Cygnus 3D MSS Phase 3 South 2019-2020

Environment Plan Summary

13 June 2019

Project No.: 0483995

The business of sustainability

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Acronyms and Abbreviations

Name	Description
3D	Three-dimensional
ADF	Australian Defence Force
AFMA	Australian Fisheries Management Authority
AHS	Australian Hydrographic Service
ALARP	As low as reasonably practicable
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
APPEA	Australian Petroleum Production and Exploration Association
BIA	Biologically Important Area
BOM	Bureau of Meteorology
BWMP	Ballast Water Management Plan
COLREGS	International Regulations for Preventing Collisions at Sea
CSIRO	Commonwealth Scientific and Industrial Research Organisation
cui / cu. in.	Cubic inches
CV	Curriculum Vitae
DBCA	Department of Biodiversity, Conservation and Attractions
DEWHA	Department of the Environment, Water, Heritage and the Arts (now DoEE)
DoEE	Department of the Environment and Energy
DoF	Department of Fisheries (now DPIRD)
DoIIS	Department of Industry, Inoovation and Science
DoNP	Director of National Parks
DoT	Department of Transport
DPAW	Department of Parks and Wildlife (now DBCA)
DPIRD	Department of Primary Industries and Regional Development (formerly Department of Fisheries)
ENVID	Environmental Risk Assessment
EP	Environment Plan
EPBC	*Environment Protection and Biodiversity Conservation Act 1999*
ERM	Environmental Resources Management Australia Pty Ltd
ESD	Ecologically Sustainable Development
FPSO	Floating Production Storage Offloading
GHG	Greenhouse Gas
GPS	Global Positioning System
gt	Gross Tonne
HSE	Health, Safety and Environment
Hz	Hertz
IAPP	International Air Pollution Prevention
ICPC	International Cable Protection Committee

IMO	International Maritime Organization
IMS	Invasive Marine Species
IOPP	International Oil Pollution Prevention
ISO	International Organisation for Standardisation
ISPP	International Sewage Pollution Prevention
IUCN	International Union for the Conservation of Nature
JASCO	JASCO Applied Science
JRCC	Joint Rescue Coordination Centre
KEFs	Key Ecological Features
km	Kilometres
km^2	Square kilometres
m	Metres
m/s	Metre per second
m^3	Cubic metres
MARPOL	(Marine Pollution) International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978
MFO	Marine Fauna Observer
MGO	Marine Gas Oil
MNES	Matters of National Environmental Significance
MOP	Marine Oil Pollution
MOSCP	Marine Oil Spill Contingency Plan
MOU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MSS	Marine Seismic Survey
National Plan	National Plan for Maritime Environmental Emergencies
NDSF	Northern Demersal Scalefish Fishery
NERP	National Environmental Research Program
NES	National Environmental Significance
nm	Nautical Miles
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NOx	Nitrogen Oxides
NRSMPA	National Representative System of Marine Protected Areas
NSW	New South Wales
NWMR	North-west Marine Region
NZS	New Zealand Standards
ºC	Degrees Centigrade
OPEP	Oil Pollution Emergency Plan

OPGGS Regulations	(E)Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
OPGGS Act	*Offshore Petroleum and Greenhouse Gas Storage Act 2006*
PK	Peak Pressure
Polarcus	Polarcus Seismic Limited
ppm	Parts per million
psi	pounds per square inch
PTS	Permanent Threshold Shift
PTTEP AA	PTTEP Australasia (Ashmore Cartier)
QLD	Queensland
SDS	Safety Data Sheets
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DoEE)
SOLAS	Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SPRAT	Species Profile and Threats Database
STCW95	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1995 Revision
TTS	Temporary Threshold Shift
UNCLOS	United Nations Convention on the Law of the Sea
UV	Ultraviolet
WA	Western Australia
WAFIC	Western Australia Fishing Industry Council
ZPI	Zone of Potential Influence

1. INTRODUCTION

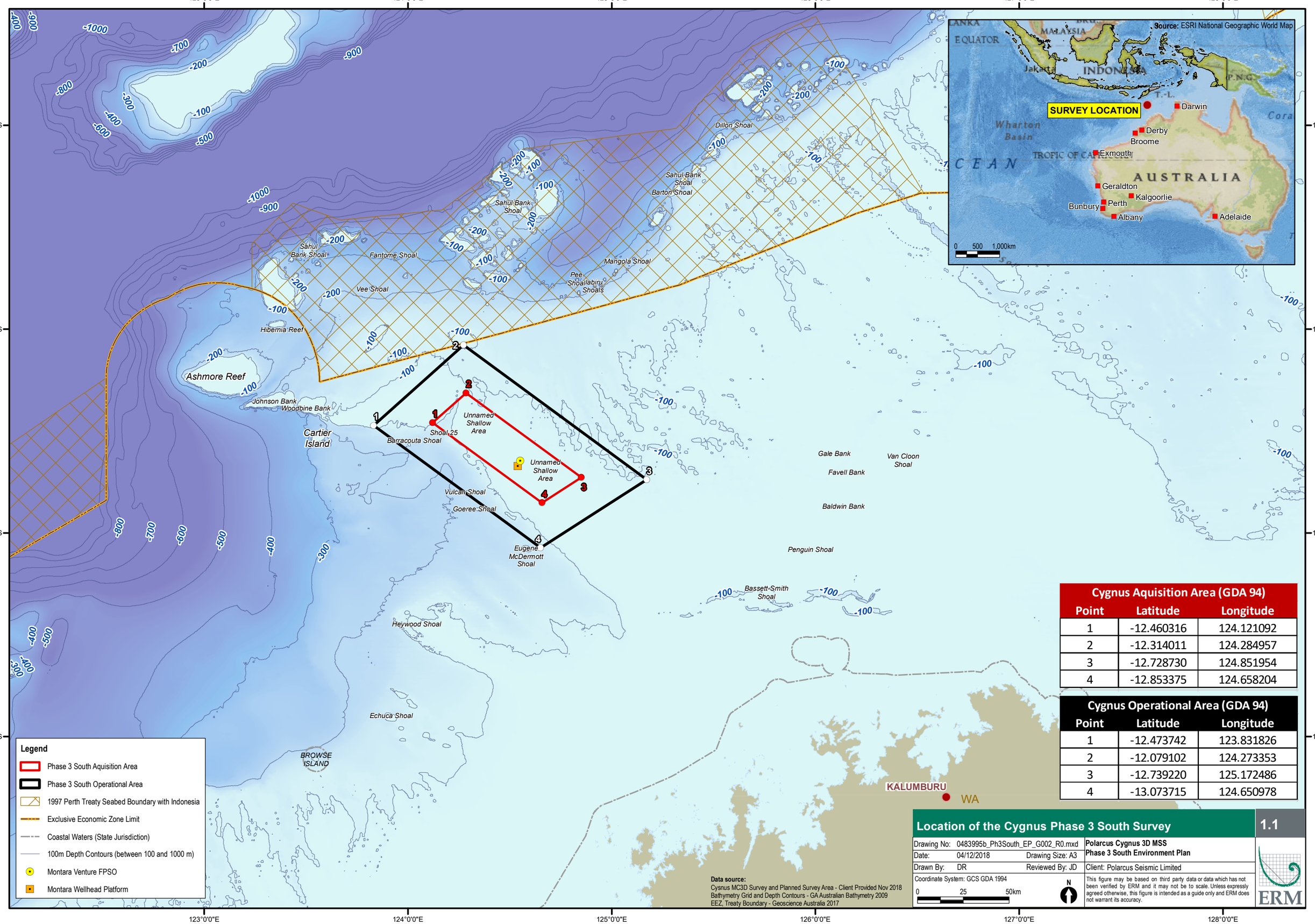
The Cygnus 3D Marine Seismic Survey (MSS) is a three-dimensional multi-client marine seismic survey being undertaken by Polarcus Seismic Limited (Polarcus) in Commonwealth waters of the Vulcan Sub-basin (in the Western Bonaparte Basin) (Figure 1.1). The scope of this Environment Plan (EP) includes seismic acquisition of 'Phase 3 South' of the Cygnus 3D MSS. References to the Acquisition and Operational Areas within this EP are referring to Phase 3 South, unless otherwise stated.

1.1 Scope of this Environment Plan

The scope of this EP covers 3D seismic acquisition within the defined Acquisition Area and associated line turns, run-ins, run-outs, seismic testing and support activities within the defined Operational Area (Figure 1.1). In addition, the timeframe of this EP is from EP acceptance until the 31 December 2020.

The petroleum activity is defined as commencing at the point when the seismic array equipment is first deployed within the defined Operational Area, until the survey has demobilised and departed the Operational Area following completion of the survey.

The scope of the EP does not include those periods when the seismic and support vessels are not engaged in survey or associated activities, such as during cyclone avoidance, maintenance activities outside of the Operational Area, port calls, or vessel mobilisation/demobilisation to/from the Operational Area which is deemed to be operating under the *Commonwealth Navigation Act 2012* and not performing a petroleum activity.



Cygnus Aquisition Area (GDA 94)

Point	Latitude	Longitude
1	-12.460316	124.121092
2	-12.314011	124.284957
3	-12.728730	124.851954
4	-12.853375	124.658204

Cygnus Operational Area (GDA 94)

Point	Latitude	Longitude
1	-12.473742	123.831826
2	-12.079102	124.273353
3	-12.739220	125.172486
4	-13.073715	124.650978

Legend

- Phase 3 South Aquisition Area
- Phase 3 South Operational Area
- 1997 Perth Treaty Seabed Boundary with Indonesia
- Exclusive Economic Zone Limit
- Coastal Waters (State Jurisdiction)
- 100m Depth Contours (between 100 and 1000 m)
- Montara Venture FPSO
- Montara Wellhead Platform

Data source:
Cysnus MC3D Survey and Planned Survey Area - Client Provided Nov 2018
Bathymetry Grid and Depth Contours - GA Australian Bathymetry 2009
EEZ, Treaty Boundary - Geoscience Australia 2017

Location of the Cygnus Phase 3 South Survey

1.1

Drawing No:	0483995b_Ph3South_EP_G002_R0.mxd		Polarcus Cygnus 3D MSS Phase 3 South Environment Plan
Date:	04/12/2018	Drawing Size: A3	
Drawn By:	DR	Reviewed By: JD	Client: Polarcus Seismic Limited

Coordinate System: GCS GDA 1994

0 25 50km

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1.2 Cygnus 3D MSS and Environment Plan History

The Cygnus 3D MSS has been acquired by Polarcus in phases since 2015, as presented in Figure 1.2. The phases have been acquired under a number of revisions of the EP, as accepted by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). A summary of the areas previously acquired by Polarcus are provided in Table 1-1.

Table 1-1 Summary of Previously Acquired Phases

Cygnus 3D MSS Phases	Area Acquired (km^2)	Dates of Acquisition
Phase 1	3,512 km^2	20 December 2015 – 7 February 2016 26 February 2016 – 6 March 2016
Phase 2	890 km^2	7 February 2016 – 26 February 2016
Phase 3 North	1,277 km^2	18 December 2017 – 13 January 2018

This revision of the EP is to allow for a two-year extension to the timeframe of the Cygnus 3D MSS EP to 31 December 2020, and includes amended Phase 3 South Acquisition and Operational Areas. No infill activities will be undertaken in the previously acquired areas (Phase 1, 2 and 3 North).

1.3 Nominated Liaison Person

The titleholder's nominated liaison person is:

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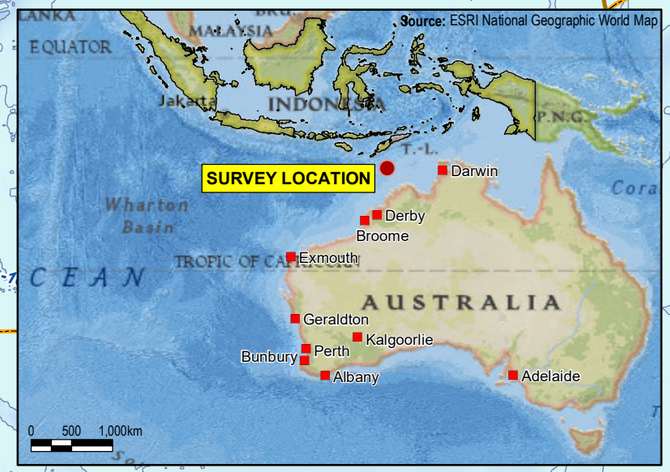
Phone:	+65 6408 3855
Email:	tony.pedley@polarcus.com

123°0'0"E 124°0'0"E 125°0'0"E 126°0'0"E 127°0'0"E 128°0'0"E

11°0'0"S
12°0'0"S
13°0'0"S
14°0'0"S



Dillon Shoal
Sahul Bank Shoal
Barton Shoal
Sahul Bank Shoal
Sahul Bank Shoal
Fantome Shoal
Mangola Shoal
Pee Shoal
Iabiru Shoals
Vee Shoal
Hibernia Reef
Ashmore Reef
Johnson Bank
Woodbine Bank
Cartier Island
Unnamed Shallow Area
Shoal 25
Barracouta Shoal
Unnamed Shallow Area
Vulcan Shoal
Goeree Shoal
Eugene McDermott Shoal
Heywood Shoal
Echuca Shoal
BROWSE ISLAND
Gale Bank
Van Cloon Shoal
Favell Bank
Baldwin Bank
Penguin Shoal
Bassett-Smith Shoal

KALUMBURU
WA

Legend

- Phase 1 (acquired)
- Phase 2 (acquired)
- Phase 3 South (not acquired)
- Phase 3 North (acquired)
- Previous Acquisition Area
- Previous 2017-2018 Operational Area
- 2016-2017 Cygnus Survey Area
- 1997 Perth Treaty Seabed Boundary with Indonesia
- Exclusive Economic Zone Limit
- Coastal Waters (State Jurisdiction)
- 100m Depth Contours (between 100 and 1000 m)

Contours Inside Operationa Area

- 100m Depth
- 75m Depth
- 50m Depth
- 25m Depth

Data source:
Cysnus MC3D Survey and Planned Survey Area - Client Provided Nov 2018
Bathymetry Grid and Depth Contours - GA Australian Bathymetry 2009
EEZ, Treaty Boundary - Geoscience Australia 2017

Survey History

1.2

Drawing No:	0483995b_Ph3South_EP_G001_R0.mxd		**Polarcus Cygnus 3D MSS**
Date:	27/11/2018	Drawing Size: A3	**Phase 3 South Environment Plan**
Drawn By:	DR	Reviewed By: JD	Client: Polarcus Seismic Limited

Coordinate System: GCS GDA 1994

0 25 50km

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2. DESCRIPTION OF THE ACTIVITY

2.1 Location

The Acquisition Area comprises the area within which 3D seismic acquisition will be undertaken and covers approximately 1,767 km² (Figure 1.1).

The Acquisition Area is surrounded by a larger Operational Area (Figure 1.1), for the purpose of line run-ins, run-outs, source testing, soft starts and turns etc. The Operational Area covers approximately 7,408 km2 and, at its closest, is approximately 160 km north of the Kimberley coast and 170 km south of the Indonesian Archipelago and Timor-Leste.

2.2 Activity Details

The petroleum activity that forms the basis for this EP is the undertaking of a marine seismic survey. Associated activities in support of undertaking the survey are likely to include refuelling and resupply, use of support vessels as required, and crew changes within the Operational Area.

Key details of the Cygnus 3D MSS relevant to the purpose and objectives of this EP are summarised in Table 2-1 and described below.

Table 2-1 Key Seismic Survey Details

Feature	Indicative Information
Seismic vessel	
Number	One purpose built seismic vessel
Class	ULSTEIN SX124/134 and DNVGL CLEAN-DESIGN
Length	90-92 m
Beam	19-21 m
Gross tonnage	6,500-7,500 tonnes
Fuel type	Marine Gas Oil (MGO)
Fuel capacity	1,540-1,925 m^3
Largest fuel tank size	280 m^3
Number of personnel	60
Seismic Source	
Type	Airgun / three subarrays
Size	3,090 cubic inches
Pressure	2,000 pounds per square inch (psi) (nominal)
Source levels (McPherson and Wood 2017)	249 dB re 1µPa @ 1 m (PK) 225 dB re 1µPa^2.s @ 1 m (0.01–2 kHz)
Frequency	0 – 500 hertz (Hz)
Towing depth	5 – 10 m

Streamer	
Type	Solid
Number	10
Length	8,100 m (extending up to 8,900 m astern)
Spacing	112.5 m
Towing depth	Approximately 15 m
Seismic Activity	
Speed	Approximately 4.5 knots
Seismic line spacing	Approximately 562 m
Discharge interval	Approximately every 12.5 m (approximately every 5 seconds) along survey lines
Operational (safety) exclusion zone	500 m from the 20 m depth contour
Logistics	
Number of support vessels	Two (one chase vessel and one supply vessel)
Refuelling	At sea every 10 to 14 days
Crew change	Via helicopter transfers every 35 days

2.2.1 Seismic Source Operation

Polarcus intends to acquire approximately 1,767 km2 of 3D seismic data in water depths of 45 m – 148 m.

A survey vessel will tow the seismic array and hydrophone streamers, along pre-determined survey lines within the Acquisition Area. The seismic survey vessel will typically acquire seismic data along a series of adjacent and parallel lines in a “racetrack”- like pattern. At the end of each line, the vessel will turn in a wide arc to position for another parallel line in the opposite direction. When the vessel completes the line, it will turn again to follow another line. This pattern is repeated until the required coverage is completed.

Full-fold seismic data acquisition involving operation of the seismic source at full volume will occur within the Acquisition Area. The seismic source may also be operated for short durations elsewhere in the Operational Area in a controlled manner; for the purpose of source maintenance and testing.

Operation of the seismic source in all cases will be managed in accordance with the control measures and performance standards specified in this EP. The seismic source will not be operated outside of the Operational Area.

Boxing-in

The Montara Project infrastructure, comprising the wellhead platform and FPSO, are located in the southern portion of the Acquisition Area. The location of the Montara infrastructure and the associated Petroleum Safety Zones (i.e. exclusion zones) will result in a significant hole in the seismic coverage. To overcome this, Polarcus will employ a boxing-in technique, where additional lines are acquired orthogonal (at 90 degrees) to the normal acquisition direction to reduce the size of the coverage hole. These additional lines will be acquired in the same manner (refer to Table 2-1) as the normal acquisition lines.

2.3 Schedule

An initial period of acquisition, comprising ‘Phase 1’ and ‘Phase 2’ areas (Figure 1.2) was completed between 20 December 2015 and 6 March 2016. Phase 3 North was acquired between 18 December 2017 and 13 January 2018.

Phase 3 South may commence as early as May 2019 and will be completed before 31 December 2020. The survey will take a maximum of 36 days to acquire with 7 days deployment/retrieval and 1 day local transit to and from Port.

The precise timing of the survey is subject to vessel availability, weather conditions and other operational considerations, and will take into account the seasonality of environmental sensitivities, where practicable. The exact start and end dates of Phase 3 South will be communicated to stakeholders (refer to Section 4.4).

3. DESCRIPTION OF THE ENVIRONMENT

This section describes the existing environment where the survey and associated activities will take place and where the survey's potential impacts may occur, including the Zone of Potential Influence (ZPI). The ZPI refers to the area that may be affected in the event of a credible "worst-case" hydrocarbon spill scenario.

3.1 Overview

The Operational Area is located approximately 160 km off the Kimberley coast of northern Western Australia (WA) and 175 km from the Indonesian Archipelago and Timor-Leste (refer to Section 2.1). The Acquisition and Operational areas are located within the North-west Marine Region (NWMR).

The NWMR comprises Commonwealth waters from the Western Australia–Northern Territory border to Kalbarri, south of Shark Bay. The NWMR is characterised by a large area of continental shelf and continental slope, highly variable tidal regions and very high cyclone incidence (DEWHA 2008b).

3.2 Physical Environment

3.2.1 Climate

The climate of the region is characterised by two distinct seasons; a mild, dry winter during the months of April to September and a hot, wet summer during the months of October to March. There are also rapid transitional months between the main season generally April and September/October.

3.2.2 Tides

The tides of the region are mixed and predominantly semi-diurnal (two high tides and two low tides per day), with well-developed spring to neap tidal variation (DEWHA 2008b). The NWMR has some of the largest tides in Australia, with an increase in amplitude from south to north, which corresponds with the increasing width of the shelf. The mean spring and neap tidal ranges west of the Operational Area at Ashmore Reef (approximately 78 km west) are approximately 4.7 m and 2.8 m respectively (Berry 1993).

3.2.3 Waves

The wave climate in the NWMR is influenced by sea and swell waves, as well as the location of storms and the local bathymetric effects that occur in the region. Ashmore Reef (approximately 75 km west of the Operational Area) has a mean wave height of 1 to 2 m and tidal currents averaging one metre per second (Glenn and Collins 2005).

3.2.4 Currents

The Operational Area is dominated by surface currents heavily influenced by both tidal motions and the Indonesian Throughflow, which transports warm waters from the Pacific Ocean into the Indian Ocean through the Indonesian seas. The strength of the Indonesian Throughflow is seasonal with it being weakened during the wet season when the strong south-westerly winds cause intermittent reversals of the currents (Brewer et al. 2007).

3.2.5 Temperature and Salinity

Sea temperatures and salinity in the region are heavily influenced by the warm, low salinity waters of the Indonesian Throughflow. Surface waters have summer sea surface temperatures of approximately 26°C and winter temperatures of approximately 22°C (DEWHA 2008b). The sea surface temperatures at nearby Ashmore Reef range from 25.5°C to 30.2°C outside lagoonal areas (Glenn 2001).

The Indonesian Throughflow brings in low salinity water from the western Pacific Ocean through to the Indian Ocean (DEWHA 2008b). Salinity at Ashmore Reef ranges from 34.5°C to 34.7°C outside lagoonal areas (Glenn 2001).

3.2.6 Water Quality

The NWMR is characterised by low background levels of metals and organics (Wenziker et al. 2006). The Indonesian Throughflow brings in oligotrophic (low in nutrients) waters from the western Pacific Ocean through to the Indian Ocean (DEWHA 2008b).

3.2.7 Bathymetry, Geomorphology and Sedimentology

Water depths in the Operational Area range from approximately 11 m to 205 m. The shallowest depth in the Acquisition Area is 45 m. A number of banks and shoals in the NWMR rise to less than 30 m depth in some places.

The NWMR comprises large areas of seabed that are dominated by soft sediments. The soft sediments typically consist of sandy and muddy substrate, occasionally made up of patches of coarser sediments (DEWHA 2008b).

The south-eastern corner of the Operational Area overlaps with the western edge of the Carbonate bank and terrace system of the Sahul Shelf, a Key Ecological Feature (KEF) that is regionally important in enhancing productivity in the region (Section 3.3.1) (Commonwealth of Australia 2012). The western edge of the KEF is characterised by a hard substrate plateau of approximately 100 m depth that rises abruptly (almost completely vertically) from the surrounding 150 - 200 m depths to the north-west.

The Ancient coastline at 125 m depth contour (a KEF), characterised by several terraces and steps that reflect a gradual increase in sea level over geological times, is located approximately 20 km south of the Operational Area. Parts of this KEF consist of rocky escarpments while other parts are dominated by soft sediments (DEWHA 2008b).

Shoals and banks in the Operational Area are abrupt geomorphological features that typically rise to within 10 to 30 m from the sea surface and extend along the continental shelf edge (Figure 3.1) (PTTEP AA 2013). The main plateau area of each shoal is typically at depths of 20 - 30 m, with occasional higher ground rising to within approximately 10 m of the sea surface (Heyward et al. 2010). Shallowest depths at the shoals are presented in Table 3-1. The slopes of the banks/shoals of the Operational Area on average display a gradient of 0.1 (one vertical metre for every ten horizontal metres), increasing to 1 in 4 in some instances).

As well as the defined (named) shoals and banks within the Operational Area, patches of ‘unnamed shallow areas’, shallower than 60 m, also exist within the Operational Area (Figure 3.1). These areas can be distinguished from the defined shoals and banks as they occur over a relatively broad expanse of open seabed, are predominantly deeper, rising to approximately 40 to 45 m depths, and display far shallower gradient profiles with an average gradient of 0.02 (1 vertical metre for every 50 horizontal metres).

Table 3-1 Relevant Banks and Shoals

Bank/Shoals	Within Operational Area	Approximate shallowest depth (m) (Heyward et al. 1997; Heyward et al. 2011a; National Imagery and Mapping Agency 2004)	Distance from the Operational Area (where relevant)
Vulcan Shoal	Partial	9.5	-

Bank/Shoals	Within Operational Area	Approximate shallowest depth (m) (Heyward et al. 1997; Heyward et al. 2011a; National Imagery and Mapping Agency 2004)	Distance from the Operational Area (where relevant)
Goeree Shoal	No	Not available	2.1 km
Eugene McDermott Shoal	No	11.1	3.1 km
Heywood Shoal[2]	No	Not available	72.2 km
Barracouta Shoal	Yes	10.3	-
'Shoal 25'	Yes	30	-
Southern portion of Sahul Bank (several unnamed shoals)	No	5-29.5	37.2 km
Karmt Shoal	No	Not available	N/A
Jabiru Shoals	No	Not available	66.5 km
Pee Shoal	No	10.3	63.9 km
Mangola Shoal	No	9.0	87 km
Barton Shoal	No	13.7	132 km
Dillon Shoal	No	13.1	185 km
Echuca Shoal[2]	No	Not available	121.6 km
Basset Smith Shoal	No	4.8	88.3 km
Penguin Shoal[1]	No	9.7	94.4 km
Gale Bank[1]	No	22.0	99.3 km
Baldwin Bank[1]	No	15.5	104.6 km
Favell Bank[1]	No	22.0	106.2 km
Fantome Shoal	No	7.3	61.2 km
Vee Shoal	No	13.4	54.3 km
Johnson Bank	No	8.5	44.6 km
Woodbine Bank	No	11.5	37.4 km
Wave Governor Bank	No	36.5	N/A
Big Bank Shoals	No	16.0	N/A

Bank/Shoals	Within Operational Area	Approximate shallowest depth (m) (Heyward et al. 1997; Heyward et al. 2011a; National Imagery and Mapping Agency 2004)	Distance from the Operational Area (where relevant)

1) Part of the Carbonate bank and terrace system of the Sahul Shelf KEF.
2) Part of the Ancient coastline at 125 m depth contour KEF.

123°E
124°E
125°E
126°E
11°S
12°S
13°S

Dillon Shoal
Sahul Bank Shoals
Barton Shoal
Sahul Bank Shoals
Sahul Bank Shoals
Fantome Shoal
Mangola Shoal
Vee Shoal
Pee Shoal
Jabiru Shoals
Hibernia Reef
Ashmore Reef
Woodbine Bank
Johnson Bank
Unnamed Shallow Area
Shoal 25
Barracouta Shoal
Cartier Island
Unnamed Shallow Area
Gale Bank
Van Cloon Shoal
Favell Bank
Vulcan Shoal
Goeree Shoal
Baldwin Bank
Penguin Shoal
Eugene McDermott Shoal
Bassett-Smith Shoal
Heywood Shoal

Legend

- Phase 3 South Aquisition Area
- Phase 3 South Operational Area
- Exclusive Economic Zone Limit
- Coastal Waters (State Jurisdiction)
- 100m Depth Contours (between 100 and 1000 m)

Shallow Contours

- 60m Contour
- 45m Contour
- 30m Contour
- 20m Contour

Data source:
Cysnus MC3D Survey and Planned Survey Area - Client Provided Nov 2018
EEZ, Treaty Boundary, Coastal Waters - Geoscience Australia 2017
Basemap: National Geographic World Map

Banks, Shoals and other 'unnamed shallow areas' within and around the Survey Area

3.1

Drawing No:	0483995b_Ph3South_EP_G006_R0.mxd	**Polarcus Cygnus 3D MSS**	
Date:	27/11/2018	Drawing Size: A3	**Phase 3 Environment Plan**
Drawn By:	DR	Reviewed By: JD	Client: Polarcus Seismic Limited

Coordinate System: GCS GDA 1994

0 20 40km

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3.3 Ecological Environment

3.3.1 Key Ecological Features

Key Ecological Features (KEFs) are elements of the Commonwealth marine environment which, based on current scientific understanding, are considered to be of regional importance for either the region's biodiversity or ecosystem function and integrity (Commonwealth of Australia 2012). KEFs that are relevant to the Cygnus 3D MSS are shown in Figure 3.2.

121°E 122°E 123°E 124°E 125°E 126°E 127°E 128°E 129°E 130°E

11°S 12°S 13°S 14°S 15°S 16°S

Big Bank Shoal
Dillon Shoal
Sahul Bank Shoal
Barton Shoal
Sahul Bank Shoal
Fantome Shoal
Mangola Shoal
Pee Jahiru Shoal
Shoals
Vee Shoal
Hibernia Reef
Ashmore Reef
Johnson Bank
Woodbine Bank
Cartier Island
Unnamed Shallow Area
Barracouta Shoal 25
Unnamed Shallow Area
Vulcan Shoal
Goeree Shoal
Eugene McDermott Shoal
Gale Bank
Van Cloon Shoal
Favell Bank
Baldwin Bank
Penguin Shoal
Bassett-Smith Shoal
Heywood Shoal
Seringapatam Reef
Echuca Shoal
BROWSE ISLAND
Scott Reef
ADELE ISLAND
Camden Sound
PIRLANGIMPI (GARDEN POINT)
KALUMBURU
PEPPIMENARTI
PORT KEATS (WADEYE)
PALUMPA
WYNDHAM
NT
TIMBER CREEK
KUNUNURRA
BARDI (ONE ARM POINT)

Legend

- Phase 3 South Aquisition
- Phase 3 South Operational Area
- Exclusive Economic Zone Limit
- Coastal Waters (State Jurisdiction)
- 1997 Perth Treaty Seabed Boundary with Indonesia

National Key Ecological Features:

- Ancient coastline at 125 m depth contour
- Ashmore Reef and Cartier Island and surrounding Commonwealth waters
- Carbonate bank and terrace system of the Sahul Shelf
- Carbonate bank and terrace system of the Van Diemen Rise
- Continental Slope Demersal Fish Communities
- Pinnacles of the Bonaparte Basin
- Seringapatam Reef and Commonwealth waters in the Scott Reef Complex
- Shelf break and slope of the Arafura

Data source:
Cysnus MC3D Survey and Planned Survey Area - Client Provided Nov 2018
EEZ, Treaty Boundary, Coastal Waters - Geoscience Australia 2017
Basemap: National Geographic World Map

Key Ecological Features

3.2

Drawing No:	0483995b_Ph3South_EP_G008_R0.mxd		**Polarcus Cygnus 3D MSS** **Phase 3 Environment Plan**
Date:	27/11/2018	Drawing Size: A3	
Drawn By:	DR	Reviewed By: JD	Client: Polarcus Seismic Limited

Coordinate System: GCS GDA 1994

0 25 50km

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3.3.2 Plankton Communities

The primary driver of planktonic primary productivity in the NWMR is from seasonal influences. In the tropical northern regions of Australia, higher phytoplankton concentrations, as indicated by surface chlorophyll concentrations, generally occur during the winter months (June to August) and are lower in summer (December to February) (Hayes et al. 2005), although there is some variability. Aggregations can result from temperature and salinity gradients, water motion, light intensity or organic matter in the water column (Omori and Hamner 1982).

3.3.3 Benthic Habitats and Communities

The distribution of benthic fauna depends on water depth, the substrate and sediment characteristics, the nature of the substrate and available food.

The sandy and muddy substrates that cover the majority of the Operational Area support relatively little sea bed structure or sessile epibenthos. They are sparsely covered by sessile filter-feeding organisms (e.g. gorgonians, sponges, ascidians and bryozoans) and mobile invertebrates (e.g. echinoderms, prawns and detritus-feeding crabs) (Brewer et al. 2007; DEWHA 2008b).

Scattered throughout the Operational Area are shoals and shallow, hard substrate supporting more diverse benthic assemblages, such as hard and soft corals, gorgonians, encrusting sponges, seagrass and macroalgae, particularly at shoals which are noted for their enhanced local productivity relative to surrounding areas (DEWHA 2008b) and associated fish communities.

Banks and Shoals

The bank and shoal systems in and around the Operational Area support diverse biological communities including corals, sponges, seagrasses and a variety of reef fish, with dominant organisms ranging from the macroscopic alga Halimeda to soft and hard coral communities (Heyward et al. 1997). Shoals in the region may also provide feeding habitats for macrofauna such as marine turtles and dugongs, particularly where the seabed rises to a depth of less than 20 m (Whiting 1996). Banks and shoals in the region that rise to at least 45 m and particularly within 30 m water depth, allow light dependent organisms to thrive and support more biodiversity (Nichol et al. 2013; NERP 2014).

There is adequate light on the shoal plateaus to support photosynthetic organisms, benthic primary producer habitats, such as algae and reef building corals, and diverse communities to depths of up to 50-60 m (Heyward et al. 2010; 2011a; 2013). The relatively shallow gradient shoal plateaus occur in water depths between 20-45 m and curve rapidly at the shoal rim to descend past the 60 m contour where they slope steeply into deeper water (Heyward et al. 2010; 2011a).

Studies of shoals in the region by Heyward et al. (2010; 2011a; 2013) and ERM (2012) identified a correlation between the depth of the shoals and biota, with the richest, most diverse and abundant communities found on the shallower areas of each shoal. Benthic habitats include hard coral cover and other light dependent biota down to approximately 30 m depth, which was observed to decline gradually as depths extended to 40-50 m. Hard coral cover in depths of depths of 50-60 m is sparse and deeper portions of the upper slopes comprise predominately more sand and scattered rubble patches with more light-independent filter-feeding biota such as soft corals, sponges, sea fans, sea pens, and sea whips. The deeper slope substrates are predominantly sand, with some shell and rubble fragments. Benthic assemblages include patches of hydroid seabed matting and scattered filter-feeders between ~60-70 m. The deeper portions of the lower slopes are characterised by sparse and isolated individual filter feeders in large areas of bare sand with rubble.

Other 'unnamed shallow areas'

The benthic assemblages of the other 'unnamed shallow areas' (<60 m depth) within the Operational Area (Figure 3.1) are expected to be comparable to other areas studied nearby and comprise sparse patches of hydroid seabed matting and isolated sea fans, sea pens, sea whips, crinoids, sponges, and

sabellid fan worms (ERM 2012). Benthic assemblages are expected to support some sponge and filter feeder biota on relatively featureless sand and rubble seafloor.

Platform and Fringing Coral Reef Communities

Coral reefs in the NWMR generally fall into two groups: fringing reefs around the coastal islands and the mainland shoreline; and large platform reefs, banks and shelf edge atolls in offshore waters. The offshore coral reefs include Ashmore Reef, Cartier Island, Hibernia Reef, Scott Reef and Browse Island.

Ashmore Reef and Cartier Island

Ashmore Reef, approximately 75 km away from the Operational Area, is a platform reef characterised by coralline algae to the north and scleractinian corals to the south (DEWHA 2008). The reef comprises of three vegetated islands (West, Middle and East islands), numerous shifting sand banks and two large lagoon areas (DRID 2014). The reef crest is most prominent on the south and east sides of Ashmore Reef. At low tide, the edge of the reef flat has large areas of sand which are exposed at low tide.

Ashmore Reef supports the highest number of coral species in the region, with a large number of non-reef building coral species and 255 reef building coral species (Commonwealth of Australia 2012, 2014). The highest mean live coral cover at Ashmore Reef has been recorded within 6 m water depths (Heyward et al. 2011b). During a survey in 2011, hard coral was most common on Ashmore Reef (Heyward et al. 2011b). Ashmore Reef supports extensive seagrass meadows. A study in 1998 identified Ashmore Reef had the highest average cover of seagrass as compared to other reefs in the area (Skewes et al. 1999).

Cartier Island, approximately 30 km away from the Operational Area, is characterised by an un-vegetated sand cay stabilised by surrounding mature reef flats (Commonwealth of Australia 2002). Coral communities are most abundant on the reef front.

Hibernia Reef

Hibernia Reef lies to the northeast of Ashmore Reef, and approximately 76 km away from the Operational Area. The reef is a platform reef, rising from a depth of 100 m, and characterised by a deep central lagoon and drying sand flats. The sand bar on Hibernia Reef is subtidal and is only exposed at low water on spring tides (Guinea 2013).

Scott Reef

Scott Reef, approximately 262 km away from the Operational Area is a large emergent shelf atoll characterised predominantly by hard (scleractinian) corals and calcareous algae. Scott Reef comprises of South Scott Reef and North Scott Reef; two large coral reef atolls. North Scott Reef comprises a shallow lagoon about 20 m deep and South Scott Reef comprises a lagoon that ranges in depth from 20 m to 70 m (Gilmour et al. 2013).

3.3.4 Fish Assemblages

The region contains a diverse range of fish of tropical Indo-west Pacific affinity that are characterised by high levels of endemism and species diversity (Allen et al. 1988; Commonwealth of Australia 2012; DEWHA 2008a). The continental slope of the Timor Province and the North-west Transition Bioregion supports more than 418 and 505 species of demersal fish respectively, of which 64 species are considered endemic (Last et al. 2005). The diversity of the continental slope demersal fish communities in the Timor Province Bioregion has been identified as a KEF (Section 3.3.1) (DEWHA 2008a).

Banks and Shoals

The fish fauna identified at the shoals in the south-western part of the Operational Area are biologically rich and relatively diverse and varied within and between the shoals (PTTEP 2013). Surveys identified 262 species of fish and sharks from 43 families (Heyward et al. 2013).

Site-attached fish communities are typically associated with small, isolated patches of coral reef, where fish are able to move locally among the available habitat, but where their home range and potential for larger-scale fish movements beyond these areas may be prevented by the absence of contiguous and adjoining habitats (Ault and Johnson 1998; Nagelkerken 2009). Since the banks/shoals within the Operational Area (including those of the Carbonate bank and terrace system of the Sahul Shelf) are known or expected to host coral reef and calcareous reef communities, it is expected that some of these banks/shoals will support some site-attached fish. This is especially the case in the portions of those banks/shoals occurring in waters shallower than 30 m, where the highest abundances of fish and coral cover are expected (Heyward et al. 2011a; 2013). Minimal to no coral cover is expected at depths greater than 60 m (Heyward et al. 2011a; 2013), and subsequently the presence of site-attached fish at those depths is not expected.

The highest levels of fish species richness and total abundance are generally observed at shallow depths (less than 30 m) and in association with reef substrate (Heyward et al 2011a; 2013). In water depths greater than 30 m, fish assemblages gradually become more dominated by species that are less restricted by habitat (many occur in a variety of habitats) and across large depth ranges (i.e. they are not restricted to specific habitats), although some site-attached species also occur in lower abundance in association with patches of reef and other biota down to approximately 60 m.

Site-attached reef fish are not expected to be significant components of the fish assemblages at depths greater than 60 m.

'Unnamed shallow areas'

The identified 'Unnamed shallow areas' are commonly deeper with lower relief than the shoals. Only a very small portion of these unnamed shallow areas extend shallower than 45 m. The 'unnamed shallow areas' are therefore unlikely to provide significant or extensive reef habitats for site-attached fish as they are expected to have a relatively low cover of coral and other benthic primary producers. Such habitats are not expected to support significant assemblages of site-attached fish.

3.3.5 Commercially Targeted Fish Stocks and Spawning

Seasonal spawning periods for commercial species occur throughout the year. The spawning seasons for a number of key commercially targeted species occur in the wider region.

The Department of Fisheries (DoF) (2013) guidance statement on undertaking seismic surveys in Western Australian waters reports the following key species and spawning periods in the North Coast Fisheries Bioregion:

- Blacktip shark (Carcharhinus tilstoni and C. limbatus): November to December;
- Goldband snapper (Pristipomoides multidens): January to April;
- Rankin cod (Epinephelus multinotatus): August to October;
- Red emperor (Lutjanus sebae): October to March, peaking in October;
- Sandbar shark (Carcharhinus plumbeus): October to December;
- Spanish mackerel (Scomberomorus commerson): August to November: and
- Pink snapper (Pagrus auratus): May to July (rare occurrence in this region).

A desktop review of the ecological characteristics of these species suggests that the preferred spawning habitats for the majority of those identified by DoF primarily include hard/rocky substrates, reefs, and/or shallow coastal waters (DL 2015).

Many of the identified species spawn in coastal waters and the Operational Area is not expected to be of particular value for spawning of these species in significant numbers compared to anywhere else in the region. However, two key indicator fish species of the Northern Demersal Scalefish Fishery (NDSF), goldband snapper (Pristipomoides multidens) and red emperor (Lutjanus sebae), are understood to

spawn in the offshore waters of the Operational Area. A NDSF licence holder raised concerns about the potential impacts to spawning goldband snapper and red emperor in November 2016. Both of these species are lutjanids, which are generally known to be highly fecund, broadcast spawners, releasing numerous batches of pelagic eggs into the water column over an extended spawning period, up to several million eggs per year (Lloyd 2006; Newman et al. 2008).

Adult goldband snapper occur in continental shelf waters in depths of 40-245 m, in association with offshore reefs, shoals, and areas of hard flat bottom with occasional benthos or vertical relief, and often form large schools (Ovenden et al. 2004; Newman et al. 2008). ERM (2012) also recorded adult goldband snapper over relatively featureless sediment habitats in 80 m to 90 m water depths in the Montara, Padthaway, Bilyara and Tahbilk gas fields, in the south-western part of the Operational Area, but did not observe this species at similar depths on the slopes of shoals in the region. Juveniles typically occur on uniform sedimentary habitat with no relief (Newman et al. 2008).

The following information was provided in consultation with a Principal Research Scientist at the Department of Primary Industries and Regional Development (DPIRD, formerly Department of Fisheries) in 2019 (refer to Appendix A Stakeholder Consultation Log) in regards to goldband snapper spawning:

- Goldband Snapper is widely distributed throughout northern Australia and the tropical Indo–West Pacific.
- Goldband snapper is more typically found between approximately 50 m and 200 m water depths, with evidence of a greater concentrations associated with the submerged ancient coastline between 80 m and 140 m depths.
- The species is known to consistently spawn between October to May (with the gonadosomatic indices (GSIs) being relatively high throughout this period).
- The species are serial/multiple batch spawners, releasing multiple batches of eggs into the water column over a wide area during the spawning period, and likely spawn every few days throughout the spawning period, or in response to environmental cues such as water temperature. Goldband snapper are known to spawn throughout their range.
- DPIRD Fisheries (2018) assessed the stock to be adequate and sustainable. The status of goldband snapper was considered acceptable and the current risk control measures in place were adequate (i.e. no new management required). However, the forward projections in model derived outputs indicate a decreasing trend in biomass under current management settings. As such, careful ongoing monitoring of the stock is required.

Updated advice from DPIRD Fisheries suggests that goldband snapper spawn between October and May. This period is also broadly consistent with other goldband snapper stocks spawning in northern Australia, as reported for the Timor Sea and Arafura Sea stocks, where spawning was found to occur for an extended period from September/October, peaking in December, and remaining elevated with some fluctuations until March/April, and with minimum activity occurring during the winter months (June - August) (Lloyd 2006). Although goldband snapper are understood to be broadcast spawners, it is also understood that eggs and larvae do not travel long distances between regions and there is limited genetic connectivity between the Kimberley stock and stocks in the Timor and Arafura Seas, Broome, and the Pilbara and Exmouth stocks (Lloyd et al. 2000; Newman et al. 2000; Ovenden et al. 2002; Newman et al. 2008; Department of Fisheries 2015).

The Kimberley stock and its spawning biomass are assumed to be separate, as both larval dispersal and movement of adults between the stocks is understood to be negligible (Department of Fisheries 2015; Newman et al. 2008; Lloyd et al. 2000; Newman et al. 2000; Ovenden et al. 2002).

While adults are understood to be a relatively vagile (free to move) species, the genetic subdivision indicates constrained home ranges and limited migration of adults over long distances, potentially where significant changes in water depth or other factors may influence adult movements (Ovenden et al. 2004). The range of the North Kimberley stock is therefore considered separate from the adjacent Timor

and Arafura Seas stocks to the east, Indonesian stocks to the north, and the west Kimberley (Broome) stock. The geographical extent of the north Kimberley stock appears to encompass genetically similar sub-stocks identified over the following range (Lloyd et al. 2000; Newman et al. 2000; Ovenden et al. 2002; Department of Fisheries 2015):

- At least as far to the west as 14.9ºS, 122.0ºE (Lynher Bank), but unlikely as far west as the Broome stock sampled at 17.5ºS, 120.5ºE;
- Including areas near Vulcan Shoal sampled at approximately 12.5.0ºS, 124.3ºE; and
- At least as far east as 12.0ºS, 126.0ºE, but unlikely as far east as the Timor Sea stock sampled at 10.2ºS, 129.5ºE.

Red emperor may also spawn in offshore waters in the region. They are widely distributed across the continental shelf in up to 180 m water depths and are associated with reefs, lagoons, epibenthic communities, limestone sand flats and gravel patches (Newman et al. 2008). The species spawns between August and May, with a peak in October and March. The species is also a serial batch spawner, releasing multiple batches of eggs into the water column over a wide area during the spawning period. While movement of adults between the Gascoyne, Pilbara and Kimberley stocks is understood to be limited, the stocks across northern Australia (from north Queensland to the mid-west coast of WA) are understood to be biologically connected, with genetic homogeneity maintained by the wide dispersal of pelagic eggs and larvae between these regions (Newman et al. 2008; Department of Fisheries 2015).

Also of note in proximity to the Operational Area is the single known spawning ground for southern bluefin tuna in the Indian Ocean, extending between northern WA and Java from 7°S to 20°S. Southern bluefin tuna are listed as 'Conservation Dependent' under the EPBC Act. Spawning grounds are broadly understood to overlap Australia's Exclusive Economic Zone, approximately 125 km to the west of the Operational Area (DOE 2015; Majkowski et al. 1988). Spawning occurs between August and April (with a peak period from October to February) (DOE 2015a).

3.3.6 Threatened and Migratory Species Overview

A search of the EPBC Act Protected Matters Database was undertaken to identify the likelihood of occurrence of listed marine fauna within the Operational Area and ZPI. No threatened ecological communities were identified within the Operational Area or ZPI.

Table 3-2 provides a summary of the threatened species and migratory species present within the Operational Area and ZPI.

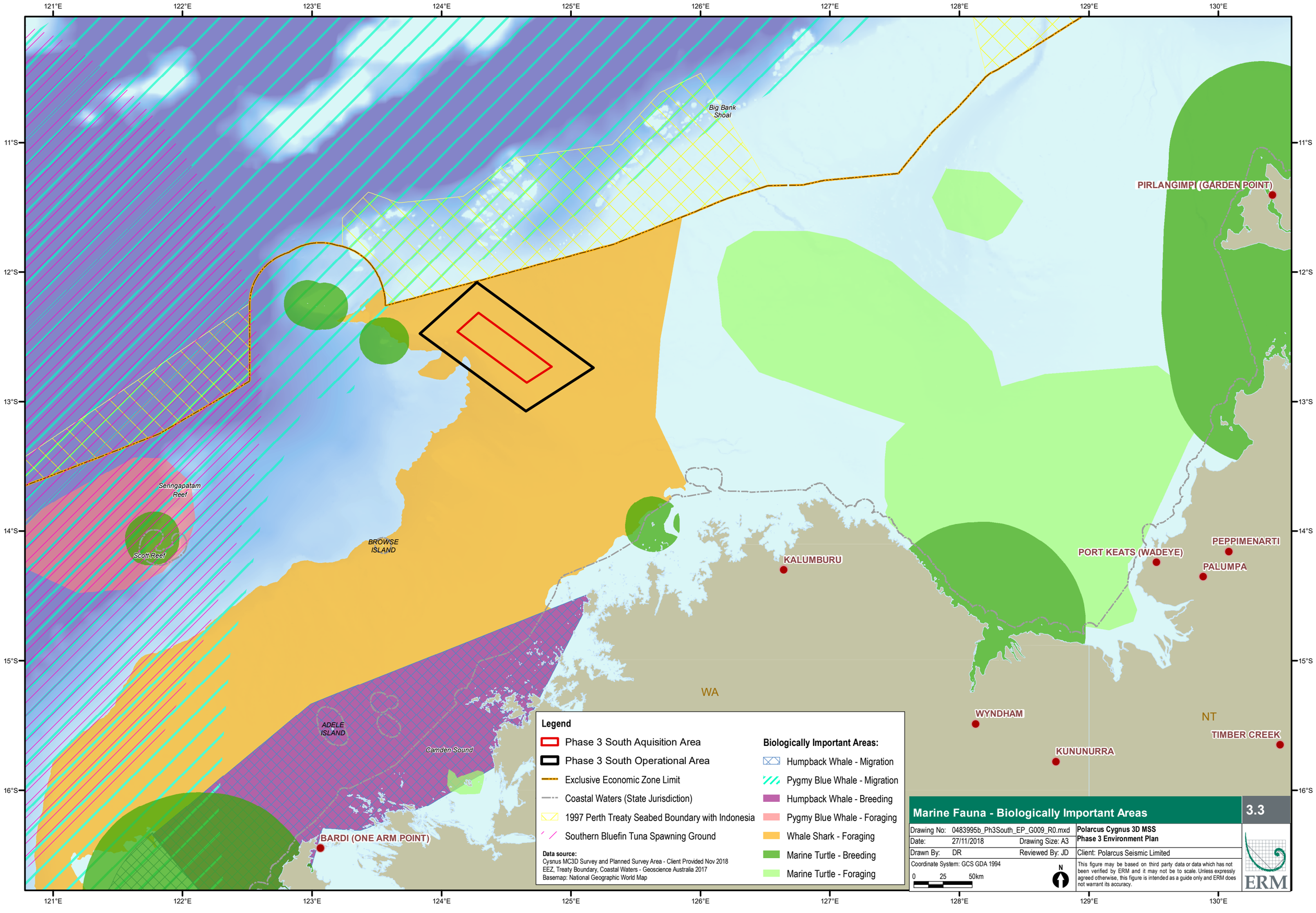
Table 3-2 Threatened and Migratory Species that May Occur within the Operational Area and ZPI

	Scientific Name	Common Name	Status	Operational Area	ZPI
Birds	*Anous tenuirostris melanops*	Australian lesser noddy	Vulnerable	✓	✓
	Calonectris leucomelas	Streaked shearwater	Migratory	✓	✓
	Fregata ariel	Lesser frigatebird	Migratory	✓	✓
	Fregata minor	Great frigatebird	Migratory	✓	✓
	Phaethon lepturus	White-tailed tropicbird	Migratory	✓	✓
	Sula sula	Red-footed booby	Migratory	✓	✓

	Scientific Name	Common Name	Status	Operational Area	ZPI
	Calidris ferruginea	Curlew Sandpiper	Critically Endangered, Migratory	✓	✓
	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	Critically Endangered, Migratory	✓	✓
	Calidris Canutus	Red Knot	Endangered, Migratory	✓	✓
	Papasula abbotti	Abbott's Booby	Endangered	✓	✓
	Anous stolidus	Common Noddy	Migratory	✓	✓
	Actitis hypoleucos	Common Sandpiper	Migratory	✓	✓
	Calidris acuminata	Sharp-tailed Sandpiper	Migratory	✓	✓
	Calidris melanotos	Pectoral Sandpiper	Migratory	✓	✓
	Limosa lapponica bauera	Bar-tailed Godwit (bauera)	Vulnerable		✓
	Limosa lapponica menzbieri	Bar-tailed Godwit (menzbier)	Critically Endangered		✓
	Hydroprogne caspia	Caspian Tern	Migratory		✓
	Onychoprion anaethetus	Bridled Tern	Migratory		✓
	Sterna dougallii	Roseate tern	Migratory		✓
	Sula dactylatra	Masked Booby	Migratory		✓
	Sula leucogaster	Brown Booby	Migratory		✓
Reptiles	*Caretta caretta*	Loggerhead turtle	Endangered, Migratory	✓	✓
	Chelonia mydas	Green turtle	Vulnerable, Migratory	✓	✓
	Dermochelys coriacea	Leatherback turtle	Endangered, Migratory	✓	✓
	Eretmochelys imbricata	Hawksbill turtle	Vulnerable, Migratory	✓	✓
	Lepidochelys olivacea	Olive ridley turtle	Endangered, Migratory	✓	✓
	Natator depressus	Flatback turtle	Vulnerable, Migratory	✓	✓
	Aipysurus apraefrontalis	Short-nosed seasnake	Critically Endangered	✓	✓

	Scientific Name	Common Name	Status	Operational Area	ZPI
	Aipysurus foliosquama	Leaf-scaled seasnake	Endangered		✓
	Crocodylus porosus	Salt-water crocodile, Estuarine crocodile	Migratory		✓
Mammals	*Balaenoptera musculus*	Blue whale	Endangered, Migratory	✓	✓
	Megaptera novaeangliae	Humpback whale	Vulnerable, Migratory	✓	✓
	Balaenoptera edeni	Bryde's whale	Migratory	✓	✓
	Orcinus orca	Killer whale	Migratory	✓	✓
	Physeter macrocephalus	Sperm whale	Migratory	✓	✓
	Balaenoptera borealis	Sei whale	Vulnerable, Migratory	✓	✓
	Balaenoptera physalus	Fin whale	Vulnerable, Migratory	✓	✓
	Tursiops aduncus	Spotted bottlenose dolphin (Arafura/Timor Sea populations)	Migratory	✓	✓
	Orcaella heinsohni	Australian Snubfin Dolphin	Migratory		✓
	Dugong dugon	Dugong	Migratory		✓
Fish, Sharks and Rays	*Carcharodon carcharias*	Great white shark	Vulnerable, Migratory	✓	✓
	Rhincodon typus	Whale shark	Vulnerable, Migratory	✓	✓
	Glyphis garricki	Northern river shark	Endangered	✓	✓
	Pristis pristis	Freshwater sawfish, Largetooth sawfish	Vulnerable, Migratory	✓	✓
	Pristis zijsron	Green sawfish	Vulnerable, Migratory	✓	✓
	Anoxypristis cuspidata	Narrow sawfish	Migratory	✓	✓
	Isurus oxyrinchus	Shortfin mako	Migratory	✓	✓
	Isurus paucus	Longfin mako	Migratory	✓	✓
	Manta birostris	Giant manta ray	Migratory	✓	✓
	Manta alfredi	Reef Manta Ray	Migratory	✓	✓

A number of BIA's for marine fauna are located within the ZPI. These areas are particularly important for the conservation of protected species and where aggregations of individuals display biologically important behaviour such as breeding, foraging, resting or migration. A summary of key marine fauna BIAs within and near the Operational Area is presented in Figure 3.3.



Marine Fauna - Biologically Important Areas

3.3

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Date:	27/11/2018	Drawing Size: A3	
Drawn By:	DR	Reviewed By: JD	Client: Polarcus Seismic Limited
Coordinate System: GCS GDA 1994 0 25 50km		N	This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

ERM

3.3.7 Birds

Many migratory shorebirds (including those frequenting offshore islands) and seabird species are known to occur in the region. Migratory shorebird species forage and rest in the region on their way between Northern Hemisphere breeding grounds and Northern Australian feeding grounds, known as the East Asian–Australasian Flyway. Seabird species spend the majority of their lives foraging across large distances over the open ocean and many also breed within the region.

Important areas for seabirds and migratory shorebirds in proximity to the Operational Area include (DEWHA 2008b):

- Ashmore Reef Marine Park and Cartier Island Marine Park (approximately 65 km and 25 km away from the Operational Area respectively), which support some of the most important seabird rookeries in the region. Ashmore Reef and Cartier Island are also important staging points and feeding areas for many migratory shorebirds. Studies carried out at Ashmore Reef have identified an increase in the number of migratory seabirds, from 75,000 in 2010 to 107,000 in 2013 (PTTEP 2013). Ashmore Reef Marine Park and Cartier Island Marine Park and surrounding waters are designated breeding and foraging BIAs for a number of bird species. The Operational Area overlaps with some of these BIAs; and
- Scott Reef is an important staging area for migratory shorebirds and foraging area for seabirds (approximately 262 km away from the Operational Area).

Two threatened, three threatened and migratory and nine migratory bird species were identified by a search of the EPBC Act Protected Matters Database as potentially occurring in the Operational Area through foraging, feeding, breeding or other related behaviours (refer to Table 3-2).

3.3.8 Marine Reptiles

3.3.8.1 Marine Turtles

Marine turtles have similar life cycle characteristics which include migration from foraging areas to mating and nesting areas. All species with the exception of flatback turtles have an oceanic pelagic stage before moving to nearshore waters to breed. The region is considered to be significant for supporting large feeding and nesting turtle populations.

Six threatened and migratory marine turtle species were identified in the EPBC Act Protected Matters Database search as having the potential to occur in the vicinity of the Operational Area (refer to Table 3-2).

There are several BIAs for turtle species in the region, including along the coastline and offshore islands in close proximity to the Operational Area (Figure 3.3). No foraging, internesting, or nesting BIAs overlap with the Operational Area.

A nesting ‘habitat critical to the survival of marine turtles’ for green turtles is located approximately 10 km from the Operational Area at Cartier Island and Ashmore Reef, as identified in The Recovery Plan for Marine Turtles in Australia 2017 -2027 (Commonwealth of Australia 2017). Other turtle nesting areas may also occur in the area, but these are currently unquantified (Commonwealth of Australia 2017).

The following areas in proximity to the Operational Area are considered to be particularly important for turtle nesting (DEWHA 2008b):

- Ashmore Reef Marine Park and Cartier Island Marine Park (approximately 65 km and 25 km away, respectively), include critical habitats for breeding and feeding marine turtles. Approximately 11,000 marine turtles are estimated to forage at Ashmore Reef (DOE 2015b). Ashmore Reef Marine Park and Cartier Island Marine Park and surrounding waters are designated BIAs for a number of marine turtles to highlight breeding, inter-nesting and foraging behaviours in the area (Figure 3.3).
- Sandy Islet at Scott Reef is a known green turtle nesting site (approximately 262 km away);

- Lacepede Islands are a critical nesting and inter-nesting habitat for green turtles. The islands comprise the largest green turtle rookeries in WA (approximately 495 km away); and
- The Carbonate bank and terrace system of the Sahul Shelf KEF (Section 3.3.1) is a foraging area for loggerhead, olive ridley and flatback turtles (Commonwealth of Australia 2012). A portion of the Carbonate bank and terrace system of the Sahul Shelf overlaps with the eastern portion of the Operational Area.

Given that Ashmore Reef, Cartier Island and the Carbonate bank and terrace system of the Sahul Shelf support a large number of foraging turtles (approximately 11,000), the shoals and banks in and around the Operational Area may also provide foraging habitat for turtles. Only occasional individuals are expected to transit through the deeper waters of the Operational Area.

3.3.8.2 Sea snakes

Sea snakes are essentially tropical in distribution, and habitats reflect influences of factors such as water depth, nature of seabed, turbidity and season (Heatwole and Cogger 1993). Some species have extensive distributions and individuals may cover large distances, while other species have limited home ranges (Heatwole and Cogger 1993). Most sea snake species tend to be found in the shallower parts of the region to allow for increased benthic foraging time (DEWHA 2008b).

At least 19 species of sea snake occur within the region (DEWHA 2008b). Amongst these species, two threatened and 17 listed marine sea snake species were identified in the EPBC Act Protected Matters Database search as potentially occurring in the Operational Area and ZPI. Surveys conducted at Ashmore Reef have recorded a notable decline in sea snake numbers over recent years, with sightings of sea snakes becoming rare since 2003 (Guinea 2013; PTTEP 2013). Seasnakes are typically restricted to shallower waters, therefore only occasional individuals are expected to be present within the Operational Area.

3.3.8.3 Crocodiles

One migratory crocodile species, the Salt-water crocodile (also known as the estuarine crocodile) was identified in the EPBC Act Protected Matters Database search as potentially occurring in the ZPI. The Salt-water Crocodile is found in Australian coastal waters, estuaries, lakes, inland swamps and marshes. The species has a tropical distribution that extends across the northern coastline of Australia (Webb et al. 1987).

3.3.9 Marine Mammals

Several species of marine mammals are known to occur in the region and have wide distributions that are associated with feeding and migration patterns linked to reproductive cycles. There are 26 species of marine mammals that occur regularly in the waters of the region. Three threatened and migratory, five migratory and 17 listed marine mammals were identified by a search of the EPBC Act Protected Matters Database as potentially occurring in and around the Operational Area. There are no known important breeding or foraging habitats for listed marine mammals within the Operational Area.

Several biologically important areas for marine mammals have been identified within and around the Operational Area as follows:

- The pygmy blue whale migration BIA passes along the shelf edge at depths between 500 m and 1,000 m (Figure 3.3). The Operational Area does not overlap with this BIA. The broader pygmy blue whale distribution BIA passes the most northerly point of the Operational Area, approximately 48 km north of the Acquisition Area at the closest point;
- The humpback whale migration BIA extends along the length of the coast of Western Australia, to its northernmost extent offshore of the Kimberley region (Figure 3.3). The northern boundary of the BIA is approximately 140 km south-west from the Operational Area. As part of the BIA, Camden

Sound (approximately 265 km away) is recognised as the main humpback whale breeding and calving ground (DSEWPaC 2012); and

- Ashmore Reef and surrounding waters (approximately 78 km away) form the designated BIA for dugongs to highlight breeding and foraging behaviours in the area (DOE 2015d) (Figure 3.3).

3.3.10 Fish, Sharks and Rays

The region experiences high species richness of shark, sawfish and rays stemming from the diversity of marine environments (Commonwealth of Australia 2012). There are approximately 500 shark and sawfish species globally, with 94 of these found in the region (i.e. 19% of the world's shark species) (DEWHA 2008b).

One threatened, four threatened and migratory, and five migratory fish, sharks, and rays were identified by a search of the EPBC Act Protected Matters Database as potentially occurring in and around the Operational Area (refer to Table 3-1).

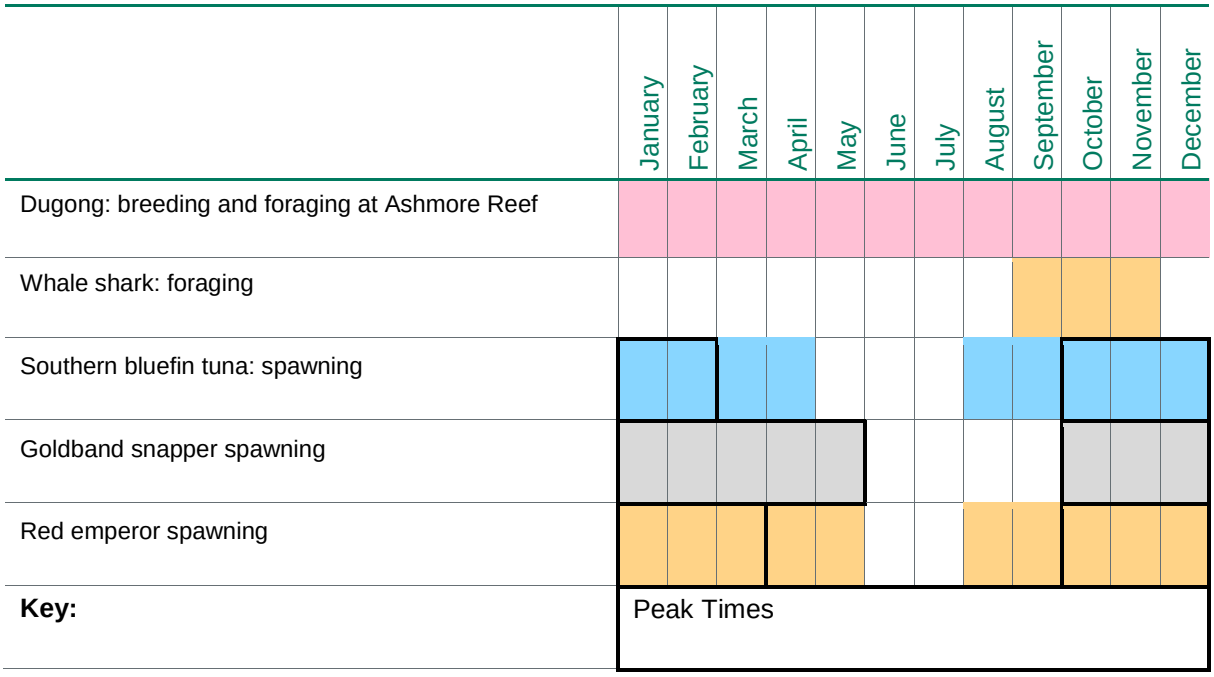
The Operational Area overlaps with a foraging BIA for whale sharks (refer to Figure 3.3). The northern migration route for whale sharks is considered to follow the northern WA coastline along the 200m isobath consistent with the extent of the whale shark foraging BIA. Whale sharks may be present in low numbers within the Operational Area between September and November.

3.3.11 Timing of Key Ecological Sensitivities

Table 3-3 shows the approximate timing of key ecological sensitivities that may occur within or in proximity to the Operational Area.

Table 3-3 Timing of Key Ecological Sensitivities within or in proximity to the Operational Area

	January	February	March	April	May	June	July	August	September	October	November	December
Corals: spawning												
Birds: breeding at Ashmore Reef and Cartier Island												
Green turtle: nesting at Ashmore Reef and Cartier Island												
Green turtle: foraging at Ashmore Reef												
Hawksbill turtle: nesting at Ashmore Reef												
Hawksbill turtle: foraging at Ashmore Reef												
Sea snakes at Ashmore Reef and Cartier Island, also likely to occur at shoals in the region												
Blue whales: northern migration												
Blue whales: southern migration												



3.4 Socio-Economic and Cultural Environment

3.4.1 Protected Areas

The Australian Marine Park (AMP) Network has been established around Australia as part of a National Representative System of Marine Protected Areas, the primary goal of which is to establish and effectively manage a comprehensive, adequate and representative system of marine parks to contribute to the long-term conservation of marine ecosystems and protect marine biodiversity.

Under the EPBC Act, the Australian Marine Park Networks, and any zones within them, must be assigned to an International Union for Conservation of Nature (IUCN) Category. Several types of zones are represented in the Marine Park Networks, with the zoning scheme administered by DoEE. The zones align to the IUCN categories as follows:

- Sanctuary Zone (IUCN Category Ia);
- National Park Zone (IUCN Category II);
- Recreational Use Zone (IUCN Category IV);
- Habitat Protection Zone (IUCN Category IV);
- Multiple Use Zone (IUCN Category VI);
- Special Purpose Zone (IUCN Category VI); and
- Special Purpose Zone (Trawl) (IUCN Category VI).

The Cygnus 3D MSS is located within the North-west Network, which includes 13 Marine Parks. There is no overlap of the Operational Area with any AMPs in this Network. The Ashmore Reef, Cartier Island, Kimberley and Oceanic Shoals Marine Parks (managed under the North Marine Park Network) are the closest, located between 25 km and 100 km from the Operational Area. These protected areas are shown in Figure 3.4.

Data source:
Cysnus MC3D Survey and Planned Survey Area - Client Provided Nov 2018
EEZ, Treaty Boundary, Coastal Waters, Shipwrecks, Marine Australian Marine Parks - DoEE (Oct 2018)
Basemap: National Geographic World Map

121°E 122°E 123°E 124°E 125°E 126°E 127°E 128°E 129°E 130°E

11°S 12°S 13°S 14°S 15°S 16°S

Big Bank Shoal

Oceanic Shoals (Multiple Use Zone)

Oceanic Shoals (National Park Zone)

Oceanic Shoals (Special Purpose Zone (Trawl))

Oceanic Shoals (Habitat Protection Zone)

PIRLANGIMPI (GARDEN POINT)

Oceanic Shoals (Multiple Use Zone)

Ashmore Reef (Recreational Use Zone)

Ashmore Reef (Sanctuary Zone)

Cartier Island (Sanctuary Zone)

Seringapatam Reef

Scott Reef

BROWSE ISLAND

KALUMBURU

Joseph Bonaparte Gulf (Special Purpose Zone)

Joseph Bonaparte Gulf (Multiple Use Zone)

PEPPIMENARTI

PORT KEATS (WADEYE)

PALUMPA

WA

NT

WYNDHAM

TIMBER CREEK

KUNUNURRA

Kimberley (Multiple Use Zone)

Kimberley (Habitat Protection Zone)

ADELE ISLAND

Kimberley (National Park Zone)

Camden Sound

Kimberley (Habitat Protection Zone)

BARDI (ONE ARM POINT)

Legend

- Phase 3 South Aquisition
- Phase 3 South Operational Area
- 1997 Perth Treaty Seabed Boundary with Indonesia
- MOU 74 Box
- Exclusive Economic Zone Limit
- Coastal Waters (State Jurisdiction)
- Shipwrecks

Australian Marine Park (IUCN Type)

- Habitat Protection Zone (IUCN IV)
- Multiple Use Zone (IUCN VI)
- National Park Zone (IUCN II)
- Recreational Use Zone (IUCN IV)
- Sanctuary Zone (IUCN Ia)
- Special Purpose Zone (IUCN VI)
- Special Purpose Zone (Trawl) (IUCN VI)

Australian Marine Parks

3.4

Drawing No:	0483995b_Ph3South_EP_G011_R1.mxd		Polarcus Cygnus 3D MSS Phase 3 Environment Plan
Date:	16/01/2019	Drawing Size: A3	
Drawn By:	DR	Reviewed By: JD	Client: Polarcus Seismic Limited

Coordinate System: GCS GDA 1994

0 25 50km

N

ERM

3.4.2 World Heritage and National Heritage Sites

There are no World Heritage or National Heritage Sites within the Operational Area and ZPI.

3.4.3 Marine Archaeology

Shipwrecks and relics older than 75 years are protected under the Commonwealth Historic Shipwrecks Act 1976. Based on a search of the Australian National Shipwreck Database, there are no known shipwrecks or relics in the Operational Area (Figure 3.4). The Operational Area is located approximately 25 km from the nearest historic shipwreck (the Ann Millicent) as listed on the Australian National Shipwreck Database (DOE 2015d). The Ann Millicent is located within the Cartier Island Marine Park (DOE 2015a).

3.4.4 Native Title

A search of the National Native Title Tribunal Register did not identify any Native Title areas within the Operational Area.

The Operational Area does overlap with the Representative Aboriginal Torres Strait Islander Body Area of the Northern Land Council and the Kimberley Land Council Aboriginal Corporation (NNTT 2015).

3.4.5 Commercial Fisheries

The diverse range of habitats and species within the region has allowed for various fisheries to develop and operate throughout the region.

Relevant Commonwealth and State managed commercial fisheries are summarised in Table 3-4.

Table 3-4 Relevant Commonwealth and State Managed Fisheries

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
Commonwealth Fisheries							
Western Tuna and Billfish Fishery	Extends westward from Cape York Peninsula (Queensland) to the west coast of WA and eastward to the Great Australian Bight (AFMA 2015).	Pelagic longline, minor line (hand line, rod and reel, troll and poling) and purse seine	Broadbill swordfish, Bigeye tuna, Yellowfin tuna, Albacore tuna	All year	415	The fishery overlaps with the Operational Area, with fishing effort reported all year round. Most recent data indicates the Western Tuna and Billfish Fishery operates at low levels of effort due to economic conditions (AFMA 2015). Efforts have been concentrated off south-west Western Australia over recent years. During the consultation process AFMA informed Polarcus that the Western Tuna and Billfish Fishery do not operate in the Bonaparte Basin and therefore will not be impacted by the proposed activity.	The fishery is understood to operate at low levels off south west WA and therefore interaction with the Cygnus 3D MSS is not expected. This fishery is not considered in the EP.
North West Slope Trawl Fishery	Extends off the WA coast between the 200 m isobath and the outer limit of the Australian Fishing Zone, taking into account Australian-Indonesian maritime boundaries (AFMA 2015).	Bottom trawl	Scampi	All year	28.8	The fishery overlaps with the Operational Area, with fishing effort reported all year. There are seven fishing permits (maximum number of vessels active at one time) each with a five-year validity period (AFMA 2015).	The North West Slope Trawl Fishery targets waters between the 200 m isobath and the outer limit of the Australian Fishing Zone. Based on the number of active vessels, the level of estimated catch and the wide extent of the fishery, and limited operations in the Bonaparte Basin, the potential for interaction with the Cygnus 3D MSS is low.

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
Southern Bluefin Tuna Fishery	Covers the entire Australian Fishing Zone (AFZ), which is 3 to 200 NM from the Australian coast (AFMA 2015). 96% of Australian total catch is by commercial purse seine in the Great Australian Bight, with no current effort in WA.	Pelagic longline or purse seine	Southern bluefin tuna	All year	5,665	The fishery overlaps with the Operational Area, however there is no current effort in WA. The Operational Area lies outside of the southern bluefin tuna spawning ground.	As there is no current effort reported in WA, this fishery is not considered in this EP.
Western Skipjack Fishery	Covers the AFZ, and extends westward from the South Australian/Victorian border around the coast of Australia to Cape York Peninsula in QLD (AFMA 2015). There has been no catch or effort in the WSTF since the 2008–09 fishing season.	Purse seine	Skipjack tuna	November to June	0	This fishery overlaps with the Operational Area however the fishery is not currently in operation.	As this fishery is not currently in operation, it is not considered further in the EP. During the consultation process AFMA informed Polarcus that the Western Skipjack Fishery does not operate in the Bonaparte Basin and therefore will not be impacted by the proposed activity.
Western Australian State Fisheries							
Northern Demersal Scalefish Managed Fishery	The fishery has historically comprised a small fleet (≤10 vessels), which has operated over a relatively large area, spanning ~9 degrees of latitude (11–20ºS) and longitude (120–129ºE) (Marriott *et al.* 2014).	Primarily trap, some line	Demersal scale fish (red emperor, goldband snapper, cod species)	All year	1,228	Area 2 (offshore), Zones B and C of the fishery overlap with the Operational Area, with fishing effort reported all year.	In 2013, eight fish trap vessels reported using between 20 and 36 fish traps per day, with line fishing reported in deeper waters of Zone C. In 2014, the total effort was 985.6 standard fishing days in Zone B and 1,100 standard fishing days in Zone C (Fletcher and Santoro 2014). Therefore, there is the potential for interaction with the Cygnus 3D MSS.

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
	The fishery is divided into two fishing areas; an inshore sector (Area 1) and an offshore sector (Area 2). Area 2 is further divided into zones. Zone A is an inshore area, Zone B comprises the area with most historical fishing activity and Zone C is an offshore deep slope area representing waters deeper than 200 m (Fletcher and Santoro 2014; Fletcher et al. 2017).						
Kimberley Prawn Managed Fishery	Kimberley Prawn Managed Fishery operates between Koolan Island and Cape Londonderry in WA waters. It borders the western boundary of the Commonwealth Northern Prawn Fishery (Fletcher and Santoro 2014; Fletcher et al. 2017).	Trawl	Banana prawn, Tiger prawn, Endeavour prawn, Western king prawn	April to May and August to November	154	The extent of the fishery overlaps with the Operational Area. However, the main fishing area is understood to be located in coastal waters. Licence holders have been contacted since 2015, and no responses have been received. Fishing effort is reported from April to May and from August to November.	In 2013, there were 124 vessels licensed to fish in the fishery, 45 of these also holding a Commonwealth Northern Prawn Fishery licence (Fletcher and Santoro 2014). Historic catch data indicates that the area surrounding the Operational Area is not significant for catches. Most fishing is understood to occur in more turbid coastal waters. Therefore, while there is the potential for interaction with the Cygnus 3D MSS, such interactions would be infrequent.

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
Northern Shark Fishery (Joint Authority Shark Fishery and Western Australia North Coast Shark Fishery)	The operational area of the Northern Shark Fishery overlaps the Operational Area; however the fishery has not been active since 2008/09 (Fletcher and Santoro 2014; AFMA 2016). This fishery has been closed indefinitely, primarily to protect the breeding stock of sandbar sharks (Fletcher and Santoro 2014; Fletcher et al. 2017). During the consultation process, WAFIC informed Polarcus that the license holders will be back fishing in operation in 2017.	Line fishing	Sandbar shark, blacktip shark	All year	0	This fishery is currently not in operation. However, during stakeholder consultation with WAFIC, WAFIC indicated that the fishery intends to recommence fishing from 2017/18. No fishing was reported in 2017.	If fishing recommences, there is the potential for interaction with the Cygnus 3D MSS. However, given the range of target species, the fishing effort in the Operational Area is expected to be low.
Mackerel Managed Fishery (Area 1)	The Mackerel Managed Fishery mainly operates between Geraldton and the WA/NT border. It comprises of three areas: Area 1 – Kimberley, Area 2 – Pilbara and Area 3 – Gascoyne/West Coast (Fletcher and Santoro 2014; Fletcher et al. 2017).	Trolling or handline	Spanish and grey mackerel	All year	144.5	Area 1 of the fishery overlaps with the whole Operational Area, with fishing effort reported all year.	In 2013 there were three licences operating in Area 1 of the fishery. In 2013, the majority of the catch was taken in Area 1, reflecting the tropical distribution of mackerel species (Fletcher and Santoro 2014). Historical catch data indicates that the area surrounding the Operational Area is not significant for catches. Therefore, while there is the potential for interaction with the Cygnus 3D MSS, such interactions would be infrequent.

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
Pearl Oyster Managed Fishery	Quota based dive fishery operating in shallow coastal waters of the North West Shelf (Fletcher and Santoro 2014). The fishery is split into 4 zones: • Zone 1 – North West Cape to longitude 119°30´ E; • Zone 2 – East of Cape Thouin and south of latitude 18°14´ S; • Zone 3 – West of longitude 125°20´ E and north of latitude 18°14´ S; and • Zone 4 - East of longitude 125°20´ E to the WA/Northern Territory border. Pearl oyster shell fishing has not been reported in Zone 1 since 2008 (Fletcher and Santoro 2014). In 2013, catch was only taken in Zone 2/3 (Fletcher and Santoro 2014). Diving activities start in January and are conducted for 6 months of the year. Diving typically occurs in depths of less than 23 m during 6-12 days over the neap tidal cycle, with dives lasting no more than 40 minutes.	Drift diving, harvesting legal-sized oysters by hand	Indo-Pacific, silver-lipped pearl oysters	All year	Number of individuals: 685,888	Although the Operational Area is located within the actively fished Zone 3, the Operational Area is located away from the Kimberley coastline where aquaculture licences and pearling leases are located. The Operational Area is also located outside of the shallow waters along the coastline where pearl fishing/diving can occur (<50 m depth) (Fletcher and Santoro 2014). The northern extent of commercial fishing and commercial stocks is the Lacepede Islands, which are approximately 425 km to the south-west (Fletcher and Santoro 2014; Fletcher et al 2006; and previous consultation for the Capreolus 3D MSS). In addition, the closest main fishing area is Eighty Mile Beach, which is approximately 746 km to the south-west.	The Operational Area is located outside of this fishery's commercial fishing and commercial stock areas. The Acquisition Area is located 200 km from the nearest aquaculture licences and pearling leases. Sound propagation is not expected to be significant over these distances particularly given the complex coastal topography and coastal embayments in which licences are situated. Thus, pearl oysters are not assessed further in this EP.

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
West Coast Deep Sea Crustacean Managed Fishery	This fishery includes all the waters lying north of Cape Leeuwin, west of the Northern Territory border and between the 150 m isobath and the Australian Fishing Zone. The distribution ranges of target species in WA extends from Exmouth to the WA/South Australian (SA) border (Fletcher and Santoro 2014).	Baited pots operating in long lines	Crystal (snow) crab, giant (King) crab and Champagne crab	All year	139.5	While the Operational Area overlaps with the boundaries of this fishery, the distribution of the target species southward from Exmouth precludes any potential for overlap with the Operational Area.	As the Operational Area is located well away from the distribution ranges of this fishery's target species (south of Exmouth), this fishery is not considered in the EP.
Marine Aquarium Managed Fishery	The Marine Aquarium Fish Managed Fishery operates in WA's state waters from the Northern Territory border in the north through to the South Australian border in the south. The effort is spread over a total gazetted area of 20,781 km^2 (Fletcher and Santoro 2014). There are 12 licences in the fishery of which 10 were in operation in 2013. Effort in the fishery has decreased from 981 fishing days (2007) to 494 fishing days in 2013, with 61 fishing days of this total effort being exclusively for land hermit crabs only (Fletcher and Santoro 2014). While the MAF operates throughout all Western Australian waters, catches are relatively low in volume due to the special handling requirements of live fish (Fletcher and Santoro 2014).	Dive based, hand net operating from small boats	This fishery has the capacity to target more than 950 species of marine aquarium fish. Coral, live rock, algae, seagrass and invertebrates under the Prohibition on Fishing (Coral, 'Live Rock' and Algae) Order 2007 are also permitted (e.g. 383 species were landed in 2013).	All year	A total of over 19,302 fish (223 species) were landed in 2012.	The fishery occurs in WA State waters and is typically more active in waters between Esperance and Broome with higher levels of effort around the Capes region, Perth, Geraldton, Exmouth and Dampier (Fletcher et al. 2017).	As the fishery targets small fish and coral in shallow State waters and no activity is known to occur along the north Kimberley coast, the fishery is not expected to be directly or indirectly affected by the survey or sound emissions. This fishery is therefore not considered further in this assessment.

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
Beche de Mer Fishery Managed Fishery	Primarily based in the northern half of WA from Exmouth Gulf to the Northern Territory border, although fishers have access to all WA waters (with the exception of a number of specific closures around the Dampier Archipelago, Cape Keraudren, Cape Preston and Cape Lambert, the Rowley Shoals and the Abrolhos Islands) (Fletcher and Santoro 2014). None of 6 licensed vessels fished for beche-de-mer in 2013 (Fletcher and Santoro 2014). Fishing effort has steadily been declining since 2008 (196 tonnes). Fishing activity within the Western Australian fisheries is in a resting phase (Fletcher and Santoro 2014).	Diving or wading, collection by hand	Sea cucumbers, 99% of the catch being sandfish (*Holothuria scabra*)	All year	0	The fishery's activity level is currently nil. Most of the fishing is concentrated in shallower coastal areas using diving and wading techniques and thus away from the Operational Area.	Given the location and water depths in the Operational Area and the current inactivity of this fishery, it is not expected to be directly or indirectly affected by the survey or sound emissions. This fishery is therefore not considered further in this assessment.
Specimen Shell Managed Fishery	The fishing area includes all Western Australian waters between the high water mark and the 200 m isobath, with some concentration of effort in areas adjacent to population centres such as Broome, Karratha, Shark Bay, metropolitan Perth, Mandurah, the Capes area and Albany (Fletcher and Santoro 2014).	Collected by hand	196 species collected in 2012 (equivalent to 12 shell per day)	All year	8,896 shells	Similar to the aquarium fishery, the specimen shell fishery is typically more active in shallow coastal waters.	Given the location and water depths in which the fishery typically operates, this fishery or target species are not expected to be directly or indirectly affected by the survey or sound emissions This fishery is therefore not considered further in this assessment.

Fishery	Description of Licensed Area / Fishing Effort	Fishing Method	Primary Target Species	Operating Season	Estimated Catch (tonnes) per Season	Relevance to this EP	Presence in the Operational Area
	This is a limited entry fishery with 32 licences in the fishery, 18 of them being active and 11 of them being regularly active. A maximum of 2 divers are allowed in the water per license at any one time (Fletcher and Santoro 2014). Effort has decreased from 1,057 fishing days in 2009 to 745 fishing days in 2013 (Fletcher and Santoro 2014).						

3.4.6 Indonesian Commercial and Traditional Fishermen

Indonesian fishers have traditionally visited reefs in the region to collect target species such as trepang (sea cucumber), shark fin and other marine species for sale in Indonesia. In November 1974, a memorandum of understanding (MOU) between the governments of Australia and Indonesia was formalised (DIRD 2014). Under the MOU, fishermen are legally permitted to harvest marine resources using traditional methods. These include reef gleaning, free-diving, hand lining and other non-mechanised methods. The peak fishing season is between July and October, where up to 80 boats may visit the MOU box (Gilmour et al. 2013).

The Operational area does not overlap the MOU box or the area of overlapping jurisdiction (the Perth Treaty Area). Therefore, it is unlikely that traditional Indonesian fishermen will be encountered during the Cygnus 3D MSS.

3.4.7 Commercial Shipping

The Operational Area overlaps with the Osborne Passage and the charted “Preferred Route” commercial shipping lanes. Accordingly, trading vessels may pass through the Operational Area on occasion. However, no shipping fairways exist within the Operational Area. Shipping fairways are pre-defined routes to direct large vessels (e.g. bulk carriers and LNG ships) trading to the major ports away from existing and planned offshore infrastructure. The closest port to the Operational Area is the Port of Broome (over 605 km away), which provides support for the Browse Basin offshore oil and gas industry.

3.4.8 Tourism and Recreation

Most recreational and tourism activities in the region occur predominantly in WA State waters adjacent to population centres, such as Broome, and not within the Commonwealth waters of the Operational Area.

Interactions between tourism activities are considered unlikely due to the remoteness and predominantly deep waters of the Operational Area. No interactions with tourism and recreational operators occurred during acquisition of the previous phases of Cygnus 3D MSS (Phase 1, 2 and 3 North).

3.4.9 Defence Activities

Customs Coastwatch, Navy and Customs vessels undertake civil and maritime surveillance within the region with the primary purpose of monitoring the passage of illegal entry vessels and illegal fishing activity within these areas.

Cartier Island and the area within a 10 km radius surrounding the island is a gazetted Defence Practice Area, although no longer in active use for military exercise (Commonwealth of Australia 2002). It was formerly used as a bombing range and access to the island and to the area within a 10 km radius is prohibited because of the risk associated with the potential presence of unexploded ordnances.

3.4.10 Other Marine Users

The North West Cable System is located approximately 4 km to the south-east of the Operational Area. The fibre optic telecommunications cable system runs between Port Hedland and Darwin, and Polarcus was advised by the Department of Communications and the Arts of the presence of the cable on the 22 December 2016 soon after the cable became operational.

4. STAKEHOLDER CONSULTATION

4.1 Relevant Stakeholders

Relevant stakeholders were identified by considering interests and activities that occur within or around the Operational Area. The survey activities, timing, and potential environmental impacts and risks of both planned activities and potential unplanned events were also taken into account during the stakeholder identification process.

For the consultation process Polarcus has used the requirements in the OPGGS (E) Regulations in regards to a relevant person:

- Each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant;
- Each Department or agency of a State or the Northern Territory to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant;
- The Department of the responsible State Minister, or the responsible Northern Territory Minister;
- Person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan, or the revision of the environment plan; and
- Any other person or organisation that the titleholder considers relevant.

In November 2018, Polarcus undertook a review of the relevant stakeholders identified for the Cygnus 3D MSS. As part of this process a number of the stakeholders previously identified as relevant were screened out of the consultation process. A summary of the assessment process undertaken to determine stakeholder relevancy is provided in Section 4.1. Additional information on the assessment process can be found in Appendix A.

Polarcus understands additional stakeholders may be identified as part of ongoing consultation. Should additional stakeholders be identified prior to, or during the survey, these stakeholders will be contacted, provided with sufficient information and invited to provide feedback.

Table 4-1 Cygnus 3D MSS Assessment of Relevant Stakeholders

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
Each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant		
Australian Fishing Management Authority (AFMA)	Y	Responsible for managing Commonwealth fisheries and the implementation of Commonwealth fisheries policy.
Australian Hydrographic Service (AHS)	Y	Responsible for the publication and distribution of nautical products and other information required for the safety of ships navigating in Australian waters. Polarcus are required to notify AHS a minimum of 3 weeks prior to the commencement of activities.
Australian Maritime Safety Authority (AMSA)	Y	The Australian Maritime Safety Authority (AMSA) is a Commonwealth agency responsible for maritime safety, protection of the marine environment from ship-sourced pollution and maritime and aviation search and rescue. AMSA also implements and enforces a range of legislation relevant to the Commonwealth marine area which give effect to Australia's obligations under various international treaties and conventions including the MARPOL International Convention for the Prevention of Pollution from Ships. Domestic legislation includes the *Navigation Act 2012* and the Protection of the Sea legislation.
Department of Agriculture and Water Resources (DAWR)	Y	Responsible for managing biosecurity (including biosecurity for marine pests). The Department implements and enforces the *Biosecurity Act 2015* (including implementing ballast water requirements). The Department is a relevant agency where an offshore activity has the potential to transfer marine pests.
Department of Communications and the Arts (DoCA)	Y	The Department of Communications and the Arts has responsibility for Schedule 3A of the Telecommunications Act 1997 that is administered by the Australian Communications Media Authority (ACMA). The Telecommunications Act 1997 provides for submarine cable protection zones to be declared around international submarine cables that are considered to be of national significance. The Department is a relevant stakeholder, as the Nextgen North West Cable system is located in close proximity to the Cygnus 3D MSS Operational Area.

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
Department of Defence (DoD)	Y	The Australian Defence Force (ADF) utilises several maritime exercise areas in Australian waters to perform a unique role in support of Australia's strategic and national security interests. The Department of Defence is a relevant agency where the activity may impact on operational requirements.
Department of Foreign Affairs and Trade (DFAT)	N	DFAT promote and protect Australia's interest internationally and contribute to global stability and economic growth. DFAT are a relevant agency where a proposed activity may cross or impact on waters outside of Australia's maritime jurisdiction. Given, the Cygnus 3D MSS does not impact waters outside of the Commonwealth Marine Area, consultation with DFAT is not required.
Department of Industry, Innovation and Science (DoIIS)	Y	DoIIS regulate oil and gas activities in Australian waters under the OPGGSA 2006.
Department of the Environment and Energy (DoEE)	N	The Department of the Environment and Energy administers the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the *Historic Shipwrecks Act 1976* and the *Environment Protection (Sea Dumping) Act 1981*, all of which have some application in the Commonwealth marine area. The Department is not considered a relevant agency for consultation purposes under the Environment Regulations. The Cygnus 3D MSS does not trigger any of the DoEE's other functions, interests and activities, hence the Department has been assessed as not being a relevant stakeholder.
Director of National Parks (DoNP)	Y	The Director of National Parks is the statutory authority responsible for administration, management and control of Australian Marine Parks.
Maritime Border Command (MBC)	N	Maritime Border Command (MBC) coordinates national awareness and response efforts to protect Australia's interests in the Australian maritime jurisdiction. MBC is a multiagency taskforce that utilises assets assigned from Australian Border Force and the Australian Defence Force to conduct civil maritime operations. MBC has been engaged by Polarcus for the Cygnus 3D MSS since 2015. In 2017, MBC advised that contact be made with the agency at the time of operation instead of during the EP development stage. Based on this information consultation is not required.

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
National Native Title Tribunal (NNTT)	N	The NNTT is an independent agency responsible for administration of the *Native Title Act 1993.* The NNTT was initially contacted in 2015 to understand the baseline environment and potential Native Title interest. The NNTT advised there were no Native Title interests in regards to the Cygnus 3D MSS. Based on this information no further consultation is required.
Each Department or agency of a State or the Northern Territory to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant		
WA Department of Biodiversity, Conservation and Attractions (DBCA)	Y	Responsible for managing WA parks, forests and reserves to conserve wildlife, provide sustainable recreation and tourism opportunities, protect communities and assets from bushfire and achieve other land, forest and wildlife management objectives.
WA Department of Primary Industries and Regional Development (Fisheries)	Y	Responsible for managing WA fisheries and aquatic ecosystems, assessment and monitoring of fish stocks, enforcement and education, biosecurity management and licensing commercial and recreational fishing activity, including commercial aquaculture.
WA Department of Water and Environmental Regulation (DWER)	N	Responsible for regulating WA's environment and water resources. The Department of Water and Environmental Regulation supports the EPA in conducting environmental impact assessments and developing policies to protect the environment. DWER has been contacted by Polarcus since 2015 and no response has been received to date. DWER was screened out of consultation in November 2018, as the Department was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.
WA Environmental Protection Authority (EPA)	N	The EPA's operations are governed by the *Environmental Protection Act 1986*, which stipulates that the objective of the EPA is to: 'use its best endeavours – a) to protect the environment; and b) to prevent, control and abate pollution and environmental harm.' The EPA has been contacted by Polarcus since 2015 and no response has been received to date. The EPA was screened out of consultation in November 2018, as the agency was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.
WA Department of Transport (DoT)	Y	Control agency for marine pollution emergencies if impact to State waters. DoT Offshore Petroleum Industry Guidance Note "Marine Oil Pollution: Response and Consultation

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
		Arrangements" (December 2017) - Section 10.1 requires petroleum titleholders to consult with DoT for activities that have the potential to cause a marine pollution emergency in State Waters.
Shire of Wyndham East Kimberley	N	Shire of Wyndham East Kimberley is the local government covering the district of the East Kimberley and includes the towns of Wyndham and Kununurra. The shire has been contacted by Polarcus since 2015 and no response has been received to date. The shire was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.
Shire of Derby/West Kimberley	N	Shire of Derby/West Kimberley is the local government covering the district of the West Kimberley and includes the towns of Derby. The shire has been contacted by Polarcus since 2015 and no response has been received to date. The shire was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.
Member of Parliament for Kimberley	N	The Member of Parliament for Kimberley represents the Kimberley region. The Member has been contacted by Polarcus since 2015 and no response has been received to date. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.
Federal Member for Durack	N	The Federal Member for Durack representing the Division of Durack (an Australian Electoral Division in the state of Western Australia). The Federal Member has been contacted by Polarcus since 2015 and no response has been received to date. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.
The Department of the responsible State Minister, or the responsible Northern Territory Minister		
WA Department of Mines, Industry Regulation and Safety (DMIRS)	Y	Consultation required as per DMP "Consultation Guidance Note (For the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009)" - Sections 2.2 and 2.3 includes requirements for activity pre-start and cessation notifications.

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
Person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan, or the revision of the environment plan		
WA Northern Demersal Scalefish Fishery (NDSF)	Y	Phase 3 South is located within Area 2 (Zone B and C). In 2014, the total effort was 985.6 standard fishing days in Zone B and 1,100 standard fishing days in Zone C. All licence holders have been contacted in this fishery. Additional information can be found in Section 3.4.5.
WA Kimberley Prawn Managed Fishery (KPMF)	N	The extent of the fishery overlaps with the Operational Area. However, the main fishing area is understood to be located in coastal waters. Historic catch data indicated that the area surrounding the fishery is not significant for catch. Majority of fishing is understood to occur in coastal waters. Licence holders have been contacted since 2015, however no response has been received to date. Additional information can be found in Section 3.4.5.
WA West Coast Deep Sea Crustacean Managed Fishery (WCDSCIMF)	N	The Operational Area overlaps with the boundaries of the fishery, however the distribution of the target species is southward from Exmouth. Additional information can be found in Section 3.4.5.
WA Specimen Shell Managed Fishery (SSMF)	N	The fishery occurs in WA State waters and typically is more active in water between Esperance and Broome. No activity is known to occur along the north Kimberley coast. Additional information can be found in Section 3.4.5.
WA Mackerel Managed Fishery (MMF)	Y	Phase 3 South overlaps with Area 1 of the fishery. Historic catch data indicates the area surrounding the Operational Area is not significant for catches. Licence holders in the fishery have been contacted. Additional information can be found in Section 3.4.5.
WA Marine Aquarium Managed Fishery	N	The fishery occurs in WA State waters and typically is more active in water between Esperance and Broome. No activity is known to occur along the north Kimberley coast. Additional information can be found in Section 3.4.5.
WA Joint Authority Northern Shark Fishery	Y	The fishery is currently not in operation. However, during stakeholder consultation with WAFIC, WAFIC indicated that the fishery intends to recommence fishing in 2017. No fishing was reported in 2017 or 2018. Licence holders have been contacted. Additional information can be found in Section 3.4.5.

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
WA Pearl Oyster Managed Fishery (POMF)	N	Consultation being undertaken with the Pearl Producers Association. Additional information can be found in Section 3.4.5.
WA Beche de Mer Managed Fishery	N	The WA sea cucumber fishery is only permitted to operate in WA State waters, and hence does not overlap the Operational Area or EMBA. Therefore, not considered to be a relevant stakeholder. Additional information can be found in Section 3.4.5.
Commonwealth Fisheries Association (CFA)	Y	The CFA is non-profit organisation and is the peak body representing the collective rights, responsibilities and interests of a diverse commercial fishing industry in Commonwealth-regulated fisheries.
Western Australian Fishing Industry Council (WAFIC)	Y	WAFIC represents professional fishing, pearling and aquaculture enterprises, processors and exporters in Western Australia.
Pearl Producers Association (PPA)	Y	The Pearl Producers Association (PPA) is the peak representative organisation of The Australian South Sea Pearling Industry.
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	Y	ASBTIA is the peak body representing Southern Bluefin Tuna ranching companies in Australia.
Any other person or organisation that the titleholder considers relevant		
Australian Marine Oil Spill Centre (AMOSC)	Y	The Australian Marine Oil Spill Centre is an organisation set up by the petroleum industry to enable a quick and effective response to oil spills around the Australian coastline. AMOSC operates Australia's major marine spill response equipment stockpile for the Australian oil and gas industry on 24hr stand-by for rapid response anywhere around the Australian coast.
Kimberley Land Council (KLC)	Y	KLC is the peak Indigenous body in the Kimberley region working with Aboriginal people to secure native title recognition, conduct conservation and land management activities and develop cultural business enterprises.
Northern Land Council (NLC)	Y	NLC is an independent statutory authority of the Commonwealth. The NLC is also the Native Title Representative Body for the northern region – including the Tiwi Islands and Groote Eylandt.

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
PTTEP Australasia	Y	Operator of AC/L7 and AC/L8. Relevant stakeholder to the Cygnus 3D MSS.
Jadestone Energy Limited	Y	PTTEP AA has signed an agreement to sell its stake in the Montara field to Jadestone. Completion of the acquisition is subject to regulatory approval. PTTEP AA has entered into an Operator and Transitional Services Agreement with Jadestone, which governs the operation and management of the Montara Assets until the transfer of operatorship is complete.
Shell Development Australia	Y	Operator of AC/RL9, AC/P64 and AC/P41. Relevant stakeholder to the Cygnus 3D MSS.
Sinopec Oil and Gas Australia (Puffin) Pty Ltd	Y	Operator of AC/RL11. Relevant stakeholder to the Cygnus 3D MSS.
Murphy Australia Oil Pty Ltd	Y	Operator of AC/P59 and AC/P57. Relevant stakeholder to the Cygnus 3D MSS.
Vulcan Exploration Pty Ltd	Y	Operator of AC/P51 and AC/P50. Relevant stakeholder to the Cygnus 3D MSS.
Finder Exploration	Y	Operator of AC/P55 and AC/P45. Relevant stakeholder to the Cygnus 3D MSS.
Bounty Oil and Gas NL	Y	Operator of AC/P32. Relevant stakeholder to the Cygnus 3D MSS.
Carnarvon Petroleum Limited	Y	Operator of AC/P3 and AC/P62. Relevant stakeholder to the Cygnus 3D MSS.
Eni Australia Limited	Y	Operator of AC/P21. Relevant stakeholder to the Cygnus 3D MSS.
Australian Recreational Fishing Foundation	N	The organisation is the peak national body and the key voice for Australia's recreational fishing community. The Foundation has been contacted by Polarcus since 2015 and no response has been received to date. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. Stakeholder confirmed in November 2018, to engage directly with Recfishwest.
Recfishwest	Y	The organisation is the peak fishing recreational body.
One Tide Charters	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
		November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Unreel Adventure Safaris	Y	Tourism company operating in the Kimberley region. Stakeholder requested to be provided with information on the Cygnus 3D MSS.
KAS Helicopters	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Kingfisher Tours	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Aviair	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Peregrine Bird Tours	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Kimberley Bird Watching	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
		November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Kimberley Air Tours	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Kimberley Whale Watching	N	Tourism company operating in the Kimberley region. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Kimberley Outback Tours	N	Tourism company operating in the Kimberley region. The stakeholder has been contacted by Polarcus since 2015 and no response has been received to date. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area. The stakeholder confirmed in November 2018, that they are not a relevant stakeholder and requested to be removed from the stakeholder register.
Kimberley Cruises	Y	Tourism company operating in the Kimberley region. Stakeholder requested to be provided with information on the Cygnus 3D MSS.
Great Escape	Y	Tourism company operating in the Kimberley region. Stakeholder requested to be provided with information on the Cygnus 3D MSS.
True North	Y	Tourism company operating in the Kimberley region. Stakeholder requested to be provided with information on the Cygnus 3D MSS.
The Wilderness Society	Y	The Wilderness Society is an Australian, community-based, not-for-profit non-governmental environmental advocacy organisation with interests in the oil and gas industry.

Stakeholder	Relevant to Cygnus 3D MSS Phase 3 (Y/N)	Reasoning / Validation
World Wildlife Fund	Y	The international non-governmental organisation works in the field of the wilderness preservation, and the reduction of human impact on the environment. WWF is interested in receiving information from titleholders on offshore oil and gas activities.
Save the Kimberley	Y	Environmental non-government organisation operating in the Kimberley region.
Environs Kimberley	Y	Environmental non-government organisation operating in the Kimberley region.
Vocus	Y	Vocus is an Australian-based international telecommunications company. The North-west Cable System was built by Nextgen Group, a national telecommunications operator which is now part of Vocus Communications. The North-west Cable system connects offshore oil and gas facilities in the Browse, Bonaparte and Carnarvon Basin to onshore locations. The cable system is located in close proximity to the Cygnus 3D MSS.
Port of Broome (Kimberley Port Authority)	N	The Kimberley Ports Authority has been enabled under the *Ports Legislation Amendment Act 2014*, and is the governing body for the Port of Broome. Port of Broome to be contacted at the time of operation instead of during the EP development stage. Based on this information consultation is not required.
Broome Chamber of Commerce and Industry	N	The Broome Chamber of Commerce & Industry provides information, advice and networking opportunities to businesses and community organisations in the Broome area. The stakeholder has been contacted by Polarcus since 2015 and no response has been received to date. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.
Port Hedland Chamber of Commerce	N	The Port Hedland Chamber of Commerce are working to grow and support local commerce, and build the economic strength of the region. The stakeholder has been contacted by Polarcus since 2015 and no response has been received to date. The stakeholder was screened out of consultation in November 2018, as the stakeholder was identified as not being relevant to offshore oil and gas activities in the Commonwealth marine area.

4.2 Consultation Method

Stakeholder consultation has been undertaken over four years for the Cygnus 3D MSS, by Environmental Resources Management Pty Ltd (ERM) on behalf of Polarcus. The process is detailed in Table 4-2.

Where stakeholders could only be contacted via post (e.g. fishery license holders) or phone, the appropriate communication channels were used, whereby those parties were either sent hard copies of the information sheet or contacted via phone to relay the corresponding details of the information sheet.

Follow-up emails and phone calls were undertaken as required following the distribution of information sheets.

Where concerns, objections or claims have been raised by stakeholders, these have been addressed in the assessment of environmental impacts and risks (Section 6 and Section 7). Stakeholders have been informed of how Polarcus has assessed the issues and if any relevant controls have been adopted to reduce the potential impacts and risks to ALARP and acceptable levels.

Table 4-2 Consultation Process

Stage	Timing	Information Provided
Early Notification	July 2015	A notification was distributed to stakeholders providing information on the proposed Cygnus 3D MSS and informing stakeholders that Polarcus is in the early stages of preparing an EP to NOPSEMA. An information sheet and map was issued. Stakeholders were advised that the survey may commence as early as October 2015, and is anticipated to take approximately six months to complete.
EP Acceptance / Survey Commencement	March 2016	A notification was issued to stakeholders providing information on the Cygnus 3D MSS. Stakeholders were advised that the EP was accepted by NOPSEMA on 14 December 2015 and that acquisition of Phase 1 commenced on 20 December 2015 and was completed on 6 March 2016. Stakeholders were advised that Polarcus is expecting to return to the Survey Area in late 2016/ early 2017 and will submit a revised EP to NOPSEMA prior to commencement of the next phase of the survey.
Survey Commencement	November 2016	A notification was distributed to stakeholders providing an update on the Cygnus 3D MSS. Stakeholders were advised that Polarcus is planning to commence the next phase of the survey on 1 December 2016.
EP Extension	June 2017	A notification was issued to stakeholders providing an update on the Cygnus 3D MSS. Stakeholders were advised the survey phase previously planned for December 2016 did not take place. Polarcus proposes to submit a new EP to NOPSEMA to extend the period available to undertake the survey up to 31 December 2020. An information sheet and map was issued.
Stakeholder Update	October 2017	An update was provided to stakeholders on the Cygnus 3D MSS. Stakeholders were advised that Polarcus has reduced the proposed acquisition area and timeframes under the current Cygnus 3D MSS EP.
EP Submission	October 2017	A notification was issued to stakeholder informing stakeholders the Cygnus 3D MSS has been submitted to NOPSEMA and is currently under assessment. Stakeholders were advised of the ongoing consultation requirements.
Survey Commencement	November 2017	A notification was issued to stakeholder advising that Polarcus proposes to commence Phase 3 (North) on or soon after the 5 December 2017. The survey will commence in accordance with the existing EP (valid until 31 December 2017). Acquisition after 31 December will only occur subject to acceptance of the recently submitted Cygnus 3D MSS Phase 3 2017-2018 EP.
EP Acceptance	December 2017	A notification was issued to stakeholders advising that the Cygnus 3D MSS Phase 3 2017-2018 EP was accepted by NOPSEMA on 1 December 2017 (providing a link to the EP Summary). Stakeholders were informed that acquisition of Phase 3 (North) may commence on or soon after the 17 December 2017.

Stage	Timing	Information Provided
Survey Notification	January 2018	An update was provided to stakeholders. Polarcus advised that Phase 3 (North) was completed on 14 January 2018. Polarcus may return after March 2018 to acquire additional phase of Cygnus 3D MSS.
Survey Notification	March 2018	A notification was issued to stakeholders with information on the commencement date of Phase 3 South. Polarcus advised that acquisition of Phase 3 South may commence on or soon after 25 April 2018.
Survey Notification	April 2018	A notification was issued to stakeholders advising that Polarcus plans to commence acquisition of Phase 3 South and infill lines in Phase 1 on or soon after 25 April 2018.
Survey Notification	April 2018	A notification was issued to stakeholders advising that Polarcus has delayed acquisition of Phase 3 South and the infill lines in Phase 1. Polarcus still intends to return to complete these Phases later in 2018, but it is not expected to occur within the next two months.
EP Extension	December 2018	A notification was distributed to stakeholders providing information on the revision to the Cygnus 3D MSS. Polarcus is unable to acquire Phase 3 South within the timeframe of the current accepted EP (valid until 31 December 2018). Stakeholders were advised that Polarcus is currently revising its Cygnus 3D MSS EP to allow a one-year extension to the timeframe of the EP to the 31 December 2019. The scope of the revised EP will only include acquisition of Phase 3 South. Polarcus will not undertake infill activities in the previously acquired areas (Phase 1, Phase 2 or Phase 3 North). Polarcus also informed stakeholders that Polarcus is also assessing the option to either box-in/undershoot or use ocean bottom nodes around the Montara Project infrastructure. An information sheet and map was issued. Stakeholders were advised that the survey may commence as early as April 2019, and is anticipated to take approximately 31 days to acquire.
Stakeholder Update #1	January 2019	A notification was distributed to stakeholder providing an update on the Cygnus Phase 3 South 3D MSS. Stakeholders were advised that Polarcus will be employing the boxing-in option around the Montara Infrastructure to reduce the size of the seismic coverage hole. Polarcus informed stakeholders that undershooting or ocean bottom nodes will not be utilised for the survey and therefore a second survey vessel will not be required. Stakeholders were advised that survey may commence as early as April 2019, and is anticipated to take a planned maximum of 36 days to acquire.
Stakeholder Update #2	February 2019	A notification was distributed to stakeholders provided an update on the Cygnus Phase 3 South 3D MSS. Stakeholders were advised that Polarcus will be extending the EP timeframe to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.
EP Acceptance	TBD	A notification will be issued to stakeholders with information on the acceptance of the EP (and providing a link to the EP Summary). In addition, stakeholders will be advised of the scheduled survey commencement date (if possible).

Stage	Timing	Information Provided
		Additional ongoing stakeholder consultation requirements are outlined in Section 4.4.

4.3 Consultation Results

A summary of the key issues and concerns raised by stakeholders during consultation, including an assessment of the merits of objections and claims are included in Appendix A.

4.4 Ongoing Consultation and Notifications

Polarcus will continue to engage with the applicable Commonwealth and Western Australian authorities and other relevant stakeholders (as identified during the course of the consultation described here) prior to and during the Cygnus 3D MSS, as appropriate. This includes ongoing engagement to inform stakeholders about key milestones and activities and any other relevant information or changes.

Ongoing stakeholder consultation commitments are outlined in Table 4-3.

In addition, where an email address is available for fishery licence holders, Polarcus will provide regular updates (i.e. 48hr look-ahead notifications) throughout the survey (providing that the stakeholder has registered for the service).

The Consultation Log prepared to support consultations for this EP (Appendix A) will be kept live and used as a tool to trigger and record ongoing consultation. Additional stakeholders may be identified throughout the course of the survey, thus, these new stakeholders will be contacted and given the opportunity to provide feedback as relevant.

New feedback or concerns regarding the survey may be raised by stakeholders, over the life of the EP. Should any additional concerns be raised, or new information be provided by existing or new stakeholders prior to, or during the survey, these concerns and/or information will be assessed for their merits and a response provided.

Table 4-3 Ongoing Consultation Requirements

Trigger / Event	Stakeholders	Timing	Method and Information
Prior to Survey Commencement			
Pre-planning	Other seismic operators with EPs accepted by NOPSEMA	Pre-planning	Phone/email to confirm potential location and timing of other seismic acquisition.
Planned survey commencement date confirmed	All stakeholders	To be sent at least 4 weeks prior to the scheduled acquisition commencement date.	Emails and/or letters to include: • Proposed commencement date; • Proposed duration and/or completion date; • Location and coordinates; • Details of communication (e.g. daily lookaheads) during the survey and details of how to register for updates.
During Survey			
Daily update	All stakeholders who have registered for daily lookahead emails.	Daily	Email detailing: • Location/survey lines planned for upcoming 48 hour period, including coordinates; • On-the-water interaction/ safety requirements or advice • Any other on-the-water progress updates (e.g. schedule delays).
N.B. On-the-water communication to vessels via radio will also be undertaken as required.			
Survey Completion			

Trigger / Event	Stakeholders	Timing	Method and Information
Survey complete	All stakeholders	Within 2 weeks of completion and demobilisation from Operational Area.	Emails and/or letters to include: • Completion date; • If the survey vessel is planned to return and/or future survey phases under the EP.
Environment Plan and Activity Updates			
NOPSEMA acceptance of the EP	All stakeholders	To be sent within 1 week of the EP Summary being published.	Notification confirming date of acceptance and including URL to EP Summary on NOPSEMA website.
Significant modification of the Activity as defined in Section 8.		As soon as identified	Email or letter notification followed by meetings, phone calls, email or other correspondence as required. Initial notification shall provide opportunity for stakeholders to comment. Stakeholders to be provided with sufficient information and time to review and respond to information and matters should be reasonably addressed prior to resubmission of the EP.
New stage (increase in Acquisition Area, Operational Area or EP timeframe, as defined in Section 8.			
Revision and resubmission of the accepted EP			

5. RISK ASSESSMENT METHOD

5.1 Approach

The risk assessment was undertaken in accordance with the Polarcus Risk Assessment Procedure, Risk Management Procedure and the Polarcus Risk Matrix (Figure 5.1). The Polarcus Risk Assessment and Risk Management procedures are aligned with the Australian Standard/New Zealand Standard (AS/NZS) ISO 31000:2009 Risk Management and Handbook 203:2012 Managing Environment-related Risk (Standards Australia/Standards New Zealand 2009 and 2012, respectively).

The risk assessment process consisted of the following steps:

- Identification of potential environmental hazards associated with the seismic survey's planned activities and credible unplanned events;
- Identification of physical, biological, and socioeconomic receptors within the environment that may be affected by the activities (planned and unplanned), as well as identification of particular environmental values and sensitivities;
- Evaluation of the potential consequences of these hazards to the identified receptors with legal requirements and inherent design in place but without other controls, and determination of the 'inherent' risks);
- Identification of appropriate alternative, additional or improved controls (i.e. those in addition to legal requirements and inherent design) to reduce impacts and risks to levels that are demonstrably ALARP;
- Evaluation of the residual impacts and risks with the proposed controls in place;
- Evaluation of whether the impacts and risks are reduced to acceptable levels; and
- Development of environmental performance outcomes, performance standards, and measurement criteria).

A risk assessment was undertaken in November 2018, to identify and assess the risks associated with the survey.

The workshop was supported by background literature and discussions with relevant seismic operations personnel, vessel management personnel and environmental specialists. The identification of risks and the selection of appropriate controls for these risks were also informed by Polarcus experience in conducting other seismic surveys in Australia and elsewhere.

The risks were determined using the Polarcus Risk Matrix (Figure 5.1) and interpreted in accordance with Table 5-1 (further descriptions of consequence) and Table 5-2 (interpretation of risk). Where several potential impacts were identified for an activity, the consequence and likelihood categories were determined based on the worst credible potential impact.

People	Environment	Property Value Technical	Reputation	Security	Severity	Never Heard Of "A"	Rarely Occurs "B"	Occasionally Occurs "C"	Regularly Occurs "D"	Occurs All the Time "E"
No health effect. No Injury	No Discharge	Less than $ 5K	No Impact	No Harm	0					
Slight work related illness FAC	Slight Discharge <5 liters	Less than $ 50K.	Slight Impact	Slight Breach Handled Internally	1					
Minor work related illness RWC or MTC	Minor Discharge >5 liters - <100	Less than $500K	Minor Impact Limited Exposure	Minor breach Local Authorities	2					
Extensive work related illness. LTI	Extensive Discharge >100 liters - <1m^3	Less than $5M.	Extensive Impact National Exposure	Extensive Breach Threat to Operations	3					
Fatality or Major illness	Major Discharge >1m^3 - <10m^3	Less than $10M	Major Impact Regional Exposure	Major Breach Loss of Operations	4					
Fatalities or Major Illnesses (multiples)	Massive Discharge >10m^3	Exceeding $10M.	Massive Impact International Exposure	Massive Breaches Company Lockdown	5					

Manage for Continuous Improvement	Incorporate Risk Reduction Measures	Intolerable Risk – All Stop

Figure 5.1 Polarcus Risk Matrix

Table 5-1 Further Descriptions of Environmental Consequences

Severity Ranking	Severity Label	Description
0	None	No environmental consequences
1	Slight	Slight environmental damage where restoration can be handled internally and no breaches of legislative requirements have been made
2	Minor	Large-scale damage to the environment with no lasting effects, restoration can be handled internally and a single breach of legislative requirements
3	Extensive	Environmental damage requiring external resources for restoration and involving many breaches of legislative requirements
4	Major	Severe environmental damage requiring extensive measures for restoration and involving widespread breaches of legislative requirements
5	Massive	Persistent severe environmental damage resulting in ongoing breaches of legislative requirements and major financial consequences

Table 5-2 Interpretation of Risk

Risk Ranking	Interpretation
LOW RISK	No additional controls are required if ALARP. Consideration may be given to effective solutions or improvements that impose no significant cost burden. Monitoring is required to ensure that the controls are maintained.
MEDIUM RISK	Efforts should be made to reduce the risk, but the cost of prevention should be measured and limited. Risk reduction methods should be implemented within a defined time period.
HIGH RISK	Work should not be started or continued until the risk has been reduced to an acceptable level. If it is not possible to reduce the risk even with unlimited resources, work has to remain prohibited.

5.2 Identification of Controls and Demonstration of ALARP

For those hazards for which the inherent risk was not deemed low, further controls were developed to reduce the likelihood of the impact occurring (i.e. preventative) and/or reduce the consequence of the impact (i.e. mitigation) to in turn reduce the risk to ALARP.

In accordance with the Polarcus Risk Management Procedure, the following hierarchy of controls was applied:

- Eliminate: Redesign the activity or substitute a substance so the hazard is removed or eliminated;
- Reduce: Replace the material or process with a less hazardous one and one which does not introduce another hazard;
- Isolate: Measures to prevent the hazard escalating;

- Control: Identifying and implementing procedures, administrative controls, competency and training;
- Discipline: Ensuring that all controls are monitored, reviewed and enforced.

Controls were required to be reasonable and practicable where both the cost of implementation and the potential effect(s) on the technical scope of the survey were acceptable. Controls were identified during the environmental risk assessment workshop drawing on the experience of personnel involved in seismic survey design and execution. Where necessary, controls were then refined as part of the ALARP demonstration process.

The following criteria were used to determine whether impacts and risks were ALARP:

- No reasonably practicable alternatives/substitutes to the activity are available that could eliminate, isolate or provide a net reduction in the risk to environmental values or sensitivities;
- No reasonably practicable additional controls (e.g. engineering, administrative or procedural controls) are available that could provide a net reduction in the risk to environmental values or sensitivities; and
- No reasonably practicable improvements are available that could increase the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility.

In making this determination, consideration was given to trade-offs of implementing the alternatives or additional controls in terms of cost, technical, environmental, safety and logistical implications.

5.3 Demonstration of Acceptability

The following criteria are used to determine whether impacts and risks were acceptable:

- The level of risk is determined to be low or medium (Table 5-2).
- The activities, the identified impact and risk and/or the identified control measures are compliant with applicable legislation.
- The activities, the identified impact and risk and/or the identified control measures are consistent with Conservation Advice, Recovery Plans, and/or other industry guidelines and standards and corporate policies, standards and procedures.
- The activities and the identified impacts and risks will not result in a significant or long-term impact to the values of Australian Marine Parks, and the activity is not inconsistent with the Zones Management Prescriptions or IUCN Reserve Management Principles.
- The activities, the identified impact and risk and/or the identified control measures are consistent with the following principles of Ecologically Sustainable Development, as set out in section 3A of the EPBC Act, and the precautionary principle where relevant;
- Relevant stakeholder objections, claims, concerns or information have been considered during the assessment of impacts and risks and selection of control measures, where they are considered to have merit; and
- Acceptable levels are evaluated independently of ALARP and the acceptability criteria are considered when selecting the environmental performance outcomes that apply to managing a particular impact or risk.

Acceptable levels are evaluated independently of ALARP and the acceptability criteria are considered when selecting the environmental performance outcomes that apply to managing a particular impact or risk.

6. ENVIRONMENTAL RISKS AND MANAGEMENT – PLANNED

This section describes and assesses the potential environmental impacts associated with the planned / routine aspects of the Cygnus 3D MSS. Based on the risk assessment undertaken for this EP, the hazards, impacts and risks associated with the following aspects are described and discussed in the subsections below:

- physical presence;
- underwater sound emissions;
- liquid discharges;
- solid waste management;
- artificial light emissions;
- atmospheric emissions; and
- introduction of invasive marine species (IMS).

6.1 Physical Presence

6.1.1 Entanglement / Collision with Marine Fauna

Details of Impacts and Risks and Control Measures

Hazard/Threat:
The physical presence of vessels and towed equipment has the potential to result in collision or entanglement with marine fauna.
Receptors:
EPBC listed species, including threatened and migratory cetaceans, marine turtles, whale sharks and dugongs.
Adopted Control Measures:
Seismic vessels and support vessels (taking into account the limited manoeuvrability of the former) will comply with relevant requirements of EPBC Regulations 2000 - Part 8 Division 8.1, including: ■ taking action to avoid approaching or drifting closer than 50 m to a dolphin or 100 m to a whale; and ■ not exceeding a speed of 6 knots within the caution zone of a cetacean (300 m).
Consistent with the requirements of the EPBC Regulations 2000 - Part 8 Division 8.1 for cetaceans, seismic vessels and support vessels (taking into account the limited manoeuvrability of the former) will also take action to avoid approaching or drifting closer than 50 m to a turtle or dugong.
Seismic vessels and support vessels (taking into account the limited manoeuvrability of the former) will also adopt measures consistent with the DPaW Whale Shark Management Programme (2013), including: ■ taking action to avoid approaching or drifting closer than 30 m of a whale shark; and ■ not exceeding 8 knots within 250 m of a whale shark.
Two MFOs will be present on the seismic vessel and supported by trained crew.
If safe and practicable to do so, fauna found to be entangled in wet equipment shall be returned to the ocean.
Turtle guards will be fitted on tail buoys or tail buoy design will be designed to prevent turtles becoming trapped.
All collisions with cetaceans in Commonwealth waters will be reported to the National Ship Strike Database.
Vessels will not enter the Cartier Island or Ashmore Reef Marine Park Sanctuary Zones.

Vessels will not operate within a 30 km radius of Cartier Island during the green and hawksbill turtle peak nesting period (October-February).
Details of Residual Impacts and Risks:
The potential impact associated with the physical presence of vessels and towed equipment is the risk of collision or entanglement with marine fauna resulting in injury or mortality, including foraging whale sharks, migratory pygmy blue whales and marine turtles. Research shows that faster vessels have a greater risk of collision with marine fauna than slower-moving vessels. There have been no reported cases of marine fauna becoming entangled in seismic equipment in Australian waters. Given the proposed controls and the fact that the seismic survey vessel will be moving at 4.5 knots during seismic data acquisition, the risk is limited. Close-range encounters with marine fauna are expected to be infrequent and limited to isolated individuals in the immediate vicinity of the operating vessels and survey array. As a result, marine fauna injury or mortality as a result of collision or entanglement is highly unlikely and there is no risk of population-level impacts or threats of serious / irreversible environmental damage. The residual impacts and risks have therefore been assessed as Low.

Risk Ranking:	**Consequence**	**Likelihood**	**Risk Ranking**
Inherent Risk:	Extensive (3)	Rare (B)	**Low**
Residual Risk:	Extensive (3)	Rare (B)	**Low**

6.1.2 Disruption/Interference with Other Marine Users

Details of Impacts and Risks and Control Measures

Hazard/Threat:
The potential hazard associated with the physical presence of vessels and equipment in the Operational Area is disruption/interference with other users.
Receptors:
■ Commercial fishing; ■ Commercial shipping; ■ Defence activities at Cartier Island; ■ Petroleum exploration and production operations; and ■ North West Cable System at the southern margin of the Operational Area.
Adopted Control Measures:
Notice to Mariners issued prior to commencement of survey activities.
Daily reporting to AMSA JRCC.
Notification will be provided to fisheries stakeholders, 4 weeks prior to commencement, indicating location and expected timing. Notification will also be provided to fisheries stakeholders within 2 weeks of completion.
Daily lookahead reports detailing the upcoming 48 hours survey events will be provided via email to stakeholders who register for the service.
Polarcus will observe petroleum safety zones, which typically apply up to 500 m from the outermost point of petroleum production facilities. Vessels will only operate within these zones with facility titleholder or operator approval, and in accordance with close-pass procedures.
Adherence with requirements of the International Regulations for Preventing Collisions as Sea 1972 (COLREGS) and Chapter 5 of Safety of Life at Sea (SOLAS) as implemented in Commonwealth Waters through the Navigation Act 2012 and associated Marine Orders Parts 21, 30, 59 - navigation, collision, support vessels, including: ■ Appropriate lighting, navigation and communication to inform other users. ■ Use of radar and 24/7 watch.

Minimum 40 km separation between the Cygnus 3D MSS seismic vessel and other operating seismic vessels of potential concurrent seismic surveys in the region of the Operational Area during data acquisition activities.
At least one support vessel will accompany each seismic vessel when the seismic vessel is in operation and when safe to do so (e.g. outside of inclement weather periods). The support vessel will conduct advanced scouting to ensure that fishing vessels or other activities in the area are provided with advance notice to move away from the path of the survey vessel.
Streamers marked with tail buoys.
No activity (including vessel/equipment presence or anchoring) within the Cartier Island Defence Practice Area (10 km radius from the island).
Details of Residual Impacts and Risks:
The seismic vessel will typically move along planned seismic lines at a constant speed of approximately 4.5 knots and will proactively and collaboratively manage operational information between Polarcus, other seismic operators in the area and fishers active in the Operational Area. The limited manoeuvrability of the seismic vessel means that fishers may be asked to take measures to avoid the seismic vessel and towed equipment or remove fishing gear such as traps and lines to avoid interaction. Some commercial shipping may also be asked to deviate from their intended routes to avoid the seismic vessel and towed array, but given the inherent controls identified above, no significant navigational implications or changes in shipping traffic patterns are expected. The residual impacts and risks have therefore been assessed as Low.

Risk Ranking:	**Consequence**	**Likelihood**	**Risk Ranking**
Inherent Risk:	Minor (2)	Occasional (C)	**Low**
Residual Risk:	Minor (2)	Occasional (C)	**Low**

6.2 Underwater Sound Emissions

Underwater sound will be generated by the seismic source, general vessel activities (including engine sound and operation of thrusters) and helicopter movements during crew transfers.

Seismic sound is characterised by high energy pulses of low frequency sound. The frequency of the sound produced from each seismic pulse is primarily less than 2 kHz, with the highest levels at frequencies in the range of 10-500 Hz (McCauley 1994). The rate of sound attenuation from the seismic source is dependent on local sound propagation characteristics, including seawater temperature and salinity profiles, water depth, bathymetry and the geoacoustic properties of the seabed (McCauley 1994). While the seismic pulses are directed downwards, horizontal propagation may be detected over long distances due to the high intensity and low frequency properties of the sound source.

The area over which seismic sound may adversely impact marine species depends upon multiple factors including the extent of sound propagation relative to the location of receptors, and the sensitivity and range of spectral hearing of different species (Slabbekoorn et al. 2010; Popper and Hawkins 2012).

The potential impacts and risks have been assessed for the following receptor categories, with controls proposed to reduce the impacts and risks to ALARP and acceptable levels:

- Marine mammals
- Marine turtles
- Sharks and rays
- Birds
- Site-attached fish assemblages
- Other demersal and pelagic fish assemblages

- Fish spawning
- Plankton, fish eggs and larvae
- Benthic invertebrates
- Commercial fisheries

Potential cumulative impacts and risks from multiple seismic surveys operating in the region, and the potential impacts and risks from vessel and helicopter noise have also been assessed.

6.2.1 Marine Mammals

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Without adequate control measures in place, high intensity impulsive sound emitted from the seismic source has the potential to impact marine mammals in the following ways: ■ Changes to hearing as a result of high sound levels at close range to the seismic source, including: ■ permanent threshold shift (PTS); or ■ temporary threshold shift (TTS); ■ Behavioural disturbance impacts.
Receptors:
EPBC listed cetacean species, including: ■ Pygmy blue whales – the pygmy blue whale migration and distribution BIAs are located to the north of the Operational Area; and ■ Other transient cetacean species, such as occasional sperm whales and humpback whales.
Adopted Control Measures:
Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.
Part A of EPBC Policy Statement 2.1 will be applied in full to mitigate potential impacts to whales , including: ■ Observation zone: 3+ km horizontal radius from the seismic source. ■ Low power zone: 2 km horizontal radius from the seismic source. ■ Shut-down zone: 500 m horizontal radius from the seismic source. ■ Pre-Start-up Visual Observations ■ Soft-start Procedures ■ Start-up Delay Procedures ■ Operational Shut-down and Low-power Procedures ■ Night-time and Low Visibility Procedures ■ Sighting Reports
Two MFOs will be available on board the seismic vessel to manage shift duties during daylight hours during the survey.
Adaptive management measures for whales: If three whale-instigated power-down or shut-down situations occur during a 24 hour period (commencing from the time of the first whale instigated shut-down), the seismic vessel will relocate to an alternative survey line (taking into account the whale's travel direction and speed) and will not return within 24 hours.
A 500 m shut-down zone from the operating source, as per the shut-down zone for whales in EPBC Act Policy Statement 2.1, will also be applied to dugongs.
Crew, survey personnel and MFOs will be briefed in the marine fauna observation, separation distance estimation, controls and reporting requirements relevant to this EP, including adaptive management measures.
Details of Residual Impacts and Risks:
Based on acoustic modelling and with the proposed controls in place, impacts to marine mammals such as cetaceans and occasional dugongs, are primarily expected to be localised behavioural avoidance impacts with no long term ecological implications for the pygmy blue whale migration. The range to behavioural response

thresholds is 5.25 km in shallow waters (<100 m), and up to 17 km where sound propagates down slope into deeper waters. PTS and TTS impacts are unlikely given the proposed control measures. However, should such impacts occur, the potential consequence of PTS /TTS impacts to a small number of individuals is considered Extensive (3).
Given the location of the Operational Area, the absence of critical habitats (feeding, breeding, calving, resting or confined migratory routes), relatively low numbers of marine mammals expected to be encountered in the Operational Area and the control measures proposed, the likelihood of such consequences occurring is Rare (B).
The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	Consequence	Likelihood	Risk
Inherent Risk:	Extensive (3)	Occasional (C)	**Moderate**
Residual Risk:	Extensive (3)	Rare (B)	**Low**

6.2.2 Marine Reptiles

Details of Impacts and Risks and Control Measures

Hazard/Threat:

High intensity impulsive sound emitted from seismic sources has the potential to impact marine reptiles in the following ways:

- Mortal injury or potential mortal injury to marine turtles at very close range to the seismic source.
- Permanent or temporary hearing impairment (recoverable injury, TTS or masking) at close range to the seismic source.
- Behavioural disturbance impacts.

Receptors:

- Nesting and internesting green turtle and hawksbill turtle populations associated with Ashmore Reef and Cartier Island (October to February)
- Foraging and transient marine turtles
- Sea snakes (at Ashmore and Cartier Reef)

Adopted Control Measures:

Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.

Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able.

A 500 m shut-down zone from the operating source, as per the shut-down zone for whales in EPBC Act Policy Statement 2.1, will also be applied to turtles.

The seismic source will not be operated within a 10 km radius of Cartier Island turtle internesting BIA during the green and hawksbill turtle peak nesting period (October-February).

Details of Residual Impacts and Risks:

Based on acoustic modelling and with the proposed controls in place, impacts to marine turtles are expected to be behavioural. The potential for injury is limited to less than 200 m from the seismic source, which can be effectively mitigated through the implementation of a 500 shut-down zone. Behavioural impacts are expected to be short term and localised, limited to within several kilometres of the survey lines. No displacement from BIAs, or population level impacts are expected Avoidance of the Ashmore Reef and Cartier Island internesting BIAs and AMP Sanctuary Zones will ensure the turtle and sea snake populations in these locations are not disturbed.

The potential consequence of injury to turtles is considered Extensive (3), but the likelihood of such consequences occurring is Rare (B). The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	Consequence	Likelihood	Risk

Inherent Risk:	Extensive (3)	Occasional (C)	**Moderate**
Residual Risk:	Extensive (3)	Rare (B)	**Low**

6.2.3 Sharks and Rays

6.2.3.1 Details of Impacts and Risks and Control Measures

Hazard/Threat:
High intensity impulsive sound emitted from seismic sources has the potential to impact sharks and rays in the following ways: ■ • Physiological injury at very close range to the seismic source. ■ • Behavioural avoidance impacts.
Receptors:
Foraging whale sharks within the BIA.
Adopted Control Measures:
Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.
Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able.
A 500 m shut-down zone from the operating source, as per the shut-down zone for whales in EPBC Act Policy Statement 2.1, will also be applied to whale sharks.
Details of Residual Impacts and Risks:
The Operational Area overlaps the foraging BIA for whale sharks, which are most likely to be in the region between September and November. Sharks and rays are regarded as being less sensitive to sound pressure than bony fish but they are likely to be responsive to low frequency sounds. Given the protected status of the whale shark and the tendency for individuals to be present in surface waters where they may be detected through visual observation, a 500 m shut-down zone will be implemented for whale sharks as per the shut-down zone for whales required under EPBC Act Policy Statement 2.1, thereby reducing the risk of this species being present in close proximity to the powered seismic source. Whale sharks may show avoidance behaviour to the seismic source and are unlikely to remain close enough to the source to suffer physical injury or changes in hearing. With the proposed controls in place, injury is highly unlikely and impacts are therefore predicted to be behavioural. The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Extensive (3)	Rare (B)	**Low**
Residual Risk:	Extensive (3)	Rare (B)	**Low**

6.2.4 Birds

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Seabirds and migratory shore birds diving or foraging near the seismic source may be exposed momentarily to seismic sound resulting in a startle response.

Receptors:
Seabirds and migratory shore birds at Ashmore Reef and Cartier Island
Adopted Control Measures:
Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.
Details of Residual Impacts and Risks:
The Acquisition Area is located 45 km at its closest from Cartier Island and Ashmore Reef, which provide significant habitat for seabirds and migratory shorebirds. Based on the separation distance between the operating seismic source and these significant habitats, birds in the immediate surroundings of these locations are not expected to be impacted by sound from the seismic source. Only birds foraging in the vicinity of the Acquisition Area have the potential to be exposed to increased sound levels generated by the operating seismic source. Although birds at the surface of the water in proximity to the seismic vessel have limited potential to be affected by sound emissions underwater due to the limited transmission of sound energy between the water/air interface, birds displaying underwater foraging behaviours such as diving may be exposed to underwater sound if they dive near the seismic vessel when the seismic source is in operation. However, given the likely avoidance response from fish, birds are unlikely to forage near the operating seismic source and this is likely to only affect individual birds, resulting in a startle response with affected birds expected to move away from the area of the active source as a result. Impacts to bird populations associated with the significant habitats of Cartier Island and Ashmore Reef from sound emissions resulting from the Cygnus 3D MSS are therefore not expected. The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	Consequence	Likelihood	Risk
Inherent Risk:	Slight (1)	Rare (B)	**Low**
Residual Risk:	Slight (1)	Rare (B)	**Low**

6.2.5 Site-Attached Fish Assemblages

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Without adequate control measures in place, high intensity impulsive sound emitted from the seismic source has the potential to impact site-attached fish in the following ways: ■ Mortal injury or potential mortal injury to fish at very close range to the seismic source. ■ Temporary changes in hearing (TTS) experienced by fish exposed to high sound levels for prolonged periods. ■ Behavioural impacts resulting from disturbance, or masking or interfering with biologically important sounds. Potential impacts to other demersal and pelagic fish (those that aren't considered to be site-attached) are assessed separately in Section 6.2.6. Potential impacts to fish spawning are addressed separately in Section 6.2.7. Potential impacts to fish eggs and larvae are addressed separately in Section 6.2.8.
Receptors:
Site-attached fish assemblages associated with shallow benthic features such as banks and shoals.
Adopted Control Measures:
Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.
Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able.

The seismic source will not be operated within 500 m horizontal distance from the 20 m depth contour (Polarcus operational exclusion zone).
The seismic source will not be operated within 200 m horizontal distance from the 60 m depth contour around shoals.
The operating seismic source will not return to survey an adjacent line within 1.4 km of the 60 m depth contour of a bank or shoal within 24 hours to allow for recovery and limit the potential effects of cumulative exposures.
The seismic source will not be operated within 200 m horizontal distance from the 45 m depth contour in the defined 'unnamed shallow areas'.
In the defined 'unnamed shallow areas' the seismic source volume will be reduced to 1,965 cui in water depths less than 60 m to minimise the potential for injury or TTS in fish that may be present in areas of shallow contiguous habitat.
The operating seismic source will not return to survey an adjacent line within 1.4 km of the 45 m depth contour in the defined 'unnamed shallow area' within 15 hours to allow for the recovery and limit the potential effects of cumulative exposures.
Details of Residual Impacts and Risks:
Site-attached fish have limited ranges and are therefore more sensitive to the effects of high sound levels from the seismic source. Potential impacts have been assessed based on an analysis of depth contours corresponding with the distribution of benthic habitats and fish assemblages, as reported during field surveys of the banks, shoals and other representative areas of seabed within the region (Heyward et al. 2011a; ERM 2012; Heyward et al. 2013). Such studies indicate that site-attached fish species are abundant in shallow reef areas of shoals (less than 30 m), but decreased significantly in depths of 40-50 m. Fish species in water depths greater than 60 m are expected to be larger and more free-ranging and are therefore considered less sensitive to the effects of seismic sound as they would be expected to display avoidance behaviours and return to the area once the seismic source has passed. Based on acoustic modelling, a 200 m horizontal exclusion zone is proposed from the 60 m depth contour of banks and shoals to prevent injury occurring to site-attached fish. With the proposed controls in place, impacts to site-attached fish are expected to be temporary, potentially involving behavioural avoidance reactions with the potential for TTS to occur in some fishes exposed on the slopes of banks and shoals for short periods (approximately 20 minutes) near the closest point of approach of the seismic source as it passes. Such impacts are expected to be temporary, recoverable within 24 hours (Popper et al. 2014) and are not expected to result in any lasting population level impacts or longer ecological implications for the fish assemblages inhabiting these individual bank and shoal features. The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

	Consequence	**Likelihood**	**Risk Ranking**
Inherent Risk:	Major (4)	Occasional (C)	**Moderate**
Residual Risk:	Minor (2)	Occasional (C)	**Low**

6.2.6 Other Demersal and Pelagic Fish Assemblages

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Without adequate control measures in place, high intensity impulsive sound emitted from the seismic source has the potential to impact fish in the following ways: ■ Mortal injury or recoverable injury to fish at very close range to the seismic source. ■ Temporary changes in hearing (temporary threshold shift; TTS) experienced by fish exposed to high sound levels for prolonged periods. ■ Behavioural impacts resulting from disturbance, or masking or interfering with biologically important sounds. Potential impacts to site-attached fish assemblages associated with shallow banks and shoals are assessed separately in Section 6.2.5. Potential impacts to spawning are addressed separately in Section 6.2.7 Potential impacts to fish eggs and larvae are addressed separately in Section 6.2.8.

Receptors:
■ Demersal and pelagic fish species including key commercial species. ■ Continental slope demersal fish communities KEF
Adopted Control Measures:
Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.
Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able.
Details of Residual Impacts and Risks:
Demersal and pelagic fish within the open waters of the Operational Area are generally expected to include numerous free-roaming species, with naturally large ranges in the order of several kilometres or even hundreds to thousands of kilometres. Fish are expected to exhibit a range of temporary behavioural changes, in response to the approaching seismic source. Based on a comprehensive review of studies, behavioural responses may include changes in orientation, swim speed, tightening of school structure and change in position in the water column within several kilometres from the source, and at closer ranges may include stronger startle and flee responses with fish returning to normal behaviours shortly after the seismic source has passed (e.g. within an hour) (Pearson et al. 1992; Santulli et al. 1999; McCauley et al. 2000; Simmonds and MacLennan 2005; Fewtrell and McCauley 2012; Peña et al. 2013; Popper et al. 2014 [and references therein]; Carroll et al. 2016 [and references therein]). Also, the implementation of soft-start procedures (as recommended in the Department of Fisheries (2013) guidance statement on undertaking seismic surveys in Western Australian waters) will provide fish with advanced opportunity to move away from the source, and so injury and TTS impacts are not expected. In addition to short-term behaviours, some studies have noted that avoidance behaviours led to changes in local abundance and distribution, with fish potentially moving from less than 5 km to over 30 km from survey lines, with local abundance and distribution returning to normal within three to five days, indicating that the effects are temporary (Engås et al. 1996; Slotte et al. 2004). It could not be confirmed how much changes in local abundance and distribution in these studies could be attributed to the seismic survey or if natural large scale feeding migrations occurring at the time of the experiments or other natural factors also contributed. Therefore, impacts are expected to include localised and temporary changes in behaviour, local abundance and distribution. The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Slight (1)	Regular (D)	**Low**
Residual Risk:	Slight (1)	Regular (D)	**Low**

6.2.7 Fish Spawning

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Without adequate control measures in place, high intensity impulsive sound emitted from the seismic source has the potential to result in behavioural changes in fish or masking of fish vocalisations, which may temporarily divert efforts away from spawning aggregations, egg production and recruitment success (Hawkins and Popper 2017). Potential impacts to fish eggs and larvae are addressed separately in Section 6.2.8.
Receptors:
Fish spawning and recruitment, in particular key indicator commercial species: ■ Goldband snapper ■ Red emperor ■ Southern bluefin tuna

Adopted Control Measures:

Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.

Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able.

Acquisition of Phase 3 South will be limited to a maximum 2.5% spatial and temporal (combined) overlap with the goldband snapper spawning period, for the principal Kimberley stock range (80m – 140 m).

Details of Residual Impacts and Risks:

The potential impacts to fish spawning, principally the commercial indicator species, red emperor and goldband snapper have been assessed based on:

- The potential spatial overlap between the area affected by sound (fish behaviour and masking effects) with the area utilised by the stocks for spawning;
- The potential temporal overlap between the duration of planned acquisition phases and the duration of the available spawning periods and peak spawning periods;
- The likelihood of a phase of acquisition overlapping with a critical area for spawning aggregations;
- The likelihood of the activity reducing the available spawning biomass and stock recruitment success, taking into account natural variability.

Red emperor and goldband snapper are broadcast multiple batch spawners that spawn throughout their range and release millions of eggs throughout their spawning periods. Red emperor spawn between August and May, with a peak in October and March, and occur in water depths up to 180 m. Polarcus has been advised by WA DPIRD Fisheries that goldband snapper spawn between October and May. Goldband snapper generally occur between 50 m and 200 m water depth, and are typically more concentrated between the 80 m and 140 m depth contours. Specific areas of aggregation are not known. Cues for spawning may include environmental cues such as water temperature and the moon cycle.

Red emperor stocks occur across northern Australia and biological connectivity and genetic homogeneity is maintained between the different stocks by dispersal of eggs and larvae throughout its range. In comparison, the Kimberley goldband snapper stock, is likely to be genetically distinct from other adjacent stocks (e.g. Pilbara, Broome, Timor Sea, Arafura Sea stocks), which has implications for stock recruitment (if the spawning biomass is impacted). Therefore, goldband snapper is considered to be potentially more sensitive.

To estimate the largest area where spawning behaviour may be influenced by sound from the Cygnus 3D MSS, the most extensive impacts and ranges identified in the scientific literature for changes in fish behaviour, abundance and distribution were used as a proxy. Accounting for both the spatial and temporal overlap, this equates to 2.4% of the principal Kimberley goldband snapper stock range. Although this is the percentage of goldband snapper spawning that may be overlapped or influenced, this is not necessarily proportionate to a potential decrease in the effective goldband snapper spawning biomass, as no actual fish are removed from the stock, therefore there is no actual reduction in the spawning biomass; and it is possible that adult fish may be motivated to continue to spawn despite some disturbance; fish may simply aggregate and spawn further from the seismic source. In addition, goldband snapper are serial/multiple batch broadcast spawners, releasing multiple batches of eggs into the water column over a wide area, and spawn multiple times throughout the spawning period. They do not spawn continuously. Therefore, the temporal overlap may also over-represent what may, in reality, be a disturbance to one or two out of many spawning events for such a small proportion of fish effected during the season.

Given the connectivity of red emperor stocks, the impacts to red emperor spawning are predicted to be negligible. Southern bluefin tuna spawning occurs over 125 km to the west of the Operational Area and so no impacts are expected. Other species in the region are also understood to spawn over wide areas and/or in coastal waters and, therefore, impacts to spawning are expected to be limited. Also of note is the single known spawning ground for southern bluefin tuna in the Indian Ocean. However, this spawning area is broadly understood to be over 125 km to the west of the Operational Area and so no impacts are expected.

The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	Consequence	Likelihood	Risk
Inherent Risk:	Major (4)	Occasional (C)	**Moderate**
Residual Risk:	Minor (2)	Occasional (C)	**Low**

6.2.8 Plankton, Fish Eggs and Fish Larvae

Details of Impacts and Risks and Control Measures

Hazard/Threat:

High intensity impulsive sound emitted from the seismic source has the potential to result in the mortality or physical impairment of plankton, with potential secondary impacts to the food source of other organisms, and/or potential impacts to eggs and larvae biomass which could in turn impact recruitment.

Receptors:

- Phytoplankton and zooplankton (primary productivity and food source)
- Fish eggs and larvae (spawning and recruitment)

Adopted Control Measures:

Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.

Details of Residual Impacts and Risks:

Potential impacts and risks to plankton have previously been understood to be highly limited and localised. Considering the impact thresholds proposed by Popper et al. (2014), the acoustic modelling undertaken by McPherson and Wood (2017) indicates that potential for mortality to eggs and larvae could occur within approximately 165-190 m from the source. However, recent research by McCauley et al. (2017) may indicate that the extent of impacts to plankton, eggs and larvae could be greater (potential mortality to 178 dB re 1 µPa (Pk-Pk pressure) and therefore up to 5 km from the seismic source.

The potential impacts have been assessed based on modelling completed by Richardson et al. (2017), which adopts the impact thresholds suggested in McCauley et al. (2017). As the vessel and seismic source will be constantly moving and zooplankton populations are constantly being replenished by currents from non-impacted areas, the modelling demonstrated that zooplankton mortality rates are potentially detectable above natural levels in close proximity to the survey area, but are not likely to be discernible at the regional and subregional scale (150 km distance). Zooplankton biomass generally showed a decline until Day 22 of the Richardson et al. (2017) simulations, and then biomass increased relatively until the end of the simulated survey; this reflects the movement of water through the Operational Area and the recovery of the zooplankton biomass as it moves into non-impacted areas, which indicates that beyond a certain duration (i.e. ~22 days) the seismic Acquisition Area and duration contributes less to changes in overall biomass in the region relative to natural mortality rates and rates of recovery. Zooplankton biomass also returned to normal levels within the survey area within 3 days (Richardson et al. 2017).

Natural zooplankton mortality rates can vary considerably spatially and temporally and can be as high as ~60% (or even 100% in some cases), approximately 25% to 33% of which may be caused by non-predatory factors, indicating how difficult it would be to detect the impacts of seismic pulses on plankton above natural levels. At the scales considered, the potential impacts and risks to eggs and larvae in the water column is considered to be localised and temporary and the risk is considered to be low.

Non-predatory zooplankton mortalities also leave nutrient- and carbon-rich carcasses behind to be scavenged in the water column and on the seafloor by opportunistic feeders for several days (during which time, the live zooplankton biomass in any given location is also likely to have been largely replenished via currents from non-impacted areas) and therefore the loss of zooplankton is not expected to make a discernible impact on food resources.

The residual impacts and risks, with the control measures in place, have therefore been assessed as Low. Further detail is provided in the evaluation of impacts and risks below.

Risk Ranking	Consequence	Likelihood	Risk
Inherent Risk:	Slight (1)	Occasional (C)	**Low**
Residual Risk:	Slight (1)	Occasional (C)	**Low**

6.2.9 Benthic Invertebrate Communities

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Underwater sound associated with the operation of the seismic source has the potential to cause physiological impacts to benthic invertebrates.
Receptors:
Benthic macro-invertebrate communities, including: ■ Sessile benthic invertebrates (e.g. molluscs) ■ Mobile benthic invertebrates (e.g. crustaceans, cephalopods) ■ Corals, sponges and soft filter feeders
Adopted Control Measures:
Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.
Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able.
Details of Residual Impacts and Risks:
There is a general lack of convergence on the magnitude and extent of impacts reported in the scientific literature and thresholds are not defined. However, benthic invertebrates lack a gas-filled bladder and do not hear sound like fish, or mammals do. Invertebrates are therefore regarded as being less sensitive to sound than fish. They do however detect the particle acceleration component of a sound wave. In many studies, benthic invertebrates show no evidence of significant impacts. Based on the worst-case impacts reported in studies, impacts to benthic invertebrates may include: ■ Sub-lethal impacts to crustaceans, such as statocyst impairment and reduced immune response function, although no long term ecological implications on survival are expected. ■ Potential sub-lethal impacts to sessile molluscs and infauna such as impaired reflexes, and potentially some chronic effects that lead to mortality of a very small proportion of bivalves at close range, over and above natural mortality rates. ■ Increased movement and behavioural avoidance of waters beneath the source by mobile invertebrates such as cephalopods. The above impacts are expected to be localised and limited to invertebrates directly beneath the seismic source or, based on the levels reported in Day et al. (2016a, 2016b), within approximately 100 m range of the seismic source. Given the proposed 200 m exclusion zones around banks and shoals, the more diverse benthic communities of these shallow features are not expected to be affected. Therefore, some macro-invertebrates may experience some sub-lethal affects or a small increase in mortality rates of a small proportion of invertebrates as a result of chronic effects of exposure at close range. However, the ecological implications of these impacts on benthic communities are not expected to be significant or long term in the context of the natural spatial and temporal variability observed in the benthic communities in this region. Given that macro-invertebrate infauna and epifauna occur relatively sparsely across the majority of the Operational Area, the localised horizontal extent of potentially significant impacts, and the potential for subsequent recruitment and recovery (over weeks or months at most), no long-term population and community level impacts are expected and there is no threat of serious or irreversible environmental damage. The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Slight (1)	Regular (D)	**Low**
Residual Risk:	Slight (1)	Regular (D)	**Low**

6.2.10 Commercial Fisheries

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Increased sound levels associated with seismic acquisition may modify the behaviour, local abundance and distribution of commercially targeted fish species in proximity to the Operational Area which could affect commercial catch rates.
Receptors:
■ Commonwealth and WA-managed fisheries that potentially operate in or near the Operational Area: ■ Northern Demersal Scalefish Managed Fishery (primarily trap with some line fishing); ■ Mackerel Managed Fishery (trolling or handline); ■ Kimberley Prawn (trawl) (although expected to operate in more coastal waters); and ■ Northern Shark Fishery (Joint Authority Shark Fishery and Western Australia North Coast Shark Fishery) (line fishing).
Adopted Control Measures:
Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.
A Notice to Mariners will be issued prior to each survey phase mobilisation and following demobilisation.
Notification will be provided to fisheries stakeholders, 4 weeks prior to commencement of the survey, indicating location and expected timing. Notification will also be provided to fisheries stakeholders within 2 weeks of completion the survey.
Daily lookahead reports detailing the upcoming 48 hours survey events will be provided via email to stakeholders who register for the service.
Details of Residual Impacts and Risks:
Based on available research, the potential impacts to fish catches may vary. As a worst case, reduced local abundance and catch rates may occur within the area being surveyed and to ranges of up to a few tens of kilometres. Such impacts typically last only for the duration of the sound exposure (hours) or for up to approximately five days following cessation of the survey. The fisheries that overlap the Operational Area operate over wider areas than will be exposed to the seismic sound during the survey. Given the spatial extents of the fisheries, only a portion of the area and fish targeted by fisheries may be affected by the survey and fish catches are expected to be available in other areas. The NDSF is understood to be the fishery most likely to operate near the Operational Area, though other fisheries may also occur. Communication with fishery licence holders and the relevant agencies is a critical component of the proposed mitigation and to better enable resource sharing and transparency. The residual impacts and risks, with the proposed control measures in place, have therefore been assessed as Low.

Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Minor (2)	Occasional (C)	**Low**
Residual Risk:	Minor (2)	Occasional (C)	**Low**

6.2.11 Cumulative Seismic Sound Impacts

Cumulative impacts from seismic sound can potentially occur when:

- Multiple seismic surveys occur in a region at the same time, leading to an increase in sound exposure to the same receptors; or
- Seismic surveys occur one after the other in the same area over time.

A review of seismic survey activities published on the NOPSEMA website has been undertaken to identify other marine seismic surveys that have been completed or are planned in the same area as the Cygnus 3D MSS.

This section therefore assesses the potential for cumulative impacts associated with:

- Phase 3 of the Cygnus 3D MSS being undertaken in an area where other seismic surveys have occurred previously; and
- Phase 3 of the Cygnus 3D MSS being undertaken at the same time as another seismic survey within the area.

It is noted that multi-client data is acquired and sold to multiple petroleum block titleholders. Like Polarcus, other seismic operators will have sought commercial undertakings with petroleum block titleholders for the 3D data they acquire. For commercial reasons, it is very unlikely that a petroleum block titleholder would purchase data from more than one multi-client seismic operator and as such, it is likely that not all multi-client surveys (and possibly only one) will actually proceed. By the nature of multi-client seismic acquisition, the potential for multiple proprietary seismic surveys over the same area by individual petroleum block titleholders is generally avoided.

6.2.11.1 Cumulative Impacts from Previous Seismic Surveys

Cumulative impacts from successive surveys in the same area can occur when the timing between surveys is less than the recovery rate of any potential impacts to receptors.

Table 6-1 presents a summary of the marine seismic surveys that have been undertaken in the last 5 years within approximately 150 km of the Cygnus 3D MSS Acquisition Area. The footprint of impacts resulting from the Cygnus 3D MSS have been assessed as being more localised, but 150 km was selected as a conservative search criteria.

In some instances it has not been possible to confirm whether surveys have been undertaken or not, the dates surveys were acquired, or the final areas that were acquired and any overlap with the Cygnus 3D MSS Acquisition Area. Therefore, for the purposes of the assessment, it has been conservatively assumed that surveys have gone ahead within the areas and timescales proposed in their respective EPs.

No direct cumulative impacts are expected to have occurred between Phase 1, Phase 2 and Phase 3 North of the Cygnus 3D MSS and other previous surveys in terms of injury, hearing impairment, behavioural impacts or changes in community structure, given that there has been no spatial overlap between surveys and their potential impact and/or the timing between surveys has not been less than the recovery rate of any potential impacts to receptors (i.e. hours to days for marine fauna and fish, or weeks or months at most for benthic invertebrate communities, as outlined in Section 6). Equally, as no cumulative impacts are expected between these previous surveys and Phases 1, Phase 2 and Phase 3 North, no cumulative impacts with proposed Phase 3 South are expected either.

The potential for longer term cumulative impacts to goldband snapper spawning and recruitment were also considered for the Cygnus Phase 1, Phase 2 and Phase 3 North areas. The areas and timing of acquisition during Phase 1, Phase 2 and Phase 3 North are as follows:

1. Southern racetrack in the Phase 1 Area acquired between 20 December 2015 and 13 January 2016 (24 days);
2. Subsequent racetracks in the Phase 1 Area (excluding lines that included shoals and depth restrictions being assessed by NOPSEMA's review of Revision 2 of the EP) acquired between 13 January 2016 and 7 February 2016 (25 days);
3. Phase 2 Area acquired between 7 February 2016 and 26 February 2016 (19 days);
4. Remaining lines in Phase 1 Area acquired between 26 February 2016 and 6 March 2016 (9 days); and

5. Phase 3 North Area acquired between 18 December 2017 and 13 January 2018 (27 days).

In total, Phase 1 was acquired over 58 days, Phase 2 was acquired over 19 days and Phase 3 North was acquired over 27 days.

The same precautionary assessment method has been applied to these areas as has been undertaken in Section 6.2.7, by applying a 37 km buffer to each of the phase Acquisition Areas to determine a conservative 'potential area of influence' noting the many conservatisms included in this approach. In particular, the Phase 1 Area was approximately 3,500 km^2, which is many times larger than the racetrack formations that were acquired and therefore, the 'potential area of influence' calculated is highly conservative (areas of goldband snapper habitat exposed to sound emissions from the southern racetrack in the Phase 1 area are expected to have recovered prior to completing subsequent racetracks in the north of the Phase 1 Area and the Phase 2 Area).

Table 6-1 Marine Seismic Surveys Completed within 150 km of the Cygnus 3D MSS in the last 5 Years

Year	Company	Survey Title	Survey Location	Survey Status and Timing	Comments
2012 – 2013	Fugro Multi Client Services Pty Ltd	Schild Multi Client 3D Marine Seismic Survey	Maximum 2,717 km^2 of 3D seismic acquisition in exploration permits WA-411-P, WA-274-P, WA-281-P and adjacent open acreage. Located ~100 km to the south-west of the Cygnus 3D MSS Acquisition Area.	Status of the survey is unknown. For the purposes of the assessment, it is assumed the survey may have been completed during the timeframe specified in the EP (~90 days duration between November 2012 and May 2013).	There is no spatial overlap. The survey, if it was undertaken, was completed 2.5 years prior to the first phase of the Cygnus 3D MSS and recovery of all impacts are expected to have occurred well before commencement of the Cygnus 3D MSS. Recent goldband snapper stock assessments (Martin *et al.* 2016) predict that the stock is sustainable and unlikely to be recruitment constrained. Therefore, no cumulative impacts with Phases 1, 2 or 3 of the Cygnus 3D MSS are expected.
2013 – 2014	PGS Australia Pty Ltd	Caswell Multi Client 3D MSS	The Caswell Area of Acquisition extends approximately 65 km into the south-west portion of the Cygnus 3D MSS Acquisition Area and includes area up to and adjacent to Cygnus 3D MSS Phase 1.	Completed but exact acquisition dates are unknown. The EP states that the survey was planned to occur for 9-11 months between May 2013 and April 2014.	There is no spatial overlap. The survey was completed at least 18 months prior to the first phase of the Cygnus 3D MSS and recovery of all impacts are expected to have occurred well before commencement of the Cygnus 3D MSS. Recent goldband snapper stock assessments (Martin *et al.* 2016) predict that the stock is sustainable and unlikely to be recruitment constrained. Therefore, no cumulative impacts with Phases 1, 2 or 3 of the Cygnus 3D MSS are expected.

Year	Company	Survey Title	Survey Location	Survey Status and Timing	Comments
2014	GX Technology Australia Pty Ltd	Westralia SPAN Marine Seismic Survey	Large multi-basin SPAN survey. Four individual 2D survey lines (AUI – 4500, AUI-4800, AUI-7000, AUI-7500) occur within the Cygnus 3D MSS Acquisition Area.	Completed prior to the end of Q2 2014.	It could not be confirmed if or when the proposed lines overlapping the Cygnus 3D MSS Operational Area were acquired, but the SPAN survey was completed at least 18 months prior to the first phase of the Cygnus 3D MSS and recovery of all impacts are expected to have occurred well before commencement of the Cygnus 3D MSS. Recent goldband snapper stock assessments (Martin *et al.* 2016) predict that the stock is sustainable and unlikely to be recruitment constrained. Therefore, no cumulative impacts with Phases 1, 2 or 3 of the Cygnus 3D MSS are possible.
2014 – 2016	IPB Operations Pty Ltd	IPB Petroleum Limited 3D Marine Seismic Survey	Targeted 2,780 km^2 survey in exploration permits WA-471-P and WA-485-P. Located over 75 km to the south of the Cygnus 3D MSS Acquisition Area and over 75 km from Phase 1 of the Cygnus 3D MSS at the closest point.	Status of the survey is unknown. For the purposes of the assessment, it is assumed the survey may have been completed during the timeframe specified in the EP (30 to 50 days duration between November 2014 and June 2016).	Given that the IPB Petroleum Limited 3D Marine Seismic Survey is located over 75 km from the Acquisition Area at the closest point, it is highly unlikely that any cumulative impacts would have occurred, even if data was acquired at the closest points of each survey concurrently. There is no spatial overlap in impacts and the area is of limited significance for goldband snapper spawning. Recent goldband snapper stock assessments (Martin *et al.* 2016) predict that the stock is sustainable and unlikely to be recruitment constrained. Therefore, cumulative impacts are not expected.
2015	CGG Services (Australia) Pty Ltd	Gravis Multi Client 3D Marine Seismic Survey	Overlaps central portion of Operational Area.	The survey has not been undertaken and is not planned to occur in 2017. The timeframe of the accepted EP indicates 2015-2017.	Given that the survey has not been undertaken and is not planned to occur, no cumulative impacts with the Cygnus 3D MSS are possible.

Year	Company	Survey Title	Survey Location	Survey Status and Timing	Comments
2015	Searcher Seismic Pty Ltd	Quoll 3D Marine Seismic Survey	Targeted area of 419 km^2 located entirely within permit area AC/P 55. Overlaps central / western portion of the Operational Area. The Quoll acquisition area is located to the north west of the acquired Phase 2 area of the Cygnus 3D MSS.	Confirmed completed July – August 2015	No spatial or temporal overlap and recovery of all impacts are expected to have occurred well before commencement of the Cygnus 3D MSS. Completed outside of goldband snapper spawning season. Therefore, no cumulative impacts with Phases 1, 2 or 3 of the Cygnus 3D MSS are expected.
2015 – 2016	Polarcus Seismic Ltd	Cygnus 3D MSS (Phases 1&2)	Phase 1 and Phase 2 are located in the central and south-west parts of the Cygnus 3D MSS Operational Area.	Completed between December 2015 and March 2016.	There is no spatial or temporal overlap of direct impacts from Phase 1 or 2, taking into account recovery times. Potential impacts to spawning from these previous phases are assessed to be negligible. Recent goldband snapper stock assessments (Martin *et al.* 2016) predict that the stock is sustainable and unlikely to be recruitment constrained. Therefore, no cumulative impacts between phases 1, 2 and 3 of the Cygnus 3D MSS are expected.
2016	PGS Australia Pty Ltd	Forge Multi-Client 3D Marine Seismic Survey	The northern portion of the Forge acquisition area overlaps southern and central parts of the Cygnus 3D MSS Operational Area.	The survey was not undertaken and the EP is no longer current.	Given that the survey has not been undertaken and is not planned to occur, no cumulative impacts with the Cygnus 3D MSS are possible.
2017 - 2018	Polarcus Seismic Ltd	Cygnus 3D MSS (Phase 3 North)	Phase 3 North is located in the north of the Cygnus 3D MSS Operational Area.	Completed between December 2017 and January 2018.	There is no spatial or temporal overlap of direct impacts from Phase 3 North, taking into account recovery times. Potential impacts to spawning from these previous phases are assessed to be negligible. Recent goldband snapper stock assessments (Martin *et al.* 2016) predict that the stock is sustainable and unlikely to be recruitment constrained.

Year	Company	Survey Title	Survey Location	Survey Status and Timing	Comments
					Therefore, no cumulative impacts between Phases 1, 2 and 3 of the Cygnus 3D MSS are expected.

6.2.11.2 Cumulative Impacts from Concurrent Seismic Surveys

Over the scheduled period of the Cygnus 3D MSS other seismic surveys are also planned to occur in the region. However, for commercial reasons, it is likely that not all of the proposed surveys will actually proceed. Polarcus will endeavour to minimise the potential for interaction between simultaneous seismic surveys (should they occur at the same time) to minimise both potential disruptions to operations as well as potential cumulative sound impacts to the environment and other marine users.

For operational reasons (to prevent acoustic interference and preserve seismic data integrity) a minimum separation distance of at least 40 km will be maintained between the Cygnus 3D MSS seismic source and any other concurrently operating seismic sources during data acquisition activities. Given this separation distance, underwater sound from the seismic sources is not anticipated to combine to significantly raise the sound pressure levels to which receptors may be exposed. This is because, for example, where sound levels from two sources combine through constructive interference, a doubling of sound pressure corresponds with an increase in SPL of 6 dB (e.g. Hass 2013). Modelling of the seismic source for the Cygnus 3D MSS (McPherson and Wood 2017) demonstrates that sound levels will be below 150 dB re 1µPa at 20 km from the source (half way between two seismic sources at their minimum separation distance). A combination of seismic sound from two similar seismic sources at this distance would therefore be expected to result in an SPL of no greater than 156 dB re 1µPa, which is below known behavioural response thresholds for marine species.

While overall sound levels are not expected to be significantly elevated, it is acknowledged that the result of multiple seismic vessels operating concurrently will represent a wider spatial area of potential exposure to seismic sound for receptors.

To understand what other known potential seismic surveys may occur near the Cygnus 3D MSS Acquisition Area, Table 6-2 presents the seismic surveys that:

- may occur within 150 km of the Cygnus 3D MSS Acquisition Area;
- may occur within the same EP timeframes; and
- either have an EP accepted by NOPSEMA or have submitted an EP to NOPSEMA and is currently under assessment.

These seismic surveys have been considered for their potential cumulative impacts with Cygnus 3D MSS Phase 3 South. Two seismic surveys are planned near the Cygnus 3D MSS with one having an EP accepted by NOPSEMA (Table 6-2). This section does not assess cumulative impacts from seismic surveys within the area that occur after the Cygnus 3D MSS as it is the responsibility of that titleholder to assess the cumulative impacts.

Table 6-2 Proposed Marine Seismic Surveys within 150 km of the Cygnus 3D MSS

Company	Survey Title	Survey Location	EP Status and Survey Timing
Spectrum Geo Pty Ltd	Cygnus Southwest Marine Seismic Survey	The Spectrum Geo Cygnus SW acquisition area primarily covers open acreage blocks AC17-4, AC-17-5 and W17-3 in the 2017 Offshore Petroleum Exploration Acreage Release. It lies adjacent to the already acquired Cygnus 3D MSS Phase 1 area. The Spectrum Geo Cygnus SW acquisition area is approximately 50 km south-west of the planned Cygnus 3D MSS Phase 3 South area.	The EP was accepted by NOPSEMA on 04/05/2017. The survey was proposed to take up to 3 months and be undertaken sometime between May 2017 and December 2019. The nominated 2017 open acreage blocks over which the survey is planned will be closed to Titleholder bids on March 22 2018. To understand the prospectivity of these blocks, Titleholders would require acquired and processed seismic data to be available. To date, the Cygnus SW survey has not commenced and given the timeframes required to acquire (~3 months) and process and evaluate the data (>3 months), it is considered highly unlikely that this survey will proceed on a timeline that would overlap with the planned Polarcus Cygnus 3D MSS.
Shell Australia Pty Ltd	Factory 3D Marine Seismic Survey	The Factory 3D MSS will comprise acquisition of approximately 3,750 km2 of 3D seismic data in Exploration Permits AC/P65, AC/P41, WA-534-P, and a very small portion of adjacent acreage for the purposes of acquiring sufficient data to fully-image the prospects on the titles. The Factory Acquisition Area is located approximately 60 km south-west of the Phase 3 South Acquisition Area.	The EP is currently under assessment by NOPSEMA. The Factory 3D MSS is proposed to be conducted over a period of 2-3 months from 1 July 2019 to 30 December 2019.

The following provides a summary of the potential cumulative impacts that are predicted to occur from the Cygnus 3D MSS and the surveys identified in Table 6-2.

Marine Fauna (mammals, reptiles, sharks)

Short-term behavioural impacts are predicted to occur up to a maximum of between approximately 5 km and 17 km for the most sensitive species of cetacean (depending upon location and water depth) and at lesser distances for other marina fauna (see Sections 6.2.1 to 6.2.4). Species are expected to be transient and no changes to migration or other important life stages are expected.

The Spectrum Geo Cygnus SW Acquisition Area is approximately 50 km south-west of the Phase 3 Acquisition Area. In addition, the proposed Shell Factory 3D MSS Acquisition Area is approximately 60 km south-west of the Phase 3 South Acquisition Area. Taking this into consideration and the proposed 40 km minimum separation between two operating seismic vessels, no significant discernible cumulative impacts to marine fauna are expected.

The cumulative risk is therefore considered to be Low and Acceptable given that there is no threat of serious or irreversible environmental damage.

Fish

Behavioural impacts in fish are expected to be most apparent in fish between several hundred metres and several kilometres from the Cygnus 3D MSS survey lines, returning to normal within as little as an hour. It is acknowledged that, based on the available scientific literature, some changes in abundance and distribution of fish may be apparent in the vicinity of the Acquisition Area for up to approximately 5 days, as well as some less significant and shorter term changes in abundance and distribution out to approximately 37 km.

Taking the proposed 40 km minimum separation into consideration, no cumulative overlap of strong behavioural responses is expected. Some mild changes in fish abundance and distribution could occur as a result of exposure from the two operating seismic surveys, but such changes are expected to return to normal within a few hours or days.

The cumulative risk is therefore considered to be Low and Acceptable given that there is no threat of serious or irreversible environmental damage.

Fish Spawning

The Cygnus 3D MSS may partially overlap with the peak goldband snapper spawning period, but the risks are expected to be low (see Section 6.2.7).

The Spectrum Geo Cygnus SW Survey is considered highly unlikely to proceed, based on the very short remaining timeline for Spectrum to be able to acquire and process the data to inform Titleholder decisions prior to the bid closing. If the survey does go ahead, it will be scheduled to avoid the period January – April (inclusive). Therefore, if the survey was to proceed, it is expected that there would be limited temporal overlap with Phase 3 South and the spawning period (October – May).

The Shell Factory 3D MSS is planned to be acquired within 2019 (subject to EP acceptance) and therefore there is a possibility that the survey may be completed concurrently with Phase 3 South, and potentially overlap with the goldband snapper spawning period (between October 2019 – December 2019). If both surveys were completed during the goldband snapper spawning period, there would be no spatial overlap with the same areas of potential aggregation given the 60 km separation. Cumulative impacts are expected to be limited from Factory 3D and Phase 3 South. It is important to note, the Factory 3D MSS EP is currently under assessment by NOPSEMA, and may not be accepted at the time Phase 3 South is acquired or the activity may not go ahead as planned. The cumulative risk is therefore considered to be Low and Acceptable given that there is no threat of serious or irreversible environmental damage.

Plankton, Fish Eggs and Larvae

Based on the maximum worst case mortality exposure suggested by McCauley et al. (2017) and modelling completed by CSIRO (Richardson et al. 2017), impacts to zooplankton are only expected to be significant within a short range (e.g. 15 km) of seismic survey areas. Beyond 22 days of acquisition, CSIRO (Richardson et al. 2017) found that no further relative increase in zooplankton mortality occurs, due to recruitment of zooplankton via currents from adjacent areas, and conditions return to normal within a few days of a survey ceasing. At the regional scale, these impacts are not expected to be significant CSIRO (Richardson et al. 2017). Further, natural mortality rates can be as high as ~60%, and not entirely as a result of predation (see Section 6.2.8), therefore, limited impacts are expected relative to the natural variation in zooplankton concentrations and mortality rates. Taking the proposed 40 km separation into consideration, the cumulative impacts to plankton are expected to be negligible.

The cumulative risk is therefore considered to be Low and Acceptable given that there is no threat of serious or irreversible environmental damage.

Benthic Invertebrates

The maximum worst case impacts reported for invertebrates include sub-lethal impacts such as statocyst impairment, temporary reduced immune response function, temporary impaired reflexes, and potentially some chronic effects that lead to mortality of a very small number of sessile benthic invertebrates over and above natural mortality rates. For the Cygnus 3D MSS, such impacts are expected to occur at close range to the seismic source (e.g. ~100 m) (see Section 6.2.9). In the context of natural mortality, recruitment and recovery rates, the impacts to overall benthic communities are expected to be negligible (see Section 6.2.9).

Currently, no other seismic surveys are planned to occur that overlap the planned Cygnus Phase 3 South Area. Should there be some overlap in other future areas, cumulative impacts may only occur if more than one survey occurs within weeks of the preceding survey, which is unlikely to occur.

The cumulative risk is therefore considered to be Low and Acceptable given that there is no threat of serious or irreversible environmental damage.

Commercial Fisheries

Cumulative impacts to commercial fisheries could occur if multiple seismic surveys occur concurrently or in quick succession within an area, resulting in increased avoidance by target fish species. As highlighted in Section 6.2.10, the expected range and duration of impacts to fish abundance, distribution and catch rates is relatively small compared to wider areas within which the fisheries operate. However, Polarcus recognises that clear and regular communication with fisheries stakeholders is required in order to provide timely information on the location and timing of different surveys in order to facilitate better planning and resource sharing. Therefore, Polarcus will notify stakeholders prior to the commencement of the survey and will provide regular updates to fishery licence holders during survey operations with the relevant stakeholders. The cumulative risk is therefore considered to be Low.

6.2.12 Vessel and Helicopter Noise

Details of Impacts and Risks and Control Measures

Hazard/Threat:
The potential hazard associated with vessel and helicopter noise is the potential to cause behavioural disturbance to marine fauna.
Receptors:

Marine fauna that may potentially be impacted by vessel and helicopter noise include:

- Cetaceans
- Marine turtles
- Whale sharks
- Dugongs
- Birds

Adopted Control Measures:

Vessel activities will be undertaken in accordance with EPBC Regulations 2000 – Part 8 Division 8.1, including:

- taking action to avoid approaching or drifting closer than 50 m to a dolphin or 100 m to a whale; and
- not exceeding a speed of 6 knots within the caution zone of a cetacean (300 m).

Consistent with the requirements of the EPBC Regulations 2000 - Part 8 Division 8.1 for cetaceans, seismic vessels and support vessels (taking into account the limited manoeuvrability of the former) will also take action to avoid approaching or drifting closer than 50 m to a turtle or dugong.

Seismic vessels and support vessels (taking into account the limited manoeuvrability of the former) will also adopt measures consistent with the DPaW Whale Shark Management Programme (2013), including:

- taking action to avoid approaching or drifting closer than 30 m of a whale shark; and
- not exceeding 8 knots within 250 m of a whale shark.

Helicopter movements will be undertaken in accordance with EPBC Regulations 2000 – Part 8 Division 8.1, including:

- helicopters not to operate at a height lower than 1650 feet within a horizontal radius of 500 metres of a cetacean
- helicopters not to approach a cetacean from head on.

Details of Residual Impacts and Risks:

Given there are no high energy impulsive sound sources associated with the routine operation of helicopters and vessels, there may be some localised behavioural disturbance of marine fauna in the immediate vicinity of vessels during operations, but physiological effects on fauna are not anticipated. Some transient marine fauna individuals may choose to avoid the immediate proximity of the vessel, but this is not expected to have any widespread or longer term impacts on their behaviour or populations. Seabirds are generally understood to be undeterred by vessel noise.

Some minor behavioural disturbance may occur for short periods if marine fauna are present near the surface in the vicinity of landing helicopters. This would be limited to a temporary change in behaviour due to avoidance of the area, but is not expected to have any longer term impacts. Seabirds are expected to avoid the immediate vicinity of a helicopter, but again no long term impacts are anticipated.

The residual impacts and risks, with the control measures in place, have therefore been assessed as Low.

Risk Ranking	Consequence	Likelihood	Risk
Inherent Risk:	Slight (1)	Occasional (C)	**Low**
Residual Risk:	Slight (1)	Occasional (C)	**Low**

6.3 Liquid and Solid Waste Disposal

6.3.1 Liquid Waste Discharges from Vessels

Details of Impacts and Risks and Control Measures

Hazard/Threat:

Without adequate control measures in place, the potential hazards associated with liquid waste discharge into the Operational Area are:

- Temporary and localised reduction in water quality; and

■ Minor and temporary toxicity on marine biota
Receptors:
Water quality and marine biota.
Adopted Control Measures:
Sewage will be managed in accordance with MARPOL Annex IV and AMSA Marine Order 96, using an IMO-approved sewage treatment plant, a sewage comminuting and disinfecting system or a sewage holding tank as applicable depending on vessel gross tonnage or people capacity (as evidenced by a current International Sewage Pollution Prevention (ISPP) Certificate).
In accordance with MARPOL Annex IV and AMSA Marine Order 96: ■ Sewage will only be discharged via an IMO-approved Sewage Treatment Plant; or ■ Comminuted/disinfected sewage via an IMO-approved system will only be discharged when ≥3 Nm from land and when the vessel is moving at ≥4 knots; or ■ Sewage that has not been comminuted/ disinfected via an IMO-approved system will only be discharged when ≥12 Nm from land and when the vessel is moving at ≥4 knots.
Vessels will have facilities on board of a standard capable of macerating or grinding putrescible wastes and screening to less than 25 mm in diameter, prior to discharge while the vessel is moving and ≥3 Nm from land.
Vessels > 400 gross tonnes will have an oil discharge monitoring and control system and oil filtering equipment on board, hold a current IOPP Certificate and maintain an oil usage management log book, in accordance with MARPOL 73/78.
Treated bilge water will be discharged only when the vessel is moving and the oil discharge monitoring and control system and oil filtering equipment is operating. If oil discharge monitoring and control system and oil filtering equipment are unavailable, bilge water mixtures will be retained on board for on shore disposal.
Oil discharge monitoring and control systems on board the survey vessels will be maintained and calibrated to ensure monitoring readings are accurate.
Details of Residual Impacts and Risks:
Impacts resulting from the discharge of domestic liquid wastes are expected to be negligible, as treated discharges would rapidly disperse in close proximity to the release location given surface currents and the assimilative capacity of the open ocean environment. Planned/routine discharge of domestic wastes has the potential to temporarily create a localised increase in nutrient levels resulting in minor and temporary ecological impacts (e.g. changes in the availability of light, certain nutrients and/or dissolved oxygen). Modelling of domestic waste discharges (10 m^3/day) undertaken by Woodside (2014) indicated that discharges were rapidly diluted in the upper water column (less than 10 m depth) with no significant lasting elevations in water quality parameters (e.g. total nitrogen, total phosphorous, and selected metals) above background levels 50 m from the source. Therefore, the extent of impacts is expected to be highly localised to the discharge location. With the proposed management and discharge controls in place, discernible impacts to water quality and marine biota are not expected in the open water location of the Cygnus 3D MSS. The consequence of reduction in water quality and impacts to marine biota is therefore slight given the nature and scale of the impact, though any changes would rarely be discernible. The residual risk associated with the management and disposal of liquid waste discharges has been determined to be low.

Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Slight (1)	Rare (B)	**Low**
Residual Risk:	Slight (1)	Rare (B)	**Low**

6.3.2 Solid Waste Management on Vessels

Details of Impacts and Risks and Control Measures

Hazard/Threat:
If solid wastes on board vessels are not managed or disposed of appropriately, small quantities of solid waste (e.g. packaging and other domestic waste products) may be released with the potential to impact the environment. The potential hazards associated with the discharge of solid wastes in the Operational Area are: ■ Temporary and localised reduction in water quality; and ■ Interactions with marine biota (e.g. contact, entanglement, ingestion).
Receptors:
Water quality and marine biota
Adopted Control Measures:
In accordance with MARPOL Annex V and Marine Order 95: ■ Vessels > 100 t (or certified for >15 persons on board) will have a Waste Management Plan ■ Vessels >400 T (or certified for >15 persons on board) will have a waste management log book
Bins available for the segregation of waste in accordance with the vessel Waste Management Plan, and bins are fitted with lids/cargo nets for waste with potential to be wind-blown (e.g. paper, cardboard).
Solid hazardous and non-hazardous wastes generated during the survey are segregated on board the vessels and are either incinerated (using an IMO-approved incinerator, on seismic vessel only) or appropriately disposed of at a licensed onshore facility in accordance with the Vessel Waste Management Plan.
Food waste will be macerated to <25 mm diameter and then only discharged when the vessel is moving and is more than 3 NM from the nearest land.
Non-hazardous waste generated on board the vessel will be recycled or re-used where practical and possible.
Solid waste generated during the survey on board the vessel will be minimised where practical, as identified during the pre-survey environmental checklist.
Details of Residual Impacts and Risks:
Impacts resulting from the routine management of sold hazardous and non-hazardous wastes are expected to be negligible, as there will be no planned discharge of solid wastes to the marine environment. Discharge of solid wastes has the potential to temporarily create a localised change in water quality and temporary ecological impacts. Solid wastes may also be blown off the vessel, which could have the potential to result in fauna mortality or injury through ingestion or entanglement. Windblown waste would be rare as wastes will be stored in closed containers. With the proposed management and discharge controls in place, discernible impacts to water quality and marine biota are not expected in the open water location of the Cygnus 3D MSS. The consequence of reduction in water quality and impacts to marine biota is therefore slight given the nature and scale of the impact, though any changes would rarely be discernible. The residual impacts and risks, with the control measures in place, have therefore been assessed as low.

Risk Ranking:	**Consequence**	**Likelihood**	**Risk**
Inherent	Slight (1)	Rare (B)	**Low**
Residual Risk	Slight (1)	Rare (B)	**Low**

6.4 Atmospheric Emissions

Details of Impacts and Risk Control Measures

Hazard/Threat:
Atmospheric emissions have the potential to result in a localised reduction in air quality in the immediate vicinity of the vessel exhaust and to contribute to greenhouse gases (GHG) in the atmosphere.
Receptors:
Air quality in the immediate vicinity of the vessel exhaust and global levels of GHG in the atmosphere.
Adopted Control Measures:
In accordance with MARPOL 73/78 Annex VI (Prevention of Air Pollution) and Marine Orders 97: ■ Vessels to have a valid IAPP Certificate (International air pollution prevention certificate) ■ Incinerator will be certified to meet prescribed emissions standards ■ Diesel engines >130kW certified to meet prescribed emission standards
Vessels will use MGO grade fuel during the survey, which will have low sulphur content of ≤3.5% by mass.
Vessel engines and incinerators maintained according to manufacturer's specification
Fuel usage for the survey will be recorded
Details of Residual Impacts and Risks:
Impacts resulting from atmospheric emissions are expected to be negligible, as emissions would rapidly disperse in close proximity to the release location. Atmospheric emissions have the potential to result in a localised reduction in air quality in the immediate vicinity of the vessel exhaust and to contribute to Australian and global levels of greenhouse gases in the atmosphere. Due to the low emission levels and very low background levels of pollutants, it is anticipated that emissions resulting from the survey will only result in a short term and localised reduction in air quality, with emissions quickly dispersing back to within background levels. No lasting effect on sensitive receptors is likely. Given the low level of emissions anticipated, survey emissions only represent a small contribution to overall Australian and global GHG emissions to the atmosphere. With the proposed management and controls in place, discernible impacts to air quality are not expected in the vicinity of the Cygnus 3D MSS. The consequence of reduction in air quality is therefore low given the nature and scale of the impact, though any changes would rarely be discernible. The residual impacts and risks have therefore been assessed as low.

Risk Ranking:	**Consequence**	**Likelihood**	**Risk**
Inherent Risk	Slight (1)	Regular (D)	**Low**
Residual Risk	Slight (1)	Regular (C)	**Low**

6.5 Artificial Light Emissions

Details of Impacts and Control Measures

Hazard/Threat:
Artificial light resulting from navigational and safety lighting for seismic survey/support vessels may disrupt marine fauna behaviour.
Receptors:

Marine fauna sensitive to artificial lighting (i.e. turtles, fish and seabirds).
Adopted Control Measures:
Reduce lighting as far as practicable, whilst not jeopardising safety (e.g. non-essential lighting to be turned off when not in use).
Identify opportunities to further reduce lighting during pre-survey environmental checklist.
Crew instructed/briefed to minimise unnecessary external lighting where practicable.
Details of Residual Impacts and Risks:
Impacts resulting from artificial lighting during the survey are expected to be negligible. Due to the size of the vessel and the height above sea level where lights will be positioned, it is expected that light emissions will be limited to localised offshore attraction/repulsion of marine fauna species, including marine turtles, fish and seabirds. Artificial lighting has the potential to temporarily create an attraction/repulsion of marine fauna species, including marine turtles, fish and seabirds. The transient nature of the survey, the predominantly open oceanic location of the Operational Area, and the minimum distance to known turtle nesting and bird breeding colonies (Ashmore Reef (85 km), Cartier Island (30 km) and the Kimberley coast (130 km) means that these are unlikely to be impacted. In addition, during acquisition, sound emissions from the seismic vessels are expected to act as a localised and temporary deterrent to approaching marine fauna. The survey is unlikely to generate light levels sufficient to disrupt natural behavioural patterns on a long term basis that could result in significant effects to the marine fauna populations in the region. With the proposed management controls in place, discernible impacts to marine fauna are not expected in the location of the Cygnus 3D MSS from artificial light. The consequence of disrupting some marine fauna behaviours is slight given the nature and scale of the impact, though any changes would rarely be discernible. The residual impacts and risks have therefore been assessed as low.

Risk Ranking:	Consequence	Likelihood	Risk
Inherent Risk	Slight (1)	Occasional (C)	**Low**
Residual Risk	Slight (1)	Rare (B)	**Low**

6.6 Introduction of Invasive Marine Species

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Introduction of invasive marine species (IMS) to the Operational Area has the potential to occur through: ■ biofouling of vessel hull; ■ exchange of ballast waters; and ■ biofouling of in-water survey equipment. If successfully established, IMS may result in: ■ Competition, predation or displacement of native species. ■ Alteration of natural ecological processes. ■ Introduction of pathogens with the potential to impact on ecological health.
Receptors:
Marine ecological communities (alterations to local ecosystems)
Adopted Control Measures:
Vessel hull and niches confirmed to be free of IMS prior to mobilisation into Australian waters.

Survey and support vessels will have all necessary Department of Agriculture and Water Resources biosecurity approvals prior to mobilisation, including Pre-Arrival Report clearance for vessels entering Australian territorial waters.

All vessels will comply with the requirements of the National Biofouling Management Guidance for the Petroleum Production and Exploration Industry (Commonwealth of Australia, 2009) of which key requirements are:

- Maintenance of biofouling electronic records outlining marine fouling management actions.
- Completion of an IMS risk assessment prior to vessel entry into Australian waters which concludes a low risk of IMS presence.
- In-water equipment free of marine fouling prior to the commencement of the survey.

All vessels will maintain a current anti-fouling coating that complies with the requirements of Annex 1 of the International Convention on the Control of Harmful Anti-Fouling Systems on Ships and the requirements of the *Protection of the Sea (Harmful Antifouling Systems) Act 2006*.

Streamers will be inspected, maintained and cleaned during retrieval (e.g. due to transit, crew change, inclement weather) to reduce biofouling.

Exchange of ballast water will only occur >12 nm from land and in water depths of >50 m in accordance with the Australian Ballast Water Management Requirements (Department of Agriculture and Water Resources 2017).

BWM-T class (IMO approved) ballast water management system on board the seismic vessel treats water to reduce the risk of any living organisms being present prior to discharge.

Survey and support vessels will have a Ballast Water Management Plan (BWMP) and a ballast water record system/book, consistent with the Australian Ballast Water Management Requirements (Department of Agriculture and Water Resources 2017).

Details of Residual Impacts and Risks:

Impacts resulting from the introduction of marine species from ballast water and biofouling (submersible equipment and seismic/support vessels) are expected to be negligible. IMS once introduced are irreversible and can have significant impacts on the marine ecosystem as they are likely to have little or no natural competition or predation, resulting in IMS outcompeting native species for food or space, preying on native species or changing the nature of the environment. This will result in an alteration of natural ecological processes and the potential to introduce pathogens.

Vessels operating in offshore environments are less likely to accumulate or translocate marine pests than vessels that spend prolonged periods in shallow port or coastal waters (Commonwealth of Australia 2009; Wells *et al*. 2009). Therefore, highly disturbed, shallow water environments such as ports and marinas are more susceptible to colonisation than open-water environments, such as the Operational Area, where the rate of dilution and the degree of dispersal are high (Williamson and Fitter 1996; Paulay *et al*. 2002).

With the proposed management controls in place, discernible impacts to ecological marine communities are not expected in the open water location of the Cygnus 3D MSS. The consequence to marine biota is extensive given the nature and scale of the impact, though any changes would rarely be discernible.

The likelihood of IMS establishment in the Operational Area is further reduced with the controls in place, but remains Rare (B).The residual impacts and risks have therefore been assessed as low.

Risk Ranking:	**Consequence**	**Likelihood**	**Risk**
Inherent Risk	Extensive (3)	Rare (B)	**Low**
Residual Risk	Extensive (3)	Rare (B)	**Low**

7. ENVIRONMENTAL RISKS AND MANAGEMENT - UNPLANNED

This section describes and assesses the potential environmental impacts associated with credible unplanned events that could occur during the Cygnus 3D MSS. Based on the risk assessment method undertaken for this EP (Section 4.4), the impacts and risks associated with the following unplanned events are described in the subsections below:

- hydrocarbon and chemical spills; and
- loss of equipment

7.1 Hydrocarbon and Chemical Spills

7.1.1 Vessel Fuel Tank Rupture

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Surface hydrocarbon exposures resulting from an accidental MGO spill from a vessel fuel tank rupture (280 m^3) have the potential to result in the following adverse effects on the environment: ■ Toxic effects on marine fauna that come into contact with surface hydrocarbons; ■ Disruption to other marine users from the presence of the slick. Entrained hydrocarbon exposures within the top 10 m of the water column have the potential to result in the following adverse effects on the environment: ■ Toxic effects to fish ingesting or contacting entrained hydrocarbons; ■ Toxic effects on plankton, juvenile fish, eggs and larvae that may become entrained with hydrocarbon droplets; and Shoreline exposures have the potential to result in the following adverse effects on the environment: ■ Toxic effects to shoreline and intertidal habitats and communities (e.g. fringing coral reefs) where oil becomes stranded; ■ Toxic effects to shore birds and nesting marine turtles.
Receptors:
■ Marine fauna, including EPBC Act listed species such as turtles, cetaceans, dugongs, whale sharks and birds ■ Fish, eggs and larvae ■ Other marine users, including fisheries and commercial shipping ■ Shoreline and intertidal habitats and communities
Adopted Control Measures:
Vessels utilise MGO which is stored in multiple fuel tanks on board. Fuel tanks can be isolated and contents transferred between them.
Seismic vessels have a double hull design making a rupture highly unlikely, even in a collision situation.
Radar on board each seismic vessel is fitted with a collision alarm, and seismic vessels have DNVGL NAUT-AW class notation for enhanced nautical safety, incorporating a grounding avoidance system.
Vessels will maintain appropriate lighting, shapes, navigation and communication at all times to inform other users of the position and intentions of the vessel, in compliance with the Navigation Act 2012 and associated Marine Orders.
A 24 hour visual, radio and radar watch will be maintained for vessels in the vicinity of the Operational Area.
Other users who may be present in the Operational Area will be advised of survey activities through: ■ Pre-mobilisation consultation; ■ Notice to Mariners issued by the AHS prior to survey mobilisation and following demobilisation; and

Daily reports provided to the AMSA JRCC.
All vessels over 400 t (MARPOL 73/78 Annex I) hold approved and tested SOPEPs and crew are trained in its implementation.
In the event of a spill to the marine environment, the OPEP presented in Section 8.2 will be followed.
Details of Residual Impacts and Risks:
Marine fauna (Surface Exposures) Surface MGO exposures are expected to be limited to several kilometres and fall below 10 g/m^2 within 24-48 hours of a spill occurring. Therefore, given the relatively short-term and localised exposure potential, sub-lethal and lethal impacts to transient marine fauna from inhalation, ingestion or skin contact are expected to be limited to individuals or groups of fauna that forage within the localised area of the slick during the first 24-48 hours, though there is the potential for some less severe sub-lethal impacts to occur if patchy residues of the slick are inhaled or ingested beyond 48 hours of the spill occurring. While this could potentially result in the mortality of some turtles, marine mammals and birds, it is highly unlikely that the number of animals that would be encountered and impacted by the slick would result in population and stock level impacts. The potential consequence to marine fauna is assessed to be Extensive (3). *Other marine users (Surface Exposures)* Considering the maximum predicted extent of moderate surface hydrocarbon exposures (>10 g/m^2) is up to 36 km from a release site and the short-term presence of such exposures (approximately 24 hours), it is anticipated that the impacts on other activities would be relatively localised and short-term. Further, the maximum area of the slick at any time is expected to cover only several kilometres. Therefore, the potential consequence on other marine users and activities is considered Minor (2). *Pelagic fish, eggs and larvae (Entrained Exposures)* The low probability (<5%) of low exposures of entrained hydrocarbon droplets in the water column has the potential to impact marine organisms such as juvenile fish, larvae and planktonic organisms that may become entrained with the hydrocarbon droplets and risk chronic exposure impacts, or if entrained hydrocarbons adhere to fishes' gills. Given the low, patchy exposures that could potentially occur as a worst case, and that key fish species associated in the region are understood to be broadcast spawners, releasing large numbers of eggs in the region on multiple occasions during a season, the proportion of juveniles, eggs and larvae that may be affected during the short duration of the spill is expected to be negligible. Therefore, the potential consequence to pelagic fish, eggs and larvae is expected to be Slight (1). *Shoreline Habitats and Communities (Shoreline Accumulation)* Shoreline exposures, including contact with coral and algae could result in the death and impairment of some localised patches of coral along the shorelines of Cartier Island if stranding and direct contact at low tide occurs, with some lesser impacts to corals at Ashmore Reef, Hibernia Reef and Browse Island possible under different conditions. Once impacted, the affected patches of reef may not recover for months or years, although the overall status and ecological functioning of the broader area of coral reef communities at these locations is not expected to be significantly impacted. The potential consequence to intertidal corals and other shoreline habitats is assessed as Major (4) without controls in place, but is reduced to Extensive (3) with the proposed controls, which include double lined, isolated tanks to limit the potential for a full fuel tank to be released and therefore limits the potential extent of shoreline impacts. *Nesting Turtles and Shore Birds (Shoreline Accumulation)* The potential for turtles and birds to be impacted at Ashmore and Hibernia Reefs is limited given the low probability of accumulation and the weathering that will have occurred to the MGO before it reaches these locations. Nesting turtles and birds may potentially be impacted by moderate accumulations >100 g/m^2 occurring at Cartier Island, although there is a low probability of these occurring from a spill in the Operational Area. The accumulated MGO may persist on the shoreline or within the intertidal zone for a couple of days and nights during which time it is expected to be sufficiently weathered or removed by tides and wave action. During this worst credible exposure window, several nesting adult turtles, turtle hatchlings or nesting birds could be exposed to lethal and sub-lethal impacts. Given the likely extent of weathering that will occur, impacts are more likely to be sub-lethal (e.g. skin and eye irritation). The consequence of this impact is considered to be Extensive (3). With the proposed preventative and mitigative controls in place, the likelihood of a vessel incident occurring, and resulting in a fuel tank rupture and the loss of a full 280 m^3 tank volume, and resulting in the impacts described above is considered to be Rare (B). The residual risks have been determined to be Low.
Marine Fauna e.g. Turtles, Mammals, Birds (Surface Exposures)

Risk Ranking	Consequence	Likelihood	Risk
Inherent Risk:	Extensive (3)	Rare (B)	**Low**
Residual Risk:	Extensive (3)	Rare (B)	**Low**
Other Marine Users – Commercial Fisheries and Shipping (Surface Exposures)			
Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Minor (2)	Rare (B)	**Low**
Residual Risk:	Minor (2)	Rare (B)	**Low**
Pelagic Fish, Eggs and Larvae (Entrained Exposures)			
Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Slight (1)	Rare (B)	**Low**
Residual Risk:	Slight (1)	Rare (B)	**Low**
Shoreline Habitats and Communities (Shoreline Accumulation)			
Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Major (4)	Rare (B)	**Moderate**
Residual Risk:	Extensive (3)	Rare (B)	**Low**
Nesting Turtles and Shore Birds (Shoreline Accumulation)			
Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Extensive (3)	Rare (B)	**Low**
Residual Risk:	Extensive (3)	Rare (B)	**Low**

7.1.2 Vessel Refuelling Failure

Details of Impacts and Risks and Control Measures

Hazard/Threat:
An accidental MGO spill during vessel refuelling (up to 25 m^3) has the potential to result in the following adverse effects on the environment: ■ Toxic effects on marine fauna that come into contact with surface hydrocarbons; ■ Toxic effects to juvenile fish, eggs and larvae from entrained hydrocarbon droplets.
Receptors:
■ Marine fauna, including EPBC Act listed species such as turtles, cetaceans, dugongs, whale sharks and birds ■ Pelagic fish, eggs and larvae
Adopted Control Measures:
Bunkering contractor selection is made in accordance with the contractor selection procedure to ensure the contractor will use dry-break couplings.
Refuelling undertaken in accordance with Polarcus Bunkering Procedure including: ■ Refuelling will only be undertaken during daylight hours and in suitable weather conditions.

■ Completion of the Permit to Work Refuelling At Sea Checklist and Bunkering Checklist ensuring that anti-pollution equipment is ready and scuppers plugged before bunkering commences. Spill kits are available on board the seismic vessel and crew are trained in their use.
No refuelling will occur at sea within 25 km of the mainland, islands or 19 m water depth contour.
All vessels over 400 t (MARPOL 73/78 Annex I) hold approved and tested SOPEPs and crew are trained in its implementation.
In the event of a spill to the marine environment, the OPEP presented in Section 8.2 will be followed.
Details of Residual Impacts and Risks:
A refuelling spill of up to 25 m^3 of MGO may result in localised exposure of receptors to localised surface and entrained hydrocarbons. Potential exposures to spilt surface oil >10 g/m^2, considered representative of potential lethal and sub-lethal impacts to marine fauna such as turtles, cetaceans and birds are expected to be limited to a localised area for a few hours or less than a day. Therefore, worst case impacts are expected to be limited to sub-lethal impacts or potential mortality to a small number of individuals Entrained exposures are also expected to be low, resulting in limited interactions with small numbers of fish, eggs and larvae in the upper water column that are largely incidental in nature. The localised and short term impacts that are predicted to occur to marina fauna and fish following weathering, dispersion and degradation in the open water environment of the Operational Area are therefore assessed to be Low.

Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Minor (2)	Occasional (C)	**Low**
Residual Risk:	Minor (2)	Rare (B)	**Low**

7.1.3 Single Point Failure

Details of Impacts and Risks and Control Measures

Hazard/Threat:
Accidental spills of up to 1 m^3 of hydraulic fluids or chemicals are expected to result in a localised and short term reduction in water quality with the potential to result in toxic effects on marine fauna.
Receptors:
■ Marine fauna, including EPBC Act listed species such as turtles, cetaceans, dugongs, whale sharks and birds ■ Pelagic fish, eggs and larvae.
Adopted Control Measures:
Hydraulic fluids and chemicals will be selected in accordance with the Polarcus Chemical Control Procedure and will be selected to have the lowest environmental toxicity possible whilst meeting operational performance requirements.
Storage, handling and use of hazardous substances (including hydraulic fluids and chemicals) shall be in accordance with the product's Safety Data Sheet (SDS)
Spill kits and scupper plugs are available on board the seismic vessel and crew are trained in their use.
All vessels over 400 t (MARPOL 73/78 Annex I) hold approved and tested SOPEPs and crew are trained in its implementation.
Spills will be reported through the Polarcus Incident Reporting Procedure and waste materials managed in accordance with the vessel Waste/Garbage Management Plan.

Details of Residual Impacts and Risks:			
The accidental release of up to 1 m^3 of hydraulic fluids or chemicals to the marine environment may result in a localised reduction in water quality. Hydraulic fluids spilt overboard have the potential to result in toxicity effects to marine fauna and fish in the immediate vicinity of the spill release location, through direct contact or accidental ingestion. Given the open water dispersive location of the Operational Area, the extent and duration of potential exposures, impacts to marine fauna and fish is expected to be highly localised and short term, and limited to the vicinity of point of discharge. Therefore, impacts are considered to result in a minor consequence and the residual risk has been determined to be Low with the proposed preventative controls in place.			
Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Minor (2)	Occasional (C)	**Low**
Residual Risk:	Minor (2)	Rare (B)	**Low**

7.1.4 Spill Response Options

Spill response mitigation measures will be implemented as appropriate to reduce the likelihood of impacts to key marine environmental receptors. The objectives of spill response include the protection of human health, environmental values, and the protection of assets. The selection of spill response techniques in any situation will include an assessment of the net environmental benefit of the technique, taking account of priorities for protection and restoration and the sensitivity of the receptors at risk.

Based upon the outcome of the predictive spill modelling and the properties of MGO, the following spill response options are considered applicable for potential MGO spills:

- Source control, which will include locating the source of the leakage and may also include isolating the tanks, transferring oil to slack or empty tanks, ceasing bunkering operations or using scupper plugs;
- Monitor and evaluate the trajectory and extent of the spill; and
- Assisted natural dispersion using propeller wash, if advised by the Control Agency, AMSA, and deemed safe.

The above spill response options are not expected to introduce additional hazards to the marine environment or to result in significant additional potential impacts. The response options of source control, monitor and evaluate and assisted natural dispersion will use existing survey and/or support vessels, and the potential impacts associated with the use vessels is evaluated in Section 6.1.2 for planned activities.

7.2 Loss of Equipment

Details of Impacts and Risks and Control Measures

Hazard/Threat:
The loss of equipment overboard has the potential to: ■ disrupt other users of the Operational Area; and ■ result in disturbance to the seabed.
Receptors:
■ Other marine users (e.g. commercial fisheries and shipping) ■ Benthic habitats and communities
Adopted Control Measures:

Streamers will be deployed and retrieved in accordance with the Polarcus Deployment and Recovery of Streamers Procedure, of which key requirements include:

- Ensuring weather conditions are appropriate for deployment and retrieval;
- Ensuring tail buoy GPS is operational;
- Monitoring deployment and retrieval closely;
- Checking for physical damage;
- Ensuring connection devices are in serviceable condition;
- Storing all birds, floats, retrievers and acoustic racks immediately following recovery.

Streamers shall be fitted with redundant retainers, tail buoys and relative GPS.

Solid streamers shall be used for the survey.

All lifting gear used for deployment and retrieval of equipment over the vessel shall be load rated for the working load.

AMSA JRCC and relevant stakeholders known to be in the Operational Area will be notified in the event of equipment loss.

At least one support vessel will accompany the seismic vessel at all times and will, if necessary, assist in the recovery of lost equipment.

Details of Residual Impacts and Risks:

In the event that equipment is lost, other users of the Operational Area may be required to make minor diversions to avoid the equipment, until it can be retrieved. The potential for such interactions will be limited to a short period of time while equipment is retrieved. Should disruption occur it is only expected to affect individual users and cause temporary disruption through avoidance of a highly localised area. Given the nature and size of the equipment to be used during the survey, lost equipment is not expected to result in a navigational hazard.

Dropped equipment may also disturb benthic habitats. As described in Section 3.3.3, the majority of benthic habitats in the Operational Area comprise mostly sediments with sparse areas of sponges, soft corals and filter feeders. Occasional calcareous rock outcrops may occur in places such as in association with carbonate banks located around the Operational Area. Such habitats are well represented throughout the region. Given the size of equipment used for the survey, only a relatively small area of the seabed would be disturbed and lasting impacts are not expected.

Therefore, impacts are considered to result in a minor consequence and the residual risk has been determined to be Low. Further detail is provided in the evaluation of impacts and risks below.

Risk Ranking	**Consequence**	**Likelihood**	**Risk**
Inherent Risk:	Slight (1)	Occasional (C)	**Low**
Residual Risk:	Slight (1)	Rare (B)	**Low**

8. IMPLEMENTATION STRATEGY

The Implementation Strategy in the EP describes:

1. The Polarcus Environmental Management System (EMS);
2. Roles and responsibilities, competency and training;
3. Arrangements for ongoing stakeholder consultation and notifications.
4. Compliance assurance arrangements, including arrangements for monitoring, review and reporting of environmental performance; and
5. Preparedness for responding to oil pollution emergencies through an OPEP and appropriate arrangements for environmental monitoring;

The Cygnus 3D MSS will be undertaken in accordance with the control measures, environmental performance outcomes, environmental performance standards and measurement criteria defined in the NOPSEMA-accepted EP, applicable legislation and the Polarcus Environmental Management System.

8.1 Compliance Assurance

Compliance with this EP will be assured and reviewed via the daily on-board meetings and on-board HSE committee meetings, and via internal audit and monitoring programs described below.

8.1.1 Monitoring

Monitoring will be undertaken for the Cygnus 3D MSS, and records kept as detailed in Table 8-1.

Table 8-1 Monitoring Summary

Discharge/Incident	Parameters	Record	Responsibility
Atmospheric Emissions			
Engine emissions	Quantity of marine diesel used by the seismic vessel	Engineers log	Vessel Master
Discharges to Sea			
Oily water discharges	The volume of oily water discharge from the seismic vessel.	Oil usage management electronic records	Vessel Master
Food waste	The volume of food-scraps discharged from the seismic vessel	Waste management electronic records	Vessel Master
Sewage/Grey water discharge	The volume of sewage and grey water discharged from the seismic vessel	Engineers log	Vessel Master
Disposal of Wastes			
Hazardous wastes	Volume of hazardous wastes transferred onshore.	Waste management electronic records/oil usage management electronic records	Vessel Master
Non-hazardous wastes	Volume of non-hazardous wastes transferred onshore	Waste management electronic records	Vessel Master
Marine Fauna Interaction			
Cetacean, whale shark, dugongs and turtle sightings	Details required on the Whale and Dolphin Sighting reports (DOEE)	Sighting records	MFO

Discharge/Incident	Parameters	Record	Responsibility
Collisions with cetaceans in Commonwealth waters will be reported to the National Ship Strike Database.	Location, timing, species, vessel speed, what happened	National Ship Strike Database https://data.marinemammals.gov.au/report/shipstrike/new	MFO
Marine User Interaction			
Vessel Interaction/ Complaints	Communications with other vessels	Ships log	Vessel Master

8.1.2 Review and Reporting of Environmental Performance

Polarcus will undertake an internal review of the environmental performance of the survey on completion. The outcomes of the review will be circulated to relevant persons in Polarcus and to other stakeholders as appropriate. The outcomes of the review will be incorporated into environmental management measures applied to future activities to further improve Polarcus' environmental performance, and will be included in the Environmental Performance Report submitted to NOPSEMA within two months of completing the Cygnus 3D MSS.

8.1.3 Management of Change and New Information

In order to ensure that impacts and risks are continually reduced to ALARP and acceptable levels and the requirements of legislation will continue to be met, Polarcus will undertake periodic verification of environmental inputs used to inform the evaluation of impacts and risks in the EP, including identifying updates to legislative requirements and environmental information.

Any new or increased impacts or risks that may arise from the verifications will be managed through the Polarcus Management of Change Procedure.

8.1.4 EP Review and Resubmission

New information, changes or updates will be considered against Regulation 17 of the OPGGS (E) Regulations, to determine if resubmission of the EP to NOPSEMA is required. Relevant sub regulations and triggers for EP resubmission under Regulation 17 include the following:

- 17(1) New Activity
- 17(5) Significant modification of the activity
- 17(5) New stage of the activity
- 17(6) New or increased environmental impact or risk.
- 17(7) Change in Titleholder

8.1.5 Compliance Audits

Polarcus will maintain a compliance register that will serve as an audit tool during the Cygnus 3D MSS.

Prior to mobilisation and in accordance with the Polarcus Environmental Management Procedure, Polarcus will complete:

- A pre-survey environmental checklist; and
- An audit of the on-board spill response capability against the vessel SOPEP to verify spill preparedness.

Polarcus will then conduct a compliance audit against this EP.

8.1.6 Management of Non-conformance

Non-conformances and opportunities for improvement will be identified and corrective actions will be tracked to completion in accordance with the Polarcus Incident Reporting Procedure and Risk Management Procedure.

Polarcus will carry forward non-conformances identified during the Cygnus 3D MSS for consideration in future seismic surveys to assist with continuous improvement in environmental management controls and performance outcomes.

8.2 Oil Pollution Emergency Plan

In order to encompass the nature and scale of the survey and respond to the identified credible spill scenarios, the overall Oil Pollution Emergency Plan (OPEP) for the survey encompasses multiple levels of planning and response capability.

The overall seismic survey OPEP is therefore represented by various levels of emergency plan, which comprise of:

- Vessel(s) SOPEP – for spills contained on the vessel or spills overboard which can be managed by the vessel;
- The National Plan for Maritime Environmental Emergencies (National Plan) (AMSA 2019) - AMSA is the jurisdictional authority and control agency for spills from vessels which affect Commonwealth waters and waters of the Ashmore and Cartier Territory; and
- The WA State Hazard Plan for Maritime Environmental Emergencies (State Hazard Plan) (DOT 2018) – for spills from vessels which affect WA State waters.

AMSA is the jurisdictional authority and control agency for spills from vessels which affect Commonwealth waters and waters of the Ashmore and Cartier Territory.

In the unlikely event of a spill of hydrocarbons or chemicals to the marine environment, Polarcus will notify AMSA. AMSA will advise of any response actions required.

8.2.1 Preferred Response Strategy

The preferred strategy for MGO spills will be to allow small spills to disperse and evaporate naturally, and monitor the position and trajectory of any surface slicks. Physical break up (assisted natural dispersion) by repeated transits through the slick may be considered for larger slicks (following consultation with the Combat Agency – AMSA).

8.2.2 Testing and Review of Response Arrangements

The Vessel SOPEP includes provision for testing the SOPEP as required under Regulations 14(8A) to 14(8C) of the OPGGS (E) Regulations. The test will audit the on-board spill response capability against the SOPEP to verify spill preparedness and ensure vessel personnel are familiar with required actions. The test will be conducted during the mobilisation phase of the Cygnus 3D MSS.

Outcomes of this testing will be documented and any corrective actions/improvements implemented prior to survey commencement. If required as an outcome of this testing the emergency response arrangements in this EP will be reviewed. The vessel SOPEP is also reviewed at least annually by Polarcus to ensure it is current and up to date.

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APPENDIX A STAKEHOLDER CONSULTATION LOG

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Commonwealth Government					
Australian Fisheries Management Authority (AFMA)	28/07/2015	To stakeholder	Email with Fisheries information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call made on 4 August 2015 with message left requesting call-back.	N/A	N/A
	04/08/2015	To stakeholder	Follow up email made on 4 August 2015.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call made on 13 August 2015. AFMA provided updated contact details for the Environment Section.	N/A	N/A
	13/08/2015	From stakeholder	Email from AFMA MOU Branch - the Survey Area overlaps with a portion of the MOU and warns about the likelihood of encounters with Indonesian traditional fishermen. It would be possible for AFMA to assist Polarcus to pass any printed material to the fisheries authorities on Rote Island where nearly all the traditional vessels originate. To be useful any printed material must be translated to Indonesian.	N/A - Advice / request for further information only. No objection or claim made. Information incorporated into EP.	Polarcus replied via email on 14 August 2015 confirming their agreement to prepare the translated information sheet to be distributed prior the start of survey acquisition in MOU Box.
	16/03/2016	To stakeholder	March 2016 Email update sent 16/3/16.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7 March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zénaïde 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hold. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Australian Hydrographic Service (AHS)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	29/07/2015	From stakeholder	Email from AHO on 29 July 2015 acknowledging information sheet and request for final details prior to commencement of survey.	N/A - Advice / request for further information only. No objection or claim made. Information incorporated into EP.	Requirement to notify AHS included in EP. Polarcus replied on 3 August 2015 to confirm such information will indeed be supplied as requested. AHS will be notified prior to commencement of the survey.
	03/08/2015	To stakeholder	Polarcus replied on 3 August 2015 to confirm such information will indeed be supplied as requested.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16.	N/A	N/A
	27/10/2016	To stakeholder	Email sent 27/10/2016 from Polarcus advising commencement of survey on or about 1st December 2016.	N/A	N/A
	16/11/2016	To stakeholder	Email sent 16/11/2016 from Polarcus advising commencement of survey on or about 20th December 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	02/06/2017	From stakeholder	Request from AHS to be kept informed to allow any appropriate notice to mariner's action to be completed.	N/A - Advice / request for further information only. No objection or claim made. Information incorporated into EP.	Requirement to notify AHS included in EP. Polarcus replied on 12/06/2017 to confirm such information will indeed be supplied as requested. AHS will be notified prior to commencement of the survey.
	12/06/2017	To stakeholder	Response to AHS acknowledging email.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14 January 2018, and also that the Zénaïde 3D MSS was partially completed on 23 January 2018 with the seismic survey vessel due to return on or around 7 March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25 April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	25/04/2018	To stakeholder	Email sent from Polarcus Vessel Manager, to AMSA JRCC to advise that survey activities will no longer proceed as previously outlined.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	10/12/2018	From stakeholder	Email from AHS acknowledging information provided on 07/12/18.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hold. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	15/01/2019	From stakeholder	Email from AHS acknowledging information provided on 14/01/19.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/02/2019	From stakeholder	Email from AHS acknowledging information provided on 07/02/2019.	N/A	N/A
Australian Marine Safety Authority (AMSA)	28/07/2016	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	03/08/2015	From stakeholder	Email from AMSA on 3 August 2015 providing vessel traffic plot within the Survey Area and noting that extra caution must be taken where the Survey Area overlaps with the Osborne Passage and the charted Preferred Route. AMSA advised the survey to be conducted in accordance with exceptional communications and certain navigational controls (e.g. lights and streamers, reflective tail buoys, visual and radar watches, etc.). AMSA requested that AMSA's Joint Rescue Coordination Centre (JRCC) be contacted for Auscoast warning broadcasts before operations commence. Additionally, the Australian Hydrographic Service must be contacted no less than 4 working weeks for the promulgation of related Notices to Mariners. AMSA also requested notification of survey end. The Cygnus 3D MSS must be conducted in accordance with MARPOL Convention requirements regarding discharges and the Marine Order '90' series. Finally, AMSA assumed that the Department of Agriculture was being consulted.	N/A - Advice / request for further information only. No objection or claim made. Information incorporated into EP.	Requirement acknowledged via email by Polarcus on 03/08/2015. JRCC and AHS will be notified prior to commencement of the survey.
	03/08/2015	To stakeholder	Polarcus replied to AMSA on 3 August 2015 acknowledging receipt of their email and information (including the vessel traffic plot) for subsequent review and incorporation into this EP as relevant. The EP will include controls to minimise significant disruption or interference with other users of the Survey Area during the survey. Such controls include the navigational measures listed in AMSA's email as well as adherence with requirements of the International Regulations for Preventing Collisions as Sea 1972 (COLREGS), Chapter 5 of Safety of Life at Sea as implemented in Commonwealth Waters through the Navigation Act 2012 and associated Marine Orders Parts 21, 30, 59. Polarcus confirmed that the Cygnus 3D MSS will be conducted in compliance with MARPOL and the Marine Orders. The Department of Agriculture is being consulted regarding the Cygnus 3D MSS.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	18/03/2016	From stakeholder	Email response received 18/3/16 including an updated vessel traffic plot of the Polarcus Cygnus 3D MSS proposed area with 6 months of AIS data noting a slight increase in vessel traffic. Note is also made that caution should be taken when operating in the area of the Osbourn Passes (a preferred shipping route) to minimise the potential for integration with shipping vessels. A request is also made for communications with AMSA following the survey to comment on the operations and the interaction with commercial shipping at the time of the survey.	N/A - Advice / request for further information only. No objection or claim made. Information incorporated into EP.	Requirement acknowledged via email by Polarcus on 03/08/2015. JRCC and AHS will be notified prior to commencement of the survey.
	27/10/2016	To stakeholder	Email sent 27/10/2016 from Polarcus advising commencement of survey on or about 1st December 2016.	N/A	N/A
	16/11/2016	To stakeholder	Email sent 16/11/2016 from Polarcus advising commencement of survey on or about 20th December 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/06/2017	From stakeholder	Email from AMSA re updated traffic plot of survey area provided by stakeholder advising commercial shipping can expect to be encountered anywhere within extended Cygnus Survey area.	N/A - Advice / request for further information only. No objection or claim made. Information incorporated into EP.	Email sent 12/06/17 to AMSA acknowledging comments.
	12/06/2017	To stakeholder	Email sent acknowledging comments	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 Area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	14/04/2018	From stakeholder	Email received acknowledging email and advising that previous advice provided by AMSA remains extant.	N/A	N/A
	25/04/2018	To stakeholder	Email sent from Polarcus Vessel Manager, to AMSA JRCC to advise that survey activities will no longer proceed as previously outlined.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zénaïde 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	30/04/2018	From Stakeholder	Email from AMSA acknowledging information provided on 27/04/018.	N/A	N/A
	02/05/2018	To stakeholder	Email sent from Polarcus Vessel Manager, to AMSA JRCC to advise that survey activities will no longer proceed as previously outlined. Naila has now completed all acquisition activities on the Zénaïde Survey area.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	18/12/2018	From stakeholder	Response to email sent on 07/12/18. Attached updated vessel traffic plots of the Polarcus Cygnus Phase 3 South 3D MSS proposed acquisition and operational areas with 2 & 9 months of AIS data, and details of requirements.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	19/12/2018	To stakeholder	Response to email from AMSA with the confirmed management measures, which will be implemented. In addition, AMSA's Joint Rescue Coordination Centre will be notified 24-48 hours before operations commence for promulgation of radio-navigation warnings and the Australian Hydrographic Service will be contacted for the promulgation of Notices to Mariners.	N/A	N/A
	20/12/2018	From stakeholder	Acknowledgement of email sent on the 19/12/18, noting Polarcus good on-the-water interactions and communications with commercial vessels during the previous Phase of Cygnus 3D MSS. They welcome any information with other vessels during offshore petroleum exploration type activities.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hold. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	15/01/2019	From stakeholder	Email from AMSA acknowledging that Polarcus will employ the boxing-in option around the Montara Infrastructure. Updated traffic vessel plots was attached.	N/A	N/A
	15/01/2019	To stakeholder	Email sent to AMSA acknowledging receipt of updated traffic plots and commitment to keep AMSA updated on the survey.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
	11/02/2019	From stakeholder	Email received from AMSA acknowledging receipt of update sent on 07/02/2019.	N/A	N/A
Maritime Border Command (MBC)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	29/07/2015	From stakeholder	MBC replied on 29 July 2015 stating they had no comment, but would appreciate being kept informed of any further developments.	N/A	N/A
	03/08/2015	To stakeholder	Polarcus replied on 3 August 2015 to confirm that the MBC will be kept informed of the Cygnus 3D MSS.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16.	N/A	N/A
	27/10/2016	To stakeholder	Email sent 27/10/2016 from Polarcus advising commencement of survey on or about 1st December 2016.	N/A	N/A
	16/11/2016	To stakeholder	Email sent 16/11/2016 from Polarcus advising commencement of survey on or about 20th December 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	18/07/2017	To stakeholder	Clarification given to the stakeholder on the proposed activities, the purpose of the email and why Border Command has been chosen as a potential stakeholder. ERM and MBC suggest that contact be made at the time of operation (and directly by Polarcus) instead of during the Environmental Plan stage.	N/A	N/A
	Stakeholder requested to be contacted at the time of operation instead of during the EP development stage. Stakeholder has been removed from the stakeholder register. Polarcus will contact MBC directly at the time of operation.				
Department of Agriculture and Water Resources (DAWR)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call made on 4 August 2015 with message left requesting call-back.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	04/08/2015	From stakeholder	Email received on 4 August 2015 from ABARES relaying that they do not respond to queries relating to seismic testing and referred Polarcus to AFMA for further consultation.	N/A	N/A
	04/08/2015	To stakeholder	Polarcus replied on 4 August 2015 thanking ABARES for their email and confirming that AFMA were being informed of Cygnus 3D MSS.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	17/03/2016	From stakeholder	Email response received 17/3/16 stating that ABARES do not routinely receive, nor respond to, requests relating to seismic testing. However, ABARES are sometimes interested in obtaining bathymetric and other data for use in predictive habitat modelling and other applications, particularly in the Southern Indian Ocean.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016. Future email correspondence with Marine Pests branch.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zénaïde 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hold. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Department of Communications and the Arts	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up call on 4 August 2015 - the department advised that they were drafting up a response and would be sending it through as soon as they heard back from the Australian Communications & Media Authority.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call made on 13 August 2015 with message left requesting call back.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	08/11/2016	From stakeholder	Email received from Senior Policy Officer, on 8th November 2016 advising Polarcus of the potential presence of the Nextgen Northwest Cable System.	N/A - Advice / request for further information only. No objection or claim made. Information incorporated in to the EP.	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	15/06/2017	From stakeholder	Email received from the Department encouraging Polarcus to directly contact any submarine cable operators that may have cables in the vicinity of the study area, and DFAT and DoIIS.	N/A - Advice / request for further information only. No objection or claim made.	Email sent to the Department confirming and acknowledging feedback and comments, and confirming these stakeholders have been contacted.
	20/06/2017	To stakeholder	Email to the Department confirming and acknowledging her feedback and comments, and confirming these stakeholders have been contacted.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	10/10/2017	From stakeholder	Email from Department of Communications (subcables), informing ERM that the Department had provided comments in June 2017 and has no further comments on the update.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zénaïde 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hold. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Department of Defence	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	04/08/2015	To stakeholder	Follow-up call on 4 August 2015 during which the Department of Defence relayed that they did not have any comments at this time.	N/A	N/A
	17/08/2015	From stakeholder	Email from the Department of Defence received on 17 August 2015. The attached letter relayed that the Department of Defence has no objection to the proposed activities and reminds Polarcus of the requirement for advanced notice to AHS.	N/A - Advice / request for further information only. No objection or claim made.	Polarcus replied on 17 August 2015 noting no objection from the Department of Defence and confirming that advanced notice to AHS will be provided.
	17/08/2015	To stakeholder	Polarcus replied on 17 August 2015 noting no objection from the Department of Defence and confirming that advanced notice to AHS will be completed for Cygnus 3D MSS.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	12/06/2017	From stakeholder	Officer advised all contacts to be removed except the petroleum@defence email address removed from database.	N/A - Advice / request for further information only. No objection or claim made.	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zénaïde 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hold. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Department of the Environment and Energy (DoEE)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call made on 13 August 2015 with message left requesting call-back.	N/A	N/A
	17/08/2015	From stakeholder	Call from the DOE was received on 17 August 2015 during which the DOE relayed that they do not need to be consulted regarding EPs under the assessment of NOPSEMA.	N/A - Advice / request for further information only. No objection or claim made.	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16.	N/A	N/A
	27/04/2016	From stakeholder	Email received 27 April 2016 requesting: • a map of where the title boundaries lie in relation to Commonwealth Marine Reserves; • how IUCN categories in Commonwealth Marine Reserve may be impacted by the activity and any proposed measures to mitigate such impacts. • a due date for feedback. The email clarified that correspondence regarding consultation on offshore petroleum activities must be forwarded to marine reserves.	N/A - Advice / request for further information only. No objection or claim made.	Polarcus replied via email on 15 July 2016, providing information to address all queries, including potential acoustic and spill impacts to marine reserves." Email acknowledgement received from the Department on 27 July 2015, and informed that management plans for all reserves currently under transitional management arrangements are expected to be in place within the next 12 months.
	Department of the Environment and Energy requested all correspondence be directed to the Marine Reserves branch (i.e. Director of National Parks). No further correspondence occurred with the Department.				

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Director of National Parks	15/07/2016	To stakeholder	Polarcus replied to email from DoEE received on 27/04/2016 via email, providing information to address the Departments queries, including potential acoustic and spill impacts to marine reserves.	N/A	N/A
	27/07/2016	From stakeholder	Email acknowledgement received from the Department on 27 July 2015, and informed that management plans for all reserves currently under transitional management arrangements are expected to be in place within the next 12 months.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Update sent regarding the rescheduling of the previous survey phase and the intent to resubmit the EP for an extended area and timeframe. Requested any updates in relation to changes to the Ashmore and Cartier marine reserves.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			(Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.		
	03/01/2019	From stakeholder	Email received from the Director of National Parks. DNP advised that the planned activity does not overlap any Australian Marine Parks. Therefore, there is no authorisation requirements from the DNP. The DNP confirmed that no further notification of progress made in relation to this activity unless details regarding the activity change and result in an overlap with a marine parks or for emergency response. The DNP suggests that during the revision of the EP, Polarcus consider the Australian Marine Parks (in the context of the management plan objectives and values). Additional information was provided on emergency response notification requirements.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Australian Marine Mammal Centre	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call made on 4 August 2015 with message left requesting call-back.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call made on 13 August 2015 with message left requesting call-back.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16.	N/A	N/A
	01/12/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	AMMC has been contacted by Polarcus since 2015 and no response has been received. AMCC has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Department of Foreign Affairs and Trade (DFAT)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call made on 4 August 2015 during which the DFAT relayed that they will review the information sheet provided and respond should they have any feedback.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call made on 13 August 2015 during which DFAT requested that information sheet be resent directly to his email address and he will reply should DFAT have any feedback to provide. The information sheet was subsequently resent as requested immediately following the call.	N/A	N/A
	19/08/2015	From stakeholder	Email received from DFAT on 19 August 2015. DFAT (like DOIS previously) reminds Polarcus of the requirement to notify Indonesia of any activity within the Perth Treaty Area (of which the north-western portion of the Cygnus Greater Working Area overlaps) three months prior to the activity. In addition, DFAT (like AMSA previously) reminds Polarcus of the overlap of the Cygnus Greater Working Area with the Memorandum of Understanding (MOU) and thus cautions the likely encounter with traditional Indonesian fishermen.	N/A - Advice / request for further information only. No objection or claim made. Information included in the EP.	Polarcus replied via email on 19 August 2015. Polarcus notes the requirement to give Indonesia three months' notice of a proposed grant of exploration rights within the Perth Treaty Area. Polarcus will work with DFAT, DOIS and NOPTA for any Special Prospecting Authority (SPA) seismic survey activity located within the Perth Treaty Area. Polarcus also notes the overlap of the Cygnus Survey Area with the MOU. The Cygnus 3D MSS EP includes various controls for managing the interaction with Indonesian traditional fishermen. In addition, Polarcus will be working with the AFMA MOU Box Manager to pass

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
					translated printed material to the Indonesian fisheries authorities.
	19/08/2015	To stakeholder	Polarcus replied via email on 19 August 2015. Polarcus notes the requirement to give Indonesia three months' notice of a proposed grant of exploration rights within the Perth Treaty Area. Polarcus will work with DFAT, DOIS and NOPTA for any Special Prospecting Authority (SPA) seismic survey activity located within the Perth Treaty Area. Polarcus also notes the overlap of the Cygnus Survey Area with the MOU. The Cygnus 3D MSS EP includes various controls for managing the interaction with Indonesian traditional fishermen. In addition, Polarcus will be working with the AFMA MOU Box Manager to pass translated printed material to the Indonesian fisheries authorities.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	DFAT has been contacted by Polarcus since 2015 and no response has been received. DFAT has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Department of Industry, Innovation and Science (DoIIS)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email and phone-call on 4 August 2015.	N/A	N/A
	04/08/2015	From stakeholder	Email received on 4 August 2015 from the DOIS in which they relayed that they had no feedback to make related to the survey's EP. The DOIS provided the background and steps for the Special Prospecting Authority application that will need to be made to the National Offshore Petroleum Titles Administrator (NOPTA), as well as notification requirements for any work to be conducted within the Perth Treaty Area.	N/A - Advice / request for further information only. No objection or claim made.	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	23/05/2017	Meeting / phone call	Phone call to clarify boundary of Perth Treaty Area and understand process of notification to Indonesia through DoIIS / DFAT. Meeting followed up with email summary of meeting to attendees.	N/A - Advice / request for further information only. No objection or claim made. Information included in the EP.	Meeting followed up with email summary of meeting to attendees.
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	07/06/2017	From stakeholder	Email from DoIIS acknowledging email with notes on meeting from 23/05/2017 and confirming the boundaries appeared correct.	N/A - Advice / request for further information only. No objection or claim made.	
	13/07/2017	To stakeholder	Email sent to DoIIS asking what the notification requirement is if line turns overlap the Perth Treaty area, but acquisition does not. Polarcus have a survey phase that may go very close to the boundary.	N/A	N/A
	14/07/2017	From stakeholder	Email received from DoIIS informing ERM they have followed up with DFAT.	N/A	N/A
	17/07/2017	To stakeholder	Email sent informing the Department, approximately 20 line changes would occur and a total of approximately 56 hours within the area (maximum 4.5 hours per single line change. A map was provided with the Acquisition Area within Commonwealth waters. Further discussion on the matter to be had between DoIIS, DFAT and Polarcus directly and no longer a matter under the EP.	N/A	N/A
	17/07/2017	From stakeholder	Department acknowledging receipt of information provided by ERM and will pass it on to the DFAT.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Department of Home Affairs	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	05/08/2015	To stakeholder	Follow-up phone call on 5 August 2015. ABF is aware of the email as there has been some discussion regarding it in the office. However, he stated that their main concern would be for ships entering Australian international borders, not those that are already within the borders. He stated that he would follow up with the managers but did not see any potential concerns.	N/A - Advice / request for further information only. No objection or claim made.	N/A
	05/08/2015	From stakeholder	Email received from the Department on 5 August stating that the Australian Border Force has no input to offer in relation to the survey.	N/A	Polarcus replied confirming that vessels for the Cygnus 3D MSS will comply with applicable Australian border protection requirements."
	05/08/2015	To stakeholder	Polarcus replied confirming that vessels for the Cygnus 3D MSS will comply with applicable Australian border protection requirements."	N/A	N/A
	06/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	27/10/2016	To stakeholder	Email sent 27/10/2016 from Polarcus advising commencement of survey on or about 1st December 2016.	N/A	N/A
	16/11/2016	To stakeholder	Email sent 16/11/2016 from Polarcus advising commencement of survey on or about 20th December 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Home Affairs has been contacted by Polarcus since 2015 and no response has been received. Home Affairs has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
National Native Title Tribunal	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up phone call on 5 August 2015 and spoke to receptionist. NNTT mentioned that they have not received the email and requested for the email to be sent to another email address. She stated that she would respond to our email to say that they received it. Email was re-sent on 5 August 2015.	N/A	N/A
	06/08/2015	From stakeholder	Email received on 6 August 2015 stating that the Survey Area is currently not subject to a native title application. The Survey Area does appear to fall within the Representative Aboriginal Torres Strait Islander Body Area of the Northern Land Council and the NNTT recommended that Polarcus seek their feedback on the proposed survey.	N/A - Advice / request for further information only. No objection or claim made.	Polarcus replied on 6 August 2015 confirming Survey Area overlaps with areas of the Northern Land Council and the Kimberley Land Council Aboriginal Corporation. The two parties were added to the stakeholder list and consultation began on 7 August 2015 (per below).
	06/08/2015	To stakeholder	Polarcus replied on 6 August 2015 confirming Survey Area overlaps with areas of the Northern Land Council and the Kimberley Land Council Aboriginal Corporation. The two parties were added to the stakeholder list and consultation began on 7 August 2015 (per below).	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	No regular consultation with NNTT required. Initially contacted to understand baseline environment and potential Native Title interest but none offshore. Future correspondence with NNTT not required unless contacting to conduct new search of NT Register.				
Federal Member for Durack	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call on 5 August 2015.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call made on 13 August 2015 with message left requesting call-back.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Federal Member for Durack has been contacted by Polarcus since 2015 and no response has been received. Federal Member for Durack has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Western Australian Government					
Department of Water and Environmental Regulation (DWER)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call on 5 August 2015 with message left requesting call-back.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone made on 13 August 2015 with message left with Rowan Swan requesting call-back.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	DWER has been contacted by Polarcus since 2015 and no response has been received. DWER has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Department of Mines, Industry Regulation and Safety (DMIRS)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	05/08/2015	From stakeholder	Email received on 5 August advising that significant populations of loggerhead turtles may also occur in Ashmore/Cartier and recommending that the survey timing also account for Loggerhead turtle peak nesting periods (if different to green and hawksbill turtles). DMP requested pre-start notifications confirming the start date(s) for the survey approximately one week prior to commencement and cessation notifications to inform DMP upon completion of acquisition (i.e. for the year).	Reasonable advice given regarding loggerhead turtles. Impacts to turtles and associated controls included in the EP. Requirement for notification to be included in the EP.	Polarcus replied via email on 17 August 2015. The reply included a detailed description of the sporadic nesting of loggerhead turtles in the region of the Survey Area. Polarcus has committed to not acquiring seismic data within a 30 km radius of Cartier Island during the peak nesting periods for green and hawksbill turtles (October to February, which coincides with the peak nesting period of the loggerhead turtle, i.e. December). Polarcus' commitment to not operate the seismic vessel from October to February within the identified BIAs is anticipated to reduce interaction with nesting marine turtles. Polarcus also included the various management measures proposed to be implemented to reduce the number of encounters with foraging turtles (including loggerhead turtles). Such controls include the 500 m exclusion zone from the 19 water depth contour, the 500 m shutdown zone for turtles and the speed restriction within 300 m of a turtle. It is therefore anticipated that the risk of significant impacts from the Cygnus 3D MSS to breeding and foraging marine turtles, including loggerhead turtles, is low.

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	17/08/2015	To stakeholder	Polarcus replied via email on 17 August 2015. The reply included a detailed description of the sporadic nesting of loggerhead turtles in the region of the Survey Area. Polarcus has committed to not acquiring seismic data within a 30 km radius of Cartier Island during the peak nesting periods for green and hawksbill turtles (October to February, which coincides with the peak nesting period of the loggerhead turtle, i.e. December). Polarcus' commitment to not operate the seismic vessel from October to February within the identified BIAs is anticipated to reduce interaction with nesting marine turtles. Polarcus also included the various management measures proposed to be implemented to reduce the number of encounters with foraging turtles (including loggerhead turtles). Such controls include the 500 m exclusion zone from the 19 water depth contour, the 500 m shutdown zone for turtles and the speed restriction within 300 m of a turtle. It is therefore anticipated that the risk of significant impacts from the Cygnus 3D MSS to breeding and foraging marine turtles, including loggerhead turtles, is low.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	27/06/2017	From stakeholder	Email from the Department acknowledging receipt of the information and confirming DMP does not require any further information at this stage. Please provide DMP with a pre-start notification confirming the start date of the proposed activity and a cessation notification to inform DMP upon completion of the activity. Please review DMP's Consultation Guidance for information pertaining to the reporting of incidents to DMP that could potentially impact on any land or water under State jurisdiction. DMP notes that this activity will be assessed under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).	Requirement for notification included in the EP.	Email acknowledgment sent, confirming that notification and reporting requirements will be incorporated into the EP.
	17/07/2017	To stakeholder	Email acknowledgment sent, confirming that notification and reporting requirements will be incorporated into the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	04/02/2019	From stakeholder	Email from DMIRS acknowledging the information provided on 14/01/2019 and 07/12/2018. No further information is required and DMIRS has no comments to make on the change to the activity. Request to provide DMIRS with activity commencement and cessation notifications.	N/A	N/A
	04/02/2019	To stakeholder	Email sent to DMIRS confirming that Polarcus will keep the Department updated/informed of the survey, including commencement and cessation notifications.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
	11/02/2019	From stakeholder	Email received from DMIRS acknowledging the information provided on 07/02/2019. DMIRS does not have any additional comments to make and no further information is required at this stage.	N/A	N/A
Department of Primary Industries and Regional Development - Fisheries Division (Formerly Department of Fisheries)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call made on 4 August 2015 with message left requesting call-back.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up phone call on 5 August 2015.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	10/08/2015	From stakeholder	Email with attached letter received from the DOF on 10 August 2015. The DOF noted the potential to affect fish populations and the operations of fishers who harvest these resources. It was recommended that the Western Australian Fishing Industry Council (WAFIC), Recfishwest, the Pearl Producers Association and individual licensed fishers be consulted. The DOF requested that a full range of mitigation strategies be implemented, including using the minimum required acoustic capacity to achieve its objectives. The DOF noted that Polarcus identified a number of commercial fisheries in their consultation package, but that the Marine Aquarium Managed Fishery, Beche de Mer Fishery and the Specimen Shell Managed Fishery were not included in that list. The DOF requested that any potential impact to charter, recreational and/or customary fishing is specifically identified in the EP. The DOF requested that Polarcus specifically include strategies in the EP to minimise the impacts of survey activities on fish spawning (e.g. soft starts, sound and exposure time minimisation). Alternately, it is preferable if seismic activities do not occur during the times of the year that key fish species listed in the letter that may be spawning within the Survey Area. The DOF requested that Polarcus demonstrate it has taken reasonable measures to minimise the chance biosecurity impacts and included recommendations for such.	- EP will consider impacts to fish and commercial fisheries - Recommended stakeholders have been contacted. Marine Aquarium Managed Fishery, Beche de Mer Fishery and the Specimen Shell Managed Fishery to be added to stakeholder contact list and sent information, although due to distance offshore, no impacts are expected to coastal fisheries. - Request for potential impacts to charter, recreational and/or customary fishing to be specifically identified in the EP is a generic response from DOF and not considered relevant to the Cygnus 3D MSS due to distance offshore. - Soft-start, minimum source capacity will be implemented as standard. Timing of surveys will consider timing of receptors and implement controls if necessary to reduce impacts to ALARP and acceptable levels. - Fish species listed by DOF spawn throughout the year. It is therefore not possible to avoid all spawning periods. Fish listed are understood to spawn over broad areas in the region, near coastal reefs, bays and estuaries in the vicinity of nursery habitat and significant spawning habitat is not expected offshore. No significant impacts expected. Previous engagement with DOF has confirmed that DOF do not have defined spawning or aggregation areas for the species listed. - Biosecurity (IMS) risks to be assessed in the EP and controls implemented for biofouling and ballast water, in accordance with Australian requirements as a minimum.	A reply letter to DOF was sent on 13 August 2015. Polarcus confirmed that the majority of the fisheries listed in the DOF's letter (as well as relevant recreational and charter fishing stakeholders) have been included in the stakeholder consultation process. No concerns have been raised to date to Polarcus by fishery licence holders. The Marine Aquarium, Beche de Mer and the Specimen Shell Managed Fisheries have subsequently been added to the list of relevant stakeholders for the Cygnus 3D MSS. Copies of the information sheet were sent to the licence holders of these three fisheries on 11 August 2015. Due to low effort or location of the majority of commercial fishing activities away from the Survey Area, the Cygnus 3D MSS is not expected to interfere with most of the nine State managed commercial fisheries which operational zones overlap with the Survey Area. The letter included a description of the several management measures being proposed in the Cygnus 3D MSS EP so as to reduce the risk of potential impacts to fish and fishing operations to both ALARP and acceptable levels. Due to the location and environmental setting of the Survey Area, significant numbers of spawning adults are not expected to be encountered during the survey. Given the survey design and observed fish behaviour related to sound emissions, behavioural changes to fish

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
					are therefore expected to be localised and temporary, with fish (including those during spawning and pre-spawning periods) expected to rapidly return to normal behaviour once the seismic vessel has passed. A description was provided of the biofouling management measures for all vessels during the survey.
	13/08/2015	To stakeholder	A reply letter to DOF was sent on 13 August 2015. Polarcus confirmed that the majority of the fisheries listed in the DOF's letter (as well as relevant recreational and charter fishing stakeholders) have been included in the stakeholder consultation process. No concerns have been raised to date to Polarcus by fishery licence holders. The Marine Aquarium, Beche de Mer and the Specimen Shell Managed Fisheries have subsequently been added to the list of relevant stakeholders for the Cygnus 3D MSS. Copies of the information sheet were sent to the licence holders of these three fisheries on 11 August 2015. Due to low effort or location of the majority of commercial fishing activities away from the Survey Area, the Cygnus 3D MSS is not expected to interfere with most of the nine State managed commercial fisheries which operational zones overlap with the Survey Area. The letter included a description of the several management measures being proposed in the Cygnus 3D MSS EP so as to reduce the risk of potential impacts to fish and fishing operations to both ALARP and acceptable levels. Due to the location and environmental setting of the Survey Area, significant numbers of spawning adults are not expected to be encountered during the survey. Given the survey design and observed fish behaviour related to sound emissions, behavioural changes to fish are therefore expected to be localised and temporary, with fish (including those during spawning and pre-spawning periods) expected to rapidly return to normal behaviour once the seismic vessel has passed. A description was provided of the biofouling management measures for all vessels during the survey.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	20/08/2015	From stakeholder	Email received from DOF on 20 August 2015. The DOF thanked Polarcus for the response to their letter and requested that engagement with all relevant stakeholders of fisheries "not considered further in the EP" be maintained, in the event that a fisher commences operating in the proposed survey area.	Recommended stakeholders have been contacted. Marine Aquarium Managed Fishery, Beche de Mer Fishery and the Specimen Shell Managed Fishery to be added to stakeholder contact list and sent information, although due to distance offshore, no impacts are expected to coastal fisheries.	Polarcus replied via email on 20 August 2015 confirming that the fisheries listed in the Polarcus response letter dated 13 August 2015 are being kept as relevant stakeholders for the Cygnus 3D MSS consultation process, including those with which interactions are considered low.
	20/08/2015	To stakeholder	Polarcus replied via email on 20 August 2015 confirming that the fisheries listed in the Polarcus response letter dated 13 August 2015 are being kept as relevant stakeholders for the Cygnus 3D MSS consultation process, including those with which interactions are considered low.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	06/04/2016	From stakeholder	Email response received 6/4/16 thanking ERM for the email update and requesting to be consulted closer to the expected start time, this will enable the Department to re-assess the fishing activity in the area and provide any other relevant information. Previous advice received from Fisheries was also attached.	Stakeholder to be kept informed	N/A
	19/10/2016	To stakeholder	Email update sent 19 October 2016 confirming that the survey had not yet commenced but may possibly commence in December 2016 or Q1 2017. Requested clarification on whether original advice was still current or if there is any new information.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	10/11/2016	From stakeholder	Email received from Department on 10 November 2016 advising that spawning periods should be reviewed given the change in survey timing, and advising that the Department's annual status report and other published literature be reviewed. The Department also advised that the Department would be undertaking a general risk assessment on the effects seismic surveys have on fish and invertebrates in December 2016.	Survey timeframes have not changed. Cygnus 3D MSS has a multi-year EP. Spawning periods considered previously. Fish species listed by DOF spawn throughout the year. It is therefore not possible to avoid all spawning periods. Fish listed are understood to spawn over broad areas in the region, near coastal reefs, bays and estuaries in the vicinity of nursery habitat and significant spawning habitat is not expected offshore. No significant impacts expected.	ERM replied 29 November 2016 and clarified that the survey timing had not changed and the EP was originally accepted for a 2 year period. A summary of the risk assessment for impacts to fish and spawning was provided, and confirmation that the 2014/15 status of the fisheries report and the NDSF Management Plan and understood that stocks were sustainable. Requested update on DOF risk assessment when available.
	29/11/2016	To stakeholder	ERM replied 29 November 2016 and clarified that the survey timing had not changed and the EP was originally accepted for a 2 year period. A summary of the risk assessment for impacts to fish and spawning was provided, and confirmation that the 2014/15 status of the fisheries report and the NDSF Management Plan and understood that stocks were sustainable. Requested update on DOF risk assessment when available.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	06/12/2016	From stakeholder	Email reply from the Department on 6 December 2016 acknowledging email and confirmed that the Department's risk assessment on the effects seismic surveys on finfish and invertebrates is expected to feed into new guidance and policy, and they will try to send key documents from the workshop out for publication ASAP. Once published, the Department will let us know.	N/A - Advice / request for further information only. No objection or claim made.	N/A
	15/12/2016	To stakeholder	Email to Principal Research Scientist following claim raised by Northern Wildcatch Seafood Australia (NWSA) about goldband snapper and red emperor spawning, requesting information on timing and location of Goldband snapper and red emperor spawning, as well as clarification on status of stocks and spawning behaviours.	N/A	N/A
	20/12/2016	To stakeholder	Attempted call then email to ask for clarification about the status of goldband snapper and red emperor stocks and requested information about the locations, depths and timing of spawning.	N/A	N/A
	21/12/2016	To stakeholder	Email requesting information on goldband snapper and red emperor	N/A	N/A
	31/01/2017	To stakeholder	Phone call and follow up summary email to the Department clarifying some details and goldband snapper and red emperor. Spawning times show evidence of spawning between September and May, with possible peaks in December and March with some fluctuation in between, which differs from previous advice received from DoF. Stock is assessed as sustainable although the method of assessment means there is some uncertainty about whether spawning biomass is close to target level or threshold level.	Note that spawning period is more extended than previously understood. More information required and therefore follow-up with Principal Research Scientist.	Follow up emails/phone calls to Research Scientist.
	06/02/2016	To stakeholder	Email to Principal Research Scientist (returning from annual leave), requesting call/email for further detail on spawning issues.	N/A	N/A
	09/02/2017	To stakeholder	Attempted call and follow up email to Principal Research Scientist.	N/A	N/A
	09/02/2017	From stakeholder	Email from Principal Research Scientist supporting previous advice and clarifying that they may aggregate throughout their depth range, though spawning sites are not known.	Potential impacts to spawning goldband snapper and red emperor to be assessed in EP given presence of suitable water depths in Survey Area. Goldband snapper to be key focus as stock assessment reports indicate separate biological stocks and therefore recruitment may not occur from as broad an area (regional) as other species. Assessment to consider May to September spawning period with December to March peak, plus available spawning habitat in 50-200 m water depths with key habitat in 80-140 m.	Email to Principal Research Scientist, thanking the Department for the information and clarifying if the new advice on spawning seasons supersedes previous advice received on spawning periods, and ask if they had similar information they could share on red emperor.
	09/02/2017	To stakeholder	Email to Principal Research Scientist, thanking him for the information and clarifying if the new advice on spawning seasons supersedes previous advice received on spawning periods, and ask if they had similar information they could share on red emperor.	N/A	N/A
	01/06/2017	To stakeholder	Update sent to the Department about the rescheduling of the previous survey phase and the intent to resubmit the EP for an extended area and timeframe. Also requested clarification on the correct goldband snapper and red emperor spawning periods and further information regarding the stock assessments and monitoring which may give us more insight into spawning levels and variability.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	19/06/2017	From stakeholder	Email from the Department requesting additional details regarding the proposed survey times, duration and equipment (where known), as well as results of any acoustic modelling if available.	Details to be provided.	Details to be provided.
	26/06/2017	From stakeholder	Email received from the Department requesting additional information on the survey, potential impacts and mitigation; and stating that the Department generally objects to seismic in water depths less than 50m, and seismic using array volume >2000 cui in water depths 50-100 m. Recommended that seismic companies support research and undertake validation monitoring of modelled sound exposure predictions.	Details to be provided. Clarification needed from Department about their objections to particular water depths and the basis of the objection.	Email to the Department on 07/07/2017 acknowledging email and concerns raised, and requesting meeting the following week to talk through the issues.
	07/07/2017	To stakeholder	Email to the Department acknowledging email and concerns raised, and requesting meeting the following week to talk through the issues.	N/A	N/A
	12/07/2017	From stakeholder	Email from the Department proposing potential times for meeting.	N/A	N/A
	14/07/2017	To stakeholder	Email providing initial response and additional details to the Department from email dated 26 June 2017, prior to meeting in the afternoon. The following points were addressed: -Acquisition details (three-subarrays discharged alternatively in a 'flip-flop-flap' configuration, 3,090 cui, 2,000 psi, 112.5 m apart, towed at 15 m depth, every 12.5 m, every 5 seconds and travel at 4.5 knots) -Commencement - multiple phases up until December 2020 (10-12 months) Exact timing and location of each phase will vary depending on season retractions, industry demand and environmental sensitivities. -ERM have contacted AFMA, WAFIC, Recfishwest and individual license holders -Oil spill modelling and sound modelling will be conducted -Exclusion zone will be put in place around sensitive shallow areas (banks, shoals etc.)	N/A	N/A
	14/07/2017	Meeting with stakeholder	Meeting with The Department. The Department provided an overview of the Department's recent ecological risk assessment for seismic involving industry. Shallow waters (<100m) are a concern to the Department. Key issues that the Department expect to be addressed include potential impacts to: o Fisheries activities – The Department explained that 'FishCUBE' would be launched in a few months, providing up to date catch data maps for each fishery. o Fish, including key life stages such as spawning, eggs and larvae – The Department flagged the recent McCauley et al (2017) publication in Nature about the potential impacts of seismic to Zooplankton o Mobile and sessile benthic invertebrates – The Department flagged concerns in relation to sessile epifauna and infauna and what the implications of lower trophic level impacts might be General discussion also had around scientific understanding of impacts and impact thresholds used in assessments. The stakeholder engagement process was clarified with the Department noting that further assessment will be undertaken and the assessments could be provided to the Department for comment prior to submission to NOPSEMA.	Impacts to fisheries activities, fish (including key life stages such as spawning, eggs and larvae, noting recent McCauley et al (2017)) and invertebrates will be assessed in the EP	Risk assessments will be provided to the Department prior to submission.

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	14/07/2017+297:375D327326:327326:327	To stakeholder	Email sent to the Department regarding the key summary points that raised from the meeting/discussion. The keys points raised were:-the Department had undertaken a high level Ecological Risk Assessment (ECA) of the potential impacts of seismic surveys on fish and invertebrates. -The ECA has resulted in risk matrices indicating that the potential risk to receptors in water depths <50m, and in water depths <100m using >2,000 cui was severe. -ERM are aware of shallow water sensitivities within the Cygnus survey area, including banks and shoals -FishCube will be relaunched in a few month - providing up to date catch data maps for each fishery-DoF raised concerns around spawning, eggs and larvae, zooplankton, sessile epifauna and infauna-DoF developing a new guideline for the seismic industry based on the ECA - expected to come out in 2018. -Fact sheet did not provide sufficient information - to comment on the potential impacts -ERM will share further details on the outcome of the risk assessment and proposed control measures with the Department prior to submission.	N/A	N/A
	23/08/2017	To stakeholder	ERM provided the Department with the draft risk assessment sections for the impacts to fish for the Cygnus and Zénaïde 3D MSS. A summary of the risk assessments for site-attached fish, other demersal and pelagic fish, fish spawning, plankton, eggs and larvae, commercial fisheries and cumulative impacts were also provided.	N/A	N/A
	30/08/2017	From stakeholder	Email received from the Department. The Department intends to provide ERM with comments/feedback on the information provided dated 23/08/2017. The Department was not able to provide a response to the comments, due to the timeframe. The department thinks a 4-week turn-around timeframe is reasonable.	Await feedback and incorporate into EP prior to submission if available in time.	Email sent to the Department 31/08/2017 acknowledging that the Department has not yet been able to review or provided a comment.
	31/08/2017	To stakeholder	Email sent to the Department acknowledging that the Department has not yet been able to review or provided a comment. Polarcus looks forward to receiving the Departments comments.	N/A	N/A
	01/09/2017	From stakeholder	Email received from the Department, acknowledging information received. The Department will respond formally with comments next week from email dated on 23/08/2017.	N/A	N/A
	07/09/2017	From stakeholder	Email received from the Department of Fisheries in response to ERM email dated 23/08/2017. The main points raised: -The fisheries normally expects a 4-6 week timeframe and the advice provided is current for 6 months. -The Cygnus 3D MSS has a high risk profile compared to Zénaïde. -The fisheries generally objects to strategic EPs with extended timeframes and poorly defined survey parameters. -The fisheries facilitated a qualitative assessment of risks posed by seismic surveys on finfish and invertebrates in December 2016 - the consensus risk levels agreed to on the day indicated that airgun arrays with the capacity between 2000 and 4500 cui pose a high or severe risk. - Impact estimates for injury, TTS and behavioural impacts to fish do not acknowledge damage to sensory hair cells in pink snapper after fish had been exposed to sound levels approximately 185 dB re 1µPa mean squared pressure (McCauley et al. 2003), which may be reached hundreds of meters from a seismic source. Similarly, damage to the hair cells lying on the sensory epithelia surrounding the sagittal otolith in goldband snapper were observed after exposure to a 3090 cui airgun array at ranges of 370 m, 2.1km and 58 km from the closest airgun pass with an exponentially increasing amount of hair cell damage with decreasing range (McCauley and Kent 2012). -With respect to benthic invertebrates the under representation of potential impacts I particularly evident in both Cygnus and Zénaïde.	-The risk assessment undertaken for the purposes of the EP is supported by site-specific and activity-specific modelling, and takes a broad range of recent published research into account. Therefore, the risk assessment and proposed control measures in the EP are considered to be robust and appropriate for reducing risks to ALARP and acceptable levels. We consider this more relevant to the location and activity than the high level generic assessment undertaken by DPIRD. - The experiment by McCauley et al. (2003): exact levels/distance at which such	Response to be provided to stakeholder following detailed review of queries and information provided. Response to be provided prior to submission of the EP.

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			-The Department provided information on the potential effects to scallops and lobsters from seismic surveys. -The impact on fish spawning adopted by Polarcus on goldband snapper is to be appropriate but note that the result of this assessment are not directly transferable to other species. -Fisheries are concerned about the implications of the findings with respect to zooplankton reported by McCauley et al. (2017). -Cumulative impact assessments should include considerations of pressures from all relevant sources - WA fisheries is concerned about the potential in WA for adjacent surveys to be conducted within the same season. -The fisheries noted that no monitoring has been proposed and that even sound source verification of acoustic modelling was only considered as a means for informing adaptive management around shoals.	damage may have occurred in the caged fish is unknown since the airgun was towed repeatedly from a maximum distance of 800 m to a minimum distance of 5 m. Damage may have occurred at any point during this exposure period, or as a result of the cumulative exposure (Worcester 2006). It remains unclear if the damage found at 58 days was the result of the accumulation of many moderate to high level pulse energies over the short time frame (<3 hours) or due to the two most intense signals that occurred at the 5 m range. At 5 m range the maximum received level would have been approximately 210 dB SPLpk-pk. The caged fish exposures in the Jervoise Bay experiment used multiple short approach-departures rather than a single pass-by, as the experiments were designed to capture fish behaviour. Hence, the exposures in this case were not representative of a typical marine seismic survey. So, based on the findings of the McCauley et al. (2003) study it is not possible to conclude that "extensive damage to the sensory hair cells" occurred at received sound levels of ~185 dB re 1µPa msp. McCauley and Salgado Kent (2012) report observations of exponentially increasing amount of hair cell damage with decreasing range from the seismic pass or increasing cumulative sound exposure, although the authors point out that the sample size was low. The maximum received level at the test cages was 212 dB SPLpeak, based on the maximum received SEL of 187 dB re 1 µPa2.s reported in McCauley and Salgado Kent	

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				(2007). As pointed out by Carroll et al. (2017) the findings of studies based on exposure of caged fish to airgun noise should be treated with caution, as they are clearly not representative of the ecological parameters and exposure regime that would apply for a typical marine seismic survey and wild populations of fishes. Popper et al. (2014) took the findings of both McCauley et al. (2003) and McCauley and Salgado Kent (2012) into account when determining the sound exposure criteria in these guidelines. These criteria have been taken into account in the acoustic modelling and the EP. -The environmental risk assessment conducted for the Cygnus 3D MSS EP took into account the findings of the Day et al. (2016) study with respect to lobsters and scallops, and the findings of McCauley et al. (2017) and Richardson et al. (2017) studies concerning potential impacts to zooplankton. The risk is considered to be low and therefore the Departments concerns are considered to have been addressed. -As outlined in the EP, the focus of the assessment was primarily on goldband snapper due to the various stocks in the region being biologically distinct. Therefore, the goldband snapper spawning biomass was considered to be potentially more sensitive to disturbance. Red emperor (and other species) are considered less sensitive than goldband snapper, as genetic homogeneity between different regions and stocks across northern Australia is maintained by dispersal of eggs	

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				and larvae throughout their range. - It is not the purpose of cumulative impact assessment to assess the impact of all activities and other natural stressors in the region in addition to other seismic surveys. - Sound verification has is deemed impracticable - there are no reliable methods to assess received levels at seabed at such short ranges and deviation from predictions over such short ranges is unlikely. -Polarcus can confirm that the Zénaïde 3D MSS will not be acquired concurrently with the Cygnus 3D MSS acquisition and a minimum separation distance of 40 km shall be maintained between the Polarcus seismic source and another seismic source, although it is highly unlikely that two surveys would occur concurrently over the same area. Response has been considered but no changes are proposed to the EP. Current risk assessments and controls are deemed appropriate.	
	08/09/2017	To stakeholder	Email sent to the Department at the Fisheries, acknowledging the information received from the fisheries dated 07/09/2017.	N/A	N/A
	02/10/2017	To stakeholder	Email sent informing the Department the EP was not submitted for a number of reasons and Polarcus has decided to reduce the spatial and temporal boundaries of this EP to a more specific acquisition area and more refined timeframes. ERM informing the Department that a response to the email dated 07/09/2017 will be provided within the week.	N/A	N/A
	02/10/2017	From stakeholder	Email from the Department, acknowledging that the ERM will provide them with a response to the initial email and that the Department will update their advice based on the details they are presented.	N/A	N/A

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	05/10/2017	To stakeholder	Email sent to the Department, with an updated image of the planned Acquisition/Operational Area for the EP. The email also addresses the points raised in the email dated 07/09/2017. The main points raised: • Polarcus has reduced the temporal and spatial scales of proposed acquisition under the Cygnus 3D MSS EP-The EP can no longer be regarded as a strategic EP as it incorporates a clearly defined Acquisition Area, valid over a period of 12 months. The revised Acquisition Area is also considerably smaller than the Survey Area proposed originally.-The risk assessment undertaken for the purposes of the EP is supported by site-specific and activity-specific modelling, and takes a broad range of recent published research into account. Therefore, the risk assessment and proposed control measures in the EP are considered to be robust and appropriate for reducing risks to ALARP and acceptable levels. - McCauley et al. (2003) and McCauley and Salgado Kent (2012) not considered representative. Popper et al. (2014) took the findings of both McCauley et al. (2003) and McCauley and Salgado Kent (2012) into account when determining the sound exposure criteria in these guidelines. These criteria have been taken into account in the acoustic modelling and the EP. • The risk assessment conducted for the Cygnus EP takes into account the findings of the Day et al. (2016) study on scallop and lobster fisheries, including the various sub-lethal effects observed in exposed animals. • As outlined in the EP, the focus of the assessment was primarily on goldband snapper due to the various stocks in the region being biologically distinct. Therefore, the goldband snapper spawning biomass was considered to be potentially more sensitive to disturbance. Red emperor (and other species) are considered less sensitive than goldband snapper, as genetic homogeneity between different regions and stocks across northern Australia is maintained by dispersal of eggs and larvae throughout their range. • The risk assessment conducted for the Cygnus EP takes into account the findings of the McCauley et al. (2017) and Richardson et al. (2017) studies on potential impacts to zooplankton, as well as the findings of a broader body of research. • It is not valid to apply the zooplankton mortality impact range observed in the McCauley et al. (2017) experiment to an effect range for 'similarly vulnerable invertebrate taxa associated with the seabed', particularly as the McCauley et al. (2017) paper provides no indication of the extent of the particle motion component of the sound field. • Polarcus can confirm that the Cygnus 3D MSS will not be acquired concurrently with the Zénaïde 3D MSS acquisition and a minimum separation distance of 40 km shall be maintained between the Polarcus seismic source and another seismic source, although it is highly unlikely that two surveys would occur concurrently over the same area.Response has been considered but no changes are proposed to the EP. Current risk assessments and controls are deemed appropriate.	N/A	N/A
	05/10/2017	From stakeholder	Email received acknowledging receipt of information and at this stage has no further comments. The Fisheries are pleased to see some significant changes to the MSS that go a considerable way in addressing their concerns.	N/A	N/A
	05/10/2017	To stakeholder	Email sent to the Department acknowledging the quick response and suggesting another meeting at a later stage t discuss some of the ongoing issues. All emails sent have been forwarded to NOPSEMA.	N/A	N/A
	0610/2017	From stakeholder	Email sent from the Department, agreeing a follow up meeting at some stage would be a good idea. Suggested once the Department has finalised the guidance statement.	N/A	N/A

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	23/10/2017	To stakeholder	Email sent to DPIRD asking for the status of Fish Cube as the information that can be provided from the program will be beneficial. Currently, in order to communicate the location and timing of the Zenaide and Cygnus survey activities as effectively as possible, notifications to fishers and ongoing consultation are expected to include: • Notifications to be sent to licence holders and fishery stakeholders at least 4 weeks prior to the commencement of survey activities, including confirmation of the location and expected timing. • Option for licence holders to register for daily look-aheads that inform of the survey lines that are proposed for the following day. • Notification to be sent to stakeholders within 2 weeks of completion. • Notifications will also be sent if there are any significant modifications to the activity or schedule.	N/A	N/A
	24/10/2017	From stakeholder	Email sent from the Department informing ERM, that he will inform ERM once the program comes online. The Department said the program will be very useful as he has had a preliminary view of the program 2 months ago.	N/A	N/A
	24/10/2017	From stakeholder	Email received informing ERM, Fish Cube will be online from early 2018, however ERM can request data from the program by contacting DataRequest@fish.wa.gov.au. FishCube is currently only accessible from inside our firewall and the spatial resolution sometimes will be in blocks 60nm by 60nm to prevent the dissemination of confidential data External stakeholders can download a data request form (general) from the Fisheries website at: http://www.fish.wa.gov.au/Sustainability-and-Environment/Fisheries-Science/Stock-assessment-and-data-analysis/Pages/Making-a-data-request.aspx	Data to be requested if available and considered in terms of potential impacts to fish catch and effort. To be reviewed as new information and integrated where appropriate during the life of the EP.	N/A
	25/10/2017	To stakeholder	Email sent to stakeholder acknowledging receipt of information.	N/A	N/A
	25/10/2017	To stakeholder	Emails sent to datarequest@fish.wa.gov.au (FISH CUBE) requesting information on Northern Demersal Scalefish, Mackerel, Northern shark, Kimberley Prawn, Pearl Oyster and Recreational charter boats.	N/A	N/A
	31/10/2017	To stakeholder	Phone call to Department to follow up on data request. Department are not aware of the data request service .	N/A	N/A
	31/10/2017	To stakeholder	Phone call to the Department to ask about the data request.	N/A	N/A
	31/10/2017	From stakeholder	Email from the Department to confirm data request from Fish Cube.	N/A	N/A
	31/10/2017	From stakeholder	Fish Cube can be queried by month, but if only one vessel has fished in a block, data cannot be included as it is considered confidential. Fish Cube cannot be queried by quarter. Therefore, data is available for the whole calendar year. It was agreed that shapefiles could be provided for blocks by calendar year for NDSF, Kimberley Prawn and Mackerel fisheries. Data Use Agreement to be signed.	N/A	N/A
	01/11/2017	From stakeholder	Email from Department providing ERM with additional information on the termination date.	N/A	N/A
	02/11/2017	To stakeholder	Email sent to Department - attached the Data Use Agreement.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to Department, with a notice of commencement of Phase 3 (as early as 5 December 2017).	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A

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	21/11/2017	To stakeholder	Email update to advise that Polarcus have taken further measures to reduce potential impacts to goldband snapper spawning. Phase 3 North is expected to go ahead, but Phase 3 South and the infill lines in the Phase 1 area will no longer occur during the peak goldband snapper season (December-March).	N/A	N/A
	27/11/2017	From stakeholder	Email received from the Department acknowledging receipt of information.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	31/01/2018	From stakeholder	Email acknowledgement received from the Department.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A

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	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	11/12/2018	From stakeholder	Acknowledging receipt of notification sent on the 07/12/18, advising no further comment at this time.	N/A	N/A
	12/12/2018	To stakeholder	Email sent to DPIRD requesting clarification of the spawning times of goldband snapper and red emperor.	N/A	N/A
	13/12/2018	From stakeholder	Response to email sent on the 12/12/18, including spawning times of key species in the north coast bioregion.	N/A	N/A
	13/12/2018	To stakeholder	Acknowledgement of receiving the email from the stakeholder on the 13/12/18.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	15/01/2019	From stakeholder	Email from DPIRD acknowledging the notification. DPIRD advised of a change in contact person related to EIA matters. Information has been passed on to the new contact.	N/A	N/A
	15/01/2019	To stakeholder	Email sent to DPIRD acknowledging the change in contact person. Register to be updated with new contact.	N/A	N/A
	16/01/2019	From stakeholder	Email sent from new contact in DPIRD. DPIRD requesting factsheet provided on 07/12/2018.	N/A	N/A
	16/01/2019	To stakeholder	Email sent to stakeholder with the attached factsheet. Additional information was provided on the boxing-in option and EP submission timeframes.	N/A	N/A
	16/01/2019	From stakeholder	Email received from DPIRD acknowledging receipt of factsheet. DPIRD requesting information on the minimum water depths in the acquisition area.	N/A	N/A
	17/01/2019	To stakeholder	Email sent to DPIRD with information on the minimum water depth. DPIRD were advised that the minimum water depth in the Acquisition Area is 45 m (refer to figure attached). In addition, DPIRD were informed of the management controls included in the EP in regards to the shallow areas.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A

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	07/02/2019	From stakeholder	Email received from the Department acknowledging receipt of the update. Department informing ERM/Polarcus that additional comments on the survey will be provided next week.	N/A	N/A
	21/02/2019		The Department expects that ERM in its Environment Plan (EP) has considered and incorporated the recommendations published by NOPSEMA on the Acoustic Impact evaluation and management guidance to ensure environmental impacts and detailing how those impacts will be managed to ensure they are ALARP. The Department also expects that ERM has incorporated the outcomes of the Risk Assessment of the potential impacts of seismic air gun surveys on marine finfish and invertebrates in Western Australia, June 2018. The Department would not support any proposed seismic survey where the risk to stocks is high or severe, unless scientific peer reviewed literature can demonstrate otherwise . Reducing it to 1,965 cui in less than 60m of water, still puts the risk range between high and severe for immobile invertebrates. DPIRD requested information on fish data assumptions and spawning information.	Request for further information.	Refer to email response on 01/03/2019.
	01/03/2019	To stakeholder	Phone call to DPIRD to discuss email received on 21/02/2019. ERM requesting clarification on information requested by DPIRD. No answer. Message left.	N/A	N/A
	01/03/2019	To stakeholder	Response to DPIRD - As part of the revision of the EP, ERM has considered the recommendations of the NOPSEMA Information Paper 1P1765, the outcomes from the Department's risk assessment workshop and recent scientific literature. In regards to your request for a summary of the fish data assumptions included in the EP – can you please clarify what information the Department is requesting? I tried to call this morning, however I was unable to reach you. The controls mentioned below in regards to the two 'unnamed shallow areas' were implemented following consultation with DPIRD in 2017. DPIRD considered the approach and proposed control measures adopted by Polarcus to be appropriate for the nature and scale of the activity. These controls were implemented for Phase 3 North. Polarcus is proposing to implement the same management controls for Phase 3 South. ERM/Polarcus is happy to provide DPIRD with the relevant risk assessment sections, if this would be of use to DPIRD. The information on spawning periods for the key indicator species in the North Coast Bioregion was provided by a DPIRD Principal Scientist. ERM has been in contact with the scientist since 2017. In 2018, the scientist provided ERM with updated advice on spawning periods for key indicator species in the North Coast Bioregion (in particular goldband snapper and red emperor). ERM has since updated the EP to reflect the updated advice. Please note, the Cygnus Phase 3 South 3D MSS EP will be submitted to NOPSEMA today for assessment. All communications with DPIRD will be provided to NOPSEMA for consideration.	N/A	N/A
	05/03/2019	From stakeholder	Email received from DPIRD. Understand ERM contact is away overseas. DPIRD advising ERM contact to call upon return to work.	N/A	N/A
	08/03/2019	To stakeholder	Email sent to DPIRD, advising that main ERM contact is currently overseas and returns to the office on 18 March. ERM contact provided contact details to DPIRD for an alternative contact (whilst main contact is away).	N/A	N/A
	15/03/2019	From stakeholder	DPIRD advised that they will be in contact the week of 18 March.	N/A	N/A
	20/03/2019	To stakeholder	Phone call to DPIRD to discuss email received on 21/02/2019. ERM requesting clarification on information requested by DPIRD. No answer. Message left.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	02/04/2019	To stakeholder	Phone call to DPIRD to discuss email received on 21/02/2019. ERM requesting clarification on information requested by DPIRD. No answer. Message left.	N/A	N/A
	02/04/2019	To stakeholder	Email sent to DPIRD to discuss email received on 21/02/2019. Requesting DPIRD to return call.	N/A	N/A
	02/04/2019	From stakeholder	Email received from DPIRD advising that DPIRD will call tomorrow morning.	N/A	N/A
	03/04/2019	From stakeholder	Phone call with DPIRD discussing the Cygnus EP. The EP is currently under assessment by NOPSEMA. DPIRD requires no further information at this stage, however would like to be kept up to date on the status of the EP. The question regarding fish assumptions was in regards to the use of fish catch data (in particular FishCube). ERM advised that no assumptions have been made in regards to FishCube data. The data has only been used to supplement existing scientific literature.	N/A	N/A
	12/04/2019	To stakeholder	Phone call to DPIRD to advise that ERM has received an RFWI from NOPSEMA and may request updating information regarding goldband snapper spawning from the DPIRD.	N/A	N/A
	18/04/2019	To stakeholder	Polarcus/ERM have received an RFWI (request for further written information) on the Cygnus Phase 3 South 3D MSS EP. As part of the RFWI, NOPSEMA has requested a further assessment on the impacts from the seismic survey on goldband snapper spawning. Figure attached of the location of the survey. I have provided a summary below of the information we have included in the EP on goldband snapper spawning (and the basis for the impact assessment). Is it possible to have the Principal Research Scientist verify the information to ensure we are using the most current research? Goldband Snapper • Adult goldband snapper occur in continental shelf waters in depths of 40-245 m, in association with offshore reefs, shoals, and areas of hard flat bottom with occasional benthos or vertical relief, and often form large schools. Juveniles typically occur on uniform sedimentary habitat with no relief. • The species is more typically found between approximately 50 m and 200 m water depths, with evidence of a greater concentrations associated with submerged ancient coastline between 80 m and 140 m depths; • The species is known to spawn between September and May, peaking between January and April (inclusive). • Goldband snapper are serial/multiple batch spawners, releasing multiple batches of eggs into the water column over a wide area during the spawning period, and likely spawn every few days throughout the spawning period, or in response to environmental cues such as water temperature and the moon cycle. • Although goldband snapper are understood to be broadcast spawners, it is also understood that eggs and larvae do not travel long distances between regions and there is limited genetic connectivity between the northern Kimberley stock and stocks in the Timor and Arafura Seas, the west Kimberley stock around Broome, and the Pilbara and Exmouth stocks. • The Kimberley stock and its spawning biomass are assumed to be separate, as both larval dispersal and movement of adults between the stocks is understood to be negligible. • While adults are understood to be a relatively vagile (free to move) species, the genetic subdivision indicates constrained home ranges and limited migration of adults over long distances, potentially where significant changes in water depth or other factors may influence adult movements. The range of the North Kimberley stock is therefore considered separate from the adjacent Timor and Arafura Seas stocks to the east, Indonesian stocks to the north, and the west Kimberley (Broome) stock. The geographical extent of the north Kimberley stock appears to encompass genetically similar sub-stocks identified over the following range:• At least as far to the west as	ERM/Polarcus requesting updated information from Principal Research Scientist at DPIRD Fisheries in regards to goldband snapper spawning.	N/A

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			14.9°S, 122.0°E (Lynher Bank), but unlikely as far west as the Broome stock sampled at 17.5°S, 120.5°E;• Including areas near Vulcan Shoal sampled at approximately 12.5.0°S, 124.3°E; and • At least as far east as 12.0°S, 126.0°E, but unlikely as far east as the Timor Sea stock sampled at 10.2°S, 129.5°E. • DPIRD Fisheries (2015) assessed the stock to be adequate and sustainable, with the spawning biomass estimated to be between the target and the threshold levels. However, DPIRD Fisheries (2015) note that there is scientific uncertainty around the stock status and management through limiting commercial catches is in place until it can be confirmed whether the stock is at target or threshold levels. Has the Department undertaken a recent assessment of the stock? If so, is the Department able to share the results of the stock assessment?		
	23/04/2019	From stakeholder	DPIRD advising that the information request has been passed on to the relevant parties within DPIRD.	N/A	N/A
	23/04/2019	To stakeholder	Email sent to DPIRD acknowledging the email.	N/A	N/A
	01/05/2019	To stakeholder	Email sent to DPIRD following-up on the information request.	N/A	N/A
	02/05/2019	To stakeholder	Email sent directly to a Principal Research Scientist at DPIRD following-up on the information request.	N/A	N/A
	03/05/2019	From stakeholder	Response received from Principal Research Scientist with updated information - see below: Goldband Snapper • Adult goldband snapper occur in continental shelf waters in depths of 50-245 m, in association with offshore reefs, shoals, and areas of hard flat bottom with occasional benthos or vertical relief, and often form large schools. Juveniles typically occur on uniform sedimentary habitat with no relief. • The species is more typically found between approximately 50 m and 200 m water depths, with evidence of a greater concentrations associated with the submerged ancient coastline between 80 m and 140 m depths; • The species is known to spawn in the period from October through to May (with the GSIs relatively high throughout this period). • Goldband snapper are serial/multiple batch spawners, releasing multiple batches of eggs into the water column over a wide area during the spawning period, and likely spawn every few days throughout the spawning period, or in response to environmental cues such as water temperature. Goldband snapper spawn throughout their range. • The below excerpt is taken from - Saunders, T., Dawson, A., Trinnie, F. and Newman, S. 2018. Goldband Snapper (2018) Pristipomoides multidens. In: Stewardson, C., Andrews, J., Ashby, C., Haddon, M., Hartmann, K., Hone, P., Horvat, P., Mayfield, S., Roelofs, A., Sainsbury, K., Saunders, T., Stewart, J., Nicol S. and Wise, B. (eds). Status of Australian fish stocks reports 2018, Fisheries Research and Development Corporation, Canberra. • Goldband Snapper is widely distributed throughout northern Australia and the tropical Indo–West Pacific. Ovenden et al. [2002] examined the genetic connectivity of Goldband Snapper using mitochondrial DNA from samples collected at six Australian locations (four in Western Australia: Exmouth, Pilbara, Broome, Northern Kimberley; two in the Northern Territory: Timor Sea, Arafura Sea) and three south east Asian locations (Kupang, Irian Jaya, Madang). The mitochondrial DNA data for Goldband Snapper did not differ genetically among Australian locations, except for the northern Kimberley location that exhibited restricted gene flow. Ovenden et al. [2002] reported that samples taken from locations in Southeast Asia were genetically distinct from those sampled from Australian locations. This study indicates that Australian populations of Goldband Snapper are likely to form a single biological stock. • Newman et al. [2000] examined otolith stable isotopes in each of three management	Updated advice received from DPIRD Fisheries regarding Goldband Snapper Spawning.	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			regions in Western Australia (Kimberley, Pilbara and Gascoyne), and across northern Australia. Significant differences in stable isotope ratios provided evidence that there was limited mixing of adult Goldband Snapper between all sites sampled in Australia, Indonesia and Papua New Guinea. Therefore, each of these broad locations could be treated separately for the purposes of fishery management, if management arrangements were mediated in a way that harmonized with the spatial patterns of exploitation. The study of Newman et al. [2000] indicates that Goldband Snapper is likely to consist of a number of separate management units around western, northern and eastern Australia. • As such, assessment of stock status in Saunders et al. (2018) is presented at the management unit level—Kimberley, Pilbara, Gascoyne (Western Australia); Northern Australia (Northern Territory and Queensland); and East Coast Queensland. • DPIRD Fisheries (2018) assessed the stock to be adequate and sustainable. DPIRD Fisheries (2018) noted that the status of goldband snapper was considered acceptable and the current risk control measures in place were adequate (i.e. no new management required). However, the forward projections in model derived outputs indicate a decreasing trend in biomass under current management settings. As such, careful ongoing monitoring of the stock is required.		
	03/05/2019	To stakeholder	Email sent to DPIRD Scientist requesting clarification on the goldband snapper spawning times.	N/A	N/A
	06/05/2019	From stakeholder	Scientist at DPIRD Fisheries confirmed that Goldband snapper more consistently over a longer time period.	N/A	N/A
	06/05/2019	To stakeholder	Email sent to DPIRD seeking clarification on the restricted geneflow of the Kimberley goldband snapper stock.	N/A	N/A
	06/05/2019	From stakeholder	Clarification received from Principal Research Scientist - see below: The Ovenden et al. 2002 paper reports that gene flow between goldband snapper populations may be restricted on the northern and western coastline of Australia, possibly due to a disjunction in the area of the Kimberley in north-western Australia. That is, it was considered likely to be genetic distinct. The paper suggested that more work was required. As such, the Australian population of Goldband Snapper was considered likely to form a single biological stock (albeit with restricted gene flow between the northern Kimberley and other Australian locations).We are currently involved in a study using single nucleotide polymorphisms (SNPs), so hopefully we will get further resolution on this soon	N/A	N/A
	06/05/2019	To stakeholder	Email sent to DPIRD Fisheries - In terms of the impact assessment for Cygnus, we have assumed that the Kimberley stock is genetically distinct from other adjacent stocks, with limited gene flow. We have used this as a conservative approach to determine the potential impacts to spawning from the survey, given there is some uncertainty. Do you agree with this approach, or would should we be basing the impact assessment on the entire Australian stock?	N/A	N/A
	06/05/2019	From stakeholder	DPIRD Fisheries confirmed the approach taken for the impact assessment is reasonable.	N/A	N/A
	14/05/2019	Phone Call	Phone call to DPIRD Fisheries. ERM provided DPIRD with an update on the Cygnus RFWI response. An email is planned to be sent to DPIRD today. DPIRD requested ERM/Polarcus hold off on providing DPIRD with a response until DPIRD have responded with a summary table (requested by ERM for a separate EP). ERM discussed with DPIRD Fisheries the possibility of DPIRD releasing a guidance note, providing consolidated information on spawning periods.	N/A	N/A

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	16/05/2019	Phone Call	Phone call to DPIRD Fisheries. ERM suggested sending though updated response prior to receiving the information from DPIRD (for a separate EP). DPIRD agreed given the Cygnus RFWI response is due to NOPSEMA on 17/05/2019.	N/A	N/A
	16/05/2019	To stakeholder	Email sent to DPIRD Fisheries - see below: As part of the assessment, NOPSEMA has requested Polarcus to provide further written information in regards to the following aspects: • Matters protected under Part 3 of the EPBC Act – a demonstration that impacts from acoustic emissions to site-attached fish have been reduced to ALARP and acceptable levels. • Socio-economic factors – a demonstration that potential impacts to fisheries, and in particular spawning goldband snapper, have been appropriately evaluated. As part of the request for further written information, Polarcus has made amendments to the EP including the impact assessment. Polarcus is happy to provide DPIRD with the revised impact assessments, if this would be of interest to DPIRD. I have provided information below on the changes that have been made to the relevant impact assessments. Site-Attached Fish Assemblages The acoustic modelling completed for the Cygnus 3D MSS predicts that temporary threshold shift (TTS) could begin to occur in fish within 1.32 km from the seismic source. Fish on the slopes of the unnamed shallow areas may be exposed to cumulative sound exposures that may result in TTS impacts to fish for a short duration (approximately 20 minutes, or less for the more distant, shallow water fish assemblages in water depths <30 m). Polarcus will implement the following controls in regards to site-attached fish: • Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey. • Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able. • The seismic source will not be operated within 500 m horizontal distance from the 20 m depth contour (Polarcus operational exclusion zone). • The seismic source will not be operated within 200 m horizontal distance from the 60 m depth contour around shoals. • The seismic source will not be operated within 200 m horizontal distance from the 45 m depth contour in the defined ‘unnamed shallow areas’. • In the defined ‘unnamed shallow areas’ the seismic source volume will be reduced to 1,965 cui in water depths less than 60 m to minimise the potential for injury or TTS in fish that may be present in areas of shallow contiguous habitat. To allow for the recovery and minimise cumulative exposure risks, Polarcus will also implement an additional control to not return to sail an adjacent line (with a predetermined offset between adjacent lines of 562 m) within 1.4 km of the closest point of approach to the 45 m depth contour within 15 hours. This control will apply to all subsequent lines within 1.4 km of the 45 m depth contour of the defined ‘unnamed shallow areas’ (refer to the figure attached for the ‘unnamed shallow areas’). With the proposed controls in place, no injury to site-attached fish assemblages is expected. Impacts to site-attached fish are expected to be temporary, involving behavioural avoidance reactions and the potential for TTS to occur in some fishes	N/A	N/A

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			exposed on the slopes of banks and shoals for short periods (approximately 20 minutes) near the closest point of approach of the seismic source as it passes. Such TTS impacts are expected to be temporary, recoverable within less than 18-24 hours and are not expected to result in any lasting population level impacts or longer ecological implications for the fish assemblages inhabiting each shoal. Fish Spawning A Principal Research Scientist at WA DPIRD Fisheries has provided Polarcus/ERM with updated advice/information on goldband snapper spawning. In particular, DPIRD Fisheries has recently conducted sampling and analysis of new data, which shows that goldband snapper spawn consistently over a longer time period. It was previously understood that goldband snapper spawn between September – May, peaking between January – April (inclusive). DPIRD Fisheries have advised that goldband snapper spawn consistently between October – May, with no designated peak period. The DPIRD Fisheries also advised that the Department undertook a stock assessment of the goldband snapper stock in 2018. The stock was assessed to be adequate and sustainable with the current management controls in place (and no new management is required). Polarcus will no longer implement a control restricting acquisition to a maximum of 30 days during the peak goldband snapper spawning period (January – April), given goldband snapper are now known to spawn consistently over a longer time period. Complete avoidance of the goldband snapper spawning period was given careful consideration, but was not considered practicable and as being disproportionate to the already low level of risk. Goldband snapper could potentially spawn for eight months over the 2019-2020 period (approximately 243 days). It is not operationally practicable for Polarcus to avoid acquisition during this period. Scheduling seismic acquisition is complex in nature, as numerous factors need to be considered during the process. For impact assessment purposes – to provide a 'potential area of influence', the Acquisition Area buffered by a 37 km radius, has been selected to provide a conservative estimate of the potential area that may be influenced by sound emissions over the duration of the survey. In addition, an extra 5 days has been added to the survey duration to allow fish distribution and local abundance to return to normal levels (however, fish will likely begin to return to areas as the vessel and seismic source move laterally across the Acquisition Area). The precautionary principal provides a conservative indication of the maximum potential spatial and temporal overlap with available spawning habitat from seismic data being acquired at any one time. The temporal and spatial overlap of Phase 3 South with the principal goldband snapper range (80-140m depth range) and the spawning period equates to a 2.4% overlap. The spatial and temporal overlap with the complete goldband snapper range (50-200 m depth range) is significantly less; being less than 1% overlap. Polarcus will implement a new control limiting acquisition to a maximum 2.5% temporal and spatial (combined) overlap with the principal Kimberley stock range and goldband snapper spawning period. The duration and overlap with the goldband snapper spawning period has been assessed to be low risk and acceptable based on the potential spatial and temporal overlap. The effects of the survey are not expected to result in a significant impact to the goldband		

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			snapper spawning biomass or recruitment. In addition, no discernible population level impacts are expected to occur, the risk to spawning is considered to be acceptable. Cumulative Seismic Sound Impacts No direct cumulative impacts are expected to have occurred between Phase 1, Phase 2 and Phase 3 North of the Cygnus 3D MSS in terms of injury, hearing impairment, behavioural impacts or changes in community structure, given that there has been no spatial overlap between these surveys and their potential impact and/or the timing between surveys has not been less than the recovery rate of any potential impacts to receptors (i.e. hours to days for marine fauna and fish, or weeks or months at most for benthic invertebrate communities). Equally, no cumulative impacts are expected with Phase 3 South. The spatial and temporal overlaps of the previous phases of the Cygnus 3D MSS are of a similar magnitude to those assessed for Phase 3 South. The cumulative risk is considered to be Low and Acceptable, given that there is no threat of serious or irreversible environmental damage. Acquisition Timing Acquisition of Phase 3 South is scheduled to commence as early as September 2019. The survey will take a planned maximum duration of 36 days to acquire, 7 days' deployment/retrieval and 1 day local transit. The precise timing of acquisition is subject to NOPSEMA's acceptance of the EP, vessel availability, weather conditions and other operational considerations. The timing of acquisition will be communicated to stakeholders 4 weeks prior to survey commencement.		
	16/05/2019	Phone Call	Phone call to DPIRD Fisheries to discuss the updated information. No major concerns raised by DPIRD Fisheries. DPIRD agreed to the additional control for 'unnamed shallow areas'.	N/A	N/A
	17/05/2019	Phone Call	Phone call to DPIRD Fisheries to request a formal response to email sent on 16/05/2019. No answer. Messaged left for DPIRD to return call.	No formal response has been received from DPIRD Fisheries at the time of submission.	
Department of Transport (DoT)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	28/07/2015	From stakeholder	DoT replied on 28 July 2015 confirming receipt and intent to reply in a timely manner.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contacts sent on 4 August 2015.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call on 13 August 2015 with message left requesting call-back.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	17/03/2016	From stakeholder	Marine Safety - Email response received 17/3/2016 thanking ERM for the email and advising that the email had been forwarded to the appropriate persons. No further email communications received.	N/A	N/A
	17/03/2016	From stakeholder	Marine Pollution - Email response received 17/3/16 thanking ERM for their email update. No further email communications received.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A

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	08/06/2017	From stakeholder	Email acknowledging stakeholder information and confirming that the extended area and timeframes are understood. To be kept informed on scheduling of the next phase.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	20/10/2017	From stakeholder	Email sent from the Department acknowledging update to the MSS. DoT would like to be kept informed on when the next phase of activity is schedule to occur.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	30/11/2017	From stakeholder	Acknowledging receipt of notification.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/12/2018	From stakeholder	DoT acknowledging the email sent on 07/12/18, stating that the survey areas are outside of state coastal waters (WA), and that they have no reason to comment in relation to the activities.	N/A	N/A
	02/01/2019	From stakeholder	DoT acknowledging the notification sent on 07/12/18.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Department of Biodiversity, Conservation and Attractions (DBCA)	04/08/2015	To stakeholder	Follow-up phone call made on 4 August 2015 with message left requesting call-back.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August 2015 - message left for the Department requesting a call-back	N/A	N/A
	17/08/2015	From stakeholder	Email received from DPAW on 17 August 2015 relaying that DPAW had reviewed the information sheet and they did not wish to make any further comments.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	02/06/2017	From stakeholder	Additional advice requested on the minimum distances between air guns and Rowley Shoals Marine Park requested from the Department.	Reasonable request given proximity to State-managed Marine Parks and conservation values of the Rowley Shoals, however, distance is over 600 km and therefore no possibility of impacts.	Response to stakeholder on 02/06/2017 advising the Polarcus Cygnus 3D Marine Seismic Survey Area is 600 km from the boundary of the Rowley Shoals Marine Park. Given the distance from the activity, there are no predicted impacts from planned or unplanned activities.
	13/06/2017	To stakeholder	Response advising the Polarcus Cygnus 3D Marine Seismic Survey Area is 600 km from the boundary of the Rowley Shoals Marine Park. Given the distance from the activity, there are no predicted impacts from planned or unplanned activities.	N/A	N/A
	26/06/2017	From stakeholder	Email from the Department confirming no further comments from DPAW	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	06/10/2017	From stakeholder	The Department called, to inform ERM to send all future emails to the follow email: embadmin@dbca.wa.gov.au to save emails being bounced around various people within the Department.	N/A	Phone call and voicemail on 31/10/2017 to confirm update to contact details
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	31/10/2017	To stakeholder	Email sent from stakeholder informing ERM/Polarcus that all correspondence is to be directed to EMBAdmin@dbca.wa.gov.au and all other accounts are to be removed.	N/A	Phone call and voicemail on 31/10/2017 to confirm update to contact details
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.		
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Environmental Protection Authority (EPA)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made on 5 August 2015. The EPA has forwarded the email on to the Marine Branch and they will respond.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up phone call made on 13 August 2015 during which the Marine Branch manager relayed that they had no feedback to provide given the Survey Area is located outside of State waters. He also referred Polarcus to the EPA Advice for the Woodside Torosa Subsea Development: http://www.epa.wa.gov.au/News/Publicadvice/Documents/CMS14397-TorosaSubsea-s39A-160215.pdf The advice document provides details on the values of various atolls and shoals in the region. It was confirmed to OEPA during the call that benthic communities and habitat	N/A - Advice / request for further information only. No objection or claim made.	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			were being considered in the assessments of the Cygnus 3D MSS EP. OEPA had no further response to provide.		
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	01/12/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	OEPA has been contacted by Polarcus since 2015 and no response has been received. OEPA has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Member of Parliament for Kimberley	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up phone call made on 5 August 2015 with message left requesting call-back.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August 2015. A message has been left requesting a call back.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Member of Parliament for Kimberley has been contacted by Polarcus since 2015 and no response has been received. Member of Parliament for Kimberley has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Shire of Derby West Kimberley	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	To stakeholder	Follow-up phone call made on 5 August 2015. Email was circulated within the Shire as a notification. They have no response.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Shire has been contacted by Polarcus since 2015 and no response has been received. Shire has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Shire of Wyndham East Kimberley	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up phone call made on 5 August 2015. Lady that deals with consultation not in, left message requesting call-back.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August 2015. A message has been left for the Shire requesting a call back.	N/A	N/A
	16/03/2016	To stakeholder	Email update sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Shire has been contacted by Polarcus since 2015 and no response has been received. Shire has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Commercial Fisheries & Associations					
Western Australian Fishing Industry Council (WAFIC)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call on 4 August 2015 during which WAFIC requested the information sheet to be resent to the reception email address. WAFIC will respond should they have any feedback to provide.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August 2015 during which WAFIC relayed that they have passed the information sheet on to the relevant fishers in the area. They mentioned that if they received any feedback from the fishers they would relay that back to us. They however have no feedback to provide.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	01/06/2017	From stakeholder	Email received acknowledging receipt of email and factsheet, and clarifying contact details.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	06/07/2017	Meeting / phone call	Phone call to WAFIC to clarify our approach to consultation and request a response if she has any comments.	N/A	N/A
	06/07/2017	To stakeholder	Email summarising prior call	N/A	N/A
	14/07/2017	From stakeholder	Email from WAFIC acknowledging receipt on information provided in email on 1 June 2017. WAFIC noted the following points: -Seismic surveys in water depth less than 50 m is unacceptable -Water depths of 10 - 500 m is prime range for commercial fishing -The EP needs to address the cumulative impacts of multiple seismic surveys conducted over the same broad site. -WAFIC requests that ERM provide WAFIC with a seismic history of the area from the past 5 years -ERM need to address the impact of seismic on plankton -ERM need to demonstrate how they plan to avoid key indicator species spawning and aggregations. -WAFIC requests ERM provide stakeholders (license holders) with clear and succinct information. WAFIC believe the map provided to stakeholders is not clear and to small. -WAFIC has informed ERM of the fisheries located in the proximity of the survey (Pearl Oyster Managed Fishery Zone 1, Northern Demersal Scalefish, Joint Authority Shark, North West Slope Trawl and Western Tuna & Billfish.	-WAFICs concerns will be fed into the EP, regarding potential impacts to the fishing industry into the assessment (spawning, aggregation and impacts to indicator species). -Cumulative impact assessment is not a typically retrospective analysis, instead it is a forward looking assessment to understand the potential impacts that may occur as a result of several surveys. It is important to note that although a range of EPs for potential seismic surveys may be submitted to the regulator, not all of them are actually proceed. -ERM are aware of recent research regarding potential impacts to zooplankton, and will ensure the findings of the research are capture in the EP. -ERM have consulted with a number of individual license holders or the State managed fisheries, the DoF, the PPA and AFMA. -ERM are happy to provide a copy of the EP summary when it becomes available (this will include details conversations with all relevant stakeholders). -ERM would like WAFIC input into an example of a preferred map style for the stakeholder factsheet.	Email sent to WAFIC 27/07/2017 with a response to email date 14 July 2017. ERM responded with the following points: -WAFICs concerns will be fed into the EP, regarding potential impacts to the fishing industry into the assessment (spawning, aggregation and impacts to indicator species). -Cumulative impact assessment is not a typically retrospective analysis, instead it is a forward looking assessment to understand the potential impacts that may occur as a result of several surveys. It is important to note that although a range of EPs for potential seismic surveys may be submitted to the regulator, not all of them are actually proceed. -ERM are aware of recent research regarding potential impacts to zooplankton, and will ensure the findings of the research are capture in the EP. -ERM have consulted with a number of individual license holders or the State managed fisheries, the DoF, the PPA and AFMA. -ERM are happy to provide a copy of the EP summary when it becomes available (this will include details conversations with all relevant stakeholders). -ERM would like WAFIC input into an example of a preferred map style for the stakeholder factsheet.

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/07/2017	To stakeholder	Email sent to WAFIC with a response to email date 14 July 2017. ERM responded with the following points: -WAFICs concerns will be fed into the EP, regarding potential impacts to the fishing industry into the assessment (spawning, aggregation and impacts to indicator species). -Cumulative impact assessment is not a typically retrospective analysis, instead it is a forward looking assessment to understand the potential impacts that may occur as a result of several surveys. It is important to note that although a range of EPs for potential seismic surveys may be submitted to the regulator, not all of them are actually proceed. -ERM are aware of recent research regarding potential impacts to zooplankton, and will ensure the findings of the research are capture in the EP. -ERM have consulted with a number of individual license holders or the State managed fisheries, the DoF, the PPA and AFMA. -ERM are happy to provide a copy of the EP summary when it becomes available (this will include details conversations with all relevant stakeholders). -ERM would like WAFIC input into an example of a preferred map style for the stakeholder factsheet.	N/A	N/A
	27/07/2017	From stakeholder	Email received from WAFIC with a response to email dated 27/07/2017. WAFIC noted the following points/concerns: -The proposed survey in on the outer limits of many fisheries so you will not be contending with a large number of vessels but it is prime fishing/spawning/aggregation for the larger vessels. -Ongoing concern expressed by the broader community is the cumulative impacts of seismic activity (i.e. past history)-Cygnus and Zénaïde surveys overlap by time and location (WAFIC estimate 1/3 overlaps) -WAFIC requests to be provided a map with both the Zénaïde and Cygnus survey areas. Two surveys in similar regions is a multiplied impact to the commercial fishing sector. -WAFIC request that ERM provide a seismic history of this area for the past 5 years (2D, 3D and 4D)-Research shows that seismic surveys kill plankton - a significant and important component of the food chain. How does Polarcus plan to address this environmental issue. -WAFIC believe their queries in email 14 July have not been addressed.	- Polarcus recognises that there are sensitive shallow areas within the Survey Area (banks and shoals) that can rise from depth to less that 30 m. Seismic acquisition will take place in deeper waters and not enter these shallower areas. - Ensuring good communication and advanced notice of when phases of survey will occur to minimise interactions with fishers and this will be addressed in the EP-The EP will address cumulative impacts and include measures to prevent overlap with any other survey. -Research provided by WAFIC on lobsters, zooplankton and scallops will be taken into account when assessing these impacts -ERM confirm that we have engaged with all the fisheries you list since the commencement of the Cygnus 3D MSS EP process in 2015-The maps we provided in the factsheets attached to our emails were A3 and had all features labelled-The Zénaïde and Cygnus surveys are over 110 km from Acquisition Area to Acquisition Area	Email sent to WAFIC 04/08/2017 with a response to emails dated 14 July and 27 July 2017. ERM responded with the following points:-Polarcus recognises that there are sensitive shallow areas within the Survey Area (banks and shoals) that can rise from depth to less that 30 m. Seismic acquisition will take place in deeper waters and not enter these shallower areas. - Ensuring good communication and advanced notice of when phases of survey will occur to minimise interactions with fishers and this will be addressed in the EP-The EP will address cumulative impacts and include measures to prevent overlap with any other survey. -Research provided by WAFIC on lobsters, zooplankton and scallops will be taken into account when assessing these impacts -ERM confirm that we have engaged with all the fisheries you list since the commencement of the Cygnus 3D MSS EP process in 2015-The maps we

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
					provided in the factsheets attached to our emails were A3 and had all features labelled-ERM provided WAFIC with a map of Zénaïde and Cygnus. The Zénaïde Operational Area has been reduced slightly from the maximum acquisition scenario that was depicted in the stakeholder factsheet. This is due to a small area in the NW part of Zénaïde being dropped due to lack of industry interest so Polarcus has reduced the potential footprint-The distance between the surveys is over 110 km from Acquisition Area to Acquisition Area.
	01/08/2017 - 04/08/2017	N/A	Email correspondence in relation to Zénaïde and Cygnus in person meeting: -01/08/2017 - Email sent from WAFIC to ERM suggested catching up in person to discuss the concerns/queries WAFIC has with the proposed activities, if possible. -02/08/2017 - Email sent from ERM to WAFIC, a discussion in person will be hard to find time and to organise and suggests a phone conversation at a specified time will be more efficient. -03/08/2017 - Email from WAFIC to ERM suggesting to meet with WAFIC and a commercial fisher (potentially from a Northern Demersal Scalefish operator with fishing activities that cross-over both Polarcus Eps) at WAFIC in Fremantle. -03/08/2017 - Email sent to WAFIC from ERM , agreeing to meet face to face in Fremantle at WAFIC on Monday (7/08/2017) afternoon (ERM and a representative from Polarcus will be attending the meeting). Additional information will be supplied by email in coming days. -04/08/2017 - Email sent to WAFIC from ERM, touching base on the meeting in Fremantle. -04/08/2017 - Email from WAFIC to ERM informing ERM they have contacted Old Brown Dog Fishing Co, who is very reluctant to make himself available. WAFIC requests that NWSA queries are to be addressed before the in person meeting. WAFIC would also like the queries from the Mackerel fishery to be addressed by Polarcus prior to meeting in person. The overlap of Cygnus and Zénaïde also need to be addressed.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	04/08/2017	To stakeholder	Email sent to WAFIC with a response to email dated 14 July and 27 July 2017. ERM responded with the following points: -Polarcus recognises that there are sensitive shallow areas within the Survey Area (banks and shoals) that can rise from depth to less that 30 m. Seismic acquisition will take place in deeper waters and not enter these shallower areas. - Ensuring good communication and advanced notice of when phases of survey will occur to minimise interactions with fishers and this will be addressed in the EP -The EP will address cumulative impacts and include measures to prevent overlap with any other survey. -Research provided by WAFIC on lobsters, zooplankton and scallops will be taken into account when assessing these impacts -ERM confirm that we have engaged with all the fisheries you list since the commencement of the Cygnus 3D MSS EP process in 2015 -The maps we provided in the factsheets attached to our emails were A3 and had all features labelled -ERM provided WAFIC with a map of Zénaïde and Cygnus. The Zénaïde Operational Area has been reduced slightly from the maximum acquisition scenario that was depicted in the stakeholder factsheet. This is due to a small area in the NW part of Zénaïde being dropped due to lack of industry interest so Polarcus has reduced the potential footprint -The distance between the surveys is over 110 km from Acquisition Area to Acquisition Area.	N/A	N/A
	8/08/2017 - 14/08/2017	N/A	Email correspondence in relation to Zénaïde and Cygnus in person meeting: -08/08/2017 - WAFIC requesting a face to face meeting -09/08/2017 - Email sent to WAFIC, discussing times to catch up for a face to face meeting. -10/08/2017 - Email sent from WAFIC, discussing times to meet. -10/08/2017 - Email sent to WAFIC, discussing times to meet. Polarcus Regional Operations Manager located in Singapore will join for the call. -14/08/2017 - Email sent from WAFIC, agreeing to a time to meet for a face to face meeting (Tuesday 15/08/2017 at 9am at WAFIC in Fremantle). -14/08/2017 - Email sent to WAFIC, requesting a number that Polarcus can call to be transferred into the meeting. -14/08/2017 - Email sent from WAFIC informing Polarcus and ERM to call reception for Polarcus representatives to be transferred into the board room. -14/08/2017 - Email sent to WAFIC, thanking for instructions on how to be transferred into the board room.	N/A	

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	15/08/2017	Meeting / phone call	In person meeting at WAFIC in Fremantle. ERM and Polarcus attended.Discussion generally focussed on concerns that the overall fishing industry had about seismic and the NOPSEMA stakeholder process, including stakeholder fatigue and need for clearer information. Polarcus suggested that daily lookaheads could be provided. WAFIC agreed these may be useful. Polarcus offered to provide an example for feedback on what information would be useful to fishers. - Fishers believe that seismic scares off fish and they do not return. - Discussion regarding impacts to spawning and plankton included Polarcus' initial assessment which indicates limited spatial and temporal overlap, and low impact in the context of natural variability. - McCauley et al research on zooplankton has a number of limitations, but Polarcus has factored the research into the assessment. Again, in the context of natural variability, the impacts are considered to be small. Recruitment is not expected to be impacted due to broad scale of spawning and recruitment from waters across the region. Food source impacts also limited due to plankton from non-impacted areas and plankton remain in water column or are scavenged from bottom. - WAFIC again requested cumulative impacts are considered and include past 5 years of surveys. Polarcus and ERM agreed to include. - Copies of draft risk assessment to be provided to WAFIC prior to submission of the EP to NOPSEMA.	- Stakeholder fatigue acknowledged as issue. Ongoing consultation will be provided to notify fishers of survey when confirmed - Daily lookaheads to be provided to stakeholders during the survey and to be included as control in EP. - Impacts to spawning will be addressed in EP but provisional findings indicate low risk - Impacts to plankton will be addressed in the EP including recent research, but preliminary assessment findings indicate limited impacts in context of natural variability and limited flow onto recruitment or food. - Past 5 years surveys to be considered in cumulative impact assessment as requested by stakeholder. - Copies of risk assessments to be provided.	Copies of the draft risk assessments, addressing all of the issues raised to be provided to WAFIC prior to submission, along with summary of assessment outcomes and proposed control measures.
	23/08/2017	To stakeholder	Email sent to WAFIC. ERM provided WAFIC with the draft risk assessment sections for the impacts to fish for the Zénaïde and Cygnus 3D MSS. A summary of the Zénaïde and Cygnus 3D MSS risk assessments for fish were also provided. ERM also acknowledging and taking on board comments on cumulative impacts.	N/A	N/A
	30/08/2017	From stakeholder	Email received from WAFIC, providing comments from email date 23/08/2017. WAFIC acknowledges the EP will be submitted this Friday 1st September. The main points/concerns raised: -WAFIC does not support multi-year seismic environmental plans -WAFIC expectation that Polarcus will reengage with fishers after approval of the EP - Fish apparently do not return after seismic. Still have concerns -WAFIC are concerned of the impact of seismic activity on spawning (cumulative impacts/previous impacts) -WAFIC would like Polarcus to note there is an impact from the loss of zooplankton, however as a standalone impact it might not be significant, coupled with all other activities, the cumulative impact is real. Food source is impacted. -WAFIC is concerned if a vessel becomes available at short notice and a competitive price, WAFIC believe the good intentions of the EP will be sidelined. -WAFIC noted Western Australian commercial fishers have been significantly commercially compromised with zero financial compensation.	- Ongoing consultation will be provided to notify fishers of survey when confirmed - Concern that fish do not return has no merit. No reason for this and comprehensive review of research shows that fish abundance returns to normal within days after survey - Spawning impacts have been comprehensively researched. It is acknowledged that WAFIC still have concerns but assessment is through and controls have been included to limit number of days temporal overlap. - Concern that the EP will ignored has no merit. Polarcus must comply with the EP and controls and performance standards	Email to be provided to confirm that ongoing consultation will be undertaken and notifications provided and to highlight scientific research underpinning our assessments and selection of control measures.

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	31/08/2017	To stakeholder	Email sent to WAFIC, acknowledging receipt of email and included a response to the comments raised by WAFIC. The main points: -The defined controls defined in the EP have performance standards set to each and therefore will need to comply with all controls. -The risk assessment sections in the EP are based on comprehensive reviews of the available scientific literature. -Polarcus will provide a notification to fisheries stakeholders, confirming locations and intended timings, prior to commencement. -Stakeholder engagement will continue to be ongoing throughout the life of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP. ERM asking WAFIC if they have had any feedback regarding the look-ahead notification by Polarcus?	N/A	
	18/10/2017	From stakeholder	Email sent from WAFIC in relation to the update to the Cygnus EP sent on 05/10/2017. WAFCI still believe despite all consultation the final outcome is still 'coming through ready or not'. WAFIC has not received any feedback regarding the proposed look-ahead notifications. WAFIC have some additional questions in regards to the look-ahead notifications: 1) Will the vessel make strategic changes to it's acquisition survey if a fisher are actively fishing in this areas and (2) if fishers express concern that this may a key spawning period? WAFIC have expressed concern and estimate the approximate combined total of active seismic work between the phases (1,2,3) will equal approx. 20% of 2018. WAFIC requests to be advised on Polarcus' plan/strategy if / when seismic acquisition overlaps and impacts commercial fishing (loss of time, lack of access to key fishing grounds, potential increased fuel and other costs, fish discernment etc.) and when the survey vessel timings overlap key fish spawning times.	N/A	N/A
	23/10/2017	To stakeholder	Email sent to WAFIC regarding the Cygnus EP, asking if there is any other information regarding the location and timing of fishing that Polarcus have not considered or are currently not aware of. ERM requesting to have a call or meeting this week if possible. Polarcus will mail notifications to licence holders at least 4 weeks prior to the commencement of survey activities and licence holders will be able to register for the daily look-ahead so they can understand specifically where the survey vessel is expected to be, progress, etc. Polarcus will also notify stakeholders once the survey is complete.	N/A	N/A
	23/10/2017	From stakeholder	Email from WAFIC, informing ERM that she will be unavailable to meet this week and will be on holiday for 5 weeks from 25/10/2017. WAFIC have forwarded emails to key operators in the Polarcus survey region, asking them to directly respond to ERM.	N/A	N/A
	23/10/2017	To stakeholder	Email sent to WAFIC, acknowledging that WAFIC will be away.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	21/11/2017	To stakeholder	Email update to advise that Polarcus have taken further measures to reduce potential impacts to goldband snapper spawning. Phase 3 North is expected to go ahead, but Phase 3 South and the infill lines in the Phase 1 area will no longer occur during the peak goldband snapper season (December-March).	N/A	N/A

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	23/11/2017	From stakeholder	Email received from WAFIC suggesting the information sent on 21/11/2017 should be sent as a courtesy to license holders in commercial fisheries permitted to operate in the Cygnus 3D MSS area.	N/A	N/A
	23/11/2017	To stakeholder	Email sent to WAFIC, informing them that ERM have sent the information to NWSA, and to license holders via post.	N/A	N/A
	23/11/2017	From stakeholder	Email received from WAFIC acknowledging receipt of information.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	13/12/2017	From stakeholder	Email received from WAFIC, thanking for keeping them updated and for keeping NWSA informed.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	From stakeholder	Phone call from WAFIC, stating she is disappointed in the update. She doesn't think the notification or the attached map is clear enough for fishery licence holders. Requested that further information is provided to fishery stakeholders, clearly bulleted at the start of the email/letter to explain specifically which areas will be acquired and when. The map should be amended to more accurately reflect, which areas have been acquired, which are planned and which require infill lines.	Although the notification contains the necessary information on the planned start date of acquisition and which areas will be acquired, Polarcus acknowledges the feedback and will provide a further update to fishery licence holders, which clarifies key details up front, indicates proposed timing of acquisition in each area, and clarifies the legend in the map.	Polarcus acknowledges feedback and will prepare and issue an update accordingly.

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	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	06/12/2018	Meeting	A meeting was held on 06/12/2018 with WAFIC and Polarcus to discuss the purpose of the revision of the Cygnus Phase 3 South EP. Meeting minutes were issued following the meeting.	N/A	N/A

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	06/12/2018	To stakeholder	Email sent to WAFIC with minutes from the meeting on 06/12/2018. Summary of minutes below: • The Cygnus 3D MSS has been acquired by Polarcus in phases since 2015. Phase 1 and 2 were acquired in 2015/16 and Phase 3 North was acquired in 2017/18. Polarcus has not acquired Phase 3 South. The Cygnus Phase 3 3D MSS 2017-18 EP (A585403) is valid until 31 December 2018. • Polarcus is currently revising its Cygnus Phase 3 3D MSS EP to allow a one–year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition within the amended Phase 3 South acquisition area. Polarcus has increased the Phase 3 South acquisition area (by approximately 280 km2). In addition, Polarcus has revised the operational area to only cover activities for Phase 3 South. • Polarcus is planning to submit the revised EP to NOPSEMA in Q1, 2019. Acquisition of Phase 3 South may commence as early as April 2019 (subject to NOPSEMA acceptance, vessel availability, weather conditions and other operational considerations). • Polarcus has had extensive consultation with licence holders (in particular with NWSA and Brown Dog Fishing Co) in regards to the Cygnus 3D MSS. During acquisition of the previous phases of Cygnus - Polarcus had good on-the-water interactions and communications with skippers in the Northern Demersal Scalefish Fishery. • The management controls in the current accepted EP will be included in the revised EP. As mentioned, Polarcus included additional controls in the current accepted EP as a result of consultation with NWSA. These additional controls relating to acquisition restrictions in the peak goldband snapper spawning season will be included in the revised EP. • A factsheet on Cygnus Phase 3 South 3D MSS 2019 will be issued to stakeholders early next week. The factsheet will be provided to licence holders in the Northern Demersal Scalefish Fishery, Mackerel Managed Fishery and JA Northern Shark Fishery.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to WAFIC advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A

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	16/01/2019	From stakeholder	Response received from WAFIC below: Since initial consultation commenced for this seismic environment plan there has been a considerable change in the approach for overall environment plan consultation and in particular, seismic environment plan engagement and outcomes. NOPSEMA's transparency review has highlighted a need for a change in the process. Key commercial fishing issues - potential impact on commercial fishing activity, on the commercial fishing resource (spawning etc. of key indicator species) and on the extended environment (impact on the food chain etc.) must be addressed upfront and appropriately mitigated. It is not acceptable to our industry to be advised of a seismic survey, to have to accommodate a 12-month extension and then having to work around this significant activity to meet your vessel and project timeframes. Seek your reply to the following: • The information sent is not two-way nor transparent, it does not meet our required standard for seismic survey (or any) consultation. It does not recognise nor identify any potential impacts to the commercial fishing industry (your key and quite likely only stakeholder "on the water" in this area). • It is not the responsibility of the commercial fishing industry to micro analyse this proposal and then assess what impacts may or may not potentially occur – this is your role acting and consulting (two-way, open and transparent) with the commercial fishing sector on behalf of the proponent. • What does to "box-in' the survey and how will that potentially impact commercial fishers / commercial fishing activity / the commercial fishing resource? What is the potential impact of "acquiring additional lines orthogonal to the normal acquisition direction"? • Note the plan is to "commence as early as April 2019, subject to NOPSEMA's acceptance of the EP. The survey will take a planned maximum duration of 36 days to acquire, with 7 days deployment/retrieval and 1 day local transit. Please note, the number of planned acquisition days has increased to account for the additional lines required for boxing-in." How will these changes impact commercial fishers? How many extra acquisition days will there be as a result of this EP? Was this April date identified based on the best possible "window of opportunity", that is least possible impost on other ocean users (at this location, it is only the commercial fishing sector and the marine environment?), or, was this date chosen because it works in with Polarcus plans and vessel availability? • What considerations and assessments have ERM/Polarcus done in relation to potential impacts on commercial fishing activities and potential impact on the commercial fishing resource, such as seismic surveys conducted during peak spawning periods of key indicator species or conducted during peak fishing activity etc.? • If this proposed survey is proposed to take place during traditional commercial fishing activity and or during spawning of key indicator species of a fishery (fish species which represent the health of the fishery), what mitigations does ERM/Polarcus propose to do to reduce these impacts to ALARP level? • In relation to the above, what processes does ERM/Polarcus have in place to quantitatively assess any damage to fish stocks, fish spawn, the food chain such as plankton etc. due to the impact of seismic survey activity? o Do you plan to do any bespoke pre-survey (commercial fishing key indicator species, stock assessments, the food chain etc.) environment assessments to ensure there is baseline information in place? o If you are not planning on doing any bespoke pre-survey stock etc. assessments what science will you be using to have a complete understanding of the marine environment prior to the commencement of the seismic survey?	Multiple requests for additional information from WAFIC. Concerns raised by WAFIC in regards to: - transparency, two-way and open consultation; - impacts to commercial fishers due to increase in acquisition days; - cumulative impacts; - compensation/make good process; and - impacts to key indicator species. Concerns have been addressed and incorporated into the EP. Response provided to stakeholder.	Refer to email response on 22/01/2019.

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			o What science is ERM/Polarcus using to demonstrate they have full understanding of fish spawning practices in the region of the proposed seismic survey and how do you plan to avoid any survey dates which may potentially impact fish / crustacean etc spawning periods of commercial fishing key indicator species? o What science is ERM/Polarcus using to demonstrate that they have a full understanding of fish behavioural activities and will completely avoid all seismic activities during key fish schooling, migrating patterns etc? o Where there is an absence of science it is our expectation that commercial fisher knowledge and locational history and understanding of the resource be used in lieu as the key base available information. • Can ERM/Polarcus also please address cumulative impacts – we seek a past review of all seismic surveys which have taken place over part or all of this proposed survey area over the past ten years. Please note survey date, duration and strength (2D, 3D, 4D etc). Cumulative impacts are a significant issue for the commercial fishing sector. Perception of multiple surveys is also an issue – a complete history will provide clear and transparent information • If Polarcus cannot mitigate to an acceptable ALARP level, what ”make good” process will be acknowledged, accepted and included in the formal environment plan? Potential impacts of seismic survey activity on the commercial fishing industry is not just a problem in Western Australia, it is a global problem – any location where oil and gas and commercial fishers operate, it is a significant issue with significant impacts recorded and recognised by our industry.		

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	22/01/2019	To stakeholder	Response to WAFIC email above. Thank you for your comments on the Cygnus Phase 3 South 3D MSS. Please see responses to your queries below in blue. As previously requested, please direct all stakeholder correspondence to the appropriate consultation email account designated for the client. In this case, all communication is to be directed to ERMAustraliaPolarcus@erm.com. We agree that the approach to consultation has changed since the EP was first submitted to NOPSEMA for assessment in 2015. However, we have changed our approach to stakeholder consultation as the situation has changed, and this is reflected in the revisions to the EP accepted by NOPSEMA. We are well aware of NOPSEMA's transparency review, however changes to the seismic EP consultation process have yet to be enforced via amendments to the OPGGS (E) Regulations 2009. This EP is a revision to an already accepted EP, with minimal changes required. The main changes made to the EP are the following: • A review of recent scientific literature and research findings; • A review of EPBC protected matters database (and conservation advice/recovery plans); • Updates to the Australian Marine Park management system; • Addition of new marine turtle designations; • A review of the cumulative impact assessment; and • Incorporation of stakeholder feedback. Polarcus have acquired previous phases of the Cygnus 3D MSS and had no negative interactions with fishers on the water. In fact, during acquisition of Phase 3 North, Polarcus had very collaborative and effective on the water communications and interactions with skippers in the NDSMF. We do not agree with your comments suggesting that Polarcus is making fishers work around their activity to meet vessel and project timeframes. We have engaged with stakeholders on this EP since 2015, and we are well aware of the concerns expressed by stakeholders, and as such have implemented a number of controls to minimise any potential impacts and have addressed concerns raised by fishers. We have been engaging with the same stakeholders for this EP since 2015. We have continually provided stakeholders with updates on the status of the EP and the timing of acquisition of the previous phases of the survey. The management controls included in the revision of this EP are the same controls as described in the current accepted 2017-18 EP, which is publicly available in the EP Summary (as stated in the factsheet provided on 7 December 2018). This is a resubmission of an accepted EP, and we have engaged extensively with stakeholders. In 2017, we provided WAFIC, DPIRD, and NWSA with the completed risk assessment sections relating to the potential impacts to fish and commercial fisheries. Following receipt of stakeholder comments and feedback, we updated the risk assessments accordingly, including incorporation of additional management controls in the EP, at the request of the stakeholders. WAFIC, DPIRD and NWSA were notified of the changes made to the EP, and how their concerns had been addressed. We have provided stakeholders with ample opportunity to provide feedback, seek	N/A	N/A

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			clarification, or comment on the proposed activity. We have engaged relevant stakeholders in an open and transparent manner as required by the OPGGS (E) Regulations 2009. It is not clear what WAFIC's "required standard for seismic survey (or any) consultation" actually is. With respect to consultation for the Cygnus 3D MSS, it is somewhat perplexing that you claim that consultation is not 'standard', when you have not actually sought details regarding the consultation process already undertaken. We would suggest that WAFIC refrains from suggesting that the "information sent is not two-way or transparent", when you are clearly not fully aware of the consultation process that has taken place to date. We have continued to engage with stakeholders since 2015, and we have had multiple meetings with WAFIC and DPIRD. We have provided the risk assessment sections to relevant stakeholders in advance of EP finalisation and submission, and have provided stakeholders with regular updates on the survey. Polarcus and ERM representatives had a meeting with WAFIC on 6 December 2018, in which we discussed the resubmission of the Cygnus 3D MSS, and at no point during that discussion did you raise any concerns about this EP. That would have been the most appropriate opportunity to express your concerns and have constructive dialogue with both the consultancy responsible for the development of the EP, and the proponent. We agree it is not the responsibility of the fishing industry to micro-analyse the proposal. However, as stated above, this is not a new EP, stakeholders are aware of the Cygnus 3D MSS, and have been engaged since 2015. In addition, the 2017-18 Cygnus 3D MSS EP Summary is available on NOPSEMA's website. Two-way engagement goes both ways – it requires proponents to consult with relevant stakeholders, and for relevant stakeholders to provide comments and feedback or request additional information. Engagement shouldn't just be reliant on the proponent. On most occasions, stakeholders do not respond (even after multiple contact attempts). We understand that stakeholders receive many requests for feedback from the industry, and that consulting with the industry is not their main job. However, it is not possible to have two-way engagement if it is only the proponent that is willing to engage constructively in the consultation process. Stakeholders need to assume some responsibility for providing feedback and informing proponents of the potential impacts or concerns they may have. It is not appropriate for WAFIC to suggest that the consultation process undertaken is not two-way, given that Polarcus and ERM have engaged with stakeholders since 2015, and at every stage of the project have requested feedback, and have been open to discussions with stakeholders (including WAFIC). As stated in the email provided on 14 January 2019, the boxing-in option requires additional lines to be acquired orthogonal (at 90 degrees) to the normal acquisition direction at the location of the Montara Project Infrastructure. The presence of the Montara Project Infrastructure and the associated exclusion zones will result in a hole in the seismic coverage. The purpose of additional lines is to reduce the size of the hole. No additional impacts are expected to occur to commercial fishing activity, given that the additional lines to be acquired will be within the defined Acquisition Area. No changes will be made to the Acquisition or Operational Areas as a result of the boxing-in option. In the 2017-18 accepted EP, acquisition of Phase 3 South was planned to take a maximum of 30 days to acquire. In this revised EP, Phase 3 South is planned to take an additional 6 days to acquire (total 36 days), as a result of an increase in the acquisition area (by 280 km2) and the inclusion of the additional acquisition lines required by the		

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			boxing-in option. As stated above, no additional impacts are expected to occur to the commercial fishing industry. Polarcus has a control in the EP restricting the number of days of acquisition during the peak goldband snapper spawning season. The control states the following: "during the peak goldband snapper spawning season (January – April), acquisition will be limited to a maximum of 30 acquisition days". The timing of Phase 3 South takes into account the control mentioned above, so that if acquisition was to commence as early as 1 April, no more than 30 days of acquisition would occur within the peak spawning period. We have consulted principal scientists at DPIRD to better understand these spawning times. The dates mentioned in the control above are the dates provided by DPIRD in November 2018. As mentioned above, ERM has consulted with principal scientists at DPIRD to further understand spawning times for goldband snapper and other species in the North Coast bioregion. More recently, ERM re-engaged with DPIRD to ensure the information previously provided is still current and up to date with the latest scientific information available. DPIRD provided ERM with updated advice on the spawning times (and peak spawning periods) for species in the North Coast bioregion. This included changes to the peak goldband snapper spawning periods. Accordingly, ERM has updated the EP to reflect this updated advice, and in addition ERM has revised the controls in the EP relating to these spawning periods. The accepted EP already includes an assessment of the potential impacts of seismic acquisition on fish behaviours, based on the information available in the scientific literature. This information has already been made available to WAFIC via provision of the complete risk assessment sections of the EP. The proposed changes to the activity, as described in the revised EP, do not introduce any new or increased impact or risk with regards to behavioural responses in fishes. We do not agree that commercial fisher knowledge should be used in lieu of the absence of scientific information. Information provided by fishers is important, and can be a key resource of information for the EP. However, it is not appropriate to base the risk assessments only on commercial fisher knowledge but rather to use this knowledge to supplement existing scientific literature. Polarcus and ERM have demonstrated that the potential impacts associated with the activity are ALARP and at an acceptable level. It is NOPSEMA's role to assess and determine whether the justification/assessment included in the EP is appropriate for the nature and the scale of the activity. Whilst a 'make-good' process can be an appropriate mechanism for compensating fishers who are impacted by a seismic survey, either by displacement or from a loss of catch, compensation has to be assessed on a case-by-case basis. If compensation is appropriate for the activity, an appropriate process should be developed in collaboration with stakeholders. Polarcus and ERM have determined that compensation for commercial fishers is not an appropriate control or mitigation measure for the Cygnus Phase 3 South 3D MSS, given the nature and scale of the activity, and the minimal impacts expected to the commercial fishing industry.		

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	29/01/2019	From stakeholder	Email received from WAFIC on 29/01/2019. Many thanks for your detailed reply. You miss the key point – none of us – other representative associations, individual licence holders - have the time to micro review the back history of this survey. I acknowledge you have worked on your stakeholder engagement, however, stakeholders are not as happy with your process and your idea of what ALARP level risk is. Note the email attached above from Northern Wildcatch Seafood Australia, look forward to your reply covering the points raised. I replied to your email. I will continue to reply back to the source email. You cannot expect me to remember every directive from every oil and gas proponent. I will not dig within the text to find it, simply because I don't have the time to do so. If you want me to reply to a specific email address then please send it to me (and other stakeholders) from that address . I do not believe you need to wait for changes to the OPGGS regs, it is my understanding for all NOPSEMA engagement you need to address issues and concerns raised by stakeholders. That is, in the case of commercial fishing as a minimum the basics of avoiding key / peak fishing activity and to completely avoid peak spawning periods (the future of the fishery) etc.Noting the above points, is it possible to share this information with potentially affected commercial fishers and WAFIC? Or, do we have to wait until the commonwealth legislation is changed which will then force a proponent to publish their penultimate EP? Note your review of recent science and literature and your review of the cumulative impacts of this (and other) surveys – these are critical points of relevance to commercial fishing stakeholders, very keen to understand what Polarcus has submitted / plans to submit in relation to these points and which science you have used and how you assess cumulative impacts. FYI - I am working on multiple seismic survey EP consultations now, one in the Pilbara the balance in the general Polarcus Cygnus region (overlapping the same fisheries). Regardless of your consultation and intent, the reality is, commercial fishers have to make changes, sometimes significant changes to their commercial fishing activity, to work in with a seismic survey. Disruption is real and is cumulative in relation to other seismic surveys (if one a year in a region results in every single season there is a major disruption). This is not a WAFIC issue and this is not an issue unique for WA fishers. This is a well-documented global issue.Your comments suggest that myself (and commercial fishers) must have a micro knowledge of your EP (consultation dating back to 2015). In an ideal world that would work, however, time and resource pressures make this not possible. My expectations are for a proponent to raise upfront any potential issues and concerns that may potentially impact commercial fishers – the activity, the resource and the environment. Dot point (you are welcome to include a detailed fact sheet) front page clear summary is what we initially need. None of us have the time / resources to micro-assess and analyses your long-term project (along with other oil, gas and seismic consultations working concurrent with the Polarcus/Cygnus work AND doing our own work, managing businesses, and fishing etc). Noting NWSA's email above I now have justifiable concerns that key points / issues previously raised where not raised at the meeting with WAFIC on 6th December 2018.I have my meeting notes from the 6th December 2018 meeting. I have no record in my meeting notes of an issue raised during previous fisher consultation (as noted in the email attached above from NWSA), that you plan to do this survey during 30 days of peak key indicator species spawning times. No notes at all. How can we have a meeting and such an important point is not raised (isn't this the whole idea of open and transparent engagement)?	Further concerns were raised by WAFIC, in regards to seismic acquisition during the peak goldband snapper spawning period, cumulative impact assessment and potential impacts to commercial fishers. Concerns have been addressed and incorporated into the EP. Response provided to stakeholder.	Refer to email response on 15/02/2019.

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			NWSA has provided a viable alternative – no seismic survey during the peak spawning period, he has suggested an alternate commencement in May. Why is May unworkable for Polarcus/Cygnus? I have just had a telephone conversation with NWSA. Not only did NWSA make it clear to Polarcus/Cygnus that seismic survey activity is completely unacceptable during the peak spawning period of the key indicator species of the Northern Demersal Scalefish Fishery (unacceptable then unacceptable now and unacceptable in the future), he was of the understanding that this (no survey during peak spawning) would be part of your EP. It is my understanding that NWSA did not receive any communication (phone, email, letter) advising him that this would not be part of the Polarcus / Cygnus EP, despite it clearly being a very important issue. We very much look forward to the change in legislation which will require all proponents to publish the penultimate EP for final stakeholder review prior to submitting to NOPSEMA. This will then and only then be a true open and transparent arrangement because quite clearly in this case a crucial issue was not upheld and the stakeholder was not advised of your plans. You wonder why it is hard to get replies from commercial fishers, not only are they busy but in many cases very disillusioned by the process.Considering this consultation dates back to 2015 and is detailed and complicated – so yes, difficult to get a response. This may mean that beyond emailing you get on a flight and meet the owners at port when they're unloading or at their office e in Darwin etc., any other occasion which will ensure you get frank and face-to-face feedback. It is clear that you have already received direct feedback from Northern Wildcatch (owners of over 70% of the fishing rights in the Northern Demersal Scalefish Fishery) and despite a clear request not to do the survey during peak spawning periods of the key indicator species you still consider that this is OK. It is not OK and will never be OK. Again as per the above, an appropriate compromise has been suggested with a May commencement date to avoid peak spawning. You wonder why there's limited engagement, when a proponent pushes for a seismic survey during peak spawning when there is a compromise solution on the table.We seek a survey which is not conducted during peak spawning of the key indicator species. You have noted this is a 36 day survey and you will not be conducting the survey in more than 30 days of peak goldband snapper spawning. In effect, this survey will be almost 100% during peak goldband snapper spawning – this is clearly unacceptable. We seek your support for a compromise schedule outcome.Peak goldband snapper spawning period as you have noted above in your control is January to April. Therefore, your previous note that Polarcus/Cygnus will not work a survey for longer than 30 days over the peak spawning period is completely unworkable for this survey. Be upfront and transparent – you are seeking to complete almost an entire survey during the peak spawning period. This is unacceptable. An alternate date of May has been suggested which is not during the peak spawning period.Noting the considerable information received from Polarcus/Cygnus since 2015, as a courtesy I would have expected you to have included the final cumulative impact assessment document for our reference and review. I have zero recollection of what information WAFIC provided for this and based on NWSA's experience, I clearly have no understanding or recollection that the points and issues WAFIC raised were actually included in the review. I also asked for a past review of surveys which have taken place over this site for the past ten years – when will you provide this information please? We need a clear understanding of the actual seismic work which has taken place (actual versus the multi-client seismic EPs which did not proceed but which created an impression of greater numbers).		

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			How do you demonstrate that a seismic survey, taking place throughout almost its entirety during the peak spawning period of the key indicator species of a fishery is assessed to ALARP level? Whose ALARP? Can you provide more information how Polarcus/Cygnus justify and account that this is an ALARP level activity?WAFIC is working with key O&G proponents now, the requirement to "make good" is formally incorporated into a proponent's seismic EP. We are working with this proponent and commercial fishing stakeholders to generate an across industry framework for a formal make good process.You note above that you believe there will be "minimal" impacts to the commercial fishing sector for this Phase 3 South 3D survey. How do you justify and quantify and attach a commercial value to what you deem to be "minimal"? What losses have commercial fishers and the commercial fishing resource etc. taken since 2015 when this Polarcus/Cygnus consultation commenced?		
	07/02/2019	Meeting / Phone Call	Phone call to WAFIC to discuss the stakeholder notification that will be issued to all stakeholders on 07/02/2019. The purpose of the notification was to advise stakeholders of the extension to two-years to 31 December 2020. WAFIC suggested to make it clear to stakeholders that the EP timeframe is extending but not the timing of the survey. ERM informed WAFIC that ERM are in the process of drafting a response to WAFIC's concerns and will respond early the following week. ERM suggested another phone call to talk through any outstanding concerns, once ERM have issued response.	N/A	N/A
	15/02/2019	To stakeholder	Email sent to WAFIC on 15/02/2019. Thank you for your response on the Cygnus Phase 3 South 3D MSS Environment Plan (EP). Please note I have not responded to your queries with in text replies, as it was hard to track the responses. Apologies for the delayed response. Just to clarify, all emails have been sent from ERMAustraliaPolarcus@erm.com. The purpose of the email account is to a have a central location, where stakeholders can contact Polarcus/ERM. Having emails sent to/from multiple email accounts (including from individuals) can cause confusion and can create a headache in regards to stakeholder management (i.e. tracking correspondence). The email account is managed by ERM and is accessible by multiple members of the ERM team. This ensures that all correspondence received is tracked appropriately and responded to in a timely manner. I would request that you do not copy in third parties, who are not relevant stakeholders, on activity specific matters. A more appropriate approach would be to email ERM outside of the consultation process to discuss these matters. If you would like to discuss the collaborative seismic EP, please contact me separately. December WAFIC Meeting In regards to your comments on the meeting Polarcus/ERM attended on 6 December 2018 – following the meeting I issued meeting notes summarising the key points of the conversation. Please see the email attached for your reference. As stated in the email, Polarcus/ERM informed WAFIC of the intent to commence acquisition as early as April 2019, and the intent to include the same management controls in the revised EP as those in the current accepted EP (2017-18). In particular, the controls relating to acquisition restrictions in the peak goldband snapper spawning season have been retained and included in the revised EP. At the time, we advised that the management controls related to acquisition restrictions (i.e. maximum of 30 days of acquisition) in the peak goldband snapper spawning period were included in the current accepted EP due to the concerns raised from NWSA, DPIRD and WAFIC. Again, at no	N/A	

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			point during the discussion did you raise any concerns regarding the survey or the survey timing. Pre-2018 Consultation We agree it is not the responsibility of the fishing industry or WAFIC to micro-analyse the proposal. However, as this is not a new EP and stakeholders (including WAFIC) have been engaged since 2015 – it is expected that these stakeholders have an understanding of the history of the survey. New stakeholders have been identified throughout the consultation process, and these stakeholders have been provided with additional information on the survey. It is surprising that you have no recollection of the consultation process that has been ongoing since 2015, in particular consultation that occurred in 2017. WAFIC has, on multiple occasions, submitted responses to ERM/Polarcus in regards to this survey. For all submissions, ERM/Polarcus has responded to all WAFIC queries. It is expected that WAFIC would have an effective record management system in place for all correspondence, which can be accessed when required. Consultation is an ongoing process from EP preparation through to activity cessation – there is an expectation that during the consultation process stakeholders will refer back to previous correspondence. We do not believe it is our responsibility to provide you with the previous correspondence. Nor do we see it as our responsibility to have to provide you with a summary of the concerns WAFIC previously raised and how Polarcus/ERM addressed those concerns. As mentioned above, ERM and WAFIC have been engaging on this survey since 2015 – multiple emails, meetings and phone calls have occurred over this period. EP Timeframe As you are aware, a notification was issued to stakeholders on 7 February 2019 providing an update on EP submission, EP timeframe and acquisition timing. The same information provided to stakeholders is included below for your reference. Polarcus advised stakeholders on 10 December 2018 that Polarcus is revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. Polarcus would like to inform stakeholders that the EP will now be extended for two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. As previously mentioned, the survey will take a planned maximum duration of 36 days to acquire, 7 days deployment/retrieval and 1 day local transit. Acquisition Timing Due to vessel availability and other operational reasons, Polarcus has rescheduled the commencement of Phase 3 South. As a result, acquisition is planned to commence in May 2019 at the earliest. ERM has updated the EP to reflect the revised acquisition commencement date and the revised EP timeframe. Polarcus can confirm that acquisition of Phase 3 South will not occur during the peak goldband snapper spawning period (1 January – 30 April) in 2019. However, there is the possibility that the survey may overlap with the peak goldband snapper spawning period in 2020. In the event that Polarcus is required to acquire within the peak goldband snapper spawning period in 2020, Polarcus will be limited to a maximum of 30 days of		

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			acquisition (as mentioned above). The precise timing of acquisition is subject to NOPSEMA's acceptance of the EP, vessel availability, weather conditions and other operational considerations. The timing of the survey will be communicated to stakeholders in advance of the survey commencing. Recent Scientific Literature As mentioned, ERM/Polarcus has undertaken a review of recent scientific literature and research findings – which has been incorporated into the revised EP. References to recent scientific literature is provided below: • Environmental Resources Management Australia Pty Ltd (ERM) 2017. Airguns & Fish Mortality Literature Review – Santos Bethany 3D Seismic Survey Environment Plan. Final Report to Santos, Reference No. 0436696. 1 December 2017. 39 pp. • Gaughan J, and Santoro K 2018. Status Reports of the Fisheries and Aquatic Resources of Western Australia 2016/17: The State of the Fisheries. Department of Primary Industries and Regional Development, Western Australia. • McPherson C and MacGillvray 2018. Validation of Airgun Array Modelled Source Signatured. Joint Meeting of ASA and CAA, Victoria BC. Presentation by JASCO and Polarcus. Nov 7, 2018. • McPherson C, MacGillvray A and Hager E 2018. Validation of Airgun Array Modelled Source Signatured. Victoria BC. ASA Abstract. • National Offshore Petroleum Safety and Environment Management Authority (NOPSEMA) 2018. Information Paper IP1765 - Acoustic Impact Evaluation and Management. December 2018. Rev 2. • Popper A 2018. Potential for Impact of Cumulative Sound Exposure on Fishes during a Seismic Survey. Santos Bethany 3D Seismic Survey Environment Plan. • Webster F, Wise S, Fletcher J and Kemps H 2018. Risk Assessment of the potential impacts of seismic air gun surveys on marine finfish and invertebrates in Western Australia. Fisheries Research Report No. 288 Department of Primary Industries and Regional Development, Western Australia. 42pp. Risk Assessment ERM/Polarcus has undertaken a comprehensive review of the potential impacts and risks from the revised activity to ensure the control measures included in the 2017-18 EP are acceptable. No significant changes have been made to the risk assessment sections provided in 2017. A summary of the relevant risk assessment sections are provided below: Fish Spawning The potential impacts to fish spawning, in particular red emperor and goldband snapper, have been appropriately assessed in the revised EP. The risk assessment is based on the potential spatial overlap with the areas utilised by these stocks, the temporal overlap with spawning periods, and takes into account the natural variability in spawning and recruitment. Based on recent scientific literature and advice provided by DPIRD (Fisheries), we understand that red emperor spawn between August and May, with a peak in October and March, and spawning occurs in water depths up to 180 m. Goldband snapper are known to spawn between September and May with a peak between January to April (inclusive). Goldband snapper generally occur between 50 m and 200 m water depth, and are typically more concentrated between the 80 m and 140 m depth contours. Red emperor stocks occur across northern Australia, and biological connectivity and		

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			genetic homogeneity is maintained between the different stocks by dispersal of eggs and larvae throughout its range. In contrast, goldband snapper stocks are genetically distinct from other adjacent stocks (e.g. Pilbara, Broome, Timor Sea, Arafura Sea stocks), which has implications for stock recruitment if the spawning biomass is impacted. It is recognised that there is some uncertainty about the status and sustainability of the stock, therefore goldband snapper is considered to be more sensitive. To estimate the largest area where spawning behaviour may be influenced by sound from Phase 3 South, the most extensive impacts and ranges identified in the scientific literature for changes in fish behaviour, abundance and distribution were applied to the largest area of acquisition expected to overlap with the goldband snapper spawning depth and geographical range. Accounting for the spatial and temporal overlap for Phase 3 South, this equates to 4% overlap with the principle 80-140 m depth range and peak spawning period (January to April). The spatial and temporal overlap with the broader September to May spawning period and 50-200 m depth range is significantly less; being less than 1% overlap. These percentages assume that all spawning in the potential area of influence will cease completely for the duration of the survey, which is considered to be conservative given that no actual reduction in the total spawning biomass is expected to occur and, as the effects are expected to be behavioural. Given the natural variability in spawning and recruitment rates, and the limited spatial and temporal overlap of seismic acquisition with spawning, no significant impacts to goldband snapper spawning and recruitment are expected. In addition, given the connectivity of red emperor stocks, the impacts to red emperor spawning are predicted to be negligible. Complete avoidance of the peak goldband snapper spawning period was given careful consideration, but was not considered practicable. Polarcus recognises that there is some uncertainty about the status and sustainability of the stock and therefore Polarcus will limit the temporal overlap with the peak goldband snapper spawning period (1 January - 30 April) to a maximum of 30 days of acquisition during this period. Commercial Fisheries There is potential for fish in proximity to the seismic array to modify their behaviour in areas of increased sound levels resulting from seismic operations, which may include active avoidance, schooling behaviour modification, a change in feeding patterns, or changes in local abundance and distribution within and around the area being surveyed. Based on available research, the potential impacts to fish catches may be mixed. As a worst case, reduced local abundance and catch rates may occur within the area being surveyed and to ranges of up to a few tens of kilometres. Such impacts may last only for the duration of the sound exposure (hours) or for up to five days following cessation of the survey. The fisheries that overlap the Operational Area operate over wider areas than will be exposed to the seismic sound during the survey and, given the spatial extents of the fisheries only a portion of the area and fish targeted by fisheries may be affected by the survey and fish catches are expected to be available in other areas. Communication with fisheries stakeholders is the primary mitigation measure to enable resource sharing, transparency and provide fishers with sufficient warning of the commencement and completion the survey. The proposed controls include: • A Notice to Mariners and an AUSCOAST warning will be issued prior to each survey		

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			phase mobilisation and following demobilisation. • Notification will be provided to fisheries stakeholders, prior to commencement of the survey (minimum of 4 weeks), indicating location and expected timing. Notification will also be provided to fisheries stakeholders upon completion of the survey. • Daily look-ahead notifications can be provided to stakeholders via email, which outline the locations of planned acquisition lines for the upcoming 48 hours. Polarcus will maintain on-the-water communications with all vessels in the vicinity of the survey. Polarcus is committed to working with skippers to ensure there is no negative on-the-water interactions. Cumulative Impacts ERM/Polarcus has undertaken a cumulative impact assessment from successive and concurrent seismic surveys in the area. The table attached outlines the seismic surveys that have been undertaken in the last 5 years within approx. 150 km of the Phase 3 South Acquisition Area. In addition, only one other survey, the Spectrum Cygnus Southwest Marine Seismic Survey, is planned near Polarcus Cygnus Phase 3 South (approx. 50 km separation between the two acquisition areas) and has an EP accepted by NOPSEMA. However, it is unlikely Spectrum will acquire seismic data under this EP, given the timeframes required to acquire (approx. 3 months). No acquisition has occurred under this EP to date. It is considered highly unlikely that this survey will proceed on a timeline that would overlap temporally with Phase 3 South. No other seismic survey EPs have been approved or submitted to NOPSEMA for assessment. For operational reasons (to prevent acoustic interference and preserve seismic data integrity) a minimum separation distance of at least 40 km will be maintained between Phase 3 South seismic source and any other concurrently operating seismic sources during data acquisition activities. ALARP Justification Polarcus/ERM has demonstrated that the potential impacts associated with the activity are ALARP and at an acceptable level. As previously mentioned, it is NOPSEMA's role to assess and determine whether the justification/assessment included in the EP is appropriate for the nature and the scale of the activity, and for the nature and scale of potential impacts/risks. It is important to note that NOPSEMA previously accepted this EP in 2017 - meaning that NOPSEMA assessed the EP to be appropriate for the nature and the scale of the activity. Therefore in NOPSEMA's opinion, the potential impacts associated with the activity were ALARP and to an acceptable level. No significant changes have been made to the activity since 2017. Thank you for your response and comments. ERM/Polarcus are open to organising another meeting to discuss any outstanding issues with WAFIC, if this would be of interest to WAFIC.		

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	08/03/2019	To stakeholder	Email response received from WAFIC - see below: When do you plan to reply to WAFIC's queries regarding the Polarcus Cygnus Phase 3 South please? Look forward to your update. Note the emphasis of NOT conducting the survey during peak spawning of the key indicator species with the main commercial operator suggesting May as a better / alternate month to April. It is my understanding that you can commit to a May survey date in 2019, but with an extension request to 2020 you cannot commit to a May survey in 2020. Can you please explain why you cannot avoid the peak spawning period in 2020 and as suggested by the major operator move your timing from peak month April to a more palatable May date? My understanding from your initial EP approval is that NOPSEMA approved up to 30 days of the survey to take place during the peak spawning period of the key indicator species. If Polarcus does get a NOPSEMA extension approval for the final 37 days, in effect, this final phase (if conducted in the prosed April date), will, almost in its entirety will be conducted throughout the peak spawning period – clearly unacceptable and clearly not at an ALARP level.Can you advise throughout the Polarcus Cygnus overarching seismic surveys to date, how many days thus far have you had seismic activity concurrent with peak spawning of the key indicator species?	WAFIC requesting further information on why Polarcus cannot avoid acquisition during the peak goldband snapper spawning period. WAFIC requesting information on the history of the Cygnus survey and dates of previous phases. WAFIC claims a 36 day survey during the peak spawning period is not acceptable and not to an ALARP level.	Refer to email response on 11/03/2019.
	11/03/2019	To stakeholder	Email sent to WAFIC - see below: Thank you for your email. I responded to your queries on 15 February 2019 – please see the attached correspondence. As previously requested on multiple occasions, please direct all stakeholder correspondence to ERMAustraliaPolarcus@erm.com. It would be appreciated if you could please respect this request. Please note the Polarcus Cygnus 3D MSS Phase 3 South 2019-2020 Environment Plan (EP) was submitted to NOPSEMA for assessment on Friday 1 March 2019. The NOPSEMA activity status and summary webpage will soon be updated with the new record. As mentioned, Polarcus has rescheduled the commencement of Phase 3 South to commence at the earliest May 2019. The change in acquisition commencement is due to vessel availability and operational reasons. Polarcus can confirm that acquisition of Phase 3 South will not occur during the peak goldband snapper spawning period (1 January – 30 April) in 2019. However, there is the possibility that the survey may overlap with the peak goldband snapper spawning period in 2020. In the event that Polarcus is required to acquire within the peak goldband snapper spawning period in 2020, Polarcus will be limited to a maximum of 30 days of acquisition. It is not feasible for Polarcus to commit to not acquiring during the peak spawning period. The 2017-2018 EP allowed Polarcus to acquire a maximum of 30 days during the peak goldband snapper spawning period. The EP was for a total of 71 days of acquisition (Phase 3 North, Phase 3 South and infill lines in Phase 1 and 2). Once accepted by NOPSEMA, the 2019-2020 EP will allow Polarcus to acquire a maximum of 30 days (Phase 3 South only) during the peak goldband snapper spawning period. Please note there is no difference if Polarcus acquired Phase 3 South in 2017-2018 to if Polarcus was to acquire Phase 3 South in 2019-2020. The same maximum number of acquisition days (30) could occur during the goldband snapper peak spawning period. As previously mentioned, it is NOPSEMA's role to assess and determine whether the justification/assessment included in the EP is appropriate for the nature and the scale of	N/A	N/A

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			the activity, and for the nature and scale of potential impacts/risks. Please see the summary table below of the dates of seismic acquisition for the Cygnus 3D MSS. Please note the number of acquisition days were based on a December-March peak spawning period for goldband snapper (as included in the 2017-2018 EP). Cygnus 3D MSS Phases Area acquired (km2) Dates of acquisition No. acquisition days during peak spawning period for goldband snapper (Dec-Mar) Phase 1 3,512 km2 • 20 Dec 2015 – 07 Feb 2016 • 26 Feb 2016 – 06 Mar 2016 58 days Phase 2 890 km2 • 07 Feb 2016 – 26 Feb 2016 19 days Phase 3 North 1,277 km2 • 18 Dec 2017 – 13 Jan 2018 27 days		
	20/03/2019	From stakeholder	Email received from WAFIC - see below: Acquisition during peak goldband snapper spawning Based on the table below Cygnus Phase 1, Phase 2 and Phase 3 North were all acquired 100% within the peak spawning for goldband snapper. Am I reading the table correctly? Based on the table below, if NOPSEMA accepts the Polarcus Phase 3 South 2019-2020 EP and if NOPSEMA allows Polarcus to acquire a maximum of 30 days during the peak goldband snapper spawning period and based on your advice that Phase 3 South is about 37 days then this survey will also be almost in its entirety conducted throughout the peak spawning period of the key indicator species overlapping the acquisition area. Is this correct?	WAFIC seeking clarification on timing of survey and overlap of previous phases with goldband snapper spawning.	Refer to email response on 11/03/2019.

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	01/04/2019	To stakeholder	Email sent to WAFIC - see below: As mentioned, the Polarcus Cygnus 3D MSS Phase 3 South Environment Plan 2019-2020 has been submitted to NOPSEMA. The EP will be with NOPSEMA for review and assessment for up to 30 days. It is expected that NOPSEMA will provide Polarcus with notice of a decision by 22/04/2019. Polarcus/ERM will keep WAFIC updated on the status of the EP. If you are interest, here is a link to the activity status webpage: https://www.nopsema.gov.au/environmental-management/activity-status-and-summaries/details/468. Yes, that is correct. Phase 1, Phase 2 and Phase 3 North were acquired during the peak goldband snapper spawning period. However, it is important to note that Phase 1 and Phase 2 were acquired in accordance with the accepted 2015-2017 EP, which did not restrict Polarcus in acquiring during the peak goldband snapper spawning period. Phase 3 North was acquired in accordance with the accepted 2017-2018 EP, which restricted Polarcus to a maximum of 30 days of acquisition during the peak goldband snapper spawning period. Polarcus was unable to acquire Phase 3 South in Q1 2018 (following completion of Phase 3 North) due to having already completed 27 days of acquisition during the peak spawning period. Polarcus was unable to return at a later date in 2018 (i.e. outside of the peak goldband snapper spawning period) to acquire Phase 3 South. To clarify, Phase 3 South will take a planned maximum duration of 36 days to acquire, 7 days deployment/retrieval and 1 day local transit. The earliest Phase 3 South will commence is May 2019. The precise timing of acquisition is subject to NOPSEMA's acceptance of the EP, environmental sensitivities, vessel availability, weather conditions and other operational considerations.Yes, that is correct. However, this would only occur in the event that Polarcus was to acquire a maximum of 30 days during the peak goldband snapper spawning period (in accordance with the accepted EP). Polarcus is planning to acquire Phase 3 South in 2019. Acquisition is currently scheduled to commence in September 2019. The exact start date will be communicated to stakeholders (including WAFIC) 4 weeks prior to survey commencement.	N/A	N/A
	14/05/2019	To stakeholder	Email sent to WAFIC - see below: As part of the assessment, NOPSEMA has requested Polarcus to provide further written information in regards to the following aspects: • Matters protected under Part 3 of the EPBC Act – a demonstration that impacts from acoustic emissions to site-attached fish have been reduced to ALARP and acceptable levels. • Socio-economic factors – a demonstration that potential impacts to fisheries, and in particular spawning goldband snapper, have been appropriately evaluated. As part of the request for further written information, Polarcus has made amendments to the EP including the impact assessment. Polarcus is happy to provide WAFIC with the revised impact assessments, if this would be of interest to WAFIC. I have provided information below on the changes that have been made to the relevant impact assessments. Site-Attached Fish Assemblages The acoustic modelling completed for the Cygnus 3D MSS predicts that temporary threshold shift (TTS) could begin to occur in fish within 1.32 km from the seismic source. Fish on the slopes of the unnamed shallow areas may be exposed to cumulative sound exposures that may result in TTS impacts to fish for a short duration (approximately 20 minutes, or less for the more distant, shallow water fish assemblages in water depths <30 m).	Polarcus provided WAFIC with an update on the RFWI response, and the amendments made to the relevant impact assessments.	N/A

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			Polarcus will implement the following controls in regards to site-attached fish: • Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey. • Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able. • The seismic source will not be operated within 500 m horizontal distance from the 20 m depth contour (Polarcus operational exclusion zone). • The seismic source will not be operated within 200 m horizontal distance from the 60 m depth contour around shoals. • The seismic source will not be operated within 200 m horizontal distance from the 45 m depth contour in the defined 'unnamed shallow areas'. • In the defined 'unnamed shallow areas' the seismic source volume will be reduced to 1,965 cui in water depths less than 60 m to minimise the potential for injury or TTS in fish that may be present in areas of shallow contiguous habitat. To allow for the recovery and minimise cumulative exposure risks, Polarcus will also implement an additional control to not return to sail an adjacent line (with a predetermined offset between adjacent lines of 562 m) within 1.4 km of the closest point of approach to the 45 m depth contour within 15 hours. This control will apply to all subsequent lines within 1.4 km of the 45 m depth contour of the defined 'unnamed shallow areas' (refer to the figure attached for the 'unnamed shallow areas'). With the proposed controls in place, no injury to site-attached fish assemblages is expected. Impacts to site-attached fish are expected to be temporary, involving behavioural avoidance reactions and the potential for TTS to occur in some fishes exposed on the slopes of banks and shoals for short periods (approximately 20 minutes) near the closest point of approach of the seismic source as it passes. Such TTS impacts are expected to be temporary, recoverable within less than 18-24 hours and are not expected to result in any lasting population level impacts or longer ecological implications for the fish assemblages inhabiting each shoal. Fish Spawning A Principal Research Scientist at WA DPIRD Fisheries has provided Polarcus/ERM with updated advice/information on goldband snapper spawning. In particular, DPIRD Fisheries has recently conducted sampling and analysis of new data, which shows that goldband snapper spawn consistently over a longer time period. It was previously understood that goldband snapper spawn between September – May, peaking between January – April (inclusive). DPIRD Fisheries have advised that goldband snapper spawn consistently between October – May, with no designated peak period. The DPIRD Fisheries also advised that the Department undertook a stock assessment of the goldband snapper stock in 2018. The stock was assessed to be adequate and sustainable with the current management controls in place (and no new management is required). Polarcus will no longer implement a control restricting acquisition to a maximum of 30 days during the peak goldband snapper spawning period (January – April), given goldband snapper are now known to spawn consistently over a longer time period. Complete avoidance of the goldband snapper spawning period was given careful consideration, but was not considered practicable and as being disproportionate to the already low level of risk. Goldband snapper could potentially spawn for eight months		

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			over the 2019-2020 period (approximately 243 days). It is not operationally practicable for Polarcus to avoid acquisition during this period. Scheduling seismic acquisition is complex in nature, as numerous factors need to be considered during the process. For impact assessment purposes – to provide a 'potential area of influence', the Acquisition Area buffered by a 37 km radius, has been selected to provide a conservative estimate of the potential area that may be influenced by sound emissions over the duration of the survey. In addition, an extra 5 days has been added to the survey duration to allow fish distribution and local abundance to return to normal levels (however, fish will likely begin to return to areas as the vessel and seismic source move laterally across the Acquisition Area). The precautionary principal provides a conservative indication of the maximum potential spatial and temporal overlap with available spawning habitat from seismic data being acquired at any one time. The temporal and spatial overlap of Phase 3 South with the principal goldband snapper range (80-140m depth range) and the spawning period equates to a 2.4% overlap. The spatial and temporal overlap with the complete goldband snapper range (50-200 m depth range) is significantly less; being less than 1% overlap. Polarcus will implement a new control limiting acquisition to a maximum 2.5% temporal and spatial (combined) overlap with the principal Kimberley stock range and goldband snapper spawning period. The duration and overlap with the goldband snapper spawning period has been assessed to be low risk and acceptable based on the potential spatial and temporal overlap. The effects of the survey are not expected to result in a significant impact to the goldband snapper spawning biomass or recruitment. In addition, no discernible population level impacts are expected to occur, the risk to spawning is considered to be acceptable. Cumulative Seismic Sound Impacts No direct cumulative impacts are expected to have occurred between Phase 1, Phase 2 and Phase 3 North of the Cygnus 3D MSS in terms of injury, hearing impairment, behavioural impacts or changes in community structure, given that there has been no spatial overlap between these surveys and their potential impact and/or the timing between surveys has not been less than the recovery rate of any potential impacts to receptors (i.e. hours to days for marine fauna and fish, or weeks or months at most for benthic invertebrate communities). Equally, no cumulative impacts are expected with Phase 3 South. The spatial and temporal overlaps of the previous phases of the Cygnus 3D MSS are of a similar magnitude to those assessed for Phase 3 South. The cumulative risk is considered to be Low and Acceptable, given that there is no threat of serious or irreversible environmental damage. Acquisition Timing Acquisition of Phase 3 South is scheduled to commence as early as September 2019. The survey will take a planned maximum duration of 36 days to acquire, 7 days' deployment/retrieval and 1 day local transit. The precise timing of acquisition is subject to NOPSEMA's acceptance of the EP, vessel availability, weather conditions and other operational considerations. The timing of acquisition will be communicated to stakeholders 4 weeks prior to survey commencement.		

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	16/05/2019	Phone Call	Phone call with WAFIC. WAFIC passed on the information received on 15/05/2019 to Northern Wildcatch Seafood Australia and Brown Dog Fishing (two licence holders within the Northern Demersal Scalefish Managed Fishery). WAFIC has asked both licence holders to provide a response to Polarcus, instead of WAFIC providing a response. Polarcus advised that it is not operationally practicable or feasible to avoid the goldband snapper spawning period (an entire 8 months). WAFIC disagreed. ERM advised that the survey overlaps temporally and spatially less than 2.5% combined. WAFIC informed Polarcus of the need for a formal compensation framework in the Cygnus EP. Polarcus disagreed - a 'make good process' is not an appropriate control measure for the Cygnus EP due to the nature and scale of the activity.	No formal response has been received from WAFIC or the two licence holders at time of submission.	N/A
Kimberley Prawn Managed Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/03/2016	To stakeholder	Letter sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	02/06/2017	To stakeholder	Letter update sent. The letter advised that the previous survey phase did not go ahead and that Polarcus are resubmitting the EP to allow for acquisition up to the end of 2020. A factsheet with general information was included.	N/A	N/A
	27/10/2017	To stakeholder	Update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The letter also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Letter sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Letter update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	13/04/2018	To stakeholder	Letter notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads. Specific details confirmed as: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Letter notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Licence holders in the KPMF have contacted by Polarcus since 2015 and no response has been received. KPMF licence holders have been screened out of consultation, following the stakeholder identification process conducted in November 2018. A review of historic catch data revealed that no fishing activity has occurred within 100 km of the Cygnus 3D MSS over the last 5 years).				
West Coast Deep Sea Crustacean Managed Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/03/2016	To stakeholder	Letter sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	Screened out of consultation post-2016, following no responses since 2015 and decision that fishery activities and location are not affected and they are not relevant persons.				
Northern Demersal Scalefish Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/03/2016	To stakeholder	Letter sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A

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	02/06/2017	To stakeholder	Letter update sent. The letter advised that the previous survey phase did not go ahead and that Polarcus are resubmitting the EP to allow for acquisition up to the end of 2020. A factsheet with general information was included.	N/A	N/A
	27/10/2017	To stakeholder	Update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The letter also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Letter sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	Letter notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads. Specific details confirmed as:• Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime.• The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Letter notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable	N/A	N/A

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			notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.		
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update letter sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update letter sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Old Brown Dog Fishing Co. (OBD) - Northern Demersal Scalefish Fishery Licence Holder	13/08/2015	From stakeholder	Email received on 13 August 2015 from Managing Director of Old Brown Dog Fishing Co. (OBD), which operates a vessel the FV Ashburton Road in the Northern Demersal Scalefish fishery. OBD takes issue with your assumption that fishing vessel operators will assume the burden of ceasing fishing activities in the event of an interaction. It is a policy position adopted by WAFIC that when an incoming proponent proposes a disruption to the activities of a pre-existing activity then the onus shall be on the incoming proponent to take steps to mitigate or compensate the disruption. It is an offence under the Fish Resources Management Act 1994, for any vessel other than a licensed fishing vessel to interfere with fishing gear.	Objection acknowledged, however, planning and notification to stakeholders should allow adequate pre-planning for fishers. The ability to fish in other locations and meet catch quotas are not expected to be impacted and therefore compensation is not a reasonable option. Under COLREGS and marine orders, vessels should give way to a vessel restricted in her ability to manoeuvre (including an active seismic survey vessel). Position to be advised to stakeholder.	Polarcus replied via email on 17 August 2015. Polarcus acknowledged OBD's issue and WAFIC's policy regarding interactions between fishing vessels and other vessels. Polarcus described the various controls proposed to be implemented to reduce the risk of disruption or interrupting with other users of the area (including fishery operators) to both ALARP and acceptable levels. Polarcus confirmed that they will be complying with legislation relevant to the interaction between vessels, including the AMSA Marine Orders and Fish Resources Management Act 1994. It was noted that under Marine Order 30 Rule 18(c), a vessel engaged in fishing when underway shall, so far as possible, keep out of the way of a vessel restricted in her ability to manoeuvre (including an active seismic survey vessel).

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	17/08/2015	To stakeholder	Polarcus replied via email on 17 August 2015. Polarcus acknowledged OBD's issue and WAFIC's policy regarding interactions between fishing vessels and other vessels. Polarcus described the various controls proposed to be implemented to reduce the risk of disruption or interrupting with other users of the area (including fishery operators) to both ALARP and acceptable levels. Polarcus confirmed that they will be complying with legislation relevant to the interaction between vessels, including the AMSA Marine Orders and Fish Resources Management Act 1994. It was noted that under Marine Order 30 Rule 18(c), a vessel engaged in fishing when underway shall, so far as possible, keep out of the way of a vessel restricted in her ability to manoeuvre (including an active seismic survey vessel).	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC confirming the correct email contact details, an email notification was sent confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	14/01/2019	To stakeholder	Update letter sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2018	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Northern Wildcatch Seafoods Australia (NWSA) - Northern Demersal Scalefish Fishery licence holder	23/11/2016	From stakeholder	Email received from 'NWSA' on 23 November 2016. NWSA owns and operates 73% of the West Australian NDSF Fishery and claim ongoing seismic activity is having a detrimental impact on business. NWSA object to the survey as proposed and to it being conducted during the dates nominated on the basis that they do not believe the risks are reduced to ALARP. They refer to ample literature available establishing both physiological and behavioural effects of seismic on fin fish, and to WA Fisheries Publication No. 112 of 2013 which provides guidance on seismic surveys in WA waters, acknowledges the precautionary principle and the potential avoidance of areas by, or dispersal of, spawning aggregations as a consequence of seismic. NWSA have highlighted spawning Goldband Snapper (January to April) and Red Emperor (January, March and October) in particular as they are indicator species in our fishery. NWSA do not believe that conducting the seismic survey on prime fish grounds and bathymetry during the spawning season is consistent with the precautionary principle. They also highlight that the Department of Fisheries raised spawning as a potential issue 2015 and believe statements made in the EP in response are without foundation and wrong. NWSA also mentioned that the survey is in a high effort area in the NSDF fishery and will interfere with their activities.	• The potential impacts to fish spawning, in particular red emperor and goldband snapper have been assessed based on the potential spatial overlap with the areas utilised by these stocks, the temporal overlap with the available spawning periods and peak spawning periods, and taking into account natural variability in spawning and recruitment. • Based on information received from the Department of Fisheries, we understand that red emperor and goldband snapper are broadcast multiple batch spawners that spawn throughout their range and release millions of eggs throughout their spawning periods. Red emperor spawn between October and March, with a peak in October, and occur in water depths up to 180 m. Polarcus has been advised by DoF that goldband snapper spawn between September and May with a peak spawning period between December and March. Red emperor stocks occur across northern Australia and biological connectivity and genetic homogeneity is maintained between the	Response, including copies of the risk assessments and a summary of the outcomes to be provided to stakeholder prior to submission of the EP.
	24/11/2016	To stakeholder	ERM replied to NWSA via email on 24/11/2016 explaining that spawning had been considered but risk was expected to be low. Requested meeting / phone conversation to discuss further.		
	25/11/2016	From stakeholder	NWSA replied 25/11/2016 requesting further evidence to support the risk assessment.		
	30/11/2016	To stakeholder	ERM replied to NWSA via email on 30/11/2016 with summary of references and information forming the basis of the assessment.		
	01/12/2016	To stakeholder	ERM sent follow up email on 1st December requesting meeting/phone call early the following week. NWSA responding requesting clarification of time zone.		
	05/12/2016	To stakeholder	ERM attempted phone call with NWSA at 10am Monday 5th December. Outlook Invitation was not acknowledged, but attempted calling anyway. No answer. Followed up with email to arrange an alternative time.		
	09/12/2016	To stakeholder	ERM sent follow up request on 9th December. NSWA replied referring to an email that he sent on the 5th of December but which ERM did not receive.		
	12/12/2016	To stakeholder	ERM emailed 12th December asking what time was convenient for NWSA to discuss. Call confirmed for 13th December.		

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	13/12/2016	To stakeholder	Telephone meeting held between Polarcus, ERM and the NWSA on 13 December 2016. Follow up correspondence between NWSA and ERM provided the 2015 stock status report for Red emperor and Goldband snapper in the NDSF, and NWSA recommended speaking with Principal Research Scientist, at the Department of Fisheries. He reemphasised his view that the survey should avoid the spawning periods. ERM and Polarcus to review information and attempt to speak with Principal Research Scientist.	different stocks by dispersal of eggs and larvae throughout its range. Goldband snapper generally occur between 50 m and 200 m water depth, and are typically more concentrated between the 80 m and 140 m depth contours. Specific areas of aggregation are not known. Goldband snapper stocks, however, are found to be genetically distinct from other adjacent stocks (e.g. Pilbara, Broome, Timor Sea, Arafura Sea stocks), which has implications for stock recruitment if the spawning biomass is impacted. There is also currently some uncertainty about the status and sustainability of the stock. Therefore, goldband snapper is considered to be potentially more sensitive. • To estimate the largest area where spawning behaviour may be influenced by sound from the Cygnus 3D MSS, the most extensive impacts and ranges identified in the scientific literature for changes in fish behaviour, abundance and distribution were applied to the largest area of acquisition expected to overlap with the goldband snapper spawning depth and geographical range. • Complete avoidance of the peak goldband snapper spawning period was given careful consideration, but was not considered practicable. Polarcus is required contractually to acquire data in this region for one client before the end of March 2018 and it is therefore possible that some overlap may occur. However, recognising that there is some uncertainty about the status and sustainability of the stock,	
	23/12/2016	To stakeholder	ERM emailed 23rd December 2016 to confirm that it had not been possible to reach Principal Research Scientists at DoF but would try again and will be in touch again in the new year.		
	24/02/2017	To stakeholder	ERM emailed 24th February 2017 to confirm that information had been received from Principal Research Scientists and colleagues, and that the survey had been postponed until further notice, but based on schedule we expect the survey phase will mostly avoid peak spawning periods.		
	14/03/2017	From stakeholder	NWSA emailed objecting to our advice that we expect the survey phase "will mostly avoid peak spawning periods." on the basis that it is not consistent with legislation and the requirements for ALARP, and repeat their original submissions of objections.		
	15/3/2017	To stakeholder	ERM replied clarifying that the previous response had not been intended as a final response and decision on the matter but that it was still being looked into. A summary of the information provided by DOF was also provided.		
	28/4/2017	From stakeholder	Emailed asking if there is an update.		
	28/4/2017	To stakeholder	ERM replied explaining that the survey phase is unlikely to go ahead until later in the year, and that Polarcus are considering reviewing the EP and resubmission to NOPSEMA		
	01/06/2017	To stakeholder	Update sent to NWSA about the rescheduling of the previous survey phase and the intent to resubmit the EP for and extended area and timeframe. Also advised that we were seeking further advice and information from DoF to inform the assessment of impacts on spawning goldband snapper and red emperor.		
	05/07/2017	From stakeholder	Email acknowledging the update and asking if the WA Department of Fisheries is involved in the risk assessment workshop? NWSA's previous submission remains unchanged.		
	07/07/2017	To stakeholder	Email sent confirming that Polarcus is engaging with the Department of Fisheries and they have provided us with some initial comments and advice but still confirming the correct spawning months to take into account for goldband snapper and red emperor. The Department of Fisheries will not be directly involved in the workshop itself, but Polarcus will be taking on board their comments and information and will share the outcomes of the assessment with them and NWSA		

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
				Polarcus has considered limiting the temporal overlap with the peak goldband snapper spawning period (December to March). Accounting for the spatial and temporal overlap, for Cygnus this equates to between <1% and 4.2% of the total suspected goldband snapper spawning area and peak spawning period; for Zenaide, this equates to between <2% and 3.4% of the goldband snapper spawning area and peak spawning period. • These percentages also assume that all spawning in the potential area of influence will cease completely for the duration of the survey, which is considered to be conservative given that no actual reduction in the total spawning biomass is expected to occur and, as the effects are expected to be behavioural it is possible that some of the affected schools of goldband snapper could aggregate and spawn further from the seismic source. • Given natural variability in spawning and recruitment rates, no significant impacts to goldband snapper spawning and recruitment are expected. • Given the connectivity of red emperor stocks, the impacts to red emperor spawning are predicted to be negligible.	
	23/08/2017	To stakeholder	Email sent to NWSA> NWSA was provided the risk assessments for both the Cygnus and Zénaïde 3D MSS (species sensitivity, acoustic modelling, site-attached fish, other demersal and pelagic fish, fish spawning, plankton, eggs and larvae, commercial fisheries and cumulative impacts). A summary of the outcomes of the assessment of impacts to spawning was included, explaining that impacts would be minor based on the spatial and temporal overlap, but acquisition will be limited to a maximum of 70 days during the Dec-March period. Requested comments/feedback. ERM also requested additional information from NWSA: 1) what information would be most useful to him (line start and end coordinates, timing etc.), How would he prefer to receive on the water updates/notifications (e.g. via email or text message) and at what frequency would be useful to receive these updates (i.e. 24 hrs, weekly, fortnightly).	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/09/2017	To stakeholder	Attempted phone call to Northern Wildcatch Seafood Australia office number. No answer. No option for voicemail/answer phone.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder that Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	23/10/2017	To stakeholder	Email sent to NWSA to touch base regarding Cygnus and Zenaide EPs asking if he had any other information regarding the risk assessment that were supplied to him on 23/08/2017. ERM have suggested jumping on a call to talk over any issues. Currently, in order to communicate the location and timing of the Zénaïde and Cygnus survey activities as effectively as possible, notifications and ongoing consultation are expected to include: • Notifications to be sent to licence holders and fishery stakeholders at least 4 weeks prior to the commencement of survey activities, including confirmation of the location and expected timing. • Option for licence holders to register for daily look-ahead that inform of the survey lines that are proposed for the following day. • Notification to be sent to stakeholders upon completion of surveys. • Notifications will also be sent if there are any significant modifications to the activity or schedule. ERM requesting if there is anything more that NWSA thinks Polarcus needs to consider for the two EPs.	N/A	N/A
	27/10/2017	To stakeholder	Attempted phone call to NWSA office number. No answer. No option for voicemail/answer phone.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	31/10/2017	To stakeholder	Attempted phone call to Northern Wildcatch Seafood Australia office number. No answer. No option for voicemail/answer phone.	N/A	N/A
	01/11/2017	To stakeholder	Email sent to NWSA -Explained had tried calling a couple of times and requested talking re information on the location and seasonality of his fishing activities.	N/A	N/A
	03/11/2017	To stakeholder	Attempted phone call to NWSA on mobile number. No answer. Left voicemail asking to get in touch.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to NWSA, with a notice of commencement of Phase 3 as early as 5 December 2017.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	14/11/2017	From stakeholder	NWSA do not agree on the following statement: "Fishers are requested to remove pots, traps, lines and other gear from the vicinity or the Phase 3 (north) area or acquisition during the survey to prevent damage or entanglement with the towed seismic array." NWSA have stated that daily look ahead reports and emails comms at sea are not guaranteed. NWSA requesting the name and contact number of the master of the seismic vessel and precise operational dates and plans.	- The request to remove gear was included in the notification so that all licence holders are aware that the seismic vessel will be towing equipment and there is the potential for entanglement and damage to fishing gear, which Polarcus are obviously aiming to avoid by providing as much notification as possible. The survey support vessel will also be checking ahead of the seismic vessel to spot gear. - Can provide the vessel contact details and confirm the exact commencement date during the week leading up to the survey. - Daily lookaheads can still be provided as expected to be of use to some. Radio communications on the water will also be used.	Email clarification provided 16/11/2017
	16/11/2017	To stakeholder	- Polarcus can include you in the daily look-ahead emails if at all helpful, but is also able to provide the vessel contact details and confirm the exact commencement date during the week leading up to the survey.The request to remove gear was included in our notification so that all licence holders are aware that the seismic vessel will be towing equipment and there is the potential for entanglement and damage to fishing gear, which Polarcus are obviously aiming to avoid by providing as much notification as possible. The survey support vessel will also be checking ahead of the seismic vessel to spot gear and with on-the-water communication we trust we can work together and minimise interactions with your vessels and gear. - Asked if VHF radio was the most useful form of communication with vessels. - Confirmed that additional controls are now being integrated into the EP to further reduce impacts to spawning. Phase 3 North may occur in December to March, but 'Phase 3 South' and any additional lines in the other areas presented in the attached map (including in the vicinity of Vulcan Shoal) will no longer occur during the peak spawning period (between 1st December and 31st March).	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update letter sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	23/01/2019	From stakeholder	Email received from NWSA in response to emails dated 07/12/2018 and 14/01/2019. NWSA position remains unchanged. NWSA does not accept the limit of 30 acquisition days during the peaks Goldband spawning season as an appropriate control measure. NWSA object to he survey commencing in April. NWSA request that the survey commence in May. NWSA advising that they are likely to have 4 vessels in the area at the time of year. NWSA requesting start-up notifications well in advance and daily updates.	Concern raised by NWSA on acquisition during the peak goldband snapper period. NWSA does not accept the limit of 30 acquisition days during the spawning period. NWSA requests the survey commence in May.	Refer to email response on 07/02/2019.
	07/02/2019	To stakeholder	Email sent to stakeholder in response to email dated 23/01/2019. Stakeholder was advised that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019. ERM/Polarcus has undertaken a comprehensive review of the potential impacts and risks from the revised activity to ensure the control measures in the 2017-18 EP are acceptable. No significant changes have been made to the risk assessment sections provided in 2017. Complete avoidance of the peak goldband snapper spawning period was given careful consideration, but was not considered practicable. Polarcus recognises that there is some uncertainty about the status and sustainability of the stock and therefore Polarcus will limit the temporal overlap with the peak goldband snapper spawning period (1 January - 30 April) to a maximum of 30 days of acquisition during this period. A notification will be provided 4 weeks prior to the commencement of the survey, indicating the location and expected timing of acquisition. Timing of acquisition will be confirmed 1 week prior to commencement. At this time, ERM/Polarcus will request contact details for skippers likely to be operating in the vicinity, for provision of the daily look-ahead reports. Polarcus will maintain on-the-water communications with all vessels in the vicinity of the survey.	N/A	N/A - no further response received at time of submission.
	14/05/2019	To stakeholder	Email sent to NWSA - see below: As part of the assessment, NOPSEMA has requested Polarcus to provide further written information in regards to the following aspects: • Matters protected under Part 3 of the EPBC Act – a demonstration that impacts from acoustic emissions to site-attached fish have been reduced to ALARP and acceptable levels. • Socio-economic factors – a demonstration that potential impacts to fisheries, and in particular spawning goldband snapper, have been appropriately evaluated. As part of the request for further written information, Polarcus has made amendments to the EP including the impact assessment. Polarcus is happy to provide NWSA with the revised impact assessments, if this would be of interest to NWSA. I have provided information below on the changes that have been made to the relevant impact assessments.Site-Attached Fish AssemblagesThe acoustic modelling completed for the Cygnus 3D MSS predicts that temporary threshold shift (TTS) could begin to occur in fish within 1.32 km from the seismic source. Fish on the slopes of the unnamed shallow areas may be exposed to cumulative sound exposures that may result in TTS impacts to fish for a short duration (approximately 20 minutes, or less for the more distant, shallow water fish assemblages in water depths <30 m). Polarcus will implement the following controls in regards to site-attached fish: • Minimum source size selected (3,090 cui) to acquire survey data and meet the geophysical objectives of the survey.• Soft-start procedures to provide receptors with advanced opportunity to move away from the source, if able.• The seismic source will not be operated within 500 m horizontal distance from the 20 m depth contour (Polarcus operational exclusion zone).• The seismic source will not be operated within 200 m horizontal distance from the 60 m depth contour around shoals.• The seismic source will not be operated within 200 m horizontal distance from the 45 m depth contour in the defined ‘unnamed shallow areas’.• In the defined ‘unnamed shallow areas’ the seismic source volume will be reduced to 1,965 cui in water depths	Polarcus provided NWSA with an update on the RFWI response, and the amendments made to the relevant impact assessments.	N/A

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			less than 60 m to minimise the potential for injury or TTS in fish that may be present in areas of shallow contiguous habitat.To allow for the recovery and minimise cumulative exposure risks, Polarcus will also implement an additional control to not return to sail an adjacent line (with a predetermined offset between adjacent lines of 562 m) within 1.4 km of the closest point of approach to the 45 m depth contour within 15 hours. This control will apply to all subsequent lines within 1.4 km of the 45 m depth contour of the defined 'unnamed shallow areas' (refer to the figure attached for the 'unnamed shallow areas'). With the proposed controls in place, no injury to site-attached fish assemblages is expected. Impacts to site-attached fish are expected to be temporary, involving behavioural avoidance reactions and the potential for TTS to occur in some fishes exposed on the slopes of banks and shoals for short periods (approximately 20 minutes) near the closest point of approach of the seismic source as it passes. Such TTS impacts are expected to be temporary, recoverable within less than 18-24 hours and are not expected to result in any lasting population level impacts or longer ecological implications for the fish assemblages inhabiting each shoal. Fish Spawning A Principal Research Scientist at WA DPIRD Fisheries has provided Polarcus/ERM with updated advice/information on goldband snapper spawning. In particular, DPIRD Fisheries has recently conducted sampling and analysis of new data, which shows that goldband snapper spawn consistently over a longer time period. It was previously understood that goldband snapper spawn between September – May, peaking between January – April (inclusive). DPIRD Fisheries have advised that goldband snapper spawn consistently between October – May, with no designated peak period. The DPIRD Fisheries also advised that the Department undertook a stock assessment of the goldband snapper stock in 2018. The stock was assessed to be adequate and sustainable with the current management controls in place (and no new management is required). Polarcus will no longer implement a control restricting acquisition to a maximum of 30 days during the peak goldband snapper spawning period (January – April), given goldband snapper are now known to spawn consistently over a longer time period. Complete avoidance of the goldband snapper spawning period was given careful consideration, but was not considered practicable and as being disproportionate to the already low level of risk. Goldband snapper could potentially spawn for eight months over the 2019-2020 period (approximately 243 days). It is not operationally practicable for Polarcus to avoid acquisition during this period. Scheduling seismic acquisition is complex in nature, as numerous factors need to be considered during the process.For impact assessment purposes – to provide a 'potential area of influence', the Acquisition Area buffered by a 37 km radius, has been selected to provide a conservative estimate of the potential area that may be influenced by sound emissions over the duration of the survey. In addition, an extra 5 days has been added to the survey duration to allow fish distribution and local abundance to return to normal levels (however, fish will likely begin to return to areas as the vessel and seismic source move laterally across the Acquisition Area). The precautionary principal provides a conservative indication of the maximum potential spatial and temporal overlap with available spawning habitat from seismic data being acquired at any one time.The temporal and spatial overlap of Phase 3 South with the principal goldband snapper range (80-140m depth range) and the spawning period equates to a 2.4% overlap. The spatial and temporal overlap with the complete goldband snapper range (50-200 m depth range) is significantly less; being less than 1% overlap. Polarcus will implement a new control limiting acquisition to a maximum 2.5% temporal and spatial (combined) overlap with the principal Kimberley stock range and goldband snapper spawning period. The duration and overlap with the goldband snapper spawning period has been assessed to be low risk and acceptable based on the potential spatial and temporal overlap. The effects of the survey are not expected to result in a significant impact to the goldband snapper spawning biomass or recruitment. In addition, no discernible population level impacts are expected to occur, the risk to		

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			spawning is considered to be acceptable. Cumulative Seismic Sound Impacts No direct cumulative impacts are expected to have occurred between Phase 1, Phase 2 and Phase 3 North of the Cygnus 3D MSS in terms of injury, hearing impairment, behavioural impacts or changes in community structure, given that there has been no spatial overlap between these surveys and their potential impact and/or the timing between surveys has not been less than the recovery rate of any potential impacts to receptors (i.e. hours to days for marine fauna and fish, or weeks or months at most for benthic invertebrate communities). Equally, no cumulative impacts are expected with Phase 3 South. The spatial and temporal overlaps of the previous phases of the Cygnus 3D MSS are of a similar magnitude to those assessed for Phase 3 South. The cumulative risk is considered to be Low and Acceptable, given that there is no threat of serious or irreversible environmental damage. Acquisition TimingAcquisition of Phase 3 South is scheduled to commence as early as September 2019. The survey will take a planned maximum duration of 36 days to acquire, 7 days' deployment/retrieval and 1 day local transit. The precise timing of acquisition is subject to NOPSEMA's acceptance of the EP, vessel availability, weather conditions and other operational considerations. The timing of acquisition will be communicated to stakeholders 4 weeks prior to survey commencement.		
	16/05/2019	Phone Call	Phone call made to NWSA to discuss the information provided on 14/05/19. No answer. Messaged left for return call.	N/A	N/A
	17/05/2019	Phone Call	Phone call made to NWSA to discuss the information provided on 14/05/19. No answer. Messaged left for return call.	No formal response has been received from NWSA at the time of submission.	N/A
Northern Shark Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/3/2016	To stakeholder	Letter update sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	02/06/2017	To stakeholder	Letter update sent. The letter advised that the previous survey phase did not go ahead and that Polarcus are resubmitting the EP to allow for acquisition up to the end of 2020. A factsheet with general information was included.	N/A	N/A
	27/10/2017	To stakeholder	Update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The letter also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	12/04/2018	To stakeholder	Letter notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	Letter notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads. Specific details confirmed as:• Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime.• The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Letter notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update letter sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/02/2018	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Mackerel Managed Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/3/2016	To stakeholder	Letter update sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	02/06/2017	To stakeholder	Letter update sent. The letter advised that the previous survey phase did not go ahead and that Polarcus are resubmitting the EP to allow for acquisition up to the end of 2020. A factsheet with general information was included.	N/A	N/A
	27/10/2017	To stakeholder	Update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The letter also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Letter notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	13/04/2018	To stakeholder	Letter notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads. Specific details confirmed as:• Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime.• The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Letter notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update letter sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Pearl Oyster Managed Fishery (State) - All individual licence holders	16/3/2016	To stakeholder	Letter update sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	Consultation via Pearl Producers Association (PPA)				
Marine Aquarium Managed Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/3/2016	To stakeholder	Letter update sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	Screened out of consultation post-2016, following no responses since 2015 and decision that fishery activities and location are not affected and they are not relevant persons.				
Beche de Mer Fishery Managed Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/3/2016	To stakeholder	Letter update sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	Screened out of consultation post-2016, following no responses since 2015 and decision that fishery activities and location are not affected and they are not relevant persons.				
Specimen Shell Managed Fishery (State) - All individual licence holders	03/08/2015	To stakeholder	Information sheet and map mailed on 3 August 2015	N/A	N/A
	16/3/2016	To stakeholder	Letter update sent 16/3/16.	N/A	N/A
	05/11/2016	To stakeholder	Mail out of Letter dated 5th November 2016 communicating commencement of survey on or about the 1st December 2016 was completed Tuesday 8th November 2016.	N/A	N/A
	02/06/2017	To stakeholder	Letter update sent. The letter advised that the previous survey phase did not go ahead and that Polarcus are resubmitting the EP to allow for acquisition up to the end of 2020. A factsheet with general information was included.	N/A	N/A
	27/10/2017	To stakeholder	Update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The letter also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Letter notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	Screened out of consultation post-January 2018, following either no response since 2015 and requests from multiple licence holders to be removed from list on basis that they are not affected.				
Commonwealth Fisheries Association (CFA)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call on 4 August 2015 during which the CFA relayed that they have no response to provide besides advising to contact the relevant fisheries associations and operators directly.	N/A	N/A
	16/03/2016	To stakeholder	Email to CEO 16/3/16. Email address did not work; as such a message was sent to the CFA through their inquiry function on their website (18/3/16) - Awaiting a response.	N/A	N/A
	18/03/2016	To stakeholder	Email resent 18/3/16	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	23/03/2016	To stakeholder	Follow-up call made on 23/03/2016 asking for alternative email address to send the email. Was advised that the current address was full. Email resent 23/03/2016.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			• The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.		
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Australian Southern Bluefin Tuna Industry Association	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone on 4 August 2015 during which ASBTIA relayed that they had no feedback to provide given the Survey Area is located outside of the known southern blue fin tuna spawning ground.	N/A - Advice / request for further information only. No objection or claim made.	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/02/2018	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Australian Council of Prawn Fisheries (ACPF)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call on 5 August 2015 and spoke to ACPF. ACPF stated that he does not foresee any issues for anyone within the area except for maybe Westmore Seafoods, Australia Bay Seafoods or the North West Slope Trawl Fisheries. ACPF had no response other than to check with those potential stakeholders. Australia Bay Seafoods operate outside of the Survey Area in the Northern Territory and Gulf of Carpentaria and are thus not considered to be a relevant stakeholder. The North West Slope Trawl Fisheries were confirmed to be included in the Cygnus 3D MSS stakeholder consultation process. Westmore Seafoods was added to the stakeholder list per below.	N/A - Advice / request for further information only. No objection or claim made.	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	ACPF has been contacted by Polarcus since 2015 and no response has been received. ACPF has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Australian Fishing Trade Association (AFTA)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone on 4 August 2015 during which AFTA relayed that the information sheet had been forwarded to their CEO and should they wish to provide a response they will do so.	N/A	N/A
	14/08/2015	To stakeholder	Follow up call made on 14 August 2015 during which a message was left requesting a call back.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	AFTA has been contacted by Polarcus since 2015 and no response has been received. AFTA has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Pearl Producers Association (PPA)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up phone call made on 5 August 2015 during which it was discussed that due to the Survey Area location, interference with the Pearl Oyster Managed Fishery and impacts from sound emissions from the seismic survey on pearl oysters are not expected. The PPA made a query regarding the potential impacts of seismic sound resulting from the Cygnus 3D MSS on food sources for pearl oysters within the Survey Area, and associated effects on the fishery's pearl oysters.	Phytoplankton is not known to be affected by seismic sound emissions. Even if phytoplankton were conservatively assumed to be affected by seismic sound emissions as zooplankton can be, information was provided to demonstrate that the proportion of plankton affected by sound from the seismic source at distances sufficient to cause physiological effects (5 - 6 m) would tube extremely small in comparison to the overall population in the Survey Area. Thus, impacts to feeding pearl oysters (including those commercially cultured along the Kimberley coastline) are not expected.	Polarcus replied via email on 13 August 2015 describing how according to scientific literature, phytoplankton is not known to be affected by seismic sound emissions. Even if phytoplankton were conservatively assumed to be affected by seismic sound emissions as zooplankton can be, information was provided to demonstrate that the proportion of plankton affected by sound from the seismic source at distances sufficient to cause physiological effects (5 - 6 m) would tube extremely small in comparison to the overall population in the Survey Area. Thus, impacts to feeding pearl oysters (including those commercially cultured along the Kimberley coastline) are not expected.
	13/08/2015	To stakeholder	Polarcus replied via email on 13 August 2015 describing how according to scientific literature, phytoplankton is not known to be affected by seismic sound emissions. Even if phytoplankton were conservatively assumed to be affected by seismic sound emissions as zooplankton can be, information was provided to demonstrate that the proportion of plankton affected by sound from the seismic source at distances sufficient to cause physiological effects (5 - 6 m) would tube extremely small in comparison to the overall population in the Survey Area. Thus, impacts to feeding pearl oysters (including those commercially cultured along the Kimberley coastline) are not expected.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
WA Seafood Exporters	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015 - The WA Seafood Exporters contact was busy, we were advised to email him directly as that was best way to contact him (Email was sent previously - 4 August 2015)	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August 2015 during which a message was left for WA Seafood Exporters requesting a call back	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	15/01/2019	From stakeholder	Email received from stakeholder advising that WA Seafood Exporters does not fish the area north-east of Ashmore Reef. WA Seafood Exporters will start fishing in early June along the 400m contour south-west of Ashmore Reef to Rowley Shoals.	N/A	N/A
	15/01/2019	To stakeholder	Email sent to WA Seafood Exporters acknowledging information received. Information provided incorporated into the EP. No further correspondence required.	N/A	N/A
Westmore Seafoods	13/08/2015	To stakeholder	Phone call made on 13 August 2015 during which an email address was provided and it was requested that the Information Sheet be sent to that email. Should Westmore Seafoods have any feedback to provide he will respond. The information sheet was emailed as requested that same day.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16. Re-sent 18/3/16 after first email undelivered	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Recreational Fishing, Charters, Marine Tourism Operators					
Australian Recreational Fishing Foundation	04/08/2015	To stakeholder	Phone call made on 4 August 2015 with message left requesting call-back. Follow-up message of Fisheries information sheet details made through the organisation's online contact form.	N/A	N/A
	10/08/2015	Meeting / phone call	Phone call made on 10 August 2015 with message left requesting call-back.	N/A	N/A
	16/03/2016	Meeting / phone call	Phone call made 16/3/16. Message left requesting contact email address. Contact made via online contact form 16/3/16 requesting contact email address.	N/A	N/A
	18/03/2016	To stakeholder	March 2016 update emailed to enquiries@recreationalfishing.com.au on 18/3/16.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	10/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Recfishwest	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015. Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015. Message left requesting call back.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	13/04/2018	To stakeholder	In response to feedback from WAFIC, a further update was issued via email to fishery stakeholders confirming: • Seismic data acquisition within the Phase 3 (South) area (the area marked with the green diagonal lines in the attached map) is still planned to take place and there is no change since our notification dated 28th March 2018. • The purpose of yesterday's notification amendment was to advise that some additional seismic acquisition lines are also planned to be acquired in the Phase 1 area (the area marked with the yellow cross-hatched lines in the attached map). Seismic data acquisition was previously undertaken in the Phase 1 area in 2015 and 2016, but the current Environment Plan for the Cygnus 3D MSS allows for Polarcus to return to this area to complete 'infill lines' in some small areas where data was not acquired previously. • The infill lines in the Phase 1 area will be focussed near the centre of the Phase 1 area, near the Vulcan Shoal. Up to maximum of 30 seismic lines may be acquired, with each line up to a maximum of 20 km in length. • The Phase 1 infill lines are expected to be acquired first, commencing on or soon after 25th April 2018 and may take up to a maximum of 12 days to complete, subject to potential weather and operational downtime. • Acquisition of the Phase 3 (South) area is planned to commence after the infill lines in the Phase 1 area and is expected to take approximately 30 days to complete, subject to potential weather and operational downtime. • The Operational Area (marked by the black boundary in the attached map) is where the seismic vessel may conduct turns with the towed array and where the support vessels may also be present.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
One Tide Charters	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015 Message left requesting call back.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August 2015 during which a message was left requesting a call back	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Unreel Adventure Safaris	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015 to Stephanie. Message left requesting call back.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made on 12 August 2015 during which a message was left requesting a call back	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16. Re-sent 18/3/16 after first email undelivered	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	10/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018. Stakeholder advised that the MSS is not relevant to their operations, however the stakeholder would like to be kept informed.	N/A	Email sent to stakeholder with information about Cygnus Phase 3 South 2019.
	10/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2018	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
KAS Helicopters	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	Meeting / phone call	Follow-up call made 5 August 2015 Message left requesting call back.	N/A	N/A
	12/08/2015	Meeting / phone call	Follow-up call made 12 August 2015 - They have been away and will respond to the email tomorrow (13 August 2015).	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16. Re-sent 18/3/16 after first email undelivered	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	Meeting / phone call	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Kingfisher Tours	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	Meeting / phone call	Follow-up call made 5 August 2015 - advised to speak to a specific person on 6 August 2015. Call made 6 August 2015, our email cannot be found.	N/A	N/A
	06/08/2015	To stakeholder	Follow-up email sent 6 August 2015	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made 12 August during which the email has been received and sent to the relevant people asking them to respond to us.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Aviair	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	Meeting / phone call	Follow-up call made 5 August 2015. Spoke to general manager - he mentioned that survey will have no impact to their operations.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Peregrine Bird Tours	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	Meeting / phone call	Follow-up call made 5 August 2015. No concerns with the survey	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Kimberley Bird Watching	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	Meeting / phone call	Follow-up call made 5 August 2015. Message left requesting call back.	N/A	N/A
	12/08/2015	Meeting / phone call	Follow-up call made 12 August 2015.	N/A	N/A
	13/08/2015	To stakeholder	Email resent on 13 August 2015	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Kimberley Air Tours	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	05/08/2015	Meeting / phone call	Follow-up call made 5 August 2015. Email with consultation letter has been forwarded to the manager with message asking him to respond.	N/A	N/A
	12/08/2015	Meeting / phone call	Follow-up call made 12 August 2015 during which we were told that the email will be forwarded to relevant people asking them to respond if they had any concerns.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Kimberley Whale Watching	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015. Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made 12 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	18/03/2016	To stakeholder	Re-sent 18/3/16 after first email undelivered	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Kimberley Cruises	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015. Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made 12 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	10/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they would like to continue to receive the information, however are not affected by the operations.	N/A	N/A
	10/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Great Escape	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015. Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made 12 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	10/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they would like to continue to receive the information, however are not affected by the operations.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	10/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
True North	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015. Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made 12 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1 December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	10/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they would like to continue to receive the information, however are not affected by the operations.	N/A	N/A
	10/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Kimberley Outback Tours	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	05/08/2015	To stakeholder	Follow-up call made 5 August 2015. Requested to send the email to kimberleyinfo@bigpond.com	N/A	N/A
	06/08/2015	To stakeholder	Follow-up email to new contact sent on 6 August 2015.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made 12 August 2015 during which a message was left requesting a call back.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	01/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
Ports and Shipping					
Port of Broome	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	13/08/2015	To stakeholder	Follow-up call made on 13 August 2015 during which the Port requested that the email with information sheet and map be resent. Email was resent to operations@kimberleyports.wa.gov.au following the phone call	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.		
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder to be contacted at the time of operation instead of during the EP development stage. Stakeholder has been removed from the stakeholder register. Polarcus will engage with the stakeholder when required.				
Environmental Non-Governmental Organisations					
The Wilderness Society	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	06/08/2015	To stakeholder	Follow-up call made 6 August 2015. Advised to send through to wa@wilderness.org.au.	N/A	N/A
	06/08/2015	To stakeholder	Email sent 06 August 2015	N/A	N/A
	13/03/2016	Meeting / phone call	Follow-up call made on 13 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Save the Kimberley	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	06/08/2015	Meeting / phone call	Follow-up call made 06 August 2015. Requested the letter be sent to westernabalone@hotmail.com instead. Email sent 6 August 2015	N/A	N/A
	12/08/2015	Meeting / phone call	Follow-up call made on 12 August 2015. No concerns with the Cygnus 3D MSS.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	18/03/2016	To stakeholder	Re-sent 18/3/16 after first email undelivered	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Environs Kimberley	06/08/2015	Meeting / phone call	Follow-up call made 6 August 2015 - message left for the director requesting a call back.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	13/08/2015	Meeting / phone call	Follow-up call made on 13 August 2015 during which a message was left requesting a call back	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Australian Conservation Foundation	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	06/08/2015	Meeting / phone call	Follow-up call made 6 August 2015.	N/A	N/A
	13/08/2015	Meeting / phone call	Follow-up call made on 13 August 2015 during which a message was left requesting a call back.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

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	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	10/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
The Conservation Council of WA	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	06/08/2015	To stakeholder	Follow-up call made 6 August 2015 - message left requesting a call back.	N/A	N/A
	13/08/2015	To stakeholder	Follow up call made 13 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
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	10/12/2018	To stakeholder	Phone call made to stakeholder on 10/12/2018, as no response has been received to date. Stakeholder advised that they are not relevant and requested to be removed from the list.	N/A	Stakeholder removed from register.
	Stakeholder requested to be removed from the stakeholder register. No further correspondence occurred with this stakeholder.				
World Wildlife Fund	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call on 4 August 2015 during which WWF requested the information sheet to be resent, which was done so that day. They relayed that they will respond should they have any feedback.	N/A	N/A
	13/08/2015	Meeting / phone call	Follow up call made 13 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
International Fund for Animal Welfare (IFAW)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up phone call on 4 August 2015.	N/A	N/A
	12/08/2015	To stakeholder	Follow-up call made 12 August 2015 during which a message was left requesting a call back.	N/A	N/A
	24/09/2015	To stakeholder	Follow-up call made on 24 September 2015 confirming that the contact person is appropriate, but not available.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Land Councils					
Northern Land Council	07/08/2015	To stakeholder	Phone call made on 7 August 2015 during which it was requested that the information sheet be emailed to their reception email address provided over the phone. The land council relayed that should they have any feedback they will get in contact. Information sheet was emailed following the phone call.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up call made on 13 August 2015 during which a message was left for requesting a call back.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	18/03/2016	To stakeholder	Re-sent 18/3/16 after first email undelivered	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.		
Kimberley Land Council	07/08/2015	To stakeholder	Phone call made on 7 August 2015 during which it was requested that the information sheet be emailed to their reception email address provided over the phone. The land council relayed that should they have any feedback they will get in contact. Information sheet was emailed following the phone call.	N/A	N/A
	13/08/2015	To stakeholder	Follow-up call made on 13 August 2015 during which the Corporation requested that the email with information sheet and map be resent. Email was resent following the phone call.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Oil and Gas Industry					
APPEA	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	14/08/2015	Meeting / phone call	Follow-up call made on 14 August 2015 during which APPEA mentioned that the email was received and forwarded on to the respective people within APPEA.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder has been screened out of consultation, following the stakeholder verification process conducted in November 2018. The stakeholder was identified as not being relevant to the Cygnus 3D MSS.				
Telstra	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015.	N/A	N/A
	04/08/2015	To stakeholder	Follow-up email to secondary contact sent on 4 August 2015.	N/A	N/A
	14/08/2015	Meeting / phone call	Follow-up call made 14 August 2015.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	29/03/2016	From stakeholder	Email response on 29/3/16 thanking ERM for their email and stating that Telstra had no comments to make at this point, but would like to be kept informed of planned activities.	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	16/11/2016	From stakeholder	Email received from Telstra on 16/11/2016 confirming they have no comments at this time.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder has been screened out of consultation, following the stakeholder verification process conducted in November 2018. The stakeholder was identified as not being relevant to the Cygnus 3D MSS.				
Vocus (formerly Nextgen Networks)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	13/08/2015	To stakeholder	Follow-up call made on 13 August 2015.	N/A	N/A
	14/08/2015	From stakeholder	Nextgen called on 14 August 2015.	N/A	N/A
	17/08/2015	From stakeholder	Call received from Nextgen on 17 August 2015 relaying that Nextgen have no objection to Cygnus 3D MSS, but identify themselves as a stakeholder for survey and request to be kept informed. This is due to Nextgen plans to lay down a fibre optic cable from Darwin to Port Hedland starting in early 2016. The cable route may overlap with the Survey Area. Polarcus agreed to keep Nextgen informed of the survey.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	01/12/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	09/11/2016	To stakeholder	Following email from Department of Communications on 8th November, ERM emailed the Department on 9th November 2016 with details of the survey, requesting a time to discuss and the location of the cable.	N/A	N/A
	10/11/2016	To stakeholder	ERM phoned and spoke with the Department on 10 November 2016 and followed up with email. ICPC Recommendation 8 identified as relevant standard.	Potential for interference with the cable system has merit. Accidental damage to the cable could be classed as a criminal offence and result in substantial costs to repair, as well as disruption to communications in Australia and at connected offshore facilities. The location of the cable, potential impacts and risks are to be assessed in the EP (if location is applicable) and adequate control measures implemented. Cable route subsequently confirmed to pass along southern boundary of Survey Area, ~24 km from the next survey phase operational area. It was also explained that the 2.0 bar pressure level specified	ERM sent follow up email on 15 November request cable route position. The Department replied with route positions and noted ICPC guidelines are likely relevant and confirmed he will also outline in a separate letter the protection of the cable has under the Crimes Legislation Amendment (Telecommunications Offences and Other Measures) Act (No. 2) 2004 protecting the cable from interference. ERM emailed 30 November with map showing location of cable on Survey Area boundary ~24 km from the next survey phase operational area. It was
	15/11/2016	To stakeholder	ERM sent follow up email on 15 November request cable route position. The Department replied with route positions and noted ICPC guidelines are likely relevant and confirmed he will also outline in a separate letter the protection of the cable has under the Crimes Legislation Amendment (Telecommunications Offences and Other Measures) Act (No. 2) 2004 protecting the cable from interference.		
	30/11/2016	To stakeholder	ERM emailed 30 November with map showing location of cable on Survey Area boundary ~24 km from the next survey phase operational area. It was also explained that the 2.0 bar pressure level specified in ICPC Recommendation 08 was expected to be reached within approximately 45 m water depth, while the cable overlapped the survey area in >100 m depth. Requested feedback from Nextgen.		

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
				in ICPC Recommendation 08 was only expected to be reached within approximately 45 m water depth, while the cable overlapped the survey area in >100 m depth. Therefore, no impacts are expected.	also explained that the 2.0 bar pressure level specified in ICPC Recommendation 08 was expected to be reached within approximately 45 m water depth, while the cable overlapped the survey area in >100 m depth. Therefore, no impacts are expected. Requested feedback from Nextgen.
	09/12/2016	To stakeholder	ERM sent follow up email on 9th December 2016, requesting feedback.	N/A	N/A
	20/12/2016	To stakeholder	ERM phoned on 20th December 2016. Stakeholder explained that everything seemed ok in principal but explained that they do not endorse other parties' management measures, the expectation is that they do what they need to avoid interference. Confirmed he would send through the letter regarding the protection afforded to the cable, either before Christmas or in early January.	No impacts expected. Consider precautionary management measures.	N/A
	22/12/2016	To stakeholder	ERM followed up with an email on 22 December 2016 confirming that measures would be built into the EP for the vessel and crew to be aware of the cable and to consult again if shooting within 1 km.	N/A	N/A
	01/06/2017	To stakeholder	Update sent advising about the rescheduling of the previous survey phase and the intent to resubmit the EP for an extended area and timeframe.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP. The Operational Area no longer includes the cable route.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Sinopec Oil and Gas Australia (Puffin) Pty Ltd	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
INPEX	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	30/07/2015	From stakeholder	Received confirmation from INPEX on 30 July 2015 that the information sheet had been forwarded to the relevant team.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder has been screened out of consultation, following the stakeholder verification process conducted in November 2018. The stakeholder was identified as not being relevant to the Cyngus 3D MSS. No response has been received from the stakeholder since 2015.				
PTTEP AA	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2018	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Canarvon Petroleum	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Finder Exploration	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Bounty Oil	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Murphy Oil Corporation	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
Jadestone Energy	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Shell Australia	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16.	N/A	N/A
	18/03/2016	To stakeholder	Letter posted 18/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	17/07/2017	N/A	Stakeholder removed from database on basis that Prelude is over 60km from the Survey Area; they will not be impacted by routine activities; they are unlikely to be impacted by a spill; generic email address is no longer functional, and they have not responded to any previous correspondence (since 2015). Can be notified in the event of a spill.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
			of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.		
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A
Conoco Phillips	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	18/03/2016	To stakeholder	Re-sent 18/3/16 after first email undelivered	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder has been screened out of consultation, following the stakeholder verification process conducted in November 2018. The stakeholder was identified as not being relevant to the Cygnus 3D MSS. No response has been received from the stakeholder since 2015.				
Hunt Oil	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16. Email undeliverable. Schooner exploration drilling campaign complete. Phone number disconnected. Contact details for Hunt Oil Company of Australia Pty Ltd are no longer available. Consultation closed.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	Stakeholder has been screened out of consultation, following the stakeholder verification process conducted in November 2018. The stakeholder was identified as not being relevant to the Cygnus 3D MSS. No response has been received from the stakeholder since 2015.				
Woodside Energy Limited	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	18/03/2016	To stakeholder	Letter hand delivered to WEL on 18/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder has been screened out of consultation, following the stakeholder verification process conducted in November 2018. The stakeholder was identified as not being relevant to the Cygnus 3D MSS. No response has been received from the stakeholder since 2015.				
Broome Chamber of Commerce and Industry	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	13/08/2015	Meeting / phone call	Follow-up call made on 13 August 2015 during which the Broome Chamber of Commerce and Industry requested that the email with information sheet and map be resent. Email was resent following the phone call.	N/A	N/A
	17/08/2015	To stakeholder	Email from the Broome Chamber of Commerce received on 17 August 2015. The email relayed that they have no issues or concerns with Cygnus 3D MSS.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder has been contacted by Polarcus since 2015 and no response has been received. Stakeholder has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Port Hedland Chamber of Commerce	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	13/08/2015	Meeting / phone call	Follow-up call made on 13 August 2015 during which the Port Hedland Chamber of Commerce requested that the email with the information sheet and map be resent. Email was resent following the phone call.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled. We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	Stakeholder has been contacted by Polarcus since 2015 and no response has been received. Stakeholder has been screened out of consultation, following the stakeholder identification process conducted in November 2018.				
Oil Spill Response Agencies					
Australian Marine Oil Spill Centre (AMOSC)	28/07/2015	To stakeholder	Email with information sheet and map sent on 28 July 2015	N/A	N/A
	14/08/2015	Meeting / phone call	Follow-up call made on 14 August 2015 during which AMOSC mentioned that the email was received and forwarded on to a specific AMOSC person, who will respond if he had any queries.	N/A	N/A
	16/03/2016	To stakeholder	Email sent 16/3/16	N/A	N/A
	04/11/2016	To stakeholder	Email notification communicating commencement of survey on or about the 1st December 2016 was sent to stakeholder on Friday 4th November 2016.	N/A	N/A
	01/06/2017	To stakeholder	Stakeholder update sent regarding previous phase not going ahead and Polarcus intention to extend timeframe and area of the EP.	N/A	N/A
	05/10/2017	To stakeholder	Stakeholder update sent informing stakeholder, Polarcus has reduced the proposed area of acquisition and timeframes under the Cygnus 3D MSS EP.	N/A	N/A
	27/10/2017	To stakeholder	Email update sent to stakeholders informing them the EP has been submitted to NOPSEMA. A link was provided to the EP status on NOPSEMAs website. The email also outlined the ongoing consultation methods including the option to register for the daily activity look-ahead notification.	N/A	N/A

Stakeholder	Date of Correspondence	To / From Stakeholder	Summary of Contact / Correspondence	Assessment of Merit of Objection or Claim / Comment	Statement of the Polarcus Response
	07/11/2017	To stakeholder	Email sent to stakeholder with a Notice of Commencement of Phase 3 (North). The MSS is proposed to commence on or soon after the 5 December 2017.	N/A	N/A
	12/12/2017	To stakeholder	Email update sent to stakeholders informing them of EP acceptance, survey commencement and vessel details.	N/A	N/A
	25/01/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (North) of the Polarcus Cygnus 3D MSS completed on 14th January 2018, and also that the Zénaïde 3D MSS was partially completed on 23rd January 2018 with the seismic survey vessel due to return on or around 7th March 2018.	N/A	N/A
	28/03/2018	To stakeholder	Email notification sent to stakeholder advising that Phase 3 (South) of the Polarcus Cygnus 3D MSS may commence on or soon after 25th April 2018. Vessel and contact detail were included as well as details for registering for daily lookaheads.	N/A	N/A
	12/04/2018	To stakeholder	Email notification amendment sent to stakeholder advising that, in addition to Phase 3 South commencing on 25th April 2018, additional infill lines within the Phase 1 area may also be acquired. Updated details and coordinates were provided. Vessel and contact details were also included as well as details for registering for daily lookaheads.	N/A	N/A
	27/04/2018	To stakeholder	Email notification sent confirming: - Completion of Zenaide 3D MSS, with the vessel due to depart on or around the 28th April 2018; and - Due to the survey vessel no longer being available, Phase 1 infill lines and Phase 3 South will no longer go ahead. Polarcus intend to return later in 2018, but do not expect to return within the next 2 months. Advanced notification will be provided to stakeholders once the timing of these phases of acquisition are rescheduled.We apologise for any inconvenience caused. We endeavour to provide reasonable notice of survey commencement and completion wherever possible, but in this instance, the change in vessel availability is due to circumstances outside of our control.	N/A	N/A
	07/12/2018	To stakeholder	Email notification sent to stakeholder advising that Polarcus is currently revising its EP to allow a one-year extension to the timeframe of the EP to 31 December 2019. The scope of the revised EP will only include acquisition of an amended Phase 3 south Acquisition Area. Polarcus will not be undertaking infill activities in the previously acquired areas (Phase 1, 2 or 3 North). A factsheet was attached with additional information on the Cygnus 3D MSS.	N/A	N/A
	14/01/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is planning to employ the boxing-in option around the Montara Infrastructure and the associated exclusion zones to reduce the size of the seismic coverage hole. This process will involve acquiring additional lines orthogonal to the normal acquisition direction. Undershooting and ocean bottom nodes will not be required.	N/A	N/A
	07/02/2019	To stakeholder	Update notification sent to stakeholder advising that Polarcus is now extending the EP to two-years to 31 December 2020. The extension of the EP timeframe is to allow Polarcus operational flexibility in the timing of acquisition of Phase 3 South. Polarcus is planning to submit the revised EP to NOPSEMA in March 2019. Acquisition of Phase 3 South may commence as early as May 2019.	N/A	N/A

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