133: 506-516. https://doi.org/10.1016/j.marpolbul.2018.06.009.

Ellison, W.T. and P.J. Stein. 1999. *SURTASS LFA High Frequency Marine Mammal Monitoring (HF/M3) Sonar: Sustem Description and Test & Evaluation*. Under US Navy Contract N66604-98-D-5725. http://www.surtass-lfa-eis.com/wp-content/uploads/2018/02/HF-M3-Ellison-Report-2-4a.pdf.

Ellison, W.T. and A.S. Frankel. 2012. A common sense approach to source metrics. *In* Popper, A.N. and A.D. Hawkins (eds.). *The Effects of Noise on Aquatic Life*. Volume 730. Springer, New York. pp. 433-438. https://doi.org/10.1007/978-1-4419-7311-5_98.

Finneran, J.J. and C.E. Schlundt. 2010. Frequency-dependent and longitudinal changes in noise-induced hearing loss in a bottlenose dolphin (*Tursiops truncatus*). *Journal of the Acoustical Society of America* 128(2): 567-570. https://doi.org/10.1121/1.3458814.

Finneran, J.J. and A.K. Jenkins. 2012. *Criteria and thresholds for U.S. Navy acoustic and explosive effects analysis*. SPAWAR Systems Center Pacific, San Diego, CA, USA. 64 p.

Finneran, J.J. 2015. *Auditory weighting functions and TTS/PTS exposure functions for cetaceans and marine carnivores*. Technical report by SSC Pacific, San Diego, CA, USA.

Finneran, J.J. 2016. *Auditory weighting functions and TTS/PTS exposure functions for marine mammals exposed to underwater noise*. Technical Report for Space and Naval Warfare Systems Center Pacific, San Diego, CA, USA. 49 p. https://apps.dtic.mil/dtic/tr/fulltext/u2/1026445.pdf.

Funk, D.W., D.E. Hannay, D.S. Ireland, R. Rodrigues, and W.R. Koski. 2008. *Marine mammal monitoring and mitigation during open water seismic exploration by Shell Offshore Inc. in the Chukchi and Beaufort Seas, July–November 2007: 90-day report*. LGL Report P969-1. Prepared by LGL Alaska Research Associates Inc., LGL Ltd., and JASCO Research Ltd. for Shell Offshore Inc., National Marine Fisheries Service (US), and US Fish and Wildlife Service. 218 p.

Hannay, D.E. and R.G. Racca. 2005. *Acoustic Model Validation*. Document 0000-S-90-04-T-7006-00-E, Revision 02. Technical report by JASCO Research Ltd. for Sakhalin Energy Investment Company Ltd. 34 p.

Illingworth and Rodkin Inc. 2014. *Cook Inlet Exploratory Drilling Program – underwater sound source verification assessment, Cook Inlet, Alaska.* . Prepared for BlueCrest Energy, Inc. by Illingworth & Rodkin, Inc., Petaluma, California. https://www.federalregister.gov/documents/2014/09/11/2014-21662/takes-of-marine-mammals-incidental-to-specified-activities-taking-marine-mammals-incidental-to.

Ireland, D.S., R. Rodrigues, D.W. Funk, W.R. Koski, and D.E. Hannay. 2009. *Marine mammal monitoring and mitigation during open water seismic exploration by Shell Offshore Inc. in the Chukchi and Beaufort Seas, July–October 2008: 90-Day Report*. Document P1049-1. 277 p.

Jensen, F.B., W.A. Kuperman, M.B. Porter, and H. Schmidt. 1994. *Computational Ocean Acoustics*. 1st edition. Modern Acoustics and Signal Processing. AIP Press, New York. 612 p.

Lucke, K., U. Siebert, P.A. Lepper, and M.-A. Blanchet. 2009. Temporary shift in masked hearing thresholds in a harbor porpoise (*Phocoena phocoena*) after exposure to seismic airgun stimuli. *Journal of the Acoustical Society of America* 125(6): 4060-4070. https://doi.org/10.1121/1.3117443.

MacGillivray, A.O. 2006. *Underwater Acoustic Source Level Measurements of Castoro Otto and Fu Lai*. Technical report by JASCO Research.

MacGillivray, A.O. 2018. Underwater noise from pile driving of conductor casing at a deep-water oil platform. *Journal of the Acoustical Society of America* 143(1): 450-459. https://doi.org/10.1121/1.5021554.

MacGillivray, A.O. and Z. Li. 2018. *Vessel Noise Measurements from the ECHO Slowdown Trial: Final Report*. Document 01518, Version 2.0. Technical Report by JASCO Applied Sciences for Vancouver Fraser Port Authority ECHO Program.

Malme, C.I., P.R. Miles, C.W. Clark, P. Tyak, and J.E. Bird. 1983. *Investigations of the Potential Effects of Underwater Noise from Petroleum Industry Activities on Migrating Gray Whale Behavior*. Report 5366. http://www.boem.gov/BOEM-Newsroom/Library/Publications/1983/rpt5366.aspx.

Malme, C.I., P.R. Miles, C.W. Clark, P.L. Tyack, and J.E. Bird. 1984. *Investigations of the Potential Effects of Underwater Noise from Petroleum Industry Activities on Migrating Gray Whale Behavior. Phase II: January 1984 Migration*. Report 5586. Report by Bolt Beranek and Newman Inc. for the US Department of the Interior, Minerals Management Service, Cambridge, MA, USA. https://www.boem.gov/sites/default/files/boem-newsroom/Library/Publications/1983/rpt5586.pdf.

Malme, C.I., B. Würsig, J.E. Bird, and P.L. Tyack. 1986. *Behavioral responses of gray whales to industrial noise: Feeding observations and predictive modeling*. Document 56. NOAA Outer Continental Shelf Environmental Assessment Program. Final Reports of Principal Investigators. 393-600 p.

Martin, B., K. Bröker, M.-N.R. Matthews, J.T. MacDonnell, and L. Bailey. 2015. Comparison of measured and modeled air-gun array sound levels in Baffin Bay, West Greenland. *OceanNoise 2015*. 11-15 May 2015, Barcelona, Spain.

Martin, B., J.T. MacDonnell, and K. Bröker. 2017a. Cumulative sound exposure levels—Insights from seismic survey measurements. *Journal of the Acoustical Society of America* 141(5): 3603-3603. https://doi.org/10.1121/1.4987709.

Martin, S.B. and A.N. Popper. 2016. Short- and long-term monitoring of underwater sound levels in the Hudson River (New York, USA). *Journal of the Acoustical Society of America* 139(4): 1886-1897. https://doi.org/10.1121/1.4944876.

Martin, S.B., M.-N.R. Matthews, J.T. MacDonnell, and K. Bröker. 2017b. Characteristics of seismic survey pulses and the ambient soundscape in Baffin Bay and Melville Bay, West Greenland. *Journal of the Acoustical Society of America* 142(6): 3331-3346. https://doi.org/10.1121/1.5014049.

Matthews, M.-N.R. and A.O. MacGillivray. 2013. Comparing modeled and measured sound levels from a seismic survey in the Canadian Beaufort Sea. *Proceedings of Meetings on Acoustics* 19(1): 1-8. https://doi.org/10.1121/1.4800553.

McCrodan, A., C.R. McPherson, and D.E. Hannay. 2011. *Sound Source Characterization (SSC) Measurements for Apache's 2011 Cook Inlet 2D Technology Test*. Version 3.0. Technical report by JASCO Applied Sciences for Fairweather LLC and Apache Corporation. 51 p.

McPherson, C.R. and G.A. Warner. 2012. *Sound Sources Characterization for the 2012 Simpson Lagoon OBC Seismic Survey 90-Day Report*. Document 00443, Version 2.0. Technical report by JASCO Applied Sciences for BP Exploration (Alaska) Inc. http://www.nmfs.noaa.gov/pr/pdfs/permits/bp_openwater_90dayreport_appendices.pdf.

McPherson, C.R., K. Lucke, B.J. Gaudet, S.B. Martin, and C.J. Whitt. 2018. *Pelican 3-D Seismic Survey Sound Source Characterisation*. Document 001583. Version 1.0. Technical report by JASCO Applied Sciences for RPS Energy Services Pty Ltd.

McPherson, C.R. and B. Martin. 2018. *Characterisation of Polarcus 2380 in$^3$ Airgun Array*. Document 001599, Version 1.0. Technical report by JASCO Applied Sciences for Polarcus Asia Pacific Pte Ltd.

McPherson, C.R. and M.W. Koessler. 2020. *Seahorse / Tarwhine Plug and Abandonment Campaign: Assessing Marine Fauna Sound Exposures.* Document 002179, Version 1.0. Technical report by JASCO Applied Sciences for Esso Australia Resources Pty Ltd.

McPherson, C.R., Z. Li, C.C. Wilson, D.E. Hannay, C. Robinson, B. Martin, K.A. Kowarski, and J.J.-Y. Delarue. 2022. *Gippsland Acoustic Monitoring: Characterisation of Vessels, Platform Noise and Marine Mammal Presence.* Document 02470, Version 1.0 DRAFT. Technical report by JASCO Applied Sciences for Esso Australia Pty Ltd.

MMA Offshore Limited. 2022. *MMA offshore vessel fleet - MMA Leeuwin* (web page). https://www.mmaoffshore.com/vessel-fleet/mma-leeuwin. (Accessed April 2022).

Nedwell, J.R. and A.W. Turnpenny. 1998. The use of a generic frequency weighting scale in estimating environmental effect. *Workshop on Seismics and Marine Mammals*. 23–25 Jun 1998, London, UK.

Nedwell, J.R., A.W. Turnpenny, J. Lovell, S.J. Parvin, R. Workman, J.A.L. Spinks, and D. Howell. 2007. *A validation of the $dB_{ht}$ as a measure of the behavioural and auditory effects of underwater noise*. Document 534R1231 Report prepared by Subacoustech Ltd. for Chevron Ltd, TotalFinaElf Exploration UK PLC, Department of Business, Enterprise and Regulatory Reform, Shell UK Exploration and Production Ltd, The Industry Technology Facilitator, Joint Nature Conservation Committee, and The UK Ministry of Defence. 74 p. https://tethys.pnnl.gov/sites/default/files/publications/Nedwell-et-al-2007.pdf.

O'Neill, C., D. Leary, and A. McCrodan. 2010. Sound Source Verification. (Chapter 3) *In* Blees, M.K., K.G. Hartin, D.S. Ireland, and D.E. Hannay (eds.). *Marine mammal monitoring and mitigation during open water seismic exploration by Statoil USA E&P Inc. in the Chukchi Sea, August-October 2010: 90-day report*. LGL Report P1119. Prepared by LGL Alaska Research Associates Inc., LGL Ltd., and JASCO Applied Sciences Ltd. for Statoil USA E&P Inc., National Marine Fisheries Service (US), and US Fish and Wildlife Service. pp. 1-34.

Payne, R. and D. Webb. 1971. Orientation by means of long range acoustic signaling in baleen whales. *Annals of the New York Academy of Sciences* 188: 110-141. https://doi.org/10.1111/j.1749-6632.1971.tb13093.x.

Popper, A.N., A.D. Hawkins, R.R. Fay, D.A. Mann, S. Bartol, T.J. Carlson, S. Coombs, W.T. Ellison, R.L. Gentry, et al. 2014. *Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI*. ASA S3/SC1.4 TR-2014. SpringerBriefs in Oceanography. ASA Press and Springer. https://doi.org/10.1007/978-3-319-06659-2.

Porter, M.B. and Y.C. Liu. 1994. Finite-element ray tracing. *In*: Lee, D. and M.H. Schultz (eds.). *International Conference on Theoretical and Computational Acoustics*. Volume 2. World Scientific Publishing Co. pp. 947-956.

Racca, R., A.N. Rutenko, K. Bröker, and M.E. Austin. 2012a. A line in the water - design and enactment of a closed loop, model based sound level boundary estimation strategy for mitigation of behavioural impacts from a seismic survey. *11th European Conference on Underwater Acoustics*. Volume 34(3), Edinburgh, UK.

Racca, R., A.N. Rutenko, K. Bröker, and G. Gailey. 2012b. Model based sound level estimation and in-field adjustment for real-time mitigation of behavioural impacts from a seismic survey and post-event evaluation of sound exposure for individual whales. *In*: McMinn, T. (ed.). *Acoustics 2012*. Fremantle, Australia. http://www.acoustics.asn.au/conference_proceedings/AAS2012/papers/p92.pdf.

Racca, R., M.E. Austin, A.N. Rutenko, and K. Bröker. 2015. Monitoring the gray whale sound exposure mitigation zone and estimating acoustic transmission during a 4-D seismic survey, Sakhalin Island, Russia. *Endangered Species Research* 29(2): 131-146. https://doi.org/10.3354/esr00703.

Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, Jr., D. Kastak, D.R. Ketten, J.H. Miller, et al. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. *Aquatic Mammals* 33(4): 411-521.

Southall, B.L., D.P. Nowaceck, P.J.O. Miller, and P.L. Tyack. 2016. Experimental field studies to measure behavioral responses of cetaceans to sonar. *Endangered Species Research* 31: 293-315. https://doi.org/10.3354/esr00764.

Southall, B.L., J.J. Finneran, C.J. Reichmuth, P.E. Nachtigall, D.R. Ketten, A.E. Bowles, W.T. Ellison, D.P. Nowacek, and P.L. Tyack. 2019. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals* 45(2): 125-232. https://doi.org/10.1578/AM.45.2.2019.125.

Southall, B.L., D.P. Nowacek, A.E. Bowles, V. Senigaglia, L. Bejder, and P.L. Tyack. 2021. Marine Mammal Noise Exposure Criteria: Assessing the Severity of Marine Mammal Behavioral Responses to Human Noise. *Aquatic Mammals* 47(5): 421-464.

Spence, J.H., R. Fischer, M.A. Bahtiarian, L. Boroditsky, N. Jones, and R. Dempsey. 2007. *Review of Existing and Future Potential Treatments for Reducing Underwater Sound from Oil and Gas Industry Activities*. Report NCE 07-001. Report by Noise Control Engineering, Inc. for the Joint Industry Programme on E&P Sound and Marine Life. 185 p.

Teague, W.J., M.J. Carron, and P.J. Hogan. 1990. A comparison between the Generalized Digital Environmental Model and Levitus climatologies. *Journal of Geophysical Research* 95(C5): 7167-7183. https://doi.org/10.1029/JC095iC05p07167.

Todd, V.L.G., L.D. Williamson, J. Jiang, S.E. Cox, I.B. Todd, and M. Ruffert. 2020. Proximate underwater soundscape of a North Sea offshore petroleum exploration jack-up drilling rig in the Dogger Bank. *Journal of Acoustical Society of America* 148(6): 3971-3979. https://doi.org/10.1121/10.0002958.

Warner, G.A., C. Erbe, and D.E. Hannay. 2010. Underwater Sound Measurements. (Chapter 3) *In* Reiser, C.M., D. Funk, R. Rodrigues, and D.E. Hannay (eds.). *Marine Mammal Monitoring and Mitigation during Open Water Shallow Hazards and Site Clearance Surveys by Shell Offshore Inc. in the Alaskan Chukchi Sea, July-October 2009: 90-Day Report*. LGL Report P1112-1. Report by LGL Alaska Research Associates Inc. and JASCO Applied Sciences for Shell Offshore Inc., National Marine Fisheries Service (US), and Fish and Wildlife Service (US). pp. 1-54.

Warner, G.A., M.E. Austin, and A.O. MacGillivray. 2017. Hydroacoustic measurements and modeling of pile driving operations in Ketchikan, Alaska [Abstract]. *Journal of the Acoustical Society of America* 141(5): 3992. https://doi.org/10.1121/1.4989141.

Whiteway, T. 2009. *Australian Bathymetry and Topography Grid, June 2009*. GeoScience Australia, Canberra. http://pid.geoscience.gov.au/dataset/ga/67703.

Wikipedia. 2022. *Kolskaya (jack-up rig)* (web page). https://en.wikipedia.org/wiki/Kolskaya_(jack-up_rig).

Wood, J.D., B.L. Southall, and D.J. Tollit. 2012. *PG&E offshore 3-D Seismic Survey Project Environmental Impact Report–Marine Mammal Technical Draft Report*. Report by SMRU Ltd. 121 p. https://www.coastal.ca.gov/energy/seismic/mm-technical-report-EIR.pdf.

Zhang, Z.Y. and C.T. Tindle. 1995. Improved equivalent fluid approximations for a low shear speed ocean bottom. *Journal of the Acoustical Society of America* 98(6): 3391-3396. https://doi.org/10.1121/1.413789.

Zykov, M.M. and J.T. MacDonnell. 2013. *Sound Source Characterizations for the Collaborative Baseline Survey Offshore Massachusetts Final Report: Side Scan Sonar, Sub-Bottom Profiler, and the R/V Small Research Vessel experimental*. Document 00413, Version 2.0. Technical report by JASCO Applied Sciences for Fugro GeoServices, Inc. and the (US) Bureau of Ocean Energy Management.

# Appendix A. Acoustic Metrics

This section describes in detail the acoustic metrics, impact criteria, and frequency weighting relevant to the modelling study.

## A.1. Pressure Related Acoustic Metrics

Underwater sound pressure amplitude is measured in decibels (dB) relative to a fixed reference pressure of $p_0$ = 1 µPa. Because the perceived loudness of sound, especially pulsed sound such as from seismic airguns, pile driving, and sonar, is not generally proportional to the instantaneous acoustic pressure, several sound level metrics are commonly used to evaluate sound and its effects on marine life. Here we provide specific definitions of relevant metrics used in the accompanying report. Where possible, we follow International Organization for Standardization definitions and symbols for sound metrics (e.g., ISO 2017, ANSI S1.1-2013).

The sound pressure level (SPL or $L_p$; dB re 1 µPa) is the root-mean-square (rms) pressure level in a stated frequency band over a specified time window ($T$; s). It is important to note that SPL always refers to an rms pressure level and therefore not instantaneous pressure:

$$L_p = 10 \log_{10} \left( \frac{1}{T} \int_T g(t)\, p^2(t)\, dt \Big/ p_0^2 \right) \text{ dB} \tag{A-1}$$

where $g(t)$ is an optional time weighting function. In many cases, the start time of the integration is marched forward in small time steps to produce a time-varying SPL function.

The sound exposure level (SEL or LE; dB re 1 µPa$^2$·s) is the time-integral of the squared acoustic pressure over a duration ($T$):

$$L_E = 10 \log_{10} \left( \int_T p^2(t)\, dt \Big/ T_0 p_0^2 \right) \text{ dB} \tag{A-2}$$

where $T_0$ is a reference time interval of 1 s. SEL continues to increase with time when non-zero pressure signals are present. It is a dose-type measurement, so the integration time applied must be carefully considered for its relevance to impact to the exposed recipients.

SEL can be calculated over a fixed duration, such as the time of a single event or a period with multiple acoustic events. When applied to pulsed sounds, SEL can be calculated by summing the SEL of the $N$ individual pulses. For a fixed duration, the square pressure is integrated over the duration of interest. For multiple events, the SEL can be computed by summing (in linear units) the SEL of the $N$ individual events:

$$L_{E,N} = 10 \log_{10} \left( \sum_{i=1}^{N} 10^{\frac{L_{E,i}}{10}} \right) \text{ dB}\,. \tag{A-3}$$

If applied, the frequency weighting of an acoustic event should be specified, as in the case of weighted SEL (e.g., $L_{E,LFC,24h}$; Appendix A.4). The use of fast, slow, or impulse exponential-time-averaging or other time-related characteristics should also be specified.

## A.2. Decidecade Band Analysis

The distribution of a sound's power with frequency is described by the sound's spectrum. The sound spectrum can be split into a series of adjacent frequency bands. Splitting a spectrum into 1 Hz wide bands, called passbands, yields the power spectral density of the sound. This splitting of the spectrum into passbands of a constant width of 1 Hz, however, does not represent how animals perceive sound.

Because animals perceive exponential increases in frequency rather than linear increases, analysing a sound spectrum with passbands that increase exponentially in size better approximates real-world scenarios. In underwater acoustics, a spectrum is commonly split into decidecade bands, which are one tenth of a decade wide. A decidecade is sometimes referred to as a "1/3 octave" because one tenth of a decade is approximately equal to one third of an octave. Each decade represents a factor 10 in sound frequency. Each octave represents a factor 2 in sound frequency. The centre frequency of the $i$th band, $f_c(i)$, is defined as:

$$f_c(i) = 10^{\frac{i}{10}} \text{ kHz} \tag{A-4}$$

and the low $(f_{lo})$ and high $(f_{hi})$ frequency limits of the $i$th decade band are defined as:

$$f_{lo,i} = 10^{\frac{-1}{20}} f_c(i) \quad \text{and} \quad f_{hi,i} = 10^{\frac{1}{20}} f_c(i) \tag{A-5}$$

The decidecade bands become wider with increasing frequency, and on a logarithmic scale the bands appear equally spaced (Figure A-1). The acoustic modelling spans from band 10 ($f_c$ (13) = 20 Hz) to band 48 ($f_c(48)$ = 63 kHz).

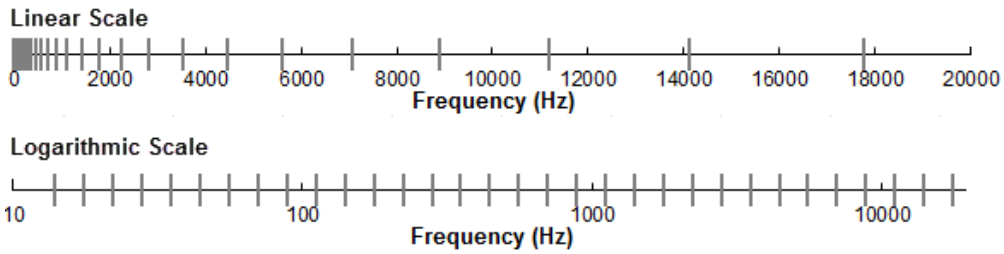



Figure A-1. Decidecade frequency bands (vertical lines) shown on a linear frequency scale and a logarithmic scale.

The sound pressure level in the $i$th band ($L_{p,i}$) is computed from the spectrum $S(f)$ between $f_{lo,i}$ and $f_{hi,i}$:

$$L_{p,i} = 10\, log_{10} \int_{f_{lo,i}}^{f_{hi,i}} S(f)\, \mathrm{d}f \text{ dB} \tag{A-6}$$

Summing the sound pressure level of all the bands yields the broadband sound pressure level:

$$\text{Broadband SPL} = 10 \log_{10} \sum_i 10^{\frac{L_{p,i}}{10}} \text{ dB} \tag{A-7}$$

Figure A-2 shows an example of how the decidecade band sound pressure levels compare to the sound pressure spectral density levels of an ambient sound signal. Because the decidecade bands are wider than 1 Hz, the decidecade band SPL is higher than the spectral levels at higher frequencies. Acoustic modelling of decidecade bands requires less computation time than 1 Hz bands and still resolves the frequency-dependence of the sound source and the propagation environment.

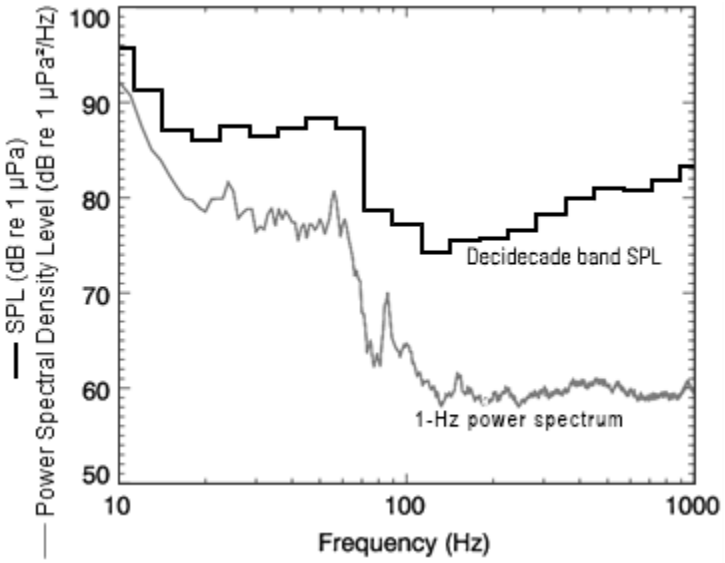



Figure A-2. Sound pressure spectral density levels and the corresponding decidecade band sound pressure levels of example ambient noise shown on a logarithmic frequency scale.Because the decidecade bands are wider with increasing frequency, the decidecade band SPL is higher than the power spectrum.

## A.3. Marine Mammal Noise Effect Criteria

It has been long recognised that marine mammals can be adversely affected by underwater anthropogenic noise. For example, Payne and Webb (1971) suggest that communication distances of fin whales are reduced by shipping sounds. Subsequently, similar concerns arose regarding effects of other underwater noise sources and the possibility that impulsive sources—primarily airguns used in seismic surveys—could cause auditory injury. This led to a series of workshops held in the late 1990s, conducted to address acoustic mitigation requirements for seismic surveys and other underwater noise sources (NMFS 1998, ONR 1998, Nedwell and Turnpenny 1998, HESS 1999, Ellison and Stein 1999). In the years since these early workshops, a variety of thresholds have been proposed for auditory injury, impairment, and disturbance. The following sections summarise the recent development of thresholds; however, this field remains an active research topic.

### A.3.1. Injury and Hearing Sensitivity Changes

In recognition of shortcomings of the SPL-only based auditory injury criteria, in 2005 NMFS sponsored the Noise Criteria Group to review literature on marine mammal hearing to propose new noise exposure criteria. Some members of this expert group published a landmark paper (Southall et al. 2007) that suggested assessment methods similar to those applied for humans. The resulting recommendations introduced dual auditory injury criteria for impulsive sounds that included peak pressure level thresholds and $SEL_{24h}$ thresholds, where the subscripted 24h refers to the accumulation period for calculating SEL. The peak pressure level criterion is not frequency weighted whereas $SEL_{24h}$ is frequency weighted according to one of four marine mammal species hearing groups: low-, mid- and high-frequency cetaceans (LF, MF, and HF cetaceans, respectively) and Pinnipeds in Water (PINN). These weighting functions are referred to as M-weighting filters (analogous to the A-weighting filter for humans; see Appendix A.4). The $SEL_{24h}$ thresholds were obtained by extrapolating measurements of onset levels of Temporary Threshold Shift (TTS) in beluga whales by the amount of TTS required to produce Permanent Threshold Shift (PTS) in chinchillas. The Southall et al. (2007) recommendations do not specify an exchange rate, which suggests that the thresholds are the same regardless of the duration of exposure (i.e., it implies a 3 dB exchange rate).

Wood et al. (2012) refined Southall et al.'s (2007) thresholds, suggesting lower PTS and TTS values for LF and HF cetaceans while retaining the filter shapes. Their revised thresholds were based on TTS-onset levels in harbour porpoises from Lucke et al. (2009), which led to a revised impulsive sound PTS threshold for HF cetaceans of 179 dB re 1 $\mu Pa^2 \cdot s$. Because there were no data available for baleen whales, Wood et al. (2012) based their recommendations for LF cetaceans on results obtained from MF cetacean studies. In particular they referenced the Finneran and Schlundt (2010) research, which found mid-frequency cetaceans are more sensitive to non-impulsive sound exposure than Southall et al. (2007) assumed. Wood et al. (2012) thus recommended a more conservative TTS-onset level for LF cetaceans of 192 dB re 1 $\mu Pa^2 \cdot s$.

As of present, a definitive approach is still not apparent. There is consensus in the research community that an SEL-based method is preferable, either separately or in addition to an SPL-based approach to assess the potential for injuries. In August 2016, after substantial public and expert input into three draft versions and based largely on the above-mentioned literature (NOAA 2013, 2015, 2016), NMFS finalised technical guidance for assessing the effect of anthropogenic sound on marine mammal hearing (NMFS 2016). The guidance describes auditory injury criteria with new thresholds and frequency weighting functions for the five hearing groups described by Finneran and Jenkins (2012). The latest revision to this work was published in 2018 (NMFS 2018). Southall et al. (2019) revisited the interim criteria published in 2007. All noise exposure criteria in NMFS (2018) and Southall et al. (2019) are identical (for impulsive and non-impulsive sounds); however, the mid-frequency cetaceans from NMFS (2018) are classified as high-frequency cetaceans in Southall et al.

(2019), and high-frequency cetaceans from NMFS (2018) are classified as very-high-frequency cetaceans in Southall et al. (2019).

### A.3.2. Behavioural Response

Numerous studies on marine mammal behavioural responses to sound exposure have not resulted in consensus in the scientific community regarding the appropriate metric for assessing behavioural reactions. However, it is recognised that the context in which the sound is received affects the nature and extent of responses to a stimulus(Southall et al. 2007, Ellison and Frankel 2012, Southall et al. 2016).

NMFS currently uses step function (all-or-none) threshold of 120 dB re 1 µPa SPL (unweighted) for non-impulsive sounds to assess and regulate noise-induced behavioural impacts on marine mammals (NOAA 2019). The 120 dB re 1 µPa threshold is associated with continuous sources and was derived based on studies examining behavioural responses to drilling and dredging (NOAA 2018), referring toMalme et al. (1983), Malme et al. (1984), and Malme et al. (1986), which were considered in Southall et al. (2007). Malme et al. (1986) found that playback of drillship noise did not produce clear evidence of disturbance or avoidance for levels below 110 dB re 1 µPa (SPL), possible avoidance occurred for exposure levels approaching 119 dB re 1 µPa. Malme et al. (1984) determined that measurable reactions usually consisted of rather subtle short-term changes in speed and/or heading of the whale(s) under observation. It has been shown that both received level and proximity of the sound source is a contributing factor in eliciting behavioural reactions in humpback whales (Dunlop et al. 2017, Dunlop et al. 2018).

## A.4. Marine Mammal Frequency Weighting

The potential for noise to affect animals depends on how well the animals can hear it. Noises are less likely to disturb or injure an animal if they are at frequencies that the animal cannot hear well. An exception occurs when the sound pressure is so high that it can physically injure an animal by non-auditory means (i.e., barotrauma). For sound levels below such extremes, the importance of sound components at particular frequencies can be scaled by frequency weighting relevant to an animal's sensitivity to those frequencies (Nedwell and Turnpenny 1998, Nedwell et al. 2007).

### A.4.1. Marine Mammal Frequency Weighting Functions

In 2015, a US Navy technical report by Finneran (2015) recommended new auditory weighting functions. The overall shape of the auditory weighting functions is similar to human A-weighting functions, which follows the sensitivity of the human ear at low sound levels. The new frequency-weighting function is expressed as:

$$G(f) = K + 10\log_{10}\left[\left(\frac{(f/f_{lo})^{2a}}{\left[1+(f/f_{lo})^{2}\right]^{a}\left[1+(f/f_{hi})^{2}\right]^{b}}\right)\right] \quad \text{(A-8)}$$

Finneran (2015) proposed five functional hearing groups for marine mammals in water: low-, mid- and high-frequency cetaceans (LF, MF, and HF cetaceans, respectively), phocid pinnipeds, and otariid pinnipeds. The parameters for these frequency-weighting functions were further modified the following year (Finneran 2016) and were adopted in NOAA's technical guidance that assesses acoustic impacts on marine mammals (NMFS 2018), and in the latest guidance by Southall (2019). The updates did not affect the content related to either the definitions of frequency-weighting

functions or the threshold values. Table A-1 lists the frequency-weighting parameters for each hearing group relevant to this assessment, and Figure A-3 shows the resulting frequency-weighting curves.

Table A-1. Parameters for the auditory weighting functions used in this project as recommended by Southall et al. (2019).

| Hearing group | $a$ | $b$ | $f_{lo}$ (Hz) | $f_{hi}$ (kHz) | $K$ (dB) |
|---|---|---|---|---|---|
| Low-frequency cetaceans (baleen whales) | 1.0 | 2 | 200 | 19,000 | 0.13 |
| High-frequency cetaceans (most dolphins, plus sperm, beaked, and bottlenose whales) | 1.6 | 2 | 8,800 | 110,000 | 1.20 |
| Other marine carnivores (including otariids) in water | 2 | 2 | 940 | 25,000 | 0.64 |

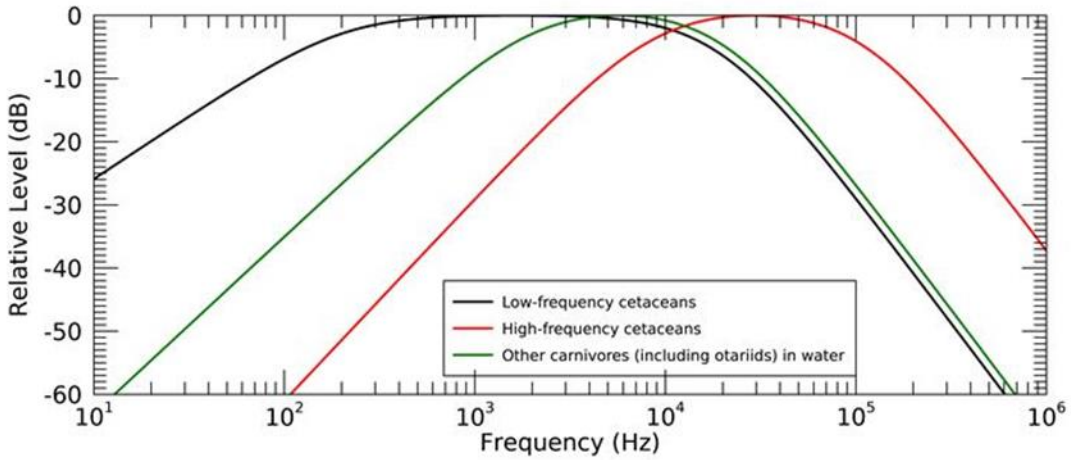



Figure A-3. Auditory weighting functions for functional marine mammal hearing groups used in this project as recommended by Southall et al. (2019).

# Appendix B. Methods and Parameters

## B.1. Environmental Parameters

### B.1.1. Bathymetry

Bathymetry throughout the modelled area was client supplied and supplemented with bathymetry data extracted from the Australian Bathymetry and Topography Grid, a 9 arc-second grid rendered for Australian waters (Whiteway 2009). The bathymetry data were re-gridded and combined onto a Map Grid of Australia (MGA) coordinate projection (Zone 50) with a regular grid spacing of 250 m × 250 m (Figure B-1).

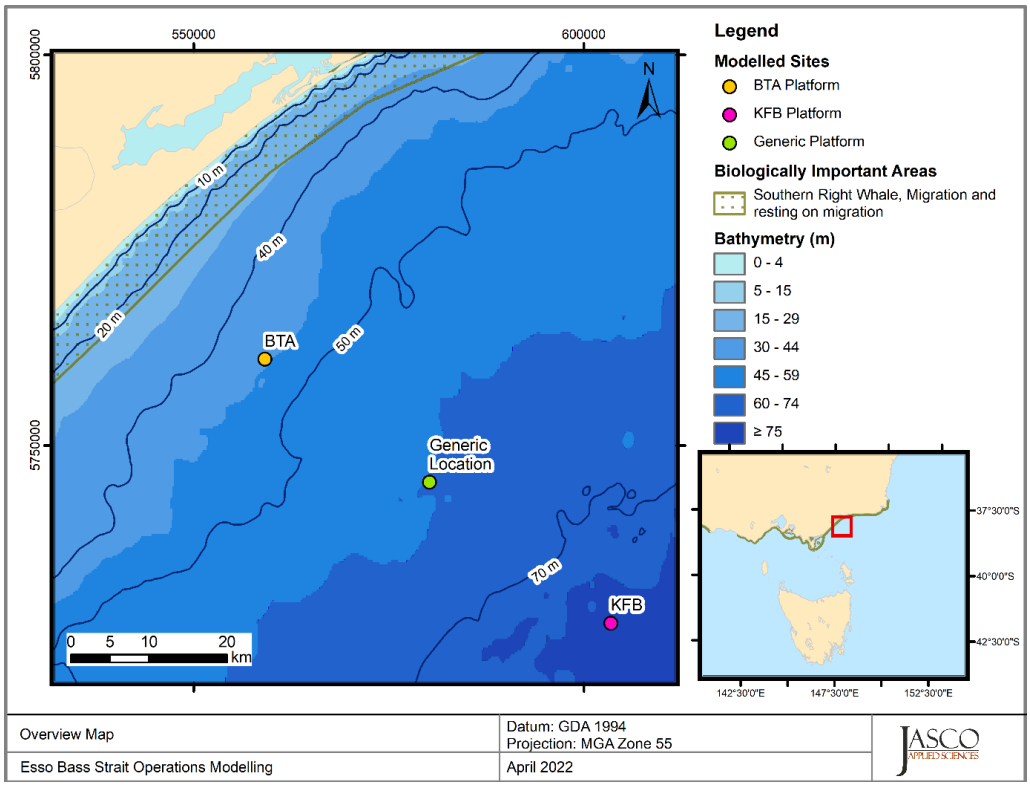



Figure B-1. Bathymetry in the modelled area.

### B.1.2. Sound Speed Profile

The mean daily sound speed profiles were derived from the Global Ice Ocean Prediction System (GIOPS) forecasting system for the period when the monitoring program occurred (March 2021 to April 2021 inclusive; McPherson et al. 2022). A median profile determined to best represent potential propagation conditions over the period at each production platform. The GIOPS is a data assimilation system that combines satellite and in-situ measurements for ice and ocean analyses and forecasts. For oceanographic variables, GIOPS assimilates a variety of satellite and in-situ observations (Argos profiling floats, ice buoys, moorings, ship observations, and others) to provide a 3-d representation of ocean temperature and salinity, water velocity, sea surface height and mixed layer depth.

For longer-range sound propagation modelling, the profiles were extended using e sound speed profile in the area was derived from temperature and salinity profiles from the US Naval

Oceanographic Office's Generalized Digital Environmental Model V 3.0 (GDEM; Teague et al. 1990, Carnes 2009). GDEM provides an ocean climatology of temperature and salinity for the world's oceans on a latitude-longitude grid with 0.25° resolution, with a temporal resolution of one month, based on global historical observations from the US Navy's Master Oceanographic Observational Data Set (MOODS). The climatology profiles include 78 fixed depth points to a maximum depth of 6800 m (where the ocean is that deep). The GDEM temperature-salinity profiles were converted to sound speed profiles according to Coppens (1981).

s. Figure B-2 shows the profiles used as input to the sound propagation modelling at the BTA and KFB platforms. The same profiles were used for all scenarios; the profile at the KFB platform was also used for modelling at the generic production platform and the jack-up rig because it is the profile most favourable to long-range propagation.

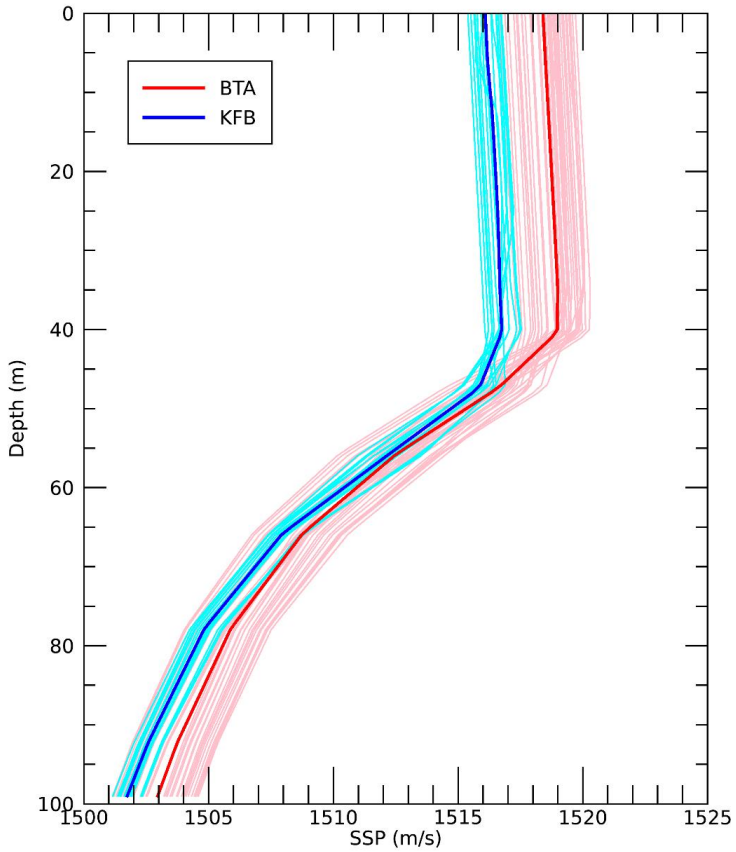



Figure B-2. The sound speed profiles used for modelling: The daily and median profiles for the first 100 m from Global Ice Ocean Prediction System (GIOPS)Geoacoustics.

The geoacoustic profile determines how energy is reflected from the seabed, as well as how it is transmitted and absorbed into the sediment layers. The geoacoustic profiles representing the seabed near the BTA and KFB platforms were derived in the monitoring program (McPherson et al. 2022); they are presented in Tables B-1 and B-2. The geoacoustic profile at the KFB platform was also used to represent the seabed at the generic platform and jack-up rig location, because it is the profile most favourable to long-range propagation.

Table B-1. Geoacoustic profile at the BTA platform. Each parameter varies linearly within the stated range.

| Depth below seafloor (m) | Material | Density (g/cm³) | Compressional wave | | Shear wave | |
|---|---|---|---|---|---|---|
| | | | Speed (m/s) | Attenuation (dB/λ) | Speed (m/s) | Attenuation (dB/λ) |
| 0–5 | Medium Sand | 2.01–2.02 | 1720–1840 | 0.21-0.22 | 400 | 3.65 |
| 5–10 | | 2.02 | 1840–1910 | 0.22-0.23 | | |
| 10–20 | | 2.02–2.03 | 1910–2010 | 0.23-0.24 | | |
| 20–50 | | 2.03–2.05 | 2010–2200 | 0.24-0.26 | | |
| 50–1000 | Limestone (semi-cemented calcarenite) | 2.05 | 2200 | 0.26 | | |
| > 1000 | Basement (rock) | 3.0 | 3800 | 0.38 | | |

Table B-2. Geoacoustic profile at the KFB platform. Each parameter varies linearly within the stated range.

| Depth below seafloor (m) | Predicted lithology | Density (g/cm³) | Compressional wave | | Shear wave | |
|---|---|---|---|---|---|---|
| | | | Speed (m/s) | Attenuation (dB/λ) | Speed (m/s) | Attenuation (dB/λ) |
| 0–25 | Very fine sand | 2.00 | 1727.8-1819.5 | 0.570-0.900 | 250 | 3.65 |
| 25-100 | Silt | 1.97 | 1780.0-1909.1 | 0.851-1.217 | | |

## B.2. Sound Propagation Models

### B.2.1. Propagation Loss

The propagation of sound through the environment was modelled by predicting the acoustic propagation loss—a measure, in decibels, of the decrease in sound level between a source and a receiver some distance away. Geometric spreading of acoustic waves is the predominant way by which propagation loss occurs. Propagation loss also happens when the sound is absorbed and scattered by the seawater, and absorbed scattered, and reflected at the water surface and within the seabed. Propagation loss depends on the acoustic properties of the ocean and seabed; its value changes with frequency.

If the acoustic energy source level (ESL), expressed in dB re 1 $\mu Pa^2 \cdot s\ m^2$, and propagation loss (PL), in units of dB, at a given frequency are known, then the received level (RL) at a receiver location can be calculated in dB re 1 $\mu Pa^2 \cdot s$ by:

$$RL = SL - PL. \quad \text{(B-1)}$$

## B.2.2. MONM-BELLHOP

Long-range sound fields were computed using JASCO's Marine Operations Noise Model (MONM). While other models may be more accurate for steep-angle propagation in high-shear environment, MONM is well suited for effective longer-range estimation. This model computes sound propagation at frequencies of 10 Hz to 1.6 kHz via a wide-angle parabolic equation solution to the acoustic wave equation (Collins 1993) based on a version of the U.S. Naval Research Laboratory's Range-dependent Acoustic Model (RAM), which has been modified to account for a solid seabed (Zhang and Tindle 1995). MONM computes sound propagation at frequencies > 1.6 kHz via the BELLHOP Gaussian beam acoustic ray-trace model (Porter and Liu 1994).

The parabolic equation method has been extensively benchmarked and is widely employed in the underwater acoustics community (Collins et al. 1996). MONM accounts for the additional reflection loss at the seabed, which results from partial conversion of incident compressional waves to shear waves at the seabed and sub-bottom interfaces, and it includes wave attenuations in all layers. MONM incorporates the following site-specific environmental properties: a bathymetric grid of the modelled area, underwater sound speed as a function of depth, and a geoacoustic profile based on the overall stratified composition of the seafloor.

MONM computes acoustic fields in three dimensions by modelling propagation loss within two-dimensional (2-D) vertical planes aligned along radials covering a 360° swath from the source, an approach commonly referred to as N×2-D. These vertical radial planes are separated by an angular step size of $\Delta\theta$, yielding N = 360°/$\Delta\theta$ number of planes (Figure B-3).

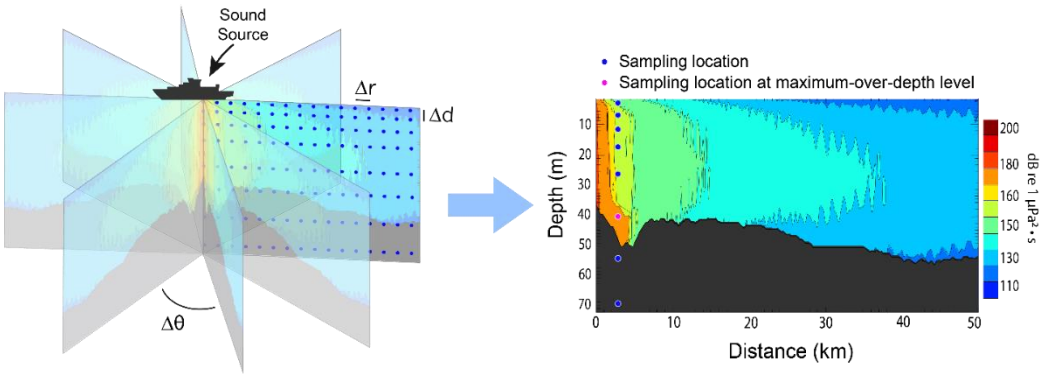



Figure B-3. The N×2-D and maximum-over-depth modelling approach used by MONM.

MONM treats frequency dependence by computing acoustic propagation loss at the centre frequencies of decidecade bands. Sufficiently many decidecade frequency-bands, starting at 10 Hz, are modelled to include most of the acoustic energy emitted by the source. At each centre frequency, the propagation loss is modelled within each of the N vertical planes as a function of depth and range from the source. The decidecade received per-second SEL are computed by subtracting the band propagation loss values from the directional source level in that frequency band. Composite broadband received per-second SEL are then computed by summing the received decidecade levels.

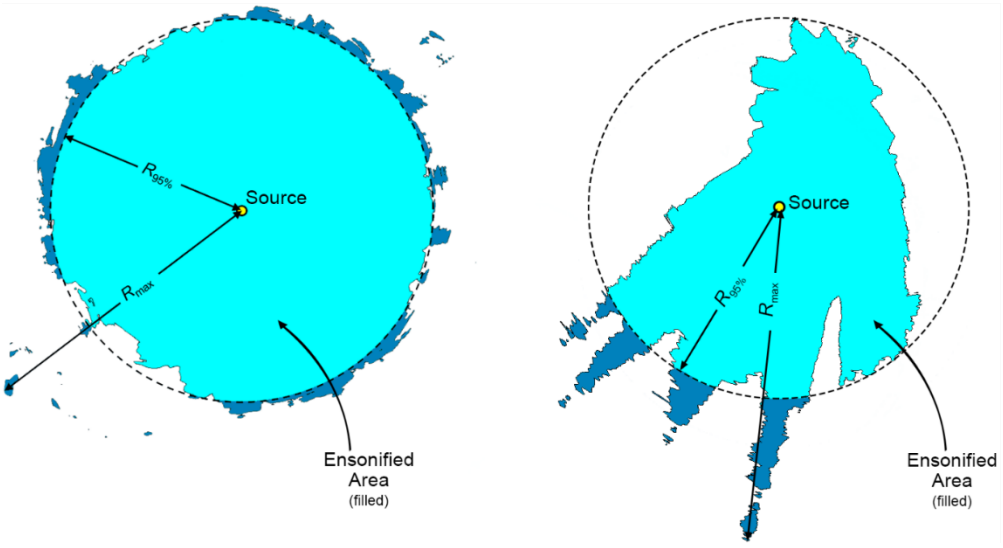
The received 1-s SEL sound field within each vertical radial plane is sampled at various ranges from the source, generally with a fixed radial step size. At each sampling range along the surface, the sound field is sampled at various depths, with the step size between samples increasing with depth below the surface. The step sizes are chosen to provide increased coverage near the depth of the source and at depths of interest in terms of the sound speed profile. For areas with deep water, sampling is not performed at depths beyond those reachable by marine mammals. The received per-pulse or per-second SEL at a surface sampling location is taken as the maximum value that occurs

over all samples within the water column, i.e., the maximum-over-depth received per-second SEL. These maximum-over-depth per-second SEL are presented as colour contours around the source.

## B.3. Estimating Range to Thresholds Levels

Sound level contours were calculated based on the underwater sound fields predicted by the propagation models, sampled by taking the maximum value over all modelled depths above the sea floor for each location in the modelled region. The predicted distances to specific levels were computed from these contours. Two distances relative to the source are reported for each sound level: 1) $R_{max}$, the maximum range to the given sound level over all azimuths, and 2) $R_{95\%}$, the range to the given sound level after the 5% farthest points were excluded (see examples in Figure B-4).

The $R_{95\%}$ is used because sound field footprints are often irregular in shape. In some cases, a sound level contour might have small protrusions or anomalous isolated fringes. This is demonstrated in the image in Figure B-4(a). In cases such as this, where relatively few points are excluded in any given direction, $R_{max}$ can misrepresent the area of the region exposed to such effects, and $R_{95\%}$ is considered more representative. In strongly asymmetric cases such as shown in Figure B-4(b), on the other hand, $R_{95\%}$ neglects to account for significant protrusions in the footprint. In such cases $R_{max}$ might better represent the region of effect in specific directions. Cases such as this are usually associated with bathymetric features affecting propagation. The difference between $R_{max}$ and $R_{95\%}$ depends on the source directivity and the non-uniformity of the acoustic environment.




(a) (b)

Figure B-4. Sample areas ensonified to an arbitrary sound level with $R_{max}$ and $R_{95\%}$ ranges shown for two different scenarios. (a) Largely symmetric sound level contour with small protrusions. (b) Strongly asymmetric sound level contour with long protrusions. Light blue indicates the ensonified areas bounded by $R_{95\%}$; darker blue indicates the areas outside this boundary which determine $R_{max}$.

## B.4. Model Validation Information

Predictions from JASCO's propagation models (MONM, FWRAM, and VSTACK) have been validated against experimental data from a number of underwater acoustic measurement programs conducted by JASCO globally, including the United States and Canadian Artic, Canadian and southern United States waters, Greenland, Russia and Australia (Hannay and Racca 2005, Aerts et al. 2008, Funk et al. 2008, Ireland et al. 2009, O'Neill et al. 2010, Warner et al. 2010, Racca et al. 2012a, Racca et al.

2012b, Matthews and MacGillivray 2013, Martin et al. 2015, Racca et al. 2015, Martin et al. 2017a, Martin et al. 2017b, Warner et al. 2017, MacGillivray 2018, McPherson et al. 2018, McPherson and Martin 2018).

In addition, JASCO has conducted measurement programs associated with a significant number of anthropogenic activities that have included internal validation of the modelling (including McCrodan et al. 2011, Austin and Warner 2012, McPherson and Warner 2012, Austin and Bailey 2013, Austin et al. 2013, Zykov and MacDonnell 2013, Austin 2014, Austin et al. 2015, Austin and Li 2016, Martin and Popper 2016).

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# Addendum 1: Esso Bass Strait Operations Modelling – Generic Platform

DATE: 7 August 2025

FROM: Justina Liu and Thomas J. Stephen (JASCO Applied Sciences (Australia) Pty Ltd)

TO: Pepper Shepherd (Esso Australia Pty Ltd)

DOCUMENT 03928

VERSION 1.0

**Subject: Bass Strait Operations Modelling: Select Reprocessing with 2024 Noise Effect Criteria**

JASCO Applied Sciences (JASCO) previously performed a modelling study of underwater noise associated with the Esso Australia Pty Ltd (Esso) base business operations and future decommissioning operations in Bass Strait (Matthews et al. 2023). Since that study, new underwater noise criteria and thresholds for marine mammals NMFS (2024) have been published. Consequently, reprocessing of four of the previous loudest scenarios were completed using the new noise effect criteria with a comparison to the previous Southall et al. (2019) noise criteria.

## 1. Modelling Scenarios

Figure 1 displays an overview of the modelled area, showing the modelled site locations, Biologically Important Areas (BIAs), and regional bathymetry. Across the four modelled scenarios the considered underwater noise sources are a generic production platform, a multi-purpose supply vessel (MPSV), an offshore supply vessel (OSV), and a jack-up rig (JUR). The source levels and environmental parameters considered in the modelling study are detailed in Matthews et al. (2023). This study considered the four worst case operation scenarios at the generic platform location. The modelled locations are detailed in Table 1 and modelled scenarios are detailed in Table 2.

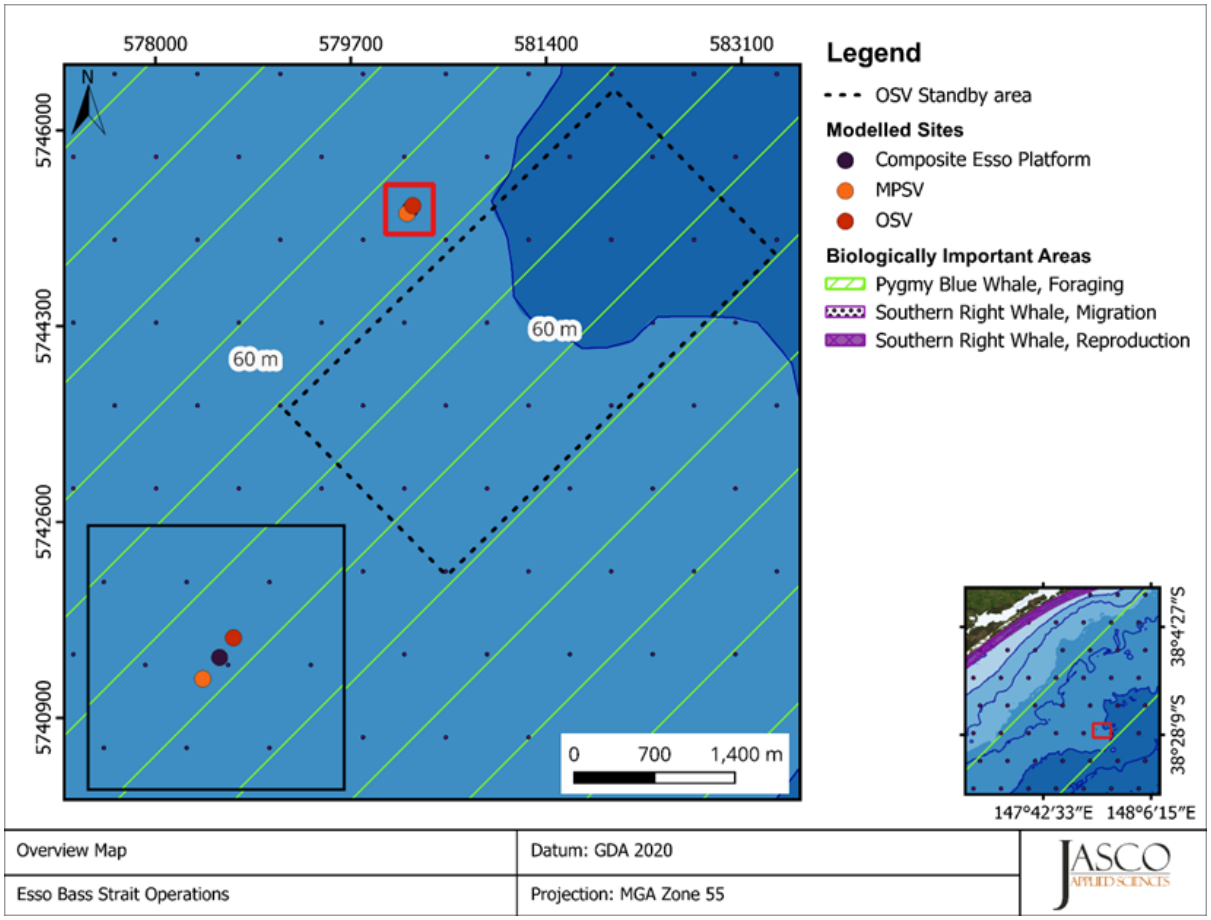



Figure 1. Overview map of the relevant features at the generic platform location.

Table 1. Modelled site locations and source information.

| Site | Source/Vessel | Latitude (°S) | Longitude (°E) | MGA[1] Zone 55 | | Water depth (m) |
|---|---|---|---|---|---|---|
| | | | | X (m) | Y (m) | |
| 1 | Generic Platform | 38° 26' 12.58" | 147° 55' 08.86" | 580217 | 5745316 | 60 |
| 2 | MPSV DP | 38° 26' 13.73" | 147° 55' 07.73" | 580189 | 5745282 | 60 |
| 3 | OSV Transit | 38° 26' 13.73" | 147° 55' 07.73" | 580189 | 5745281 | 60 |
| 4 | OSV DP | 38° 26' 11.54" | 147° 55' 09.76" | 580239 | 5745348 | 60 |
| 5 | Jack up rig | 38° 26' 12.58" | 147° 55' 08.86" | 580217 | 5745316 | 60 |

[1]Map Grid of Australia (MGA)

Table 2. Description of modelled scenarios.

| Modelling Scenario | Site(s) | Operation Name | Operation Description | Operation Duration (Hours) |
|---|---|---|---|---|
| 15 (1h) | 1, 2, 4 | Platform with MPSV and 1-hour OSV | Platform with MPSV on DP and 1-hour OSV on DP | 24: Platform with MPSV<br>1: OSV DP |
| 15 (2 h) | 1, 2, 4 | Platform with MPSV and 2-hour OSV | Platform with MPSV on DP and 2-hour OSV on DP | 24: Platform with MPSV<br>2: OSV DP |
| 17 (2 h) | 3, 4, 5 | JUR with OSVs standby and 2-hour DP | JUR with OSV transit and 2-hour OSV on DP | 24: JUR with OSVs<br>2: OSV DP |
| 17 (8 h) | 3, 4, 5 | JUR with OSVs standby and 8-hour DP | JUR with OSV transit and 8-hour OSV on DP | 24: JUR with OSVs<br>8: OSV DP |

# 2. Noise Effect Criteria

To assess the potential effects of a sound-producing activity, it is necessary to first establish exposure criteria (thresholds) for which sound levels may be expected to have an adverse effect on animals. Whether acoustic levels might injure or disturb marine fauna is an active research topic. Since 2007, several expert groups have developed SEL-based assessment approaches for evaluating auditory injury, with key works including Southall et al. (2007), Finneran and Jenkins (2012), Popper et al. (2014), United States National Marine Fisheries Service (NMFS 2018), Southall et al. (2019), NMFS (2024) and Accomando et al (2025). The number of studies that investigate the level of behavioural disturbance to marine fauna by anthropogenic sound has also increased substantially.

Two sound level metrics, SPL and SEL, are commonly used to evaluate non-impulsive noise and its effects on marine life. In this report, the duration of the SEL accumulation is defined as integrated over a 24-hour period. Appropriate subscripts indicate any frequency weighting applied (see Appendix A). The acoustic metrics in this report reflect the ANSI and ISO standards for acoustic terminology, ANSI S1.1 (S1.1-2013) and ISO 18405:2017 (2017).

The following thresholds and guidelines for this study were chosen because they represent the best available science:

- Frequency-weighted accumulated sound exposure levels (SEL; $L_{E,24h}$) from NMFS (2024) for the onset of temporary threshold shift (TTS) and permanent threshold shift (PTS) in marine mammals for non-impulsive sound sources. As discussed in NMFS (2024) and Accomando et al (2025) intense noise exposures can cause auditory injury (represented by either AUD INJ or AINJ) without PTS occurring. In this report, the terms PTS and auditory injury can be considered to be used interchangeably, however it is acknowledged that auditory injury may occur without PTS.
- Marine mammal behavioural threshold based on the current US National Oceanic and Atmospheric Administration (NOAA 2024) criterion for marine mammals of 120 dB re 1 µPa (SPL; $L_p$) for non-impulsive sound sources.

## 2.1. Marine Mammals

The criteria applied in this study to assess possible effects of non-impulsive noise sources on marine mammals are summarised in Table 3. Low- and high-frequency cetaceans and otariids were identified as the marine mammals requiring assessment. To assist in assessing the potential for effect on marine mammals, this report applies the criteria recommended by NMFS (2024), considering both TTS and PTS/AUD INJ. Details of the frequency weighting are explained in Appendix A.

Table 3. Criteria for effects of non-impulsive noise exposure, including vessel noise, for marine mammals: unweighted SPL and weighted $SEL_{24h}$ thresholds.

| Hearing group | NOAA (2024) | NMFS (2024) | |
|---|---|---|---|
| | Behaviour | TTS onset thresholds (received level) | PTS/AUD INJ onset thresholds (received level) |
| | SPL ($L_p$; dB re 1 µPa) | Weighted $SEL_{24h}$ ($LE_{,24h}$; dB re 1 $\mu Pa^2 \cdot s$) | Weighted $SEL_{24h}$ ($LE_{,24h}$; dB re 1 $\mu Pa^2 \cdot s$) |
| Low-frequency cetaceans (LFC) | 120 | 177 | 197 |
| High-frequency cetaceans (HFC) | | 181 | 201 |
| Otariid Seals (OCW) | | 179 | 199 |

$L_p$ denotes sound pressure level and has a reference value of 1 µPa.
$L_E$ denotes cumulative sound exposure over a 24 h period and has a reference value of 1 $\mu Pa^2 \cdot s$.

# 3. Results

The maximum-over-depth sound fields for the modelled scenario are presented below in two formats: as table of distances to sound levels and, where the distances are long enough, as a contour map showing the directivity and range to various sound levels. The tabulated distances were calculated from the centre of the platform or rig.

For the results and table presented below where a dash is used in place of a horizontal distance, these thresholds may or may not be reached due to the discreetly sampled radial increments of the modelled sound fields. A dash therefore is an indication that effect levels for the associated metric may only be reached within a very close proximity to a given source, if at all.

Table 4, reproduced from Matthews et al. (2023), presents the maximum distances to the marine mammal behaviour response threshold. Table 5 presents the maximum distances to frequency-weighted $SEL_{24h}$ thresholds, as well as total ensonified area. These thresholds are additionally presented in Figures 2–5.

Table 4. *SPL*: Maximum ($R_{max}$) and 95% ($R_{95\%}$) horizontal distances (in km) to sound pressure level (SPL) from most appropriate location for considered sources per scenario. Scenario descriptions are provided in Table 2.

| SPL ($L_p$; dB re 1 µPa) | Scenario 15 (1 and 2 h) | | Scenario 17 (2 and 8 h) | |
|---|---|---|---|---|
| | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) |
| 120[a] | 2.72 | 3.09 | 2.95 | 3.70 |

[a] Threshold for marine mammal behavioural response to non-impulsive noise (NOAA 2024).
A dash indicates the level was not reached within the limits of the modelled resolution (20 m).

Table 5. Maximum-over-depth distances (in km) to frequency weighted 24h sound exposure level ($SEL_{24h}$) based PTS/AUD INJ and TTS for marine mammals for both current thresholds from NMFS (2024) and previous thresholds (Southall et al. 2019).

| Fauna Group | NMFS (2024) | | | | | | | | | Southall et al. (2019) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Threshold ($L_{E,24h}$; dB re 1 µPa²·s) | Modelling Scenarios | | | | | | | | Threshold ($L_{E,24h}$; dB re 1 µPa²·s) | Modelling Scenarios | | | | | | | |
| | | 15 (1 h) | | 15 (2 h) | | 17 (2 h) | | 17 (8 h) | | | 15 (1 h) | | 15 (2 h) | | 17 (2 h) | | 17 (8 h) | |
| | | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) |
| **PTS/AUD INJ** | | | | | | | | | | | | | | | | | | |
| LFC | 197 | 0.07 | 0.07 | 0.07 | 0.07 | – | – | – | – | 199 | 0.06 | 0.06 | 0.06 | 0.06 | – | – | – | – |
| HFC | 201 | – | – | – | – | – | – | – | – | 198 | 0.06 | 0.06 | 0.06 | 0.06 | – | – | – | – |
| OCW | 199 | – | – | – | – | – | – | – | – | 219 | – | – | – | – | – | – | – | – |
| **TTS** | | | | | | | | | | | | | | | | | | |
| LFC | 177 | 0.56 | 0.60 | 0.56 | 0.60 | 0.26 | 0.27 | 0.29 | 0.31 | 179 | 0.40 | 0.44 | 0.40 | 0.44 | 0.17 | 0.17 | 0.19 | 0.19 |
| HFC | 181 | 0.09 | 0.09 | 0.09 | 0.09 | 0.03 | 0.03 | 0.03 | 0.03 | 178 | 0.08 | 0.08 | 0.08 | 0.08 | – | – | 0.03 | 0.03 |
| OCW | 179 | 0.09 | 0.09 | 0.09 | 0.09 | 0.04 | 0.04 | 0.04 | 0.04 | 199 | 0.06 | 0.06 | 0.06 | 0.06 | – | – | – | – |

A dash indicates the threshold is not reached within the limits of the modelling resolution (20m)

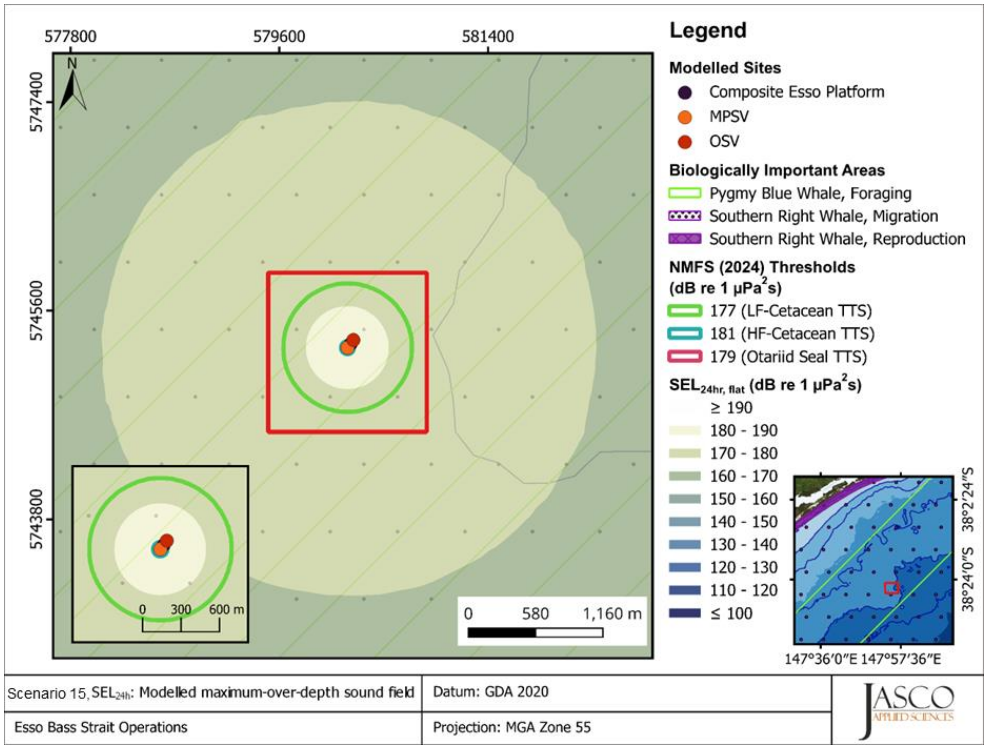



Figure 2. *Scenario 15 (1hr), Platform with MPSV on DP and 1-hour OSV on DP*, accumulated $SEL_{24h}$: Sound level contour map showing maximum-over-depth $SEL_{24h}$ results (unweighted/flat), along with frequency weighted isopleths for TTS in low- and high-frequency cetaceans, and otariids. Thresholds omitted here were not reached or not long enough to display graphically.

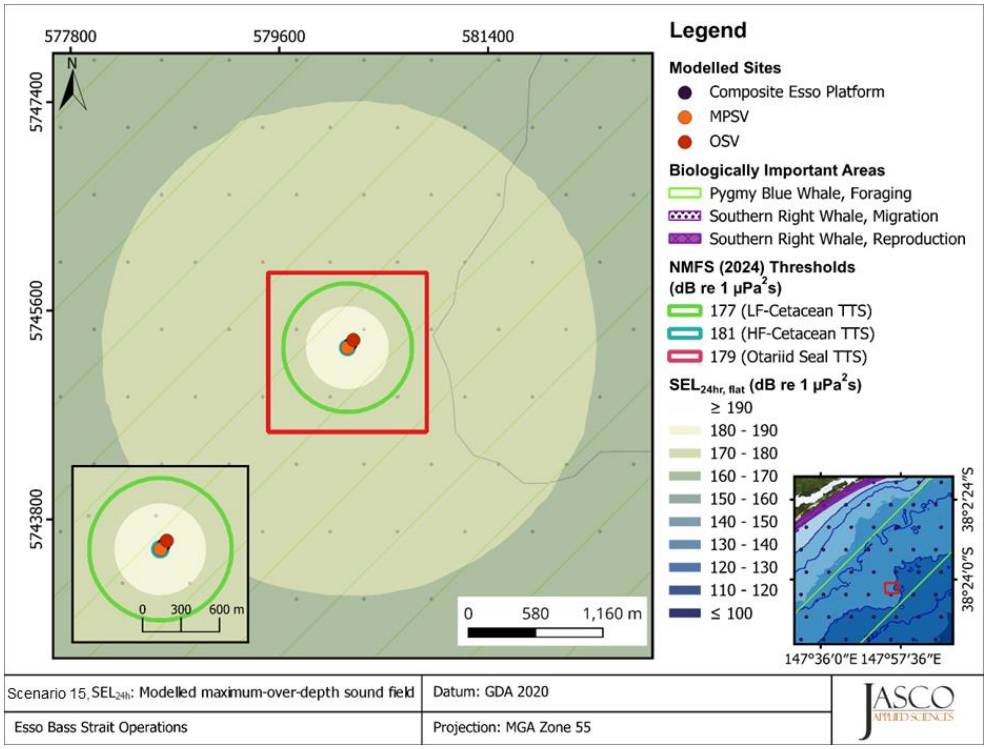



Figure 3. *Scenario 15 (2hr), Platform with MPSV on DP and 2-hour OSV on DP, accumulated $SEL_{24h}$*: Sound level contour map showing maximum-over-depth $SEL_{24h}$ results (unweighted/flat), along with frequency weighted isopleths for TTS in low- and high-frequency cetaceans, and otariids. Thresholds omitted here were not reached or not long enough to display graphically.

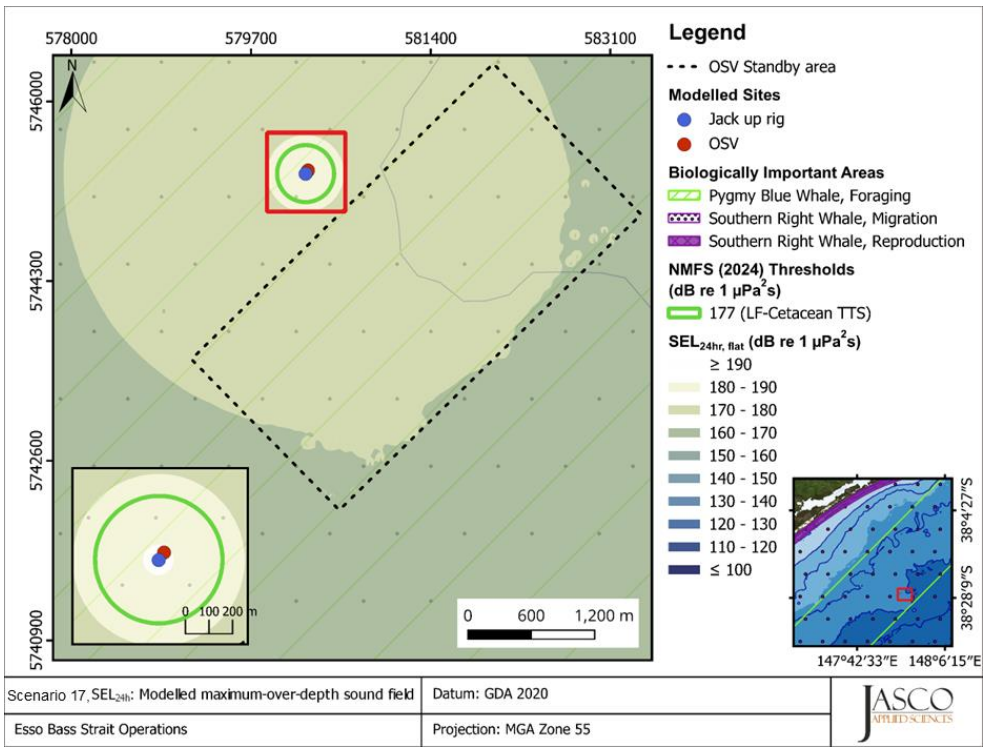



Figure 4. *Scenario 17 (2hr), JUR with OSVs standby and 2-hour DP, accumulated $SEL_{24h}$*: Sound level contour map showing maximum-over-depth $SEL_{24h}$ results (unweighted/flat), along with frequency isopleths for TTS in low- and high-frequency cetaceans, and otariids. Thresholds omitted here were not reached or not long enough to display graphically.

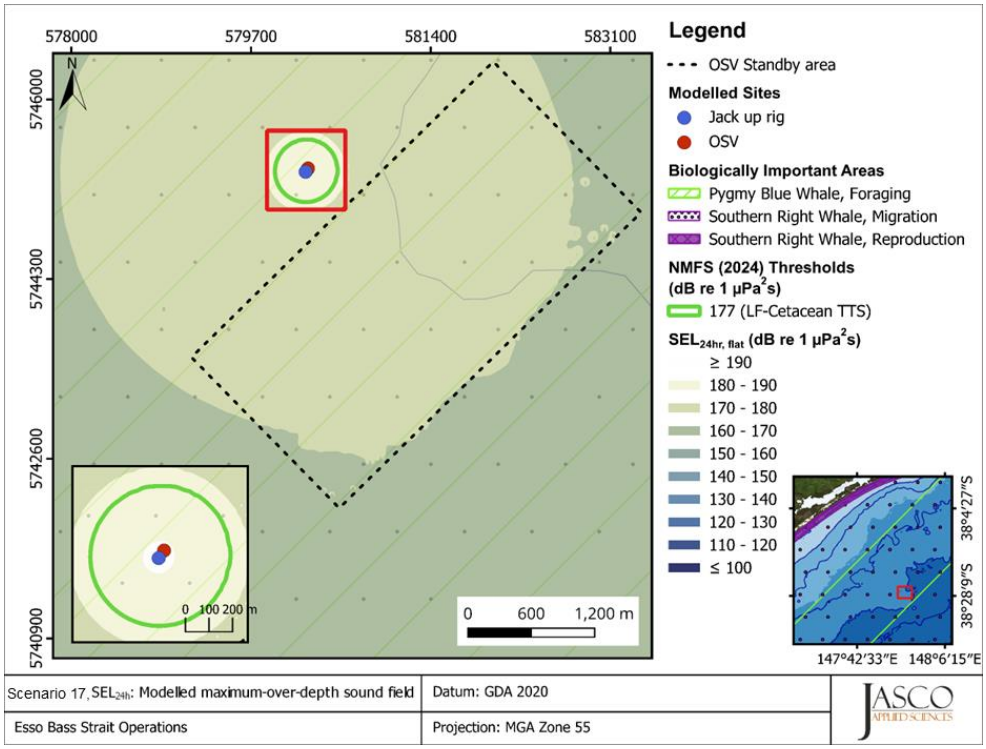



Figure 5. *Scenario 17 (8hr), JUR with OSVs standby and 8-hour DP, accumulated $SEL_{24h}$*: Sound level contour map showing maximum-over-depth $SEL_{24h}$ results (unweighted/flat), along with frequency weighted isopleths for TTS in low- and high-frequency cetaceans, and otariids. Thresholds omitted here were not reached or not long enough to display graphically.

# 4. Discussion

This modelling study updates the predicted range to accumulated SEL thresholds from Matthews et al. (2023) to noise effect criteria based on NMFS (2024), which has superseded Southall et al. (2019). The considered scenarios included underwater sound levels associated with production platforms, a jack-up drilling rig, and relevant attendant vessels. This was completed over four scenarios, corresponding to Scenarios 15 (1 h, 2 h) and 17 (2 h, 8 h) from Matthews et al. (2023).

Updates to noise effect criteria from NMFS (2024) does not affect the behavioural response threshold from NOAA (2024) and are reproduced in this memo for completeness only. For low-frequency cetaceans there was a ~17% increase in PTS/AUD INJ ranges from 60 m to 70 m. TTS ranges increased between ~36–63% with the largest range increase occurring for scenario 15 with the and increase from 440 m to 600 m. For high-frequency cetaceans the PTS/AUD INJ the range decreased from 60 m to not predicted to occur within the modelling resolution. TTS ranges increased between ~0–13% with the largest increase from 80 to 90 m. For otariid seals PTS was not predicted to occur for any of the considered thresholds. TTS ranges increased by 50% from 60 to 90 m for Scenario 15 and changed from ‘not predicted to occur within modelling resolution’ to 40 m for Scenario 17.

Despite the OSV operating for different lengths of time (1, 2 or 8 h) across the scenarios, the combination of the proportion of operating time, and the fact that the vessel is quieter than the continuously operating platform and resupply vessel, its influence on the distance to considered SEL effect thresholds is minor.

Ranges to TTS thresholds based on NMFS (2024) are greater across all modelled scenarios and functional hearing groups compared to those derived from Southall et al. (2019). Low-frequency cetaceans for Scenario 15 saw the largest increase, from 435 m to 600 m. High-frequency cetaceans

for Scenario 17 (2 h) and other carnivores in water for Scenario 17 (both 2 h and 8 h) were previously not exposed above the TTS threshold within the modelling resolution, if at all, but are now exposed to $R_{max}$ of 30 m, 40 m and 40 m, respectively. These increases are due to changes in both the numerical thresholds and the parameters of the frequency-weighting functions. While the updated thresholds may be numerically different, the revised weighting functions encompass different frequencies within the sound energy spectrum. The results of these changes is that for the vessels considered in this assessment, which primary have energy below 10 kHz, the ranges to threshold exceedance increase. For example, the low-frequency cetacean threshold has reduced from 179 dB re 1 $\mu Pa^2 \cdot s$ (Southall et al. 2019) to 177 dB re 1 $\mu Pa^2 \cdot s$ (NMFS, 2024), while the TTS $R_{max}$ result increase from 435 m to 600 m.

# Literature Cited

[ANSI] American National Standards Institute and [ASA] Acoustical Society of America. S1.1-2013. *American National Standard: Acoustical Terminology*. New York. https://webstore.ansi.org/Standards/ASA/ANSIASAS12013.

[ISO] International Organization for Standardization. 2017. *ISO 18405:2017. Underwater acoustics — Terminology*. Geneva. https://www.iso.org/obp/ui/en/#!iso:std:62406:en.

[NMFS] National Marine Fisheries Service (US). 2018. *2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts*. US Department of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59. 167 p. https://www.fisheries.noaa.gov/s3//dam-migration/tech-memo-acoustic-guidance-20-pdf-508.pdf.

[NMFS] National Marine Fisheries Service (US). 2024. *2024 Update to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0): Underwater and In-Air Criteria for Onset of Auditory Injury and Temporary Threshold Shifts*. Report by the US Department of Commerce and NOAA. NOAA Technical Memorandum NMFS-OPR-xx. https://www.fisheries.noaa.gov/s3/2024-05/NMSFAcousticGuidance-DraftTECHMEMOGuidance-3.0-FEB-24-OPR1.pdf.

Beaman, R.J. 2023. AusBathyTopo (Australia) 250m 2023 - A regional-scale depth model (20230004C). GeoScience Australia. https://doi.org/10.26186/148758.

Finneran, J.J. and A.K. Jenkins. 2012. *Criteria and thresholds for U.S. Navy acoustic and explosive effects analysis (Phase 2)*. SPAWAR Systems Center Pacific, San Diego, CA, USA. 64 p.

Finneran, J.J. 2015. *Auditory weighting functions and TTS/PTS exposure functions for cetaceans and marine carnivores*. Technical report by SSC Pacific, San Diego, CA, USA.

Finneran, J.J. 2016. *Auditory weighting functions and TTS/PTS exposure functions for marine mammals exposed to underwater noise*. Technical Report for Space and Naval Warfare Systems Center Pacific, San Diego, CA, USA. 49 p. https://apps.dtic.mil/dtic/tr/fulltext/u2/1026445.pdf.

Matthews, M.-N.R., S.C. Connell, and C.R. McPherson. 2023. *Esso Bass Strait Operations Modelling: Assessing Marine Fauna Sound Exposures*. Document Number 02700, Version 2.0. Technical report by JASCO Applied Sciences for Esso Australia Pty. Ltd.

NOAA Fisheries. 2024. *ESA Section 7 Consultation Tools for Marine Mammals on the West Coast* (webpage), 30 Jan 2024. https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/esa-section-7-consultation-tools-marine-mammals-west.

Popper, A.N., A.D. Hawkins, R.R. Fay, D.A. Mann, S. Bartol, T.J. Carlson, S. Coombs, W.T. Ellison, R.L. Gentry, et al. 2014. *Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI*. ASA S3/SC1.4 TR-2014. SpringerBriefs in Oceanography. ASA Press and Springer. https://doi.org/10.1007/978-3-319-06659-2.

Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, Jr., D. Kastak, D.R. Ketten, J.H. Miller, et al. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. *Aquatic Mammals* 33(4): 411–521. https://doi.org/10.1578/AM.33.4.2007.411.

Southall, B.L., J.J. Finneran, C.J. Reichmuth, P.E. Nachtigall, D.R. Ketten, A.E. Bowles, W.T. Ellison, D.P. Nowacek, and P.L. Tyack. 2019. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals* 45(2): 125–232. https://doi.org/10.1578/AM.45.2.2019.125.

# Appendix A. Marine Mammals Frequency Weighting

In 2015, a US Navy technical report by Finneran (2015) recommended new auditory weighting functions. The overall shape of the auditory weighting functions is similar to human A-weighting functions, which follows the sensitivity of the human ear at low sound levels. The new frequency-weighting function is expressed as:

$$G(f) = K + 10\log_{10}\left[\left(\frac{(f/f_{lo})^{2a}}{\left[1+(f/f_{lo})^{2}\right]^{a}\left[1+(f/f_{hi})^{2}\right]^{b}}\right)\right] \quad \text{(A-1)}$$

Finneran (2015) proposed five functional hearing groups for marine mammals in water: low-, mid- and high-frequency cetaceans (LF, MF, and HF cetaceans, respectively), phocid pinnipeds, and otariid pinnipeds. The parameters for these frequency-weighting functions were further modified the following year (Finneran 2016) and were adopted in NOAA's technical guidance that assesses acoustic impacts on marine mammals (NMFS 2018), and in the latest guidance by NMFS (2024). Table A-1. lists the frequency-weighting parameters for each hearing group relevant to this; and Figure A-1 shows the resulting frequency-weighting curves.

Table A-1. Parameters for the auditory weighting functions used in this project as recommended by NMFS (2024) for cetaceans.

| Functional Hearing group | NMFS (2024) | | | | |
|---|---|---|---|---|---|
| | a | b | flo (kHz) | fhi (kHz) | C (dB) |
| Low-frequency cetaceans [a] (baleen whales) | 0.99 | 5 | 0.168 | 26.6 | 0.12 |
| High-frequency cetaceans [a] (most dolphins, plus sperm, beaked, and bottlenose whales) | 1.55 | 5 | 1.73 | 129 | 0.32 |
| Otariid Seals in water [a] | 1.58 | 5 | 2.53 | 43.8 | 1.37 |

* The 'C' parameter in NMFS (2024) is equivalent to the 'K' parameter in Finneran (2015).
Noise exposure criteria: [a] NMFS (2024)

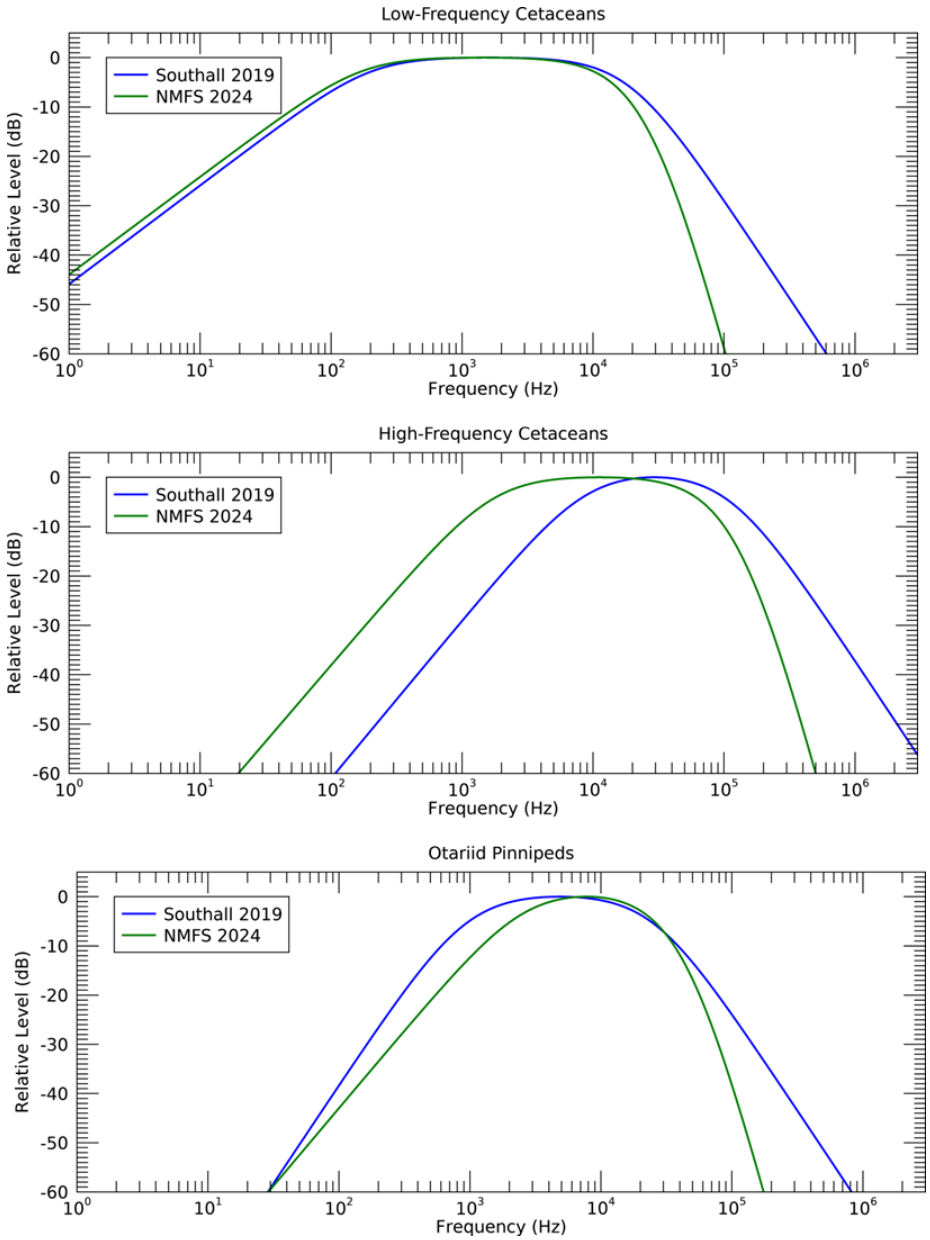



Figure A-1. Auditory weighting functions for functional marine mammal hearing groups used in this project as recommended by NMFS (2024) and the weighting functions modelled previously from Southall et al. (2019).

# Appendix B. Bathymetry

Bathymetry throughout the modelled area was extracted from the Australian Bathymetry and Topography Grid, a 9 arc-second grid rendered for Australian waters (Beaman (2023)). The bathymetry data were re-gridded and combined onto a Map Grid of Australia (MGA) coordinate projection (Zone 55) with a regular grid spacing of 250 m × 250 m (Figure B-1).

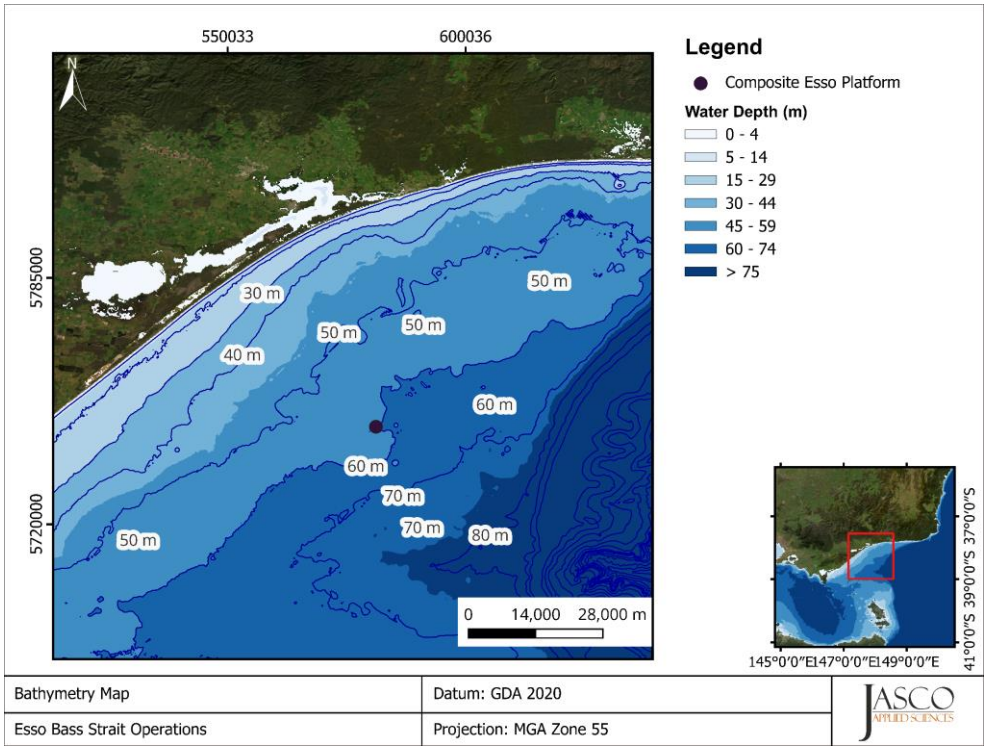



Figure B-1. Bathymetry in the modelled area.

# Appendix J: Assessment against the management actions of the AMPs

Assessment of Esso's Bass Strait Producing Operations loss of well containment (LoWC) spill risk against the South-east Marine Parks Network Management Plan 2025 (Director of National Parks, 2025) and the Temperate East Marine Parks Network Management Plan 2018 (DNP, 2018).

The following information summarises the probabilities of exposure (%) to the AMPs in the South-east Parks Network based on the Bass Strait Environmental Plan Renewal Oil Spill Modelling Report for the following spill scenarios:

- Scenario 1: A 35,839 $m^3$ surface release of Kipper condensate over 98 days following a LoWC (with production from current production tubing against zero wellhead pressure) at the Marlin Platform
- Scenario 2: A 144,054 $m^3$ surface release of Kipper condensate over 98 days following a LoWC (during a plug and abandonment on the well with all perforations open to flow against zero wellhead pressure) at the Marlin Platform
- Scenario 3: A 1,324 $m^3$ surface release of Moonfish crude over 98 days following a LoWC at the Tuna Platform
- Scenario 4: A 41,448 $m^3$ surface release of Barracouta condensate over 98 days following a LoWC (with production from current production tubing against zero wellhead pressure) at the West Tuna Platform
- Scenario 5: A 23,373 $m^3$ surface release of Barracouta condensate over 98 days following a LoWC (with production from current production tubing against zero wellhead pressure) at the Snapper Platform
- Scenario 6: A 1,123 $m^3$ subsea release of Kipper condensate over 1 hour following a pipeline rupture loss of containment incident at the MLA500 Pipeline location

**Australian Marine Parks in the EMBA within the South-east Marine Parks Network (Director of National Parks, 2025)**

| East Gippsland AMP | Scenario 1 | | | Scenario 2 | | | Scenario 3 | | | Scenario 4 | | | Scenario 5 | | | Scenario 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
| **Sea surface** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | 15 | - | - | 44 | 7 | - | - | - | - | 13 | - | - | 1 | - | - | - | - | - |
| **Entrained** | 90 | N/A | 5 | 96 | N/A | 65 | 10 | N/A | - | 75 | N/A | - | 36 | N/A | - | - | N/A | - |

*All values are probability (%) of exposure*

| Beagle AMP | Scenario 1 | | | Scenario 2 | | | Scenario 3 | | | Scenario 4 | | | Scenario 5 | | | Scenario 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
| **Sea surface** | - | - | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | 10 | 2 | - | 29 | 7 | 1 | - | - | - | 17 | 1 | - | 8 | - | - | - | - | - |
| **Entrained** | 43 | N/A | 24 | 54 | N/A | 43 | 22 | N/A | - | 42 | N/A | 7 | 37 | N/A | 2 | - | N/A | - |

*All values are probability (%) of exposure*

| Flinders AMP | Scenario 1 | | | Scenario 2 | | | Scenario 3 | | | Scenario 4 | | | Scenario 5 | | | Scenario 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
| **Sea surface** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | - | - | - | 4 | - | - | - | - | - | 2 | - | - | - | - | - | - | - | - |
| **Entrained** | 38 | N/A | - | 91 | N/A | 3 | - | N/A | - | 23 | N/A | - | 1 | N/A | - | - | N/A | - |

*All values are probability (%) of exposure*

| Freycinet AMP | Scenario 1 | | | Scenario 2 | | | Scenario 3 | | | Scenario 4 | | | Scenario 5 | | | Scenario 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
| **Sea surface** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Entrained** | 8 | N/A | - | 43 | N/A | 2 | - | N/A | - | 2 | N/A | - | - | N/A | - | - | N/A | - |

*All values are probability (%) of exposure*

**Management programs and desired outcomes for the South-east Network in accordance with Table 3.1 of DNP**

| MP vision/objectives/desired outcomes/goals & actions | | Compliance with Management Plan |
|---|---|---|
| **Vision** | The South-east Marine Parks are healthy and resilient for current and future generations. | In the event of LoWC, the Oil Pollution Emergency Plan (OPEP) (AUGO-EV-ELI-001) and Bass Strait Operational and Scientific Monitoring Program (OSMP) (AUGO-EV-EPL-001) will be implemented to monitor and mitigate any potential impacts. |
| **Objectives** | a. To protect and conserve biodiversity and other natural and cultural values. | |
| | b. Ecologically sustainable use and enjoyment of the natural resources within marine parks, where this is consistent with the objective (a). | |
| **Desired outcomes** | Park users and stakeholders are aware of and appreciate the South-east Marine Parks. | No impacts. |
| | Compliance rates increase throughout the first 2 years and then are high throughout the life of this plan. | No impacts. |
| | First Nations people have increased opportunities to build connection to, and care for, Sea Country in Australian Marine Parks. | No impacts. |
| | Key knowledge gaps are identified and addressed to support evidence-based management. | No impacts. |
| | Mesophotic reef ecosystems (middle-light reefs in depths of 30 m to 70 m) in National Park Zones are in better condition relative to unprotected areas. | In the event of LoWC, the OPEP and OSMP will be implemented to monitor and mitigate any potential impacts. |
| | Rariphotic reef ecosystems (rare-light reefs in depths of 71 m to 200 m) in National Park Zones are in better condition relative to unprotected areas. | |
| | Canyon ecosystems in National Park Zones are in better condition relative to unprotected areas. | |
| | Seamount reef ecosystems are continuing to show signs of recovery from historic trawl fishing. | No impacts. |
| **First Nations connections and partnerships management program** | | |

| MP vision/objectives/desired outcomes/goals & actions | | Compliance with Management Plan |
|---|---|---|
| **Goal** | Respect and support the ongoing cultural responsibilities and connections of First Nations people to care for and manage Sea Country in marine parks. | No impacts. |
| **Actions** | Co-design a Sea Country Strategy with Traditional Owners to identify priorities for First Nations-led projects and actions. | No impacts. |
| | Seek the active participation of Traditional Owners in the identification and management of First Nations values in marine parks through the development of First Nations values statements. | No impacts. |
| | Work with Traditional Owners to develop and maintain an information management system that houses information about First Nations values and management considerations. | No impacts. |
| | Implement cultural awareness and competency training for Parks Australia staff in association with the Traditional Owners of the south-east region. | No impacts. |
| | Engage with Traditional Owners through culturally appropriate and culturally safe mechanisms, including the South-east Saltwater Council. | No impacts. |
| | Establish collaborative arrangements with First Nations groups in the management of South-east Marine Parks. | No impacts. |
| | Develop and implement a process with Traditional Owners to dual or rename parks in advance of the next management plan. | No impacts. |
| | Ensure dedicated resources are allocated to support First Nations engagement in the management of South-east Marine Parks. | No impacts. |
| **Protection and resilience management program** | | |
| **Goal** | Reduce the impacts of pressures and environmental changes on marine species, habitats and ecosystems. | In the event of LoWC, the OPEP and OSMP will be implemented to |

| MP vision/objectives/desired outcomes/goals & actions | | Compliance with Management Plan |
|---|---|---|
| | | monitor and mitigate any potential impacts. |
| **Actions** | Assess applications and authorise activities in accordance with the management plan to provide for sustainable activities in the parks. | No impacts. |
| | Undertake surveillance, education and enforcement operations to support high levels of compliance. | No impacts. |
| | Prepare for a range of critical incidents and support maritime emergency agencies respond to events in or near the marine parks. | No impacts. |
| | Enhance ecosystem resilience and support the management of broadscale pressures (e.g. climate change, marine debris, invasive marine species), including through advocacy and collaboration with other management agencies and jurisdictions. | No impacts. |
| | Explore novel and effective approaches to ecosystem restoration and adaptation. | No impacts. |
| **Science and management effectiveness management program** | | |
| **Goal** | Identify and deliver priority science needs to inform adaptive management. | No impacts. |
| **Actions** | Continue to build and maintain robust, collaborative, and cost-effective partnerships to deliver quality science. | No impacts. |
| | Encourage, enable and commission discovery research, and research in response to new uses, existing and emerging pressures. | No impacts. |
| | Monitor the status of priority park values and social and economic trends. | No impacts. |
| | Continue to explore opportunities to better weave Indigenous knowledge systems and Western science, ensuring all perspectives are valued and inform adaptive management. | No impacts. |

| MP vision/objectives/desired outcomes/goals & actions | | Compliance with Management Plan |
|---|---|---|
| | Develop and maintain data and information systems, processes and reporting to support evidence-based park management, in conjunction with partners. | No impacts. |
| | Share findings of research and monitoring programs with park users, First Nations people, stakeholders, partners, other government agencies and the public. | No impacts. |
| | In partnership with relevant recreational fishing organisations, identify priorities to better understand recreational fishing effort, benefits and impacts in the South-east Network. | No impacts. |
| | Evaluate and report on the effectiveness of management actions. | No impacts. |
| | Explore novel and effective approaches to monitoring and research. | No impacts. |
| **Communication and engagement management program** | | |
| **Goal** | Enhance public appreciation, understanding of, and engagement in, marine parks and their management. | No impacts. |
| **Objectives** | Develop clear and concise materials that enhance the accessibility of management arrangements in the South-east. | No impacts. |
| | Prepare a range of information products and maintain a strong visual presence to build public awareness of marine parks and their management (including through social media platforms). | No impacts. |
| | Engage with coastal communities and other interested stakeholders to build understanding of South-east Marine Parks and their management (including through attendance at events). | No impacts. |
| | Educate marine park users about the marine park rules and their requirements. | No impacts. |
| | Support sustainable use of the parks by providing information about park values and ways marine park users can contribute to the protection of the park values. | No impacts. |

| MP vision/objectives/desired outcomes/goals & actions | | Compliance with Management Plan |
|---|---|---|
| | Establish and maintain partnerships with a range of stakeholders to provide advice that will collectively inform park management. | No impacts. |

**Australian Marine Parks in the EMBA within the Temperate East Marine Parks Network**

| Jervis AMP | Scenario 1 | | | Scenario 2 | | | Scenario 3 | | | Scenario 4 | | | Scenario 5 | | | Scenario 7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
| **Sea surface** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Entrained** | 19 | N/A | - | 40 | N/A | 1 | - | N/A | - | 3 | N/A | - | 2 | N/A | - | - | N/A | - |

*All values are probability (%) of exposure*

| Hunter AMP | Scenario 1 | | | Scenario 2 | | | Scenario 3 | | | Scenario 4 | | | Scenario 5 | | | Scenario 7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
| **Sea surface** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Entrained** | 1 | N/A | - | 5 | N/A | - | - | N/A | - | - | N/A | - | - | N/A | - | - | N/A | - |

*All values are probability (%) of exposure*

| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 | Scenario 7 |
|---|---|---|---|---|---|---|

| Central Eastern AMP | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sea surface** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Entrained** | - | N/A | - | 12 | N/A | - | - | N/A | - | - | N/A | - | - | N/A | - | - | N/A | - |

*All values are probability (%) of exposure*

| Lord Howe AMP | Scenario 1 | | | Scenario 2 | | | Scenario 3 | | | Scenario 4 | | | Scenario 5 | | | Scenario 7 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High | Low | Mod | High |
| **Sea surface** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Dissolved** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Entrained** | 13 | N/A | - | 23 | N/A | 2 | - | N/A | - | - | N/A | - | - | N/A | - | - | N/A | - |

*All values are probability (%) of exposure*

**Management programs and desired outcomes for the Temperate East Marine Parks Network Management Plan 2018** (DNP, 2018)

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| **Vision** | The vision of the Director of National Parks (the Director) is that marine parks are healthy, resilient and well-managed to enhance Australia's wellbeing. This means ensuring that:<br>• their natural, cultural, socio-economic and heritage values are understood, appreciated and conserved; | In the event of LoWC, the OPEP and OSMP will be implemented to monitor and mitigate any potential impacts. |
| | • marine parks support jobs and businesses, providing multiple benefits to regional communities and the economy | No impacts. |
| | • people have opportunities to enjoy marine parks; | No impacts. |
| | • visitors and tourists can enjoy world-class nature-based experiences in marine parks; and | No impacts. |
| | • Indigenous people and marine park users are partners in managing marine parks. | No impacts. |
| **Objectives** | a. the protection and conservation of biodiversity and other natural, cultural and heritage values of marine parks in the Temperate East Network. | In the event of LoWC, the OPEP and OSMP will be implemented to monitor and mitigate any potential impacts. |
| | b. ecologically sustainable use and enjoyment of the natural resources within marine parks in the Temperate East Network, where this is consistent with objective (a). | |
| **Management programs & actions** | | |
| **Communication, education and awareness program** | | |
| **Outcome** | Increased awareness, understanding and support for marine parks. | No impacts. |
| **Actions** | Develop a marketing and communication strategy for Australian Marine Parks to raise awareness and understanding of marine park values and the contribution marine parks make to enhancing Australia's wellbeing. | No impacts. |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| | Develop online information resources to facilitate awareness of marine park values, management arrangements and visitor opportunities. | No impacts. |
| | Maximise the use of new technologies and partnerships (including with schools, universities, museums and non-government organisations) to inspire people of all ages to become involved in marine park management and protection. | No impacts. |
| | Establish network advisory committees to ensure users and interested stakeholders have on-going input to the management of Australian Marine Parks. | No impacts. |
| | Develop a customer focussed approach to tracking the aspirations and concerns of stakeholders in relation to marine parks. | No impacts. |
| | Develop information for visitors on marine parks in the Network to encourage increased awareness and understanding of their values and management arrangements. | No impacts. |
| | Provide infrastructure in and adjacent to the Network, such as signs and marker buoys, to increase understanding of marine park values and rules, particularly at sites that are regularly visited. | No impacts. |
| | Establish a Temperate East Network advisory committee/s or other engagement mechanisms to support and collaborate with the Director in management. | No impacts. |
| | Engage closely with Norfolk Marine Park and Lord Howe Marine Park users and communities about marine parks and opportunities. | No impacts. |
| **Tourism and visitor experience program** | | |
| **Outcomes** | High-quality visitor experiences that are appealing, engaging and raise awareness of the natural and cultural values of marine parks. | No impacts. |
| | Increased visitation to marine parks. | No impacts. |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| | Social and economic benefits from the contribution of marine parks to Australia's visitor economy. | No impacts. |
| **Actions** | Develop a sustainable tourism and visitor experience strategy for Australian Marine Parks. | No impacts. |
| | Work with national, state and local tourism authorities and operators to maximise the value of a sustainable ecotourism opportunities associated with marine parks. | No impacts. |
| | Develop a commercial tourism authorisation system to encourage best-practice and eco-accredited businesses operating in Australian Marine Parks. | No impacts. |
| | Work with Tourism Australia and state and regional tourism authorities and the fishing industry to market and promote Australian Marine Parks, including opportunities to promote locally caught and sustainably caught seafood. | No impacts. |
| | Monitor visitor trends and levels of satisfaction with marine park experiences and products. | No impacts. |
| | Promote culturally sensitive tourism by encouraging tourism operators to liaise with traditional owners. | No impacts. |
| | Work with tourism operators and Indigenous people to recognise and promote cultural values and cultural tourism opportunities. | No impacts. |
| | Promote visitor experiences that foster curiosity and appreciation of natural and heritage values in the Network, for example nature watching, diving or snorkelling at the Norfolk, Solitary Islands, Cod Grounds and Lord Howe Marine Parks. | No impacts. |
| | Work with other Commonwealth and state government agencies, the Norfolk Island Regional Council, Lord Howe Island Board, and the tourism industry to support tourism initiatives, events and attractions that promote visitor experiences in marine parks. | No impacts. |
| **Indigenous engagement program** | | |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| **Outcomes** | Social, cultural and economic benefits for traditional owners. | No impacts. |
| | Partnerships with traditional owners and Indigenous groups to manage sea country in marine parks. | No impacts. |
| **Actions** | Develop an Australian Marine Parks Indigenous engagement and cultural heritage strategy, to improve understanding of cultural heritage, link management with sea country plans and maximise employment and enterprise opportunities for traditional owners. | No impacts. |
| | Develop agreements to support Indigenous ranger programs to deliver management in marine parks. | No impacts. |
| | Provide information to Indigenous people about marine park management. | No impacts. |
| | Collaborate with traditional owners and relevant partners such as the New South Wales Aboriginal Land Council on implementing the Indigenous engagement program, including supporting Indigenous groups to participate in marine park management. | No impacts. |
| | Implement cultural awareness training for Parks Australia staff in association with traditional owners. | No impacts. |
| | Establish protocols for researchers working with Parks Australia to guide engagement with traditional owners. | No impacts. |
| | Identify opportunities and mechanisms to engage traditional owners including through coastal Local Aboriginal Land Councils, established under the Aboriginal Land Rights Act 1983 in the management of marine parks. | No impacts. |
| | Increase understanding of traditional knowledge and cultural values. | No impacts. |
| **Marine science program** | | |
| **Outcomes** | Increase understanding of marine park values, pressures and adequacy of responses. | In the event of LoWC, the OPEP and OSMP will be implemented to |
| | Improve understanding of the effectiveness of marine park management in protecting park values. | |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| | | monitor and mitigate any potential impacts. |
| | Informed decision-making and improved evidence-based decisions. | No impacts. |
| **Actions** | Establish ecological, social and economic baselines to support evidence-based decision-making and adaptive management. | No impacts. |
| | Develop an Australian Marine Parks science strategy to prioritise and encourage research and monitoring of park values, pressures and management effectiveness, and foster science communication and knowledge uptake. | No impacts. |
| | Encourage and facilitate knowledge brokering to support collaboration and partnerships with the science community, private enterprise, citizen science organisations and other Commonwealth, state and territory agencies. | No impacts. |
| | Establish an authorisation system for scientific research and monitoring by third parties, and encourage data to be made publicly available through the appropriate information portals such as the Australian Ocean Data Network. | No impacts. |
| | Collaborate with the science community (including through the National Marine Science Committee and the National Environmental Science Program) and other marine park users to assist in improving the understanding of marine park values, pressures and management effectiveness. | No impacts. |
| | Collaborate with the science community and other government agencies to increase the use of innovative and effective technology and systems including sensor technology. | No impacts. |
| | Monitor the social and economic uses and their benefits and impacts on marine parks in the Network. | In the event of LoWC, the OPEP and OSMP will be implemented to monitor and mitigate any potential impacts. |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| | Monitor the condition of important habitats and their vulnerability to climate change. | No impacts. |
| | Monitor the impact of invasive species on marine park values and the effectiveness of management. | No impacts. |
| | Collaborate with other Commonwealth and state government agencies, the Norfolk Island Regional Council, Lord Howe Island Board, marine park users, and the science sector to support long-term monitoring. For example, monitoring of coral reefs, protected species and effects of fishing on marine parks. | No impacts. |
| | Investigate opportunities to extend citizen science programs. | No impacts. |
| **Assessments and authorisations program** | | |
| **Outcome** | Assessments and authorisations ensure ongoing protection of marine park values through the management of activities in marine parks. | No impacts. |
| **Actions** | Develop and apply best-practice approaches to regulation and decision-making in the authorisation of activities within marine parks. This includes developing policy to ensure assessment and authorisation requirements are clearly articulated and that decision making is robust, consistently applied, and transparent to all marine park users. | No impacts. |
| | Collaborate with industry to investigate innovative technologies and systems (including vessel monitoring systems) that can assist businesses and individuals to comply with regulatory requirements. | No impacts. |
| | Develop an effective and efficient process to assess new technologies and gear types to allow for the use of new equipment during the life of this plan if appropriate. | No impacts. |
| | Develop a guarantee of service for the regulated community that includes a commitment to work with key marine park users and interest groups whose interests are likely to be affected by regulatory decisions. | No impacts. |
| | Develop a customer focused online authorisation system for marine park users that includes publishing authorisations issued by Parks Australia on its website. | No impacts. |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| | issue authorisations—permit, class approval, activity licence or lease—for activities in marine parks assessed as acceptable either by the Director or another government or industry policy, plan or program accepted by the Director. | No impacts. |
| | Work with other Commonwealth and state government agencies, the Norfolk Island Regional Council, and the Lord Howe Island Board, to improve experiences and consistency of approaches for people seeking authorisations. | No impacts. |
| **Park protection and management program** | | |
| **Outcome** | Impact of pressures on marine park values are minimised as far as reasonably practicable. | In the event of LoWC, the OPEP and OSMP will be implemented to monitor and mitigate any potential impacts. |
| **Actions** | Apply a risk-based assessment process to prioritise park protection and management actions. | No impacts. |
| | Develop an Australian Marine Parks critical incident strategy in collaboration with the Australian Maritime Safety Authority and other responsible agencies, to respond to critical incidents. | No impacts. |
| | Develop a mooring and anchoring strategy to protect marine park values and improve visitor experience. | No impacts. |
| | Support the removal of marine debris and ghost nets from marine parks through partnerships with Commonwealth, state and territory government agencies and other organisations involved in the management of marine debris. | In the event of LoWC, the OPEP and OSMP will be implemented to monitor and mitigate any potential impacts. Arrangements with Commonwealth and state government agencies are described in the OPEP and OSMIP. |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| | Contribute to actions, where appropriate, that support Australia's obligations under international agreements and national environmental law. This includes the World Heritage Convention, Ramsar Convention, recovery plans, wildlife conservation plans and threat abatement plans. | No impacts. |
| | Enable infrastructure such as moorings to protect habitats and enhance visitor safety. | No impacts. |
| | Collaborate with and support other agencies that undertake invasive and protected species management and marine debris removal. For example, this may include working in partnership with relevant agencies to foster high standards of biosecurity, particularly in sensitive marine ecosystems and World Heritage-listed areas of the Lord Howe Marine Park. | No impacts. |
| | Work with other Commonwealth and state government agencies, the Norfolk Island Regional Council, and Lord Howe Island Board, to respond to environmental incidents and accidents. | In the event of LoWC, the OPEP and OSMP will be implemented to monitor and mitigate any potential impacts. Arrangements with Commonwealth and state government agencies are described in the OPEP and OSMIP. |
| | Collaborate with traditional owners and Indigenous ranger groups to undertake management actions. | No impacts. |
| **Compliance program** | | |
| **Outcomes** | Improved user awareness of marine park rules. | No impacts. |
| | Increased levels of voluntary compliance and self-regulation by marine park users. | No impacts. |
| | High overall levels of compliance with the rules by marine park users. | No impacts. |
| | A decrease in the number of non-compliances. | No impacts. |

| MP vision/objectives/management programs/outcomes & actions | | Compliance with Management Plan |
|---|---|---|
| **Actions** | Apply a risk-based approach to compliance planning, targeted enforcement and compliance auditing. | No impacts. |
| | Collaborate with Australian, state and territory government agencies by sharing assets and information. | No impacts. |
| | Investigate the use of new technologies and warning systems to assist in the detection of potential illegal activities. | No impacts. |
| | Work with marine park users to promote understanding of the rules for activities and how to comply. | No impacts. |
| | Work with other Commonwealth and state government agencies, the Norfolk Island Regional Council, and Lord Howe Island Board, particularly where marine parks adjoin state marine parks, in compliance planning, including implementing actions to deter illegal activities and encourage voluntary compliance. | No impacts. |
| | Collaborate with Commonwealth and state government agencies, the Norfolk Island Regional Council, and Lord Howe Island Board, in surveillance, including water and aerial patrols | No impacts. |

# Appendix K: EPO, controls, EPS summary

**Table J-1 EPO, Controls, EPS Summary**

| Aspect | EPO | Control | EPS | Measurement Criteria |
|---|---|---|---|---|
| **Impact 1: Seabed disturbance** | **IMP01-EPO01:**<br>Seabed disturbance is kept within the facility OAs (500m radius around platforms and subsea wells and 200m radius around pipelines). | **IMP01-CM01:**<br>An ROV will be used to inspect the seabed post-IMR campaign to identify any equipment that has been left on the seabed, which will be either removed (where technically feasible) or added to the SMR. | **IMPO1-EPS01:**<br>The location of equipment remaining on the seabed is confirmed. | ROV campaign reports verify location of equipment remaining on the seabed. |
| | | **IMP01-CM02:**<br>The SMR is updated as per the *SMR Management Process* (AUGO-SS-PCE-001) to ensure it is accurate and maintained consistently. This includes:<br>• roles and responsibilities<br>• data sources<br>• minimum data requirements<br>• storage locations. | **IMP01-EPS02:**<br>Property that is left on the seabed can be readily located for future removal. | The SMR is maintained and up to date per the *SMR Management Process* ( (AUGO-SS-PCE-001) and verifies equipment, or infrastructure is stored within the OAs. |
| **Impact 2: Physical presence - Interference with other marine users** | **IMP02-EPO01:**<br>Interference with other marine users is avoided. | **IMP02-CM01:**<br>Longford control room operators (using the collision avoidance radar system), monitor vessel traffic in the PSZs. | **IMP02-EPS01:**<br>There are no interactions between other marine users and facilities or IMR and subsea campaign vessels. | Inspections verify that vessel traffic is monitored, and interactions are recorded when they occur. |
| | | **IMP02-CM02:**<br>Esso liaises with the Australian Hydrographic Office and provides campaign details (including location and timing) to enable the Australian Hydrographic Office to ensure temporary Notice to Mariners are issued. | | Communications records verify that Esso provided information to the Australian Hydrographic Office prior to IMR and subsea campaign activities. |
| | | **IMP02-CM03:**<br>Esso or vessel operator notifies the AMSA Joint Rescue Coordination Centre (JRCC) prior to vessel operations commencing outside PSZs, to enable AMSA to distribute an AUSCOAST warning. | | Communications records verify that Esso or vessel operator provided information to the Joint Rescue Coordination Centre before any operations outside established PSZs commenced. |
| | | **IMP02-CM04:**<br>Commercial fisheries are notified of Esso operations activities via the ongoing quarterly engagement forum. | | Relevant persons consultation records and minutes of quarterly engagement sessions verifies that information was distributed to relevant persons. |
| | | **IMP02-CM05:**<br>SMS updates are issued to the eastern fishing fleet advising of vessel movements and activities being performed outside the PSZ. | | SMS records containing vessel movements verify communication with the eastern fishing fleet. |
| **Impact 3: Sound emissions** | **IMP03-EPO01:**<br>No displacement, injury of, or mortality to, EPBC Act-listed marine fauna as a | **IMP03-CM01:**<br>Helicopter pilots will not fly lower than 1,650ft (503m) when within 500m horizontal distance of a cetacean except when landing or taking off and will not approach a cetacean from head on. | **IMP03-EPS01:**<br>By implementing the *Australian National Guidelines for Whale and Dolphin Watching 2017* for helicopter operations and vessel movements (CoA, 2017), vessel masters and helicopter | Vessel bridge records include cetacean observations and interactions, and any actions taken.<br>Helicopter pilots will record excursions. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
|---|---|---|---|---|
| | result of noise generated by support vessels or helicopters during operations. | Vessel masters will implement the following cetacean interaction management actions:<br>• caution zones - vessels will not knowingly travel faster than 6kn within 300m of an adult whale or 150m of an adult dolphin<br>• vessels will not knowingly get closer than 100m of a whale or 50m of a dolphin.<br>if a cetacean approaches the vessel within the above zones, the vessel will avoid rapid changes in engine speed or direction. | pilots meet the requirements of the EPBC Regulations 2025 – Part 8 Division 8.1. | |
| | | **IMP03-CM02:**<br>Vessel bridge crew are competent in whale observations and species identification as part of their normal duties:<br>• all Watchkeepers hold Certificates of Competency recognised by the vessel Flag State which can only be obtained by completing years of sea service, including understudy time on watch on the bridge<br>vessel crews complete Marine Fauna Observer (MFO) training to ensure that obligations with respect to marine mammals are observed while they are in charge of the vessel. | | Watchkeeper certificates of competency and vessel bridge crew MFO training records verify competency. |
| | | **IMP03-CM03:**<br>Vessel bridge crew undertake observations within the behavioural zone (3.9km) around the vessels while on route to the OAs.<br>If a PBW or SRW is observed (or if there is any uncertainty in species identification), the following adaptive management actions will be undertaken:<br>• delay support vessel operations or moves and delay the commencement of unloading/loading activities until PBW/SRW has been confirmed outside of the behavioural zone (3.9km) or no new sightings for 30 minutes<br>• if already in transit, vessels will reduce speed, adjust heading if safe to do so and apply the caution zone requirements of CM01<br>during unloading/loading operations whilst a support vessel is alongside the platform, the support vessel will either stop operations if safe to do so and move away from the behavioural zone (3.9km), or if not safe to stop operations, reduce thrusters to as low as possible and adjust heading. | **IMP03-EPS02:**<br>Behavioural disturbance to PBW or SRW is avoided by undertaking adaptive management actions. | Vessel bridge records include cetacean observations and interactions, and any actions taken. |
| **Impact 4: Light emissions** | **IMP04-EPO01:**<br>No displacement, injury or death of seabirds as a result of lighting. | **IMP04-CM01:**<br>Lighting will be managed such that:<br>• unnecessary outdoor deck lighting is switched off (where local switches allow this)<br>• lights are aimed downwards/inwards | **IMP04-EPS01:**<br>Lighting is limited to that required for safe navigation and crew working requirements, with the exception of emergency events. | Internal environmental compliance inspection verifies that no excessive light is in use beyond that required for safe work and navigation. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
|---|---|---|---|---|
| | | glow from indoor lighting is prevented from reaching the outdoor environment. | | |
| **Impact 5: Air Emissions** | **IMP05-EPO01:**<br>Fuel-combusting vessel equipment operates in accordance with MARPOL Annex VI (Prevention of Air Pollution from Ships). | **IMP05-CM01:**<br>Vessels comply with Marine Order 97 (Marine Pollution Prevention – Air Pollution), including:<br>• possession of an International Air Pollution Prevention (IAPP) Certificate, as required by vessel class<br>• use of low sulphur fuel (no greater than 0.5%m/m)<br>• possession and implementation of a Ship Energy Efficiency Management Plan, where required by vessel class. | **IMP05-EPS01:**<br>Emissions from vessels comply with the requirements of Marine Order 97 (Marine Pollution Prevention – Air Pollution). | Class certificate summary verifies compliance with MARPOL Annex VI. |
| | **IMP05-EPO02:**<br>GHG emissions from Esso offshore activities are reduced in line with Australia's reformed Safeguard Mechanism requirements (inclusive of legislated net zero emissions by 2050). | **IMP05-CM02:**<br>The GHG emissions from Esso facilities are monitored in accordance with the NGERS and NPI reporting. | **IMP05-EPS02:**<br>All reportable GHG emissions from Esso offshore operations are reported and submitted annually in compliance with NGERS and NPI requirements. | Annual NGER and NPI submissions completed and retained as verifiable records. |
| | | **IMP05-CM03:**<br>Esso applies for, manages, and maintains net direct emissions within the applicable Safeguard Mechanism baseline(s) established under the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015, including implementation of required remediation, offsets, or reforms to ensure ongoing compliance. | **IMP05-EPS03:**<br>Net direct emissions from Esso facilities remain within the approved Safeguard Mechanism baseline(s) each financial year, with any exceedances addressed through timely corrective or offset measures in accordance with the Rule. | Safeguard Mechanism baseline determinations, annual emissions position statements, and compliance documentation are maintained.<br>Internal records demonstrate that any required corrective actions (e.g. acquisition of the System of Management Controls, operational adjustments, or efficiency improvements) were implemented to prevent or address baseline exceedance. |
| | | **IMP05-CM04:**<br>A GHG-reduction opportunity-assessment process is implemented in accordance with the GHG Management Plan (AUGO-EV-EDS-003), including periodic Gippsland Emissions Reduction Leadership Team reviews and the integration of approved GHG-reduction initiatives into the Business Plan for implementation, tracking, and monitoring. | **IMP05-EPS04:**<br>GHG reduction opportunities are identified, assessed and stewarded via a defined governance process that integrates approved initiatives into business planning and performance monitoring, supporting the reduction of GHG emissions. | Records (agenda, minutes, action lists) demonstrate that quarterly GERL reviews occurred which:<br>• considered offshore emissions-reduction opportunities.<br>• confirmed status of endorsed initiatives (in delivery, completed, or under evaluation)<br>• provide feedback on actual vs predicted reductions |
| | **IMP05-EPO03:**<br>Fuel gas use from the Esso offshore facilities is optimised to ensure that any increases are identified, assessed and managed to ALARP. | **IMP05-CM05:**<br>Fuel gas use forecasts are developed and revised annually in accordance with the internal Emissions Forecasting Protocol using facility design principles and ALARP considerations. Any material exceedance of forecast values will trigger further analysis to identify the cause and determine whether corrective action is required. | **IMP05-EPS05:**<br>Fuel gas forecasts are maintained in accordance with facility design principles and ALARP considerations. | Forecasts for fuel-gas use are documented, current, and based on design inputs.<br>Records demonstrate that any exceedance of forecast fuel-gas use triggered follow-up analysis.<br>Documented outcomes of analysis show whether corrective or mitigation actions were needed, and if so, that they were implemented or scheduled through internal processes. |
| | | **IMP05-CM06:** | **IMP05-EPS06:** | Fuel-gas usage data is continuously captured through the distributed control system. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | | Continuous monitoring and routine operational review of fuel gas usage volumes is undertaken to identify trends, detect anomalies, and support optimisation efforts via:<br>• the distributed control system<br>• daily OIM report<br>• bi-weekly operations review (Redbox Meeting)<br>• monthly technical monitoring<br>• annual environmental business planning. | Fuel gas usage trends, anomalies, and optimisation opportunities are identified and acted upon in a timely manner. | Daily OIM reports document fuel-gas usage and note any anomalies requiring follow-up.<br>Bi-weekly operations review (Redbox Meeting) held includes discussion of usage versus forecasts.<br>Monthly technical monitoring records demonstrate review of fuel gas usage trends, anomalies and optimisation actions.<br>Annual environmental business-planning documentation includes assessment of fuel gas usage performance, trends, and planned optimisation initiatives.<br>Evidence of corrective or optimisation actions is retained where anomalies or inefficiencies were identified. |
| | **IMP05-EPO04:**<br>Flaring from offshore operations is managed (i.e. reduced and, where practicable, eliminated except where required for safety) consistent with the Australian Government's Future Gas Strategy commitment and World Bank Zero Routine Flaring Initiative. | **IMP05-CM07:**<br>Flaring forecasts are developed and revised annually in accordance with the internal Emissions Forecasting Protocol using facility design principles and operational assumptions. Any material exceedance of forecast values will trigger further analysis to identify the cause and determine whether corrective action is required. | **IMP05-EPS07:**<br>Flaring forecasts are maintained in accordance with facility design principles and ALARP considerations, and any material exceedance is investigated promptly with corrective actions identified where required. | Flaring forecasts are documented, current, and based on design inputs.<br>Records demonstrate that any exceedance of forecast fuel-gas use triggered follow-up analysis.<br>Documented outcomes of analysis show whether corrective or mitigation actions were needed, and if so, that they were implemented or scheduled through internal processes. |
| | | **IMP05-CM08:**<br>Continuous monitoring of flaring volumes is undertaken to identify trends, detect anomalies, and support flaring minimisation efforts in line with government expectations to reduce gas-related emissions via:<br>• the distributed control system<br>• daily OIM report<br>• bi-weekly operations review (Redbox Meeting)<br>• monthly technical monitoring<br>• annual environmental business planning. | **IMP05-EPS08:**<br>Flaring trends, anomalies, and optimisation opportunities are identified and acted upon in a timely manner. | Flaring data is continuously captured through the distributed control system.<br>Daily OIM reports document flare volumes and note any anomalies requiring follow-up.<br>Bi-weekly operations review (Redbox Meeting) held includes discussion of actual versus forecasts.<br>Monthly technical monitoring records demonstrate review of flaring trends, anomalies and optimisation actions.<br>Annual environmental business-planning documentation includes assessment of flaring volumes, trends, and planned optimisation initiatives.<br>Evidence of corrective or optimisation actions is retained where anomalies or inefficiencies were identified. |
| | | **IMP05-CM09:**<br>To prevent incomplete combustion and/or venting, a minimum pilot/purge-gas flow rate is maintained at all times to ensure continuous flare ignition. In the event of a flare flame-out, the *Panel Ignition and Panel Operation* (XXX-110-301) and *Flare Ignition Using Flare Gun and Guidelines for* | **IMP05-EPS09:**<br>Continuous flare ignition is maintained, with any flame-out events managed in accordance with the *Panel Ignition and Panel Operation* (XXX-110-301) and *Flare Ignition Using* | Distributed control system records demonstrate minimum pilot/purge-gas flow is maintained.<br>Flare flame-out events are logged in the incident management system, with evidence that the *Panel Ignition and Panel Operation* (XXX-110-301) and *Flare Ignition Using* |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | | *Operation w/o Flare* (GEN-110-206) procedures will be executed; and the event will be recorded in the facility's incident-management system. | *Flare Gun and Guidelines for Operation w/o Flare* (GEN-110-206) procedures. | *Flare Gun and Guidelines for Operation w/o Flare* (GEN-110-206) procedures were followed. |
| | **IMP05-EPO05:**<br>Fugitive emissions from Esso operations are systematically identified, quantified, and reduced in line with the Oil and Gas Methane Partnership 2.0 (OGMP 2.0) measurement-based framework. | **IMP05-CM10:**<br>Implement the annual Leak Detection and Repair program, applying ALARP-based mitigation in accordance with the internal offshore Leak Detection and Repair process including classifying leaks by magnitude/ criticality, setting maximum allowable repair windows, and implementing engineered fixes. | **IMP05-EPS10:**<br>Site-level fugitive emissions inventories are in place and drive timely leak repairs. | Leak Detection and Repair survey schedule and execution records demonstrate program undertaken annually, repairs are undertaken in accordance with the offshore Leak Detection and Repair process and logged in the CMMS. |
| | | **IMP05-CM11:**<br>The approach to leak detection and quantification is reassessed annually to ensure its suitability and effectiveness in the operational context. | **IMP05-EPS11:**<br>The leak detection and quantification approach remains effective, fit-for-purpose, and aligned with current operational conditions and best-practice methodologies | An annual documented review of the leak detection and quantification approach is completed, assessing its suitability and effectiveness and identifying any required updates. |
| | | | | Agreed improvements are recorded and incorporated into Leak Detection and Repair procedures or operational practices, with supporting updates (e.g. revised procedures, training, or equipment changes) implemented as applicable. |
| | **IMP05-EPO06:**<br>Net GHG emissions from third-party end use of domestic gas supplied by the Esso will not constitute a significant share of national GHG emissions. | **IMP05-CM12:**<br>A five-yearly review is completed within three months of each EP in-force anniversary (aligned with the in-force period of this EP) to reassess external factors influencing indirect GHG emissions associated with third-party end use of domestic gas supplied by Esso. Each review will include consideration of:<br>• the most up-to-date climate science published by recognised international bodies (e.g. Intergovernmental Panel on Climate Change) or other validated scientific or corporate sources<br>• revised or emerging Australian regulatory requirements, as well as any applicable international agreements, guidelines, or standards relevant to indirect GHG emissions management<br>• current and projected domestic energy trends, including the anticipated role of Esso's domestic gas in future demand, supply, and sectoral decarbonisation scenarios. | **IMP05-EPS12:**<br>A five-yearly review is completed by no later than three months of each EP in-force anniversary and documented in an internal Review Report.<br>The Review Report confirms that current climate science, regulatory requirements, international obligations, and domestic energy trend projections were evaluated. | Review reports verify that five-yearly reviews of climate reports, climate-related regulatory frameworks, and projected domestic and global energy trends are undertaken. |
| | | **IMP05-CM13:**<br>A review is undertaken every five years, aligned with the EP revision cycle, to reassess the assumptions and accuracy of estimated indirect emissions. The review will:<br>• evaluate the validity of underlying assumptions used in emissions estimations<br>• assess the accuracy and currency of emission calculation methodologies and emission factors in effect at the time of the review | **IMP05-EPS13:**<br>Five-yearly reviews are completed and demonstrate that assumptions, methodologies, and emission factors used to estimate indirect emissions remain current, valid, and aligned with recognised national and international GHG accounting frameworks. | Records show that routine five-yearly reviews of assumptions and methodologies used in indirect emissions estimation were undertaken. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | | • incorporate updates from recognised national and international GHG accounting frameworks as relevant. | | |
| | | **IMP05-CM14:**<br>Emissions and production data from Esso will be compiled and reported annually to the ultimate parent company to support accurate calculation of corporate GHG-related metrics. | **IMP05-EPS14:**<br>Annual reporting of GHG-related metrics are complete, accurate, and consistent with corporate reporting requirements and methodologies. | Records show that annual production and emissions data from Esso was provided to the ultimate parent company. |
| **Impact 6: Routine discharge – domestic wastes and drainage** | **IMP06-EPO01:**<br>Discharges from platform and vessel utility systems and drains meet the requirements of AMSA marine pollution prevention Marine Orders. | **IMP06-CM01:**<br>Vessels >400 gross tonnes use approved equipment (such as an oily water separator) that ensures OIW content in discharged bilge water does not exceed 15ppm. | **IMP06-EPS01:**<br>Oily water discharges meet the requirement of AMSA Marine Order 91 (Marine pollution prevention-oil). | The vessel Class Certificate Summary verifies that an International Oil Pollution Prevention certificate is in place and current. |
| | | **IMP06-CM02**:<br>Cleaning products utilised onboard vessels are not 'harmful to the marine environment' (HME). For example,<br>• labelled 'MARPOL Annex V compliant' or are products approved under IMO /Organisation for Economic Co-operation and Development biodegradability standards<br>The Garbage Management Plan states that 'only non-HME cleaning agents are used for deck washing.'<br>Deck wash procedures confirm that:<br>• if oil contamination is possible, runoff is routed to collection (slop tank/bilge system)<br>• overboard scuppers are plugged or blanked during washing. | **IMP06-EPS02:**<br>Deck drainage reporting overboard (that may include cleaning products mixed with oil, grease, or cargo residues) meets the requirements of AMSA Marine Order 91 (Marine pollution prevention-oil) and AMSA Marine Order 93 (Marine pollution prevention-noxious liquid substances). | The vessel Class Certificate Summary verifies that the vessel is compliant with MARPOL Annex V. |
| | | **IMP06-CM03:**<br>Vessels treat sewage in a STP prior to overboard discharge. | **IMP06-EPS03:**<br>Vessel sewage discharges vessels meet the requirements of AMSA Marine Order 96 (Marine pollution prevention-sewage). | The vessel Class Certificate Summary verifies that a current International Sewage Pollution Prevention certificate is in place. |
| | | **IMP06-CM04:**<br>Vessels have in place and implement a Garbage Management Plan that contains procedures for:<br>• minimising, separating, and storing garbage<br>• handling, processing, and disposing of garbage<br>• crew responsibilities.<br>Vessels keep a Garbage Record Book documenting:<br>• all garbage discharges<br>• garbage transfers to port reception facilities<br>• accidental losses<br>• incineration events. | **IMP06-EPS04:**<br>Vessel garbage discharges meet the requirements of AMSA Marine Order 95 (Marine pollution prevention-garbage). | The vessel Class Certificate Summary verifies that a Garbage Management Plan and garbage records book is in place, readily available and maintained current. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| **Impact 7: Routine discharge - Operational fluids and solids** | **IMP07-EPO01:**<br>No impact to marine environment from discharges in the drain system. | **IMP07-CM01:**<br>Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any chemicals likely to be discharged via the drain system. | **IMP07-EPS01:**<br>All chemicals intended or likely to be discharged from the drain system to the marine environment will be assessed and approved prior to use in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) to ensure the impacts associated with their use are ALARP and acceptable. | Chemicals approved for discharge register demonstrates the chemical assessment and approval process for selected chemicals is followed. |
| | | **IMP07-CM02:**<br>Deck drains are checked weekly to confirm system functioning and correction of identified defects is undertaken in accordance with OIMS 6-2 FIMS. | **IMP07-EPS02:**<br>The open drain system maintains its design function (collection, conveyance and containment of routine operational discharges) throughout operations. | CMMS records confirm weekly checks undertaken and that relevant repairs are completed. |
| | | **IMP07-CM03:**<br>The open and closed drain piles are operated by trained and competent personnel. | **IMP07-EPS03:**<br>Personnel who operate the open and closed pile system will demonstrate competency through completion of the Flare, Vent and Drain Operation (Operator Tech Training).<br>Operators run pile pumps in automatic or manual mode according to operational requirements. | Demonstrated competency signed off in WebCAT (UTDT-S206). |
| | | **IMP07-CM04:**<br>Maintenance and testing of the skimmer pile pumps and level indication equipment is planned and executed in accordance with OIMS 6-2 FIMS, which involves:<br>• a pile pump is available in every pile slot<br>• performing routine operational pile pump and level indication function tests<br>• stewarding status of pile equipment on a fortnightly basis with operations<br>• stocking spare pile pumps<br>where any out of service pumps and/or level indication equipment are identified, these are repaired or replaced within a defined Service Deliverable Date under a temporary defeat. | **IMP07-EPS04**:<br>Pile pump and level indication availability is maintained in accordance with OIMS 6-2 FIMS. | CMMS records verify routine operational pile pump and level indication function tests are undertaken to schedule<br>Completed first day on shift checklists verify pump function tests<br>Fortnightly Redbox Meeting held to verify operational status of pile equipment is monitored as per Section 8.13.11.5<br>Maintenance Reliability Optimisation (IBM MRO) inventory tool confirms a spare pump is available for each platform, held on the platform or at Longford<br>CMMS records verify pumps and level indication equipment are repaired or replaced within defined Service Deliverable Date under a temporary defeat. |
| | | **IMP07-CM05:**<br>A technical monitoring report is completed monthly for each platform, detailing pile system performance trends against defined performance parameters.<br>Any abnormalities are identified, with follow-up actions recorded and stewarded to closure. | **IMP07-EPS05:**<br>The pile system operates within defined performance parameters and abnormalities are actioned as appropriate. | Offshore technical monitoring report outlines the performance of the pile system and details any action taken to address abnormalities. |
| | **IMP07-EPO02:**<br>Abrasive blasting residues are contained with only residual trace quantities discharged | **IMP07-CM06:**<br>In accordance with SWP 50.101, abrasive blasting area is contained to limit the spread of blast dust and thorough clean-up of the work area must be conducted once job is | **IMP07-EPS06:**<br>Abrasive blasting area is contained in accordance with the Abrasive blasting SWP 50.101 to capture solids and fines for onshore disposal. | Internal inspection confirms abrasive blasting area is contained as per SWP 50.101. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | where they cannot be captured. | complete. Waste materials are disposed of in accordance with the WMM. | | |
| | **IMP07-EPO03:**<br>No discharge of mercury to the marine environment. | **IMP07-CM07:**<br>Enhanced sampling of water, gas and liquified petroleum gas streams is implemented if Kipper mercury levels exceed the product specification of 1µg/m$^3$ to inform EPMOC if mercury levels increase. | **IMP07-EPS07:**<br>EPMOC is triggered to confirm no change to risk if mercury levels increase. | EPMOC is available where enhanced sampling has been triggered. |
| | **IMP07-EPO04:**<br>No impact to marine environment from chemical discharges from subsea valve actuation. | **IMP07-CM08:**<br>Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for hydraulic fluid to be released from subsea valve actuation. | **IMP07-EPS08:**<br>All chemicals intended or likely to be discharged to the marine environment will be assessed and approved prior to use in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) to ensure the impacts associated with their use are ALARP and acceptable. | Chemical Assessment Register demonstrates the chemical assessment and approval process for selected chemicals is followed. |
| | **IMP07-EPO05:**<br>No unplanned release of gas or condensate from the KPA subsea valve. | **IMP07-CM09:**<br>Operators monitor a variety of hydraulic trends to infer the weep condition on the known SCSSSV vulnerability.<br>Warning to operators in the shutdown plans to limit closure time in KPA Well SCSSSV and Tree Valve Testing – KPA-050-502.<br>Procedural updates have been made, with more in progress to further reduce the likelihood of KPA A4 SCSSSV remaining closed for a significant period of time. | **IMP07-EPS09**<br>The known leak at KPA is continually monitored.<br>During routine shut-ins, modifications to planned isolation schemes will be updated to ensure SCSSSV remains open to prevent the leak occurring. | KPA shut-in records verify continual monitoring of trends and that the SCSSSV remains open where possible, verified by production data acquisition and visualisation system. |
| **Impact 8: Planned discharge - Wellwork solids and fluids** | **IMP08-EPO01:**<br>No impact to the marine environment from chemicals contained in wellwork discharges. | **IMP08-CM01:**<br>Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any chemical planned to be discharged during wellwork. | **IMP08- EPS01:**<br>All wellwork chemicals (solids and fluids) planned for discharge are assessed and approved for discharge in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013).<br>Implementing this process also ensures that the contaminant limit concentrations of mercury in cement are at or below a concentration of <1mg/kg (1ppm) as outlined in the API standards. | The 'Chemicals approved for discharge register', demonstrates all wellwork chemicals are assessed and approved for discharge in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013). |
| | **IMP08-EPO02:**<br>No overboard discharge of bulk powders or bulk cement from the platform associated with wellwork. | **IMP08-CM02:**<br>In line with cementing procedures, stock management is undertaken to limit the volume of excess unused cement at the end of the wellwork activities in the following order of preference:<br>• minimise inventory of cement on board<br>• all cement is used in the wellwork activities with no discharge required<br>• where possible, excess cement will be used downhole on the existing wells. If that is not possible, then | **IMP08-EPS02:**<br>Stock management of bulk powders and cement is optimised to prevent excess volumes and discharge. | Daily drilling report verifies no discharge of bulk cement.<br>Cement report verifies stock management process and lists volume of any discharge of cement slurry.<br>Feasibility analysis records verifies if onshore disposal is a viable option for the scenario assessed. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | | • remaining cement will be used in another Esso operation, and if that is not possible, then;<br>• transfer cement onshore for disposal – subject to feasibility analysis, and if not possible, then<br>• minimal cement is mixed into a slurry and discharged into the marine environment at the end of wellworks.<br>Discharge to the marine environment will only occur when there are no other safe or technically feasible options. | | |
| | **IMP08-EPO03:**<br>Wellwork fluids are less than 1% OIW by volume prior to discharge overboard. | **IMP08-CM03:**<br>Circulated fluids/tank washings/NaCl brine fluids are measured to ensure OIW content of less than 1% prior to discharge. | **IMP08-EPS03:**<br>Circulated fluids/tank washings/NaCl brine fluids are less than 1% OIW by volume at discharge. | Test reports verify that circulated fluids/tank washings/NaCl brine fluids are measured for OIW content prior to overboard discharge and that it is less than 1% OIW.<br>OIW content of circulated fluids/tank washings/NaCl brine fluids is recorded in environmental performance fluid tracking when discharge occurs. |
| | **IMP08-EPO04:**<br>Wellwork solids residues are contained, with only residual trace quantities (dust) discharged where they cannot be captured. | **IMP08-CM04:**<br>Solid collection equipment, magnets and shakers are used when completing wellwork activities in order to capture solids for onshore disposal, as per the wellwork scope or plan. | **IMP08-EPS04:**<br>Solids content is captured for onshore disposal. | Workover program includes a solid collection plan.<br>Daily drilling reports confirm implementation of solid collection plan during each workover activity. |
| **Impact 9: Planned discharge (Contingency) – Produced formation water at Marlin B** | **IMP09-EPO01:**<br>Avoid overboard discharge of PFW where technically feasible to do so. | **IMP09-CM01:**<br>The hierarchy of controls is applied to PFW discharge in the following order:<br>• re-injection of PFW<br>• transferred to Longford via the pipeline<br>• overboard discharge. | **IMP09- EPS01:**<br>This discharge hierarchy is applied to PFW discharge. | PFW records confirm discharge pathway. |
| | **IMP09-EPO02:**<br>Where it is not technically feasible to avoid overboard discharge (MLB only), there is no impact to the marine environment outside of the PFW discharge mixing zone. | **IMP09-CM02:**<br>Per Section 6.9.4.1, the required pre-defined checks for start-up of PFW discharge are conducted, including:<br>• confirm necessary procedures are current, and in the system<br>• confirm the training status of operators<br>• confirm that laboratory service equipment is available<br>• ensure all maintenance work orders are up to date for the hydrocyclones and the degasser vessels<br>• calibrate the Sigrist OIW analyser<br>• bring the hydrocyclones and degasser vessel online<br>• confirm the overboard valve closes on a high OIW trip. | **IMP09- EPS02:**<br>The functionality of the PFW handling system is tested and confirmed in accordance with pre-defined start-up procedures. | Inspection verifies that pre-defined checks have been conducted prior to first initiation of PFW discharge overboard. |
| | | **IMP09-CM03:**<br>Operators gain competency through the completion of the Offshore Operations Technicians 1 competency. | **IMP09-EPS03:**<br>The PFW handling system is operated by trained and competent personnel. | Demonstrated competency signed off in Offshore Operations Technicians 1 competency. |

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| | | **IMP09-CM04:**<br>The online OIW analyser is calibrated via 6-hourly InfraCal measurements in-field and cross-checked against monthly manual sampling in accordance with the *System Monitoring, Recording and Reporting* (GEN-100-102) work aid.<br>• InfraCal results must be within +/-6mg/L of the Sigrist reading and if not, the Sigrist is cleaned and another InfraCal sample taken and analysed. If the retest difference is still >6mg/L, the Sigrist is serviced and a calibration check performed using a calibration rod<br>• A monthly crosscheck sample between the Sigrist and InfraCal is performed within a given calendar month for any discharge occurring within that month of >48 hours total duration<br>Anomalies are investigated as per the procedure and action taken. | **IMP09-EPS04:**<br>Maintenance and testing of the Sigrist is planned and executed in accordance with OIMS 6-2 FIMS. | CMMS records verify maintenance and testing undertaken to schedule.<br>Distributed control system records confirms 6 hourly InfraCal measurements are within 6mg/L of Sigrist completed.<br>Laboratory records demonstrate that where overboard discharges >48 hours (continuous) occur during a calendar month, a cross-check sample is analysed for calibration with OIW analyser.<br>Inspection verifies compliance with the procedure. |
| | | **IMP09-CM05:**<br>Implement the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013) for any chemicals planned to be discharged via the water handling system. | **IMP09-EPS05:**<br>All chemicals used in the water handling system that are planned for discharge are assessed and approved for discharge in accordance with the *Chemical Discharge Assessment Process* (AUGO-EV-PCE-013). | Chemical Assessment Register demonstrates that chemicals approved for use meet criteria for discharge. |
| | | **IMP09-CM06:**<br>OIW concentrations in the overboard discharge stream are monitored in accordance with the *System Monitoring, Recording and Reporting* (GEN-100-102) procedure.<br>Where online monitoring is unavailable, manual sampling is conducted to verify compliance. | **IMP09-EPS06:**<br>OIW discharge concentrations do not exceed 30mg/L over a 24-hour rolling average. | Distributed control system records confirm OIW concentrations and oil load limits are met daily.<br>Distributed control system records confirm where online monitoring is unavailable, manual sampling is undertaken. |
| | | **IMP09-CM07:**<br>Monthly OIW performance trends are monitored. | | Offshore technical monitoring report documents monthly water handling performance trends and actions taken to address abnormalities. |
| | | **IMP09-CM08:**<br>Sediment and water sampling is designed and executed in accordance with ANZECC/ANZ guidelines and completed within two years of the start of overboard PFW discharge at MLB and every two years while discharge occurs. | **IMP09-EPS07:**<br>Sediment and water sampling is conducted to verify potential impacts are within ANZECC/ANZ environmental quality benchmarks. | Sediment and water sampling reports verify that sampling is undertaken every two years from the start of PFW overboard discharge.<br>Where required, responsive actions are documented and stewarded to closure. |
| | | **IMP09-CM09:** | **IMP09-EPS08:**<br>Toxicity of PFW discharges remains within ANZECC/ANZ guidelines. | • Test records confirm compositional sampling and Microtox screening collection and analysis occurred within the required timeframes |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | | The PFW Adaptive Monitoring and Management Framework is implemented at MLB, which involves the following once discharge occurs:<br>• annual compositional sampling and chemical analysis<br>• annual Microtox screening of PFW toxicity<br>• six-monthly compositional testing for the first two years if overboard discharge is required<br>• WET testing within six months of overboard discharge and every three years thereafter unless earlier testing is triggered as outlined in Section 8.13.8)<br>• implementation of management measures where monitoring indicates increased risk or uncertainty per Section 8.13.8 of the Implementation Strategy. | Appropriate management responses are undertaken where deviations from expected discharge quality occur. | • Test records confirm WET testing sample collection and analysis occurred within the required timeframes<br>• Monitoring data is reviewed when available<br>• Evidence of management responses where monitoring indicates deviations from expected discharge quality. |
| **Risk 1: Physical presence - Collision with marine fauna** | **RSK01-EPO01:**<br>No collisions with megafauna. | **RSK01-CM01:**<br>Vessel masters implement the following cetacean interaction management actions as outlined in the *Australian National Guidelines for Whale and Dolphin Watching 2017* (CoA, 2017):<br>• caution zones - vessels will not knowingly travel faster than 6kn within 300m of an adult whale or 150m of an adult dolphin.<br>• vessels will not knowingly get closer than 100m of a whale or 50m of a dolphin.<br>• if a cetacean approaches the vessel within the above zones, the vessel will avoid rapid changes in engine speed or direction. | **RSK01-EPS01:**<br>Vessel masters comply with EPBC Regulations 2025 (Part 8, Division 8.1) for vessel movements within the OAs. | Vessel bridge records include cetacean observations and interactions, and any actions taken. |
| **Risk 2: Physical presence – Introduction of Invasive marine species** | **RSK02-EPO01:**<br>No establishment of IMS within the OAs resulting from the activity. | **RSK2-CM01:**<br>The *IMS Risk Assessment Procedure* (AUGO-EV-PCE-014) is applied to vessels and applicable immersible equipment undertaking activities in the OAs. | **RSK02-EPS01:**<br>Vessels and applicable immersible equipment are determined to be low risk of introducing IMS and must maintain this low-risk status prior to mobilisation.<br>Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as treating internal systems) will be implemented to minimise the likelihood of IMS being introduced. | IMS Vessel Risk Assessment reports are maintained for all support vessels and applicable immersible equipment and verify they have a low IMS risk. |
| | | **RSK02-CM02:**<br>Vessels manage their ballast water using one of the approved ballast water management options, as specified in the most current version of the Australian Ballast Water Management requirements (DAFF, 2023a) as defined under the *Biosecurity Act 2015* (Cth). | **RSK02-EPS02:**<br>Compliance with Australian Ballast Water Management Requirements (aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments) to prevent the introduction of IMS. | Ballast water exchange records maintained by vessels verify compliance with the Ballast Water Management requirements. |
| | | **RSK02-CM03:**<br>Internationally sourced support vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements (DAFF, 2023a). | **RSK02-EPS03:**<br>Compliance with Australian Biofouling Management Requirements. | Electronic pre-arrival report records confirm implementation of biofouling management requirements. |

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| **Risk 3: Unplanned seabed disturbance - Dropped objects** | **RSK03-EPO01:**<br>No seabed disturbance due to dropped objects from activities in the OAs. | **RSK03-CM01:**<br>Maintenance and testing of the platform cranes, rigging and lifting gear is planned and executed in accordance with OIMS 6-2 FIMS, as per the:<br>• *Crane Operations, Maintenance and Inspection Manual* (COMI) (COMI-OFFS-1-001) procedures define the responsibilities for Crane Operators, Maintenance Technicians and the Maintenance Reliability group<br>• the Lifting Equipment Manual includes guidelines for use, storage, maintenance, inspection and purchase of cargo lifting gear (such as winches, jacks, hoists and rigging) used for routine cargo handling. | **RSK03-EPS01:**<br>Platform lifting equipment is maintained in compliance with OIMS 6-2 FIMS to prevent lifting equipment failure or dropped/swinging loads. | CMMS records verify that inspections and testing of cranes, rigging and lifting gear are conducted to schedule. |
| | | **RSK03-CM02:**<br>All lifts are conducted in accordance with applicable work procedures per OIMS 6-1 to limit the potential for dropped objects. This involves implementing the:<br>• COMI procedures, which define procedures for lifts including diesel, glycol and for methanol bulk transfer from supply vessels<br>• the Lifting Equipment Manual, which includes guidelines for use, storage, maintenance, inspection and purchase of cargo lifting gear (such as winches, jacks, hoists and rigging) used for routine cargo handling. | **RSK03-EPS02:**<br>All platform lifts, bulk transfers and cargo loading are undertaken safely in accordance with COMI and Lifting Equipment Manual procedures. | The lift plan checklist is completed to verify that all lifts are undertaken in accordance with the procedures. |
| | | **RSK03-CM03:**<br>The decision to recover or not recover a dropped object will be based on considerations regarding the safety and feasibility of the potential recovery in accordance with the *Object Overboard Procedure* (AUGO-EV-EMM-023) which includes documenting:<br>• risk to personnel<br>• whether the location of the object is in recoverable water depths<br>• the object's proximity to subsea infrastructure<br>• ability to recover the equipment (e.g. nature of equipment, lifting equipment, suitable weather, etc.). | **RSK03-EPS03:**<br>Dropped objects will be recovered where safe and technically feasible to do so in accordance with the *Object Overboard Procedure* (AUGO-EV-EMM-023) process. | Object overboard assessment records confirm that where safe and feasible, the dropped object has been recovered. |
| | | **RSK03-CM04:**<br>The SMR is updated in accordance with the *SMR Management Process* (AUGO-SS-PCE-001). This includes:<br>• roles, responsibilities<br>• data sources<br>• minimum data requirements<br>• storage locations to ensure the SMR is accurate and maintained consistently. | **RSK03-CM04:**<br>Property that is left on the seabed is tracked via the SMR and maintained so that it can be readily located for future removal. | The SMR is maintained and up-to-date per the *SMR Management Process* (AUGO-SS-PCE-001) and verifies that equipment or infrastructure is stored within the PSZs or 200m operational zone around pipelines. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| **Risk 5: Unplanned release - Waste** | **RSK05-EPO01:**<br>No unplanned release of solid waste to the marine environment. | **RSK05-CM01:**<br>The WMM for offshore facilities is implemented by all personnel and specifies the following:<br>• waste streams are appropriately handled, tested, monitored and managed according to their hazard and recyclability class<br>• waste segregation and storage<br>• records of all waste to be disposed, treated or recycled is maintained, and includes (though is not limited to) quantity of waste, waste type and disposal/recycle location. | **RSK05-EPS01:**<br>Waste is managed (stored, handled and disposed of) in accordance with the WMM for offshore facilities. | Internal inspection verifies the WMM is implemented. |
| | | **RSK05-CM02:**<br>Esso-contracted vessels comply with the requirements of Marine Order 95 (as applicable to vessel size, type and class), including being in possession of:<br>• a Garbage Management Plan that specifies procedures for minimising, collecting, storing, processing, and disposing of garbage and designation of person(s) responsible<br>• a Garbage Record Book that details all discharges, incineration and offloading to reception facilities. | **RSK05-EPS02:**<br>Support vessels comply with MARPOL Annex V (Prevention of Pollution by Garbage from Ships) (enacted in Australia through Marine Order 95 (Pollution prevention – Garbage)). | Internal inspection verifies a current Garbage Management Plan and Garbage Record Book are in place. |
| | **RSK05-EPO02:**<br>Prevent NORM-contaminated material entering the environment. | **RSK05-CM03:**<br>An EPMOC assessment is undertaken for any pipeline cutting where there is a risk of NORM release to ensure that actions are put in place to prevent NORM (in scale) discharge to the marine environment. | **RSK05-EPS03:**<br>The EPMOC process is implemented. | EPMOC records demonstrate consideration of NORM risk for cut pipelines, where NORM risk exists. |
| **Risk 6: Unplanned release – Loss of containment of marine diesel oil - Vessel collision** | **RSK06-EPO01:**<br>No release of MDO to the marine environment due to a vessel collision in the OAs. | **RSK06-CM01:**<br>Control room operators use the collision avoidance radar system at the Longford control room to monitor PSZs to avoid unauthorised incursions. | **RSK06-EPS01:**<br>PSZs are actively monitored to reduce interaction with unauthorised vessels to meet the requirements of Sections 616 and 619 of the OPGGS Act. | Interactions in PSZs with other marine users are recorded. |
| | | **RSK06-CM02:**<br>In order to minimise the risk of vessel-to-vessel collisions, vessels contracted by Esso:<br>• navigational systems and equipment required are those specified in Regulation 19 of Chapter V of International Convention for the Safety Of Life At Sea ()<br>• vessel navigational systems and equipment mentioned in Regulations 19 and 20 of Chapter V of SOLAS for the vessel are type approved and installed on board vessels navigational system and equipment required are those specified in Regulation 19 of Chapter V of SOLAS<br>• vessels are compliant with COLREGS. | **RSK06-EPS02:**<br>Vessel navigation systems meet the requirements of the Navigation Act 2012 (Cth) (Chapter 3, Part 3, Seaworthiness of vessels), SOLAS, COLREGS and the Load Lines Convention as they relate to the prevention of collisions and sea worthiness of vessels. | Class Survey Summary confirms ship certificates are current and Class endorsed. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | **RSK06-EPO02:**<br>Respond to a hydrocarbon release in the event of an MDO spill. | **RSK06-CM03:**<br>Vessel master authorises actions in accordance with the vessel SMPEP. | **RSK06-EPS03:**<br>Vessel spill response is undertaken in accordance with the vessel SMPEP (or equivalent, per MARPOL Annex I). | Incident report will outline any emergency response activities undertaken. |
| | | **RSK06-CM04:**<br>The OPEP is implemented in the event of a spill resulting from vessel collision. | **RSK06-EPS04:**<br>Emergency response activities are undertaken in accordance with the approved OPEP. | Incident and IMT logs confirm response was implemented in accordance with the OPEP. |
| | | **RSK06-CM05:**<br>Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | **RSK06-EPS05:**<br>OPEP testing is conducted in alignment with the frequency identified in Section 8.18.4 of this EP. | Testing of arrangement records confirm that emergency response capability is maintained.<br>Records demonstrate minimum level of personnel trained for core OPEP roles are available. |
| | **RSK06-EPO03:**<br>Characterise the environmental impacts resulting from a LOC of MDO. | **RSK06-CM06:**<br>The OSMP is implemented post-spill. | **RSK06-EPS06:**<br>Post-release monitoring is undertaken in accordance with the requirements of the OSMP. | Emergency response records confirm the OSMP was implemented post-spill. |
| **Risk 7: Unplanned release – Loss of containment of hydrocarbons - Pipeline rupture** | **RSK07-EPO01:**<br>No release of hydrocarbons to the marine environment due to a pipeline LOC. | **RSK07-CM01:**<br>The accepted Bass Strait Pipeline Network Safety Case is in place to reduce the likelihood of a pipeline LOC. The Safety Case:<br>• identifies hazards that have the potential to cause a Major Accident Event<br>• details assessment of Major Accident Event risks<br>• describes the physical barriers, safety critical elements and the safety management systems required to reduce the risk to personnel associated with a Major Accident Event to ALARP. | **RSK07-EPS01:**<br>An accepted Safety Case is implemented to meet the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2024 (Cth) (Safety Regulations). | Acceptance letter from NOPSEMA demonstrates acceptance of the Bass Strait Pipeline Network Safety Case.<br>Records demonstrate applicable NOPSEMA notification and reporting. |
| | | **RSK07-CM02:**<br>Esso pipelines are marked on maritime navigation charts to ensure pipeline locations are known to other marine users. | **RSK07-EPS02:**<br>There is no vessel anchoring directly over Esso pipelines. | Maritime navigation charts verify pipelines are marked. |
| | | **RSK07-CM03:**<br>Pipeline inspection and monitoring plans occur within the parameters defined in FIMS to prevent serious SHE risks (Consequence Category 1 or 2), including a process for managing plans that are in exception. Plans are developed in accordance with the Pipeline Safety Management Plan and PIPM and are scheduled in CMMS.<br>Pipeline equipment includes:<br>• pipelines<br>• risers<br>• pipeline launchers and receivers.<br>Inspection and monitoring includes: | **RSK07-EPS03:**<br>All pipeline inspection and maintenance meets the requirements of the PIPM, thereby complying with the Safety Regulations and Environment Regulations with regard to avoiding major accidents.<br>. | CMMS records verify that the Pipeline Safety Management Plan and PIPM are implemented. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | | • underwater pipeline inspection<br>• leak detection<br>• in-line metal loss surveys.<br><br>The Pipeline Management Plan and PIPM ensure:<br><br>• integrity program compliance is monitored and approved through the CMMS Exception Reporting process<br>• pipeline production parameters, including flows, pressures, temperatures and erosion are monitored (at the Longford control room) on a 24-hour basis<br>• strategies, programs and execution, roles and responsibilities, results management, performance monitoring and feedback mechanisms and regulatory interfaces are defined and updated as required. | | |
| | | **RSK07-CM04:**<br><br>Corrosion monitoring and control plans occur within the parameters defined in FIMS to prevent serious SHE risks (Consequence Category 1 or 2), including a process for managing plans that are in exception. Maintenance and inspection plans are developed for pipelines per the CIPM and are scheduled in CMMS.<br><br>Corrosion monitoring may be done via:<br><br>• fluid sampling<br>• corrosion probes<br>• inspection.<br><br>Corrosion control plans include:<br><br>• sand management<br>• cathodic protection<br>• corrosion inhibition.<br><br>The CIPM ensures:<br><br>• integrity program compliance is monitored and approved through the CMMS Exception Reporting process<br>• sampling, corrosion control (including cathodic protection) and chemical management are undertaken. | **RSK07-EPS04:**<br><br>Corrosion monitoring and control is undertaken in accordance with the CIPM, thereby complying with the Safety Regulations and Environment Regulations with regard to avoiding major accidents. | CMMS records verify the CIPM is implemented. |
| | | **RSK07-CM05:**<br><br>PIPM defines strategies, programs and execution, roles and responsibilities, results management, performance monitoring and feedback mechanisms and regulatory interfaces. | **RSK07-EPS05:**<br><br>Pipeline isolation and depressuring processes are maintained to keep pipelines in a safe condition (e.g. through appropriate isolation of hazardous inventories) so as to prevent or mitigate the effects of a pipeline rupture. | Completed isolation test reports.<br><br>Completed CMMS records of safety valves checks verifies ability to isolate the pipeline if required. |
| | **RSK07-EPO02:**<br><br>Respond to a hydrocarbon release | **RSK07-CM06:**<br><br>The OPEP is implemented in the event of a spill resulting from pipeline rupture. | **RSK07-EPS06:**<br><br>The OPEP is implemented in response to a hydrocarbon release from the pipeline. | Incident and IMT logs confirm response was implemented in accordance with the OPEP. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | in the event of a pipeline rupture. | **RSK07-CM07:**<br>Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | **RSK07-EPS07:**<br>OPEP testing is conducted in alignment with the frequency identified in Section 8.18.4 of this EP. | Testing of arrangement records confirm that emergency response capability is maintained.<br>Records demonstrate minimum level of personnel trained for core OPEP roles are available. |
| | **RSK07-EPO03:**<br>Characterise the environmental impacts resulting from a pipeline LOC. | **RSK07-CM08:**<br>The OSMP is implemented post-spill. | **RSK07-EPS08:**<br>Post-release monitoring is undertaken in accordance with the requirements of the OSMP. | Emergency response records confirm the OSMP was implemented post-spill. |
| **Risk 8: Unplanned release – Loss of containment of hydrocarbons – Loss of well control** | **RSK08-EPO01:**<br>No release of hydrocarbons to the marine environment due to a LOWC. | **RSK08-CM01:**<br>The wells are operated in accordance with a NOPSEMA-accepted WOMP that:<br>• identifies hazards that have the potential to cause a LOWC<br>• describes the barriers to prevent uncontrolled flow<br>• describes the response arrangements to detect and correct deviations early. | **RSK08-EPS01:**<br>The management of the wells meets the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 (Cth), such that there is no LOWC. | Acceptance letter from NOPSEMA demonstrates acceptance of the WOMP. Records demonstrate applicable NOPSEMA notification and reporting. |
| | | **RSK08-CM02:**<br>The wells are operated in accordance with a NOPSEMA-accepted Safety Case that<br>• identifies hazards that have the potential to cause a Major Accident Event<br>• details assessment of Major Accident Event risks<br>• describes the physical barriers, safety critical elements and the safety management systems identified as being required to reduce the risk to personnel associated with a Major Accident Event to ALARP. | **RSK08-EPS02:**<br>The management of the wells meets the requirements of the Safety Regulations, such that there is no LOWC. | Acceptance letter from NOPSEMA demonstrates acceptance of the Safety Case.<br>Records demonstrate applicable NOPSEMA notification and reporting. |
| | | **RSK08-CM03:**<br>Identified well control equipment is on board and is tested for correct operation prior to workover programs beginning as well as regular testing during a campaign. | **RSK08-EPS03:**<br>Workover operations are conducted in accordance with a workover program that outlines the well control equipment to be used and avoids a LOWC. | Records demonstrate that well control equipment was tested prior to wellwork operations and during the campaign. |
| | | **RSK08-CM04:**<br>Well and hydrocarbon-containing infrastructure integrity is maintained in accordance with the WIMS to contain reservoir fluids within the well envelope to avoid a LOWC. | **RSK08-EPS04:**<br>Wellbore and well equipment integrity is managed in accordance with the WIMS to prevent a LOWC. | The Wellbore Integrity Testing Exception Report shows any overdue testing and potentially increased wellbore integrity risks, is prepared and signed off by the appropriate level of management. |
| | | **RSK08-CM05:**<br>Integrity is managed in accordance with OIMS 6-2 FIMS.<br>Subsurface isolation mechanisms tests are conducted in accordance with the parameters defined in FIMS to prevent serious SHE risks (Consequence Category 1 or 2), including a process for managing plans that are in exception. Isolation test plans are developed in accordance with the Critical | **RSK08-EPS05:**<br>Platform shutdown and subsurface isolation capability is maintained in accordance with OIMS 6-2 FIMS to prevent a LOWC. | CMMS records confirm integrity tests are conducted. |

| Aspect | EPO | Control | EPS | Measurement Criteria |
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| | | Function Testing Management Manual and are scheduled in CMMS.<br>Integrity program compliance is monitored and approved through the CMMS Exception Reporting process. | | |
| | **RSK08-EPO02:**<br>Respond to a hydrocarbon release in the event of a LOWC. | **RSK08-CM06:**<br>In the event of a release of hydrocarbons to the environment, emergency response activities are implemented in accordance with the OPEP. | **RSK08-EPS06:**<br>The OPEP is implemented in response to a hydrocarbon release from a LOWC. | Incident and IMT logs confirm response was implemented in accordance with the OPEP. |
| | | **RSK08-CM07:**<br>Arrangements supporting the activities in the OPEP are tested to ensure the OPEP can be implemented as planned. | **RSK08-EPS07:**<br>OPEP testing is conducted in alignment with the frequency identified in Section 8.18.4 of this EP. | Testing of arrangement records confirm that emergency response capability is maintained.<br>Records demonstrate minimum level of personnel trained for core OPEP roles are available. |
| | | **RSK08-CM08:**<br>Emergency response activities will be implemented in accordance with the Australia Wells Tier II/III ERP. | **RSK08-EPS08:**<br>Emergency response in undertaken in accordance with the Australia Wells Tier II/III ERP. | Incident and IMT logs confirm response was implemented in accordance with the Australia Wells Tier II/III ERP. |
| | | **RSK08-CM09:**<br>Industry certified well control training is completed by all relevant personnel in Engineering and Operations teams. | **RSK08-EPS09:**<br>Well control response is managed by trained personnel and in line with industry practice. | Training records verify personnel responding to the LOWC are trained in well control. |
| | | **RSK08-CM10:**<br>A register of the status and location of suitable rigs to drill relief wells is maintained and updated monthly or escalated in accordance with the Australian Wells Tier II/III ERP to ensure relief well drilling timeframes can be met. | **RSK08-EPS10:**<br>A rig suitable for drilling a relief well is quickly identified and able to commence drilling in line with the Australian Wells Tier II/III ERP. | A register of suitable rigs to drill relief wells is available and updated monthly or escalated in accordance with the Australian Wells Tier II/III ERP. |
| | **RSK08-EPO03:**<br>Characterise the environmental impacts resulting from a LOWC. | **RSK08-CM11:**<br>The OSMP is implemented post-spill. | **RSK08-CM11:**<br>Post-release monitoring is undertaken in accordance with the requirements of the OSMP. | Emergency response records confirm the OSMP was implemented post-spill. |