TGS-NOPEC Geophysical Company Pty Ltd (**TGS**) propose undertaking a three-dimensional (**3D**) multi-client (**MC**) marine seismic survey (**MSS**) in the Otway Basin, in Commonwealth waters offshore from Victoria (**VIC**), Tasmania (**TAS**) and South Australia. TGS is proposing to carry out the Otway Basin 3D MC MSS to collect high-quality geophysical data regarding rock formations and structures beneath the seabed in the Otway Basin.

The Otway Basin 3D MC MSS will occur no earlier than 1 October 2023 (subject to acceptance of the EP) and will be completed by 30 September 2027.

The following Titleholder Report on Public Comment applies to the Otway Basin 3D Multi-Client Marine Seismic Survey Environment Plan (hereafter referred to as the Otway Basin 3D MC MSS EP), as required after completion of the public comment process.

The Otway Basin 3D MC MSS EP was submitted to NOPSEMA for completeness check accepted as complete on 12 July 2023. Following acceptance, the Otway Basin 3D MC MSS EP was published on the NOPSEMA website for a 30 day period of public comment. The Otway Basin 3D MC MSS EP was available for public comment from 12 July 2023 to 11 August 2023.

TGS would like to thank the submitters for their responses pertaining to the Otway Basin 3D MC MSS. A total of 30,769 public submissions were received. The following report details the issues or themes raised from the received public comments. TGS has indicated the sections corresponding to the raised matters and where they have been accounted for in the Otway Basin 3D MC MSS. Where applicable, TGS has also indicated (by bolded and underlined text), the sections within the Otway Basin 3D MC MSS that have been updated in response to the submissions received.

The Titleholder contact details for the Otway Basin 3D MC MSS EP are provided below.

Titleholder Details	
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	THEME	CONSULTATION AND PUBLIC COMMENT
#	COMMENTS RECEIVED	*Titleholder response*
1	**Matter:** Consultation with Traditional Owners/First Nations people is inadequate or has not occurred. **Claim:** There is no real consultation with Traditional Owners/First Nations people to garner their feedback about the project.	TGS has undertaken extensive consultation as required under Division 3 and Regulation 34 (g) of the Environment Regulations. This has included consultation with Traditional Owner/First Nations people groups identified as relevant to the Otway Basin 3D MC MSS. A list of all Traditional Owner/First Nations people groups that TGS has consulted with is provided in Section 5 and Appendix J, with consultation that has been undertaken with these groups summarised in Appendix M. For confidentiality reasons, full unedited correspondence and meeting minutes cannot be provided, as per the Environment Regulations, although this has been provided to NOPSEMA as Appendix I of the EP. Following significant research to identify potentially relevant Traditional Owner/First Nations people groups, TGS initially contacted each Traditional Owner/First Nations people group to ask whether they would be available to discuss the proposed survey and the best method for achieving this. Responses varied from not wanting to be consulted to full engagement with in-person meetings. TGS made multiple attempts with groups that did not respond and attempted to reach these groups using various contact details and methodologies to ensure they had an opportunity to understand and provide feedback about the proposed survey. For example, TGS attempted to follow up unanswered emails by phoning the Traditional Owner/First Nations people groups, and sent information to some Traditional Owner/First Nations people groups within registered letters. TGS continue to include unresponsive groups within their update distribution list to be certain that these groups have been provided sufficient information and allowed the ability to contact TGS if they wish. TGS developed an information sheet tailored to Traditional Owner/First Nations people groups to encourage them to contact TGS for more information (see Appendix L). In order to ensure all relevant members were afforded an opportunity to participate in consultation, TGS requested all Traditional Owner/First Nations people groups contacted during the relevant persons consultation program to identify any other significant knowledge holders, clan members, or Traditional Owner/First Nations people persons/groups that may be relevant to the Otway Basin 3D MC MSS. TGS has included other Traditional Owner/First Nations people groups within their consultation register that have been suggested by other relevant persons. TGS considers that sufficient time and information has been provided to Traditional Owners/First Nations people with the opportunity to provide information and feedback on the Otway Basin 3D MC MSS. **TGS has made further updates to Section 5 and relevant appendices of the EP to include consultation that has occurred since the submission of the EP to NOPSEMA for its completeness check. TGS has also updated various**

		other sections throughout the EP to incorporate information received during the relevant persons consultation process and public comment period. *Division 3 and Regulation 34(g) of the 2023 Environment Regulations have replaced Division 2.2A and Regulation 10A(g) of the 2009 Environment Regulations.
2	**Matter:** Consultation with fishers has not occurred. **Claim:** TGS has made effectively no effort to consult with fishers.	TGS has undertaken extensive consultation as required under Division 3 and Regulation 34 (g) of the Environment Regulations. This has included consultation with Commonwealth and State commercial fishers and recreational fishing representative groups. TGS commissioned a commercial fishing report that was conducted externally to understand the fishing activity and different methodologies of fishing that take place within the Operational Area and wider EMBA. This information has been used to guide consultation. In many cases TGS engaged relevant fisheries representative organisations based on feedback from commercial fishing representatives to avoid contacting individual licence or permit holders due to consultation fatigue, lack of resources and interest. These organisations are provided in Section 5 of the EP, and within the full list of all relevant persons consulted with provided in Appendix J of the EP. TGS has consulted fishers via emails, phone calls, in-person meetings, and online meetings. TGS developed information sheets and individual tailored presentations (where applicable) for each of the key representative organisations, to be shared with their members. TGS also provided information on their website advertising the Otway Basin 3D MC MSS and inviting people to contact TGS with any questions or concerns (www.tgs.com/seismic/multi-client/asia-pacific/australia/otway-relevant-persons-consultation). A webpage for fishers was developed that provided fisheries-specific information (www.tgs.com/seismic/multi-client/asia-pacific/australia/otway-fishers). This website provided a downloadable form of the commercial fisheries information sheet. Consultation that has been undertaken with these groups is summarised in Appendix M. For confidentiality reasons, full unedited correspondence and meeting minutes cannot be provided, as per the Environment Regulations, although this has been provided to NOPSEMA as Appendix I of the EP. TGS has not updated the EP in response to these comments; however, TGS **has updated Section 5 and relevant appendices of the EP to include consultation that has occurred since the submission of the EP to NOPSEMA for its completeness check. TGS has also updated various other sections throughout the EP to incorporate information received during the relevant persons consultation process and public comment period.** *Division 3 and Regulation 34(g) of the 2023 Environment Regulations have replaced Division 2.2A and Regulation 10A(g) of the 2009 Environment Regulations.

3	**Matter:** TGS is bypassing local community intentions. **Claim**: We are past the time where companies should have the right to bypass local community intentions. There should be an open public forum that is widely advertised and properly attended so that feedback from this forum is heard and acted upon. There was considerable community objection to the blasting plans.	TGS disagrees with the claim and matter as TGS has invested a lot of effort and resourcing into identifying and consulting with key persons and organisations within the local communities that are potentially relevant to the Otway Basin 3D MC MSS. TGS has widely distributed information and invitations to contact them with queries to various groups to communicate to their members, which include details for contacting TGS if they require further information. TGS also provided information on their website advertising the Otway Basin 3D MC MSS and inviting people to contact TGS with any questions or concerns (www.tgs.com/seismic/multi-client/asia-pacific/australia/otway-relevant-persons-consultation). **TGS has made further updates to Section 5 and relevant appendices of the EP to include consultation that has occurred since the submission of the EP to NOPSEMA for its completeness check. TGS has also updated various other sections throughout the EP to incorporate information received during the relevant persons consultation process and public comment period.**
4	**Matter:** Bespoke consultation. **Claim:** In the EP, TGS refer to their consultation as 'bespoke' which makes no sense.	The definition of bespoke is "*made for a particular customer or user*". TGS has referred to the relevant persons consultation process as "*bespoke*" as it is not a 'one size fits all' approach. The consultation process has been tailored to suit each relevant person, for example different versions of the information sheets were developed for Traditional Owners/First Nations people, Members of Parliament, Commercial Fishers, and general relevant persons based on their information requirements. **Section 5 of the EP has been updated to replace any occurrences of "bespoke" with "tailored" to remove any confused around the use of "bespoke" as per the explanation provided above.**
5	**Matter:** Unsure of who is undertaking the consultation. **Claim:** Consultation requires the proponent to be upfront with the 'who'. Relevant persons have been asked to consult with TGS, SLB and SLR. People are confused.	TGS is the applicant for, and will be the titleholder and operator of, the Otway Basin 3D MC MSS. As the applicant and proposed titleholder, TGS is responsible for undertaking consultation with relevant persons. All consultation communications about the proposed project have been sent by, or on behalf of TGS. Information sheets only display TGS branding and contact details and meeting information has been delivered on a TGS-branded slide pack. At the beginning of each consultation meeting, TGS has also introduced itself and the other meeting attendees, which has included SLB (introduced as project partner) and SLR (introduced as consultants assisting TGS in preparing the EP). Based on feedback received early in the consultation programme from relevant persons, TGS has ensured it has clearly communicated the extent of SLB and SLR's involvement and made it very clear that TGS will be the titleholder and operator of the Otway Basin MC MSS (as identified in the EP). TGS has not updated the EP in response to these comments.

6	**Matter:** Consultation fatigue. **Claim:** There are constant requests from companies to 'consult'. Some people think they have already provided feedback and it has turned out to be input for a completely different EP.	TGS has noted multiple incorrect references to other proponents or activities during the review of submissions. TGS is aware many of the submitters and relevant persons (Particularly Traditional Owner/First Nations people groups and commercial fishers) are being requested to, or in the process of, providing feedback on other offshore proposals and finding resourcing challenging. TGS has discussed and acknowledges consultation fatigue amongst relevant persons within the EP (see Section 5). Given the number and frequency of similar projects proposed and occurring within the broader South-east Marine Region, it is understood from relevant persons consulted as part of preparing the EP that many relevant persons have received a high volume of communications from titleholders, resulting in decreased capacity and willingness to consult. With respect to this constraint, TGS acknowledges the relevant person's comments and advises them they will remain within the consultation program to continue to receive updates and invite relevant persons to contact TGS at any time throughout the project with any comments or queries. Other offers to assist with consultation fatigue was provided by TGS, including targeted, concise, and fit-for-audience information to make communication/understanding easier, and in order to develop relations and build trust and reliability for this Seismic Survey, and future applications. Additional time was provided when requested to account for the consultation fatigue felt by some of the relevant persons. TGS has not updated the EP in response to these comments.
7	**Matter:** TGS declined in-person meetings in Tasmania and Victoria. **Claim:** TGS declined in-person meetings in Tasmania and Victoria. The refusal of TGS to attend in-person meetings within relevant communities is unacceptable, and results in a severe restriction on participation of these communities. The actions of TGS were interpreted as an attempt to minimise community engagement as much as possible.	While TGS did decline an in-person meeting with a specific group consulted with under the relevant persons consultation program, online meetings were offered as an alternative to in-person meetings which were subsequently not responded to. TGS provided clear reasons as to why the in-person meeting was declined, with these appropriately documented within the consultation records. Consultation records are provided in Appendices H, I and K. TGS has not updated the EP in response to these comments.

8	**Matter:** Incorporation of public comment/feedback. **Claim:** The public's input and concerns must be considered throughout the environmental assessment and management process, and all efforts should be made to address and incorporate public feedback.	TGS is required to respond 'in general terms' to any comments received during the public comment period. TGS must provide a written statement, in the form of the Titleholder report on public comment (N-04750-FM1846) which is to be published for the public to view along with the EP submitted to NOPSEMA for assessment. Where a Titleholder has made changes to the EP as a result of information received through the public comment process, these must be clearly identified in the Titleholder report which can be achieved by referring to the section heading or page number where changes were made. This report outlines TGS' consideration of all submissions received during the public comment period. Where changes have been made, these have been clearly identified within this report as bolded and underlined text.
9	**Matter:** Resubmission of EP. **Claim:** Without suitable documentation it will be difficult to know how submissions have been addressed.	Refer to Matter 8.
	THEME	**FIRST NATIONS, SOPEC, INDIGENOUS PEOPLE, CULTURAL**
#	COMMENTS RECEIVED	*Titleholder response*
10	**Matter:** Impacts on First Nation people and Sea Country. **Claim:** The Environment Protection and Biodiversity Conservation Act 1999 includes the consideration of the role and relationships of the environment to First Nations people, which is protected by international human rights covenants to	TGS has undertaken an extensive consultation program as required by the Environment Regulations, including with Traditional Owner/First Nations people groups who may have functions, interests or activities in the Operational Area and wider EMBA. These groups encompassed a wide variety of organisations including land councils, Prescribed Bodies Corporates, Registered Aboriginal Parties, Native Title Holders, organisations that offer Traditional Owner/First Nations people groups legal support and groups that represent individual Traditional Owners/First Nations people. In order to ensure all relevant members were afforded an opportunity to participate in consultation, TGS requested all Traditional Owner/First Nations people groups contacted during the relevant persons consultation program to identify any other significant knowledge holders, clan members, or Traditional Owners/First Nations people/groups that may be relevant to the Otway Basin 3D MC MSS. TGS has included other Traditional Owner/First Nations people groups within their consultation register that have been suggested by other relevant persons. Consultation with these Traditional Owners/First Nations people allowed TGS to gain

	which Australia is a signatory. Seismic and drilling is against the wishes of Traditional Owner/First Nations people who risk losing their song line with Southern Right Whales, and their connection to Southern Sea Country.	a better understand the connection of Traditional Owners/First Nations people with Sea Country and learn about the potential impacts of the proposed survey on their cultural heritage values. TGS has made considerable efforts through the consultation program to provide Traditional Owners/First Nations people with the opportunity to learn about the Otway Basin 3D MC MSS such that they can understand and share with TGS how the proposed survey may impact their rights and connections with Sea Country. **Further updates to Section 5 of the EP have been provided to reflect consultation with Relevant Persons that has occurred following the original submission of the EP to NOPSEMA. TGS has updated Section 4.6.1 to provide additional information on cultural values of the Operational Area including Whale Songlines.**
11	**Matter:** Appendix H*. **Claim:** Request full disclosure of Appendix H of which First Nations People were consulted. Request an explanation as to why Appendix H of the EP was withheld from the public. *Note that the Appendix H referred to in public comments is now Appendix I within the revised EP.	The claim is outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. Regulation 26(8) of the Environment Regulations states that "*All sensitive information (if any) in an Environment Plan, and the full text of any response by a relevant person to consultation under Section 25 in the course of preparation of the plan, must be contained in the sensitive information part of the plan and not anywhere else in the plan"*. NOPSEMA is required to publish (on their website) the Environment Plan with all sensitive information removed. All information, including sensitive information, has been provided to NOPSEMA for their assessment. A full list of the organisations, groups and individuals who have been consulted with as relevant persons to the Otway Basin 3D MC MSS are provided within Appendix J and are listed in the tables in Section 5 of the EP. This includes a list of the Traditional Owners/First Nations people that TGS has consulted with. Names of individuals have been redacted as per the requirements of the EPBC Act. Appendix I contains all unedited correspondence with relevant persons. TGS has not updated the EP in response to these comments. *Regulation 26(8) of the 2023 Environment Regulations have replaced Regulation 9(8) of the 2009 Environment Regulations.
12	**Matter:** Gunditjmara Sea Country and Whale Songline Country. **Claim:** The Operational Area extends through whale Songline Country. Traditional Owners/First	TGS has undertaken an extensive consultation program as required by the Environment Regulations, including with Traditional Owner/First Nations people groups who may have functions, interests or activities in the EMBA. These groups encompassed a wide variety of organisations including land councils, Prescribed Bodies Corporates, Registered Aboriginal Parties, Native Title Holders, organisations that offer Traditional Owner/First Nations people groups legal support and groups that represent individual Traditional Owner/First Nations people. Consultation with these Traditional Owners/First Nations people allowed TGS to gain a better understand the

	Nations people have stated that oil and gas projects within their traditional waters have no permission to proceed.	connection of Traditional Owners/First Nations people with Sea Country and learn about the potential impacts of the proposed survey on their cultural heritage values. TGS has made considerable efforts through the consultation program to provide Traditional Owners/First Nations people with the opportunity to learn about the Otway Basin 3D MC MSS such that they can understand and share with TGS how the proposed survey may impact their rights and connections with Sea Country. Where we have received comments from Traditional Owner/First Nations people groups, TGS has incorporated it into the revised EP (subject to confidentiality or cultural sensitivity requirements). **TGS has updated Section 4.6.1 to provide additional information on cultural values of the Operational Area including Whale Songlines. TGS has also provided Appendix N which contains, a summary of issues/concerns/objections raised by relevant persons, a statement on the stance of the relevant person towards the survey (where possible), and a summary of how these have been addressed within the EP.** This includes identification of those relevant persons (including Traditional Owner/First Nations people groups) who are opposed to the Otway Basin 3D MC MSS.
13	**Matter:** SOPEC Citizens Protection Declaration. **Claim:** The Southern Ocean Protection Embassy Collective's Citizen Science Protection Declaration condemns all new and existing seismic testing and gas mining exploration approvals across the south west Victorian coastal waters covering Gunditjmara Sea Country.	TGS acknowledges the SOPEC Citizens Protection Declaration and the beliefs of Traditional Owners/First Nations people. **Section 4.6.1.3 has been added to the EP in acknowledgement of the declaration. TGS has also provided Appendix N which contains, a summary of issues/concerns/objections raised by relevant persons, a statement on the stance of the relevant person towards the survey (where possible), and a summary of how their concerns have been addressed within the EP**. This includes identification of those relevant persons (including Traditional Owner/First Nations people groups) who are opposed to the Otway Basin 3D MC MSS.
14	**Matter:** Proposal does not have free and informed consent of Indigenous Peoples. **Claim:** The UN Declaration of the Rights of Indigenous Peoples states that States	The UN Declaration on the Rights of Indigenous Peoples "*addresses both individual and collective rights, cultural rights and identity, rights to education, health and employment, language, and others. It outlaws discrimination against indigenous people and promotes their full and effective participation in all matters that concern them. It also ensures their right to remain distinct and to pursue their own priorities in economic, social and cultural development".* The Declaration *"explicitly encourages harmonious and cooperative relations between States and indigenous peoples*" (United Nations, 2007). TGS acknowledges the rights and beliefs of Traditional Owners/First Nations people and has been undertaking consultation with Traditional Owners/First Nations people

	shall consult and cooperate in good faith with Indigenous Peoples concerned to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources. This proposal does not have this free and informed consent. The project is against the UN Declaration on the Rights of Indigenous Peoples.	as part of the Relevant Persons consultation programme for the Otway Basin 3D MC MSS as described throughout Section 5 of the EP. **Further updates to Section 5 and relevant appendices of the EP have been provided to reflect consultation with Relevant Persons (including Traditional Owners/First Nations people) that has occurred following the submission of the EP to NOPSEMA for its completeness check. Updates have been made throughout the EP to reflect information provided during the Relevant Persons consultation process and Public Comment Period. TGS has also provided Appendix N which contains, a summary of issues/concerns/objections raised by relevant persons, a statement on the stance of the relevant person towards the survey (where possible), and a summary of how these have been addressed within the EP.** United Nations, 2007. '*UN Declaration on the Rights of Indigenous Peoples*'. https://www.ohchr.org/en/indigenous-peoples/un-declaration-rights-indigenous-peoples#:~:text=The%20Declaration%20addresses%20both%20individual,all%20matters%20that%20concern%20them.
15	**Matter:** Unacceptable impacts on pakana/palawa cultural resources. **Claim:** The proposed seismic survey has the potential to negatively impact on significant cultural sites and values across north-west Tasmania. These coastal areas continue to be important to the palawa/pakana people for seasonal yula (mutton bird or Short-tailed Shearwater) and other traditional shellfish harvesting and connection to country and traditional cultural practices.	Due to the water depths associated with the Operational Area for the Otway Basin 3D MC MSS, there will be no impacts from acoustic emissions on traditional shellfish harvesting. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has assessed the potential impacts of the Otway Basin 3D MC MSS on seabirds throughout Section 7 (planned activities) and Section 8 (unplanned activities). In accordance with the control measures provided within the Impact Assessment of the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks to threatened fauna will be managed to ALARP and Acceptable levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
16	**Matter:** Incomplete assessment of World Heritage Sites.	The Budj Bim World Heritage Site lies within a freshwater system and was therefore not included in the initial EP submitted for public comment. In response to these comments, **TGS has updated Table 19 of the EP to include the Budj Bim Cultural Landscape, with this site depicted in Figure 17. TGS has also provided a**

	Claim: Budj Bim was not included in the list of World Heritage Sites in the EP and may have been overlooked during consultation.	**<u>description of the Budj Bim Cultural Landscape within Section 4.4.8.1 in response to the cultural importance of this site.</u>**
	THEME	**FISH, SHARKS AND FISHERIES**
#	COMMENTS RECEIVED	*Titleholder response*
17	**Matter:** Onus of proof and financial responsibility lies with the fishers and not TGS. **Claim:** The EP proposes that the onus of proof and financial responsibility lies with the fishers and not TGS. This is proof that there is no equity in the proposed TGS activity.	The matter raised by this submitter relates to the Commercial Fisheries Compensation Protocol. TGS has developed a Commercial Fisheries Compensation Protocol based on the NERA Commercial Fishing Industry Adjustment Protocol. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. The TGS protocol includes compensation for loss of catch for a period of time following cessation of the Otway Basin 3D MC MSS to account for potential impacts to fish numbers within an Adjustment Area as a result of acoustic emissions. All evidence-based claims will be assessed by an independent third-party assessor. If a claimant disagrees with a claim assessment outcome and cannot reach an agreement with TGS, they may opt to request than an additional suitably experienced and qualified independent third-party is engaged to review and determine the outcome of the claim. The appointment of the independent third-party will be agreed mutually between TGS and the claimant. The costs of engaging any independent third-party assessor will be covered by TGS as will any claims assessed by the independent third-party assessor to have merit. All claims that are assessed (by an independent third-party) to require compensation, will be paid by TGS, as per the Commercial Compensation Protocol. The Commercial Fisheries Compensation Protocol will be made available through commercial fishing representative groups and will be published within the revised EP once submitted to NOPSMEA. TGS has been consulting with commercial fishing representative groups as relevant persons. As outlined within Section 7.1.5 of the EP, for TGS to accept a payment claim, fishers will need to provide suitable documented evidence to demonstrate their economic loss in accordance with the Commercial Fisheries Compensation Protocol for the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
18	**Matter:** Transparency.	The Commercial Fisheries Compensation Protocol was removed as sensitive information as it is specifically relevant and confidential to commercial fishers and TGS' commitments to them. TGS has been developing the

	Claim: The Commercial Fisheries Compensation Protocol has been removed from the appendices as it is claimed to be 'sensitive'.	Commercial Fisheries Compensation Protocol with commercial fishing bodies and although the protocol is still in draft format, TGS is committed to working with commercial fishing bodies on the protocol until a final version is reached. The Commercial Fisheries Compensation Protocol will be made available through commercial fishing representative groups and will be published within the revised EP once submitted to NOPSMEA. TGS has not updated the EP in response to these comments.
19	**Matter:** Underwater sound impacts on recreational fisheries. **Claim:** The EP does not adequately address the direct impact on recreational fishing industries due to the lack of evidence of the survey activities. The EP removes responsibility of harm or impact to the recreational fishing industry.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has provided a description of the existing environment, including a description of recreational fishing of relevance to the Operational Area within Section 4.7.2.5 of the EP. Based on the information provided in Section 4.7.2.5, the Operational Area lies in waters outside of the limits of recreational vessels, therefore recreational fisheries will not be impacted by the Otway Basin 3D MC MSS. This is further described within Section 7.1.3.3 of the EP. An assessment on the potential risks to recreational activities from the unlikely event of an oil spill has been undertaken in Section 8.3.4.3 of the EP. Control measures have been developed to reduce these risks to ALARP and an Acceptable Level, as outlined within Section 8.3.6 and 8.3.7 of the EP. Control measures are provided within Table 136 of the revised EP, with spill response measures outlined in Table 142 of the revised EP. TGS has not updated the EP in response to these submissions.
20	**Matter:** Impacts on southern bluefin tuna. **Claim:** Southern bluefin tuna will be impacted on their migration routes and spawning areas.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has provided a comprehensive description of the existing environment, including the identification of southern bluefin tuna. This includes a description on the biology of southern bluefin tuna (see Section 4.5.3.1.2) and the commercial tuna fisheries (see Section 4.7.3.2.5) off southern Australia. Up to date scientific literature has been used to describe the migrations of southern bluefin tuna and any relationship with the Otway region and upwellings in this region. Spawning does not occur within the Operational Area and as such the Otway Basin 3D MC MSS will not impact spawning areas, however, TGS acknowledge that the Otway region is on the migration route of southern bluefin tuna. Following consultation with commercial fishers, TGS reduced the Operational Area and shifted the western boundary away from South Australian/Great Australian Bight waters where most fishing for southern bluefin tuna occurs.

		In accordance with the control measures set out within Table 95 of EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks from acoustic emissions on southern bluefin tuna will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. **TGS has updated Section 4.5.3.1.2 of the EP to provide further commentary on the status of southern bluefin tuna stocks.**
21	**Matter:** Impacts to fish stocks. **Claim:** Fisheries in Lakes Entrance, Victoria, revealed fisheries suffered a reduction in whiting and flathead catches immediately following seismic.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS directs submitters to Section 7.2.2.3.2 and Section 7.2.3.1 of the EP for a description on the studies conducted on Lakes Entrance fisheries. In particular, Section 7.2.3.1 provides a detailed description on the impacts of flathead and eastern school whiting catch rates. As this matter has already been addressed within the EP, TGS has not provided further updates to the EP in response to these comments.
22	**Matter:** Economic loss. **Claim:** Seismic will cause huge economic losses to fishers' livelihoods and the Australian economy from the fisheries and aquaculture industries.	TGS has assessed the potential impacts of displacement by the presence of the Survey Vessels and towed equipment within Section 7.1 of the EP. Potential impacts of acoustic disturbance on fisheries have been assessed within Section 7.2 of the EP. Control/mitigation measures to minimise any potential impacts on commercial fisheries have been provided within these sections. TGS has developed a Commercial Fisheries Compensation Protocol based on the NERA Commercial Fishing Industry Adjustment Protocol. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. The TGS protocol includes compensation for loss of catch for a period of time following cessation of the Otway Basin 3D MC MSS to account for potential impacts to fish numbers within an Adjustment Area as a result of acoustic emissions. The Commercial Fisheries Compensation Protocol will be made available through commercial fishing representative groups and will be published within the revised EP once submitted to NOPSMEA. TGS has been consulting with commercial fishing representative groups as relevant persons. Since submitting the EP for public comment, further consultation has continued with SETFIA which has allowed the development of control measures around the Western Roughy Central Research Area to ensure fishers associated with the roughy research programme do not suffer financial loss. **Section 7.2.3.1, and Table 92 – 95 of the EP have been updated with these control measures.**

23	**Matter:** Displacement of commercial fisheries. **Claim:** There is anecdotal evidence that seismic blasting displaces fisheries.	TGS has assessed the potential impacts of displacement by the presence of the Survey Vessels and towed equipment within Section 7.1 of the EP. Potential impacts of acoustic disturbance on fisheries have been assessed within Section 7.2 of the EP. Control measures to minimise any potential impacts on commercial fisheries have been provided within these sections. TGS has developed a Commercial Fisheries Compensation Protocol based on the NERA Commercial Fishing Industry Adjustment Protocol. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. The TGS protocol includes compensation for loss of catch for a period of time following cessation of the Otway Basin 3D MC MSS to account for potential impacts to fish numbers within an Adjustment Area as a result of acoustic emissions. The Commercial Fisheries Compensation Protocol will be made available through commercial fishing representative groups. TGS has been consulting with commercial fishing representative groups as relevant persons and will be published within the revised EP once submitted to NOPSMEA. TGS has not updated the EP in response to these comments.
24	**Matter:** Impacts to commercial and recreational tuna fishing. **Claim:** There is anecdotal evidence that seismic impacts both commercial and recreational tuna fishers.	Refer to Matter 20 and 23.
25	**Matter:** Local fishing industries. **Claim:** Local fishing industries should not be left to deal with the negative impacts caused by fossil fuel extraction. The EP will not protect local fishing industries and will not keep local seafood on the table for Australian families.	Refer to Matter 20 and 23.

26	**Matter:** TGS know this will impact fishers. **Claim:** The fact that the Operational Area was reduced and there will be exclusion zones for giant crab shows that TGS knows and admits the survey will affect commercial and recreational fishers.	TGS has consulted with commercial fishers and in response has developed control measures to ensure potential impacts to fishers are reduced to Acceptable Levels and ALARP. For example, the Operational Area has been reduced, reducing the potential overlap with commercial fishers. TGS has developed a Commercial Fisheries Compensation Protocol for cases where commercial fishers experience an economic loss as a result of the Otway Basin 3D MC MSS. In addition, through the relevant persons consultation programme, TGS has developed control measures in consultation with SETFIA around the orange roughy Western Roughy Central Research Zone. **Section 7.2.3.1, and Table 92 – 95 of the EP have been updated with these control measures.** In accordance with the management measures outlined within the EP, the Otway Basin 3D MC MSS will be managed so that potential impacts and risks to fish and commercial fisheries are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
27	**Matter:** Underwater sound impacts on commercial fisheries. **Claim:** Seismic testing impacts current and future commercial fisheries catch The EP does not adequately address the direct impact on commercial fishing industries due to the lack of evidence of the survey activities. The EP removes responsibility of harm or impact to the commercial fishing industry.	TGS has assessed the comments pertaining to commercial fisheries to have specific relevance. TGS has provided a comprehensive description of the commercial fisheries associated with the Otway Basin 3D MC MSS within Section 4.7.3 of the EP, including State and Commonwealth managed fisheries. TGS has also undertaken an extensive consultation program with relevant persons which include commercial fishers and/or their representatives, and this consultation program will continue for the duration of the EP. As described in Section 4.7.3 of the EP, there is some overlap between commercial fisheries and the Operational Area for the Otway Basin 3D MC MSS, although this overlap mainly occurs along the shoreward boundary of the Operational Area. A detailed assessment of the potential impacts of acoustic emissions on fish and commercial fisheries has been provided in Section 7.2.2 and Section 7.2.3.1 respectively within the EP. Based on quantitative acoustic modelling and the best available scientific literature, the Underwater Acoustic Modelling results show that serious injury and mortality are restricted to 70 m (for fish without a swim bladder) and 150 m (for fish with swim bladders whose hearing does not directly involve the swim bladder or other gas volume, fishes whose hearing does directly involve a swim bladder, and fish eggs and larvae) from the acoustic source. Overall the effects on fish will be behavioural – it is highly unlikely that mortality/injury will occur. However, behavioural effects will be temporary and fish presence will return following cessation of acoustic disturbance. TGS has developed a Commercial Fisheries Compensation Protocol based on the NERA Commercial Fishing Industry Adjustment Protocol. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. The TGS protocol includes compensation for loss of catch for a period of time following cessation of the Otway Basin 3D MC MSS to account for potential impacts to fish numbers within an Adjustment Area as a result of acoustic emissions. The Commercial Fisheries Compensation Protocol will be made available through commercial fishing representative groups and will be published within the revised EP

		once submitted to NOPSMEA. TGS has been consulting with commercial fishing representative groups as relevant persons. Furthermore, in response to concerns raised during the relevant persons consultation program, TGS has adopted a Giant Crab Acoustic Exclusion Area, whereby there will be no acquisition within the exclusion area in water depths less than 1,000 m south of the 2D tie line Acquisition Area. The Operational Area for the Otway Basin 3D MC MSS has also been reduced in extent, particularly away from South Australian waters in response to concerns raised by relevant persons. Through the relevant persons consultation programme, TGS has developed control measures in consultation with SETFIA around the orange roughy Western Roughy Central Research Zone. **Section 7.2.3.1, and Table 92 – 95 of the EP have been updated with these control measures.** In accordance with the management measures outlined within the EP, the Otway Basin 3D MC MSS will be managed so that potential impacts and risks to fish and commercial fisheries are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
28	**Matter:** Impacts to fish stocks. **Claim:** Seismic decimates seafood populations, causing mortality in small fish and reducing catch size. These stocks may take many years to recover. Cod fish stocks in the North Sea were driven away following seismic. Do not repeat the mistakes made by the Norwegian and Danish regulators.	A detailed assessment of the potential impacts of acoustic emissions on fish and commercial fisheries has been provided in Section 7.2.2 and Section 7.2.3.1 respectively within the EP. Based on quantitative acoustic modelling and the best available scientific literature, the Underwater Acoustic Modelling results show that serious injury and mortality are restricted to 70 m (for fish without a swim bladder) and 150 m (for fish with swim bladders whose hearing does not directly involve the swim bladder or other gas volume, fishes whose hearing does directly involve a swim bladder, and fish eggs and larvae) from the acoustic source. Overall the effects on fish will be behavioural – it is highly unlikely that mortality/injury will occur. However, behavioural effects will be temporary and fish presence will return following cessation of acoustic disturbance. TGS has developed a Commercial Fisheries Compensation Protocol based on the NERA Commercial Fishing Industry Adjustment Protocol. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. The TGS protocol includes compensation for loss of catch for a period of time following cessation of the Otway Basin 3D MC MSS to account for potential impacts to fish numbers within an Adjustment Area as a result of acoustic emissions. The Commercial Fisheries Compensation Protocol will be made available through commercial fishing representative groups and will be published within the revised EP once submitted to NOPSMEA. TGS has been consulting with commercial fishing representative groups as relevant persons.Through the relevant persons consultation programme, TGS has developed control measures in consultation with SETFIA around the orange roughy Western Roughy Central Research Zone. **Section 7.2.3.1, and Table 92 – 95 of the EP have been updated with these control measures.**

		In accordance with the management measures outlined within the EP, the Otway Basin 3D MC MSS will be managed so that potential impacts and risks to fish and commercial fisheries are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
29	**Matter:** Buying out of quota. **Claim:** A precautionary approach could be taken to at least (in part) address the potential for negative impacts on rock lobster stocks by 'buying out' quota (i.e. pay to leave lobsters in the water that would otherwise be commercially caught) for as long as the survey takes to complete.	TGS has developed a Commercial Fisheries Compensation Protocol based on the NERA Commercial Fishing Industry Adjustment Protocol. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. The TGS protocol includes compensation for loss of catch for a period of time following cessation of the Otway Basin 3D MC MSS to account for potential impacts to fish numbers within an Adjustment Area as a result of acoustic emissions. The Commercial Fisheries Compensation Protocol will be made available through commercial fishing representative groups and will be published within the revised EP once submitted to NOPSMEA. TGS has been consulting with commercial fishing representative groups as relevant persons. In accordance with the management measures outlined within the EP, the Otway Basin 3D MC MSS will be managed so that potential impacts and risks to fish and commercial fisheries are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
30	**Matter:** Underwater sound impacts on southern rock lobster. **Claim:** Research shows seismic damages the ability of southern rock lobster to function and navigate. No impacts around sound cues for migration have been discussed in the EP.	**TGS has added Section 4.5.2.1 to the EP to describe the biology of southern rock lobster, including a description on the larval development of this species**. This includes a description on the settlement cues used by setting lobster. Section 7.2.2.2.1.4 provides a detailed risk assessment on the potential impacts of acoustic emissions on southern rock lobster larvae, with potential impacts on adult southern rock lobster assessed within Section 7.2.2.2.2 (physiological impacts) and Section 7.2.2.3.1 (behavioural impacts). These assessments are based on up to date scientific literature.
31	**Matter:** Impacts to southern rock lobster fishery. **Claim:** Many people rely on the jobs provided by the rock lobster fishery. TGS has failed to identify the	Section 4.7.3 of the EP describes the commercial fisheries of relevance to the Operational Area EMBA. SETFIA prepared a report on the overlap of catch of commercial fisheries with the Operational Area and Acquisition area, with this data provided throughout Section 4.7.3 and is based on commercial fishing catch and effort data reported by Commonwealth and State-managed fisheries. Section 4.7.3.4.1 of the EP reports the total overlap of the Operational Area with the Tasmanian southern rock lobster fishery (based on the data provided in the

	importance of the rock lobster industry in Tasmania.	SETFIA report) to be 1.4t and 0.1% total catch overlap for the fishery, with an annual revenue overlap of $72,000. This clearly demonstrates the importance of this fishery in Tasmania. TGS has also been consulting with TSIC and engaged TSIC to consult with all of TSICs members (which is wide ranging and not just fishers) in relation to the proposed Otway Basin 3D MC MSS. The outcomes of this consultation has been incorporated into the EP. TGS has not updated the EP in response to these comments; however, **the final version of the SETFIA report (to reflect the reduction in Operational Area away from South Australian waters) has been used to update Section 4.7.3 of the EP.**
32	**Matter:** Bass Strait Central Zone Scallop Fishery. **Claim:** The Bass Strait Central Zone Scallop Fishery extends over the proposed survey area.	SETFIA prepared a report on the overlap of catch of commercial fisheries with the Operational Area and Acquisition area. This data is provided throughout Section 4.7.3 and is based on commercial fishing catch and effort data reported by Commonwealth and State-managed fisheries. Based on the results of the SETFIA fisheries data analysis, there is no overlap between any scallop fisheries and the Operational Area. TGS has provided a discussion on the potential for the Otway Basin 3D MC MSS to impact benthic invertebrates (including scallops) within Section 7.2.2.2.2. (physiological impacts) and Section 7.2.2.3.1 (behavioural impacts) of the EP. Potential impacts to scallop larvae are discussed in Section 7.2.2.2.1.3 of the EP. TGS has not updated the EP in response to these comments.
33	**Matter:** Mass mortality of scallops in Bass Strait **Claim:** Fishers in Bass Strait found themselves collecting masses of dead scallops in Bass Strait following a seismic survey earlier that year.	TGS has provided a discussion on the potential for the Otway Basin 3D MC MSS to impact benthic invertebrates (including scallops) within Section 7.2.2.2.2 (physiological impacts) and Section 7.2.2.3.1 (behavioural impacts) of the EP. Potential impacts to scallop larvae are discussed in Section 7.2.2.2.1.3 of the EP. TGS provides discussions within these sections on scientific literature, including the use of literature specific to scallops within the Bass Strait (e.g. Day *et al.,* 2016; Przeslawski *et al*., 2018). The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. However, as this matter has already been addressed within the EP, no further EP updates are required.
34	**Matter:** Acoustic impacts to scallops. **Claim:** The behaviour of scallops changes during and after exposure to seismic. The mortality and impacts of 3D seismic on scallops are	TGS has provided a discussion on the potential for the Otway Basin 3D MC MSS to impact benthic invertebrates (including scallops) within Section 7.2.2.2.2 (physiological impacts) and Section 7.2.2.3.1 (behavioural impacts) of the EP. Potential impacts to scallop larvae are discussed in Section 7.2.2.2.1.3 of the EP. TGS provides discussions within these sections on scientific literature, including the use of literature specific to scallops within the Bass Strait (e.g. Day *et al.,* 2016; Przeslawski *et al*., 2018). As described within Section 4.7.3 of the EP, the Operational Area does not overlap with scallop grounds.

	not appropriately represented within the EP.	**TGS has added Section 4.5.2.3 to provide additional detail on scallops, including larval phases of scallops. Section 7.2.2.2.2 and Section 7.2.2.3.1 have been updated following identification of additional or new scientific literature.**
35	**Matter:** Acoustic impacts to shellfish. **Claim:** Seismic has the greatest impacts on those species that can't escape quickly, like shellfish.	TGS provides a detailed discussion on the potential impacts of acoustic emissions on shellfish within Section 7.2.2.2.2 (physiological impacts) and Section 7.2.2.3.1 (behavioural impacts) of the EP. These discussions are based on up-to-date relevant scientific literature. The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. However, as this matter has already been addressed within the EP, no further EP updates are required.
36	**Matter:** Impacts on abalone industry. **Claim:** Submitter believes seismic will destroy the abalone industry.	SETFIA prepared a report on the overlap of catch of commercial fisheries with the Operational Area and Acquisition area, with this data provided throughout Section 4.7.3 and is based on commercial fishing catch and effort data reported by Commonwealth and State-managed fisheries. Based on the results of the SETFIA fisheries data analysis, there is no overlap between abalone fisheries and the Operational Area. TGS has provided a discussion on the potential for the Otway Basin 3D MC MSS to impact benthic invertebrates (including abalone) within Section 7.2.2.2.2. (physiological impacts) and Section 7.2.2.3.1 (behavioural impacts) of the EP. TGS has not updated the EP in response to these comments.
37	**Matter:** Mortality in small fish. **Claim**: Research shows seismic causes mortality in small fish as far away as 1.2 km.	TGS has provided a detailed discussion on the potential impacts of acoustic emissions on marine sensitivities, including fish, throughout Section 7.2 of the EP. These discussions are based on relevant scientific literature. Sound threshold levels have been presented within the EP, including for mortality and mortal injury in fish. It is considered that based on the results of the Underwater Acoustic Modelling, and the limited and at times contradictory evidence to suggest acoustic emissions can result in fish mortality, that the consequence of acoustic emissions on fishes (both site attached and pelagic) including commercially important species is considered to be minor; with no detectable adverse effects on fish populations and rapid recovery from any impact is expected to occur. Overall the effects on fish will be behavioural – it is highly unlikely that mortality/injury will occur. TGS has not updated the EP in response to these comments.
38	**Matter:** Game fishing to be recognised as a key value.	TGS has provided a detailed description of the existing environment associated with the Operational Area and EMBA within the EP. This includes a description of recreational and commercial fisheries, provided within Section 4.7.2.5 and Section 4.7.3 of the EP, respectively.

	Claim: As one of the largest stakeholder groups likely to be directly impacted by seismic surveys, game fishing is an activity that must be recognised as a key value when assessing seismic survey proposals. Game fishing values must also be incorporated into the planning, design, and operation of any proposals.	TGS has also provided a detailed assessment of the potential impacts of the Otway Basin 3D MC MSS throughout Section 7 (planned activities) and Section 8 (unplanned activities). Of particular relevance to fisheries are the potential impacts from the physical presence of the survey vessels and towed equipment (Section 7.1) and acoustic emissions (Section 7.2). Control measures to minimise the potential impacts from the Otway Basin 3D MC MSS are provided within Table 68 (for the physical presence) and Table 94 (for acoustic emissions). Due to the depths associated with the Operational Area and considerable distance from shore, the Operational Area is unlikely to be occupied by game fishers. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks from the Otway Basin 3D MC MSS on game fishing will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
39	**Matter:** Sound thresholds for fish. **Claim:** Guidelines used to determine injury or mortality to fish are based on Popper *et al*. (2014) classifications. There classifications were based on pile driving, not seismic. Whilst the guidelines provide some guidance, there are many caveats that are not addressed and evidence in relation to this is extrapolated and taken out of context.	Sound exposure thresholds presented within the EP are widely accepted and used amongst the scientific community. As stated within the Underwater Acoustic Modelling Report (Appendix B of the EP), the noise criteria and sound levels used were chosen because they include standard thresholds, thresholds suggested by the best available science, and sound levels presented in literature for species with no suggested thresholds. Section 3 of the Underwater Acoustic Modelling further explains the threshold levels used. TGS has not updated the EP in response to these comments.
40	**Matter:** Orange roughy spawning. **Claim:** Two aggregation zones are identified in the EMBA; the Cascade Plateau and the South Tasman Rise. There is insufficient	The Cascade Plateau is a rocky seamount approximately 125 NM east-south-east of Hobart, TAS. The South Tasman Rise is an undersea ridge that extends south of TAS and into the Southern Ocean. These areas are outside of the EMBA. TGS has not updated the EP in response to these comments; however, TGS notes that a brief description of the biology of orange roughy is available in Table 21 of the EP. Spawning of orange roughy has been reported in Table 21 to occur in mid July – late August. TGS has also undertaken consultation with the SETFIA in order to minimise the potential impacts of the Otway Basin 3D MC MSS on the orange roughy fishery, including on orange roughy stocks. SETFIA represents the

	information to determine if the level of impacts that will result from disturbance of annual aggregations that is in line with the AFMA 2014 Stock Rebuilding strategy. There is no evidence to suggest that the survey will not impact spawning aggregations. Further information should be provided on the species ability to recruit sites after disturbance events.	interests of Commonwealth-licensed trawl fishermen in the South East Trawl Fishery and the East Coast Deepwater Trawl Sector. TGS has developed control measures in consultation with SETFIA around the orange roughy Western Roughy Central Research Zone, which include restrictions on access to the Research Zone during trawl survey operations as well as a period of time prior to the commencement of trawl survey operations. **Section 7.2.3.1, and Table 92 – 95 of the EP have been updated with these control measures.** Although these updates have been provided within the EP following completion of the public comment period, they are in response to TGS' commitment of continuing consultation with Relevant Persons.
41	**Matter:** Short-finned eel. **Claim:** No assessment of the threat to the short-finned eel and its importance to the Budj Bim UNESCO World Heritage site. Eel migration is a phenomenon that takes place annually from the coast of South West Victoria to the Western Pacific, where the eels spawn, then back to South West Victoria. It is environmentally highly significant, it is a feature of cultural heritage, and it is important to commercial fisheries. TGS should consult with indigenous stakeholders and scientists to understand the physiological and	Objections or claims pertaining to short-finned eels are within the scope of the EP. These comments have been assessed to have specific relevance with regard to the Otway Basin 3D MC MSS. Following the public comment period and further consultation with Relevant Persons (including with experts in this field within the region, as documented within the meeting minutes provided in Appendix K), **TGS has updated the EP to provide details on short-finned eels in the Otway Region (see sections 4.5.3.1.3 and 4.6.1.3.1). TGS has also provided additional discussions on the potential impacts of the Otway Basin 3D MC MSS on eel migrations within Section 7.2.2.3.2 of the EP.**

	behavioural impact of seismic blasting on eels.	
42	**Matter:** Impacts to angel shark. **Claim:** Potential irreparable damage to angel shark cannot be mitigated.	TGS has provided a comprehensive description of the existing environment, including the identification of marine fauna that may be present within the Operational Area. Identification of species was based on the results of the EPBC Act Protected Matters search, which identified several protected species as potentially present within the Operational Area. The species potentially present within the Operational Area have been described throughout Section 4 of the EP. Angel shark were not identified by the EPBC Act Protected Matter Search as potentially present within either the Operational Area or EMBA. TGS has not updated the EP in response to these comments.
43	**Matter:** Impacts to green sawfish. **Claim:** Potential irreparable damage to green sawfish cannot be mitigated.	TGS has provided a comprehensive description of the existing environment, including the identification of marine fauna that may be present within the Operational Area. Identification of species was based on the results of the EPBC Act Protected Matters search, which identified several protected species as potentially present within the Operational Area. The species potentially present within the Operational Area have been described throughout Section 4 of the EP. Green sawfish were not identified by the EPBC Act Protected Matter Search as potentially present within either the Operational Area or EMBA. Furthermore, a search of green sawfish on the DCCEEW SPRAT database revealed the habitat of this species (both where they are LIKELY and MAY occur) is restricted to more northern waters (i.e. approximately north of Carnarvon on the west coast and the Byron Bay on the east coast). TGS has not updated the EP in response to these comments.
44	**Matter:** Impacts to sharks. **Claim:** There is a lack of evidence in relation to impacts on elasmobranchs. When no evidence is available, the proponent should take a conservative approach to assess the situation.	TGS has assessed the potential impacts of the Otway Basin 3D MC MSS on elasmobranchs within Section 7.2.2.2.4 (physiological impacts) and Section 7.2.2.2.3 (behavioural impacts) of the EP. These discussions are based on available published scientific literature. TGS has not updated the EP in response to these comments.

45	**Matter:** Impacts to white sharks. **Claim:** White shark may be present in the Operational Area and EMBA and the Operational Area will intersect with four white shark BIAs and the EMBA with key breeding areas for the white shark. There is limited information available concerning the lifecycle and habitat of white sharks. The EP does not state how TGS plans to implement measures to reduce impacts to their habitat. EP fails to attain an accurate distribution of white sharks in the survey area.	The issue raised by submitters relates to the potential environmental impacts from the Otway Basin 3D MC MSS. As such, these comments have been assessed to have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has provided a description of the biology of white sharks (and other EPBC Act listed elasmobranchs) and their potential to occur within the Operational Area and EMBA within Table 22 of the EP. The EP acknowledges that the Operational Area overlaps with the Distribution (low density) BIA of the white shark, with overlap of the Distribution BIA also occurring along the inshore boundary of the Operational Area, as shown in Figure 25 of the EP. The potential impacts of the Otway Basin 3D MC MSS on elasmobranchs have been described within Section 7.2.2.2.4 (physiological) and Section 7.2.2.3.3 (behavioural) of the EP. TGS has not updated the EP in response to these comments.
46	**Matter:** EP ignores and omits endemic elasmobranchs. **Claim:** The EP ignores and omits several endemic elasmobranchs that are found within the EMBA and are currently on the FPAL for EPBC listing.	The issue raised by submitters relates to the potential environmental impacts from the Otway Basin 3D MC MSS. As such, these comments have been assessed to have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has provided a comprehensive description of the existing environment, including the identification of marine fauna that may be present within the Operational Area. Identification of species was based on the results of the EPBC Act Protected Matters search, which identified several protected species as potentially present within the Operational Area. The species potentially present within the Operational Area have been described throughout Section 4 of the EP. The species listed within submissions as omitted from the EP (i.e. greeneye spurdog, whitefin swellshark, longnose skate, and grey skate) were not identified as potentially present within the Operational Area or EMBA by the EPBC Act Protected Matters search. TGS has further investigated these species within the DoCCEEW SPRAT Database. Based on these investigations, the species claimed by submitters to be omitted by TGS within the EP are not currently listed as threatened under the EPBC Act. TGS notes that an IUCN Red List Threat Status (the status quoted by submitters) is separate to a threat listing under the EPBC Act. TGS has not updated the EP in response to these comments.

47	**Matter:** Cumulative anthropogenic impacts **Claim:** 90% of fish stocks are already considered fully fished or over-fished, making them vulnerable to cumulative anthropogenic impacts. Mass global extinctions as a result of climate change.	Objections or claims pertaining to overfishing of fish stocks and climate change are outside of the scope of the EP. However, Table 21 of the EP provides an overview of the stock status of commercially targeted fish species likely to be caught within or directly adjacent to the Operational Area. TGS has provided discussions on the potential impacts of acoustic emissions from the Otway Basin 3D MC MSS on commercial fisheries, including a discussion on the potential impacts on fish catch within Section 7.2.3.1 of the EP. TGS has not updated the EP in response to these comments.
48	**Matter:** Compensation limited to direct physical impacts in the Operational Area. **Claim:** The approach taken in the EP is to limit eligibility for compensation to the direct 'physical' impacts within the Operational Area. There is no evidence consideration (for compensation) in the EP of the longer-term impacts of this activity to commercial fish stocks, nor the impacts of this activity that may be realised outside of the Operational Area.	TGS has developed a Commercial Fisheries Compensation Protocol based on the NERA Commercial Fishing Industry Adjustment Protocol; the NERA Protocol is considered to be an example of industry best practice to be followed when preparing a Commercial Fisheries Compensation Protocol. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. TGS' Commercial Fisheries Protocol includes (amongst other scenarios) consideration of compensation claims relating to temporary reductions in fish catch due to impacts associated with acoustic disturbance (i.e impacts to fish stocks). The TGS protocol includes compensation for loss of catch for a period of time following cessation of the Otway Basin 3D MC MSS to account for potential impacts to fish numbers within an Adjustment Area as a result of acoustic emissions. TGS has not updated the EP in response to these comments.
	THEME	**MARINE MAMMALS**
#	COMMENTS RECEIVED	*Titleholder response*

49	**Matter:** Underwater sound impact on whales (general). **Claim**: Research shows seismic results in deafening whales and disrupting their feeding and migration. Scientific studies show that exploration in the Otway Basin will undoubtedly result in the death or injury of larger species such as Southern right whale, blue whale, and pygmy blue whale.	TGS has provided a detailed discussion of the scientific literature outlining potential impacts to whales from seismic surveys throughout Section 7.2 of the EP. In acknowledgement of the potential for the Otway Basin 3D MC MSS to impact whales within the Otway Basin region, TGS has committed to various control measures to ensure that impacts are reduced to ALARP and Acceptable Levels. These control measures have been developed in consultation with marine mammal experts, take into consideration all relevant Conservation Management Plans and are in accordance with the EPBC Act Policy Statement 2.1 and all environmental regulatory requirements. Control measures to protect whales from acoustic impacts are provided in Table 95 and summarised in Appendix Q of the EP. TGS has assessed the comments pertaining to underwater sound impacts and there is no validity in the claim that the proposed survey will "*undoubtedly result in the death or injury*" of some threatened baleen whale species. Instead, a comprehensive description of the scientific literature pertaining to the potential physiological effects of underwater noise from seismic surveys on low frequency cetaceans (i.e. baleen whales) is presented in Section 7.2.2.2.7 of the EP. On the basis that this matter has already been addressed in detail within the EP, no further EP updates are required. TGS has not updated the EP in response to these comments.
50	**Matter:** Underwater sound impacts on blue whales and southern right whales. **Claim:** The survey will take place in critical blue whale feeding habitat and nearby to southern right whale breeding habitat. Spatial and temporal overlap with critical habitat means that the impacts of seismic blasting cannot be avoided, and the EP does not provide sufficient detailed evidence to demonstrate how the potential impacts on these species can be appropriately managed.	Submitters have raised concerns around underwater noise impacts on threatened EPBC listed species, particularly blue whales/pygmy blue whales and southern right whales that utilise important habitat in and around the Operational Area. Section 4.5.6.1.1 of the EP describes what is known of blue/pygmy blue whale distribution in and around the Operational Area, noting that pygmy blue whales not only occur on the Continental Shelf, but also in deeper waters throughout the Operational Area, and that it is likely that whales occurring throughout this region are taking advantage of the highly productive waters associated with both the Bonney Upwelling and the subtropical convergence as foraging habitat, with peaking foraging season occurring from January to April. The EP acknowledges that the Operational Area overlaps with designated pygmy blue whale BIAs for foraging as illustrated in Figure 27 of the EP. It is also notes that the remainder of the Operational Area has also recently been nominated as biologically important habitat for this species. A comprehensive suite of control measures have been developed to protect blue whales from underwater noise as described in Appendix Q of the revised EP; including a prohibition of 3D seismic acquisition in and around the foraging BIA's during the peak foraging season (see Appendix Q of the revised EP). Section 4.5.6.1.2 of the EP describes what is known of southern right whale distribution in and around the Operational Area, noting that coastal breeding grounds that occur inshore of the Operational Area are occupied by this species from May to September and that individual whales may transit through the Operational Area on their way to and from the coastal breeding grounds. The EP acknowledges that the Operational Area overlaps with the southern right whale Migration BIA as illustrated in Figure 28 of the EP. In addition, a Reproduction BIA

		also lie inshore of the Operational Area. A comprehensive suite of control measures have been developed to protect southern right whales from underwater noise as described in Appendix Q of the revised EP; including a prohibition of 3D seismic acquisition in and around the Reproduction BIA during the core breeding months (see Appendix Q of the EP). A key component of the EP is to describe how underwater noise from seismic surveys can impact whales, noting that underwater noise has been identified as the most significant potential impact to marine mammals. Potential physiological, behavioural and perceptual impacts from underwater noise are comprehensively discussed in Section 7.2.2.2.7, Section 7.2.2.3.6 and Section 7.2.2.4.2 respectively. In recognition that the Operational Area overlaps with or occurs in the vicinity of important habitat for pygmy blue whales and southern right whales, animat modelling was undertaken to specifically predict the onset distances for hearing injury (PTS and TTS) and behavioural effects for these species (see Appendix B of the EP). Animat modelling allows for sophisticated predictions of the distance within which 95% of the TTS and PTS threshold exceedances would occur, along with the probability that individuals within that distance would be exposed above the relevant threshold. Animat modelling represents the best available method for predicting the effects of underwater noise on specific threatened species as it accounts for species-specific movement patterns to generate a more realistic approach than what is achieved by basic acoustic propagation modelling alone. The EP provides a comprehensive discussion of the animat model findings for both pygmy blue whales and southern right whales throughout Section 7.2 of the EP. These model results have been used specifically to underpin the control measures that are proposed to manage the risk of underwater noise effects on these species (as summarised in Appendix Q). In particular a precautionary approach has been applied in recognition that the Operational Area overlaps or approaches important habitat for both these species. This is a central tenet of the EP and has resulted in the development of spatio-temporal controls (i.e. closed seasons will be implemented to protect the designated blue whale and southern right whale BIAs during the 'peak foraging season' and 'core breeding months' respectively). In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to underwater sound impacts on blue whales, southern right whales and their respective important habitat to have specific relevance, however, as this matter has already been comprehensively addressed within the EP. **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs** but has made no further updates to the EP with regard to this matter.

51	**Matter:** Underwater sound impacts on pygmy right whales. **Claim:** September through to February is feeding time for the pygmy right whale in the Operational Area.	Submitters have raised concerns around underwater sound impacts on pygmy right whales feeding in the Operational Area. Section 4.5.6.1.7 describes what is known of pygmy right whale distribution in and around the Operational Area, noting that several 'hot spots' for this species have been identified in the vicinity and that this species presumably feeds in productive waters off the south coast of Australia, including the Bonney Upwelling from September to February (Kemper *et al*., 2013). It is noteworthy however, that almost all sightings occur within 2 km of the shore (Kemper *et al.,* 2013); hence offshore densities in the Operational Area are likely to be substantially lower than inshore waters. A key component of the EP is to describe how underwater noise from seismic surveys can impact marine mammals, noting that underwater noise has been identified as the most significant impact to marine mammals. Potential physiological, behavioural and perceptual impacts from underwater noise are comprehensively discussed in Section 7.2.2.2.7, Section 7.2.2.3.6 and Section 7.2.2.4.2 respectively. For the purpose of understanding these potential effects on marine mammals underwater acoustic modelling was undertaken to predict the onset distances for hearing injury (PTS and TTS) and behavioural effects. Pygmy right whales belong to the 'low frequency' functional hearing group, therefore the key underwater acoustic modelling results relevant to this species are: • For permanent threshold shift (PTS) to occur an individual whale would need to remain within 500 m of the active source for 24 hours, this is biologically unfeasible as free-ranging pelagic animals would only be expected to remain in proximity of the active source which is continually moving, for a short time; • Temporary threshold shift (TTS although animat modelling was not undertaken for pygmy right whales it is likely that the actual TTS range for this species would be of a similar magnitude to those calculated for pygmy blue whales e.g. cumulative TTS effects in reality would probably only extend out to a few tens of kilometres from the active source. • The onset distance for behavioural response ranges from c 4-12 km, depending on species, location and context. The implications of these predictions have been thoroughly discussed throughout Section 7.2 of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to underwater sound impacts on pygmy right whales to have specific relevance, however, as this matter has already been addressed within the EP, no further EP updates are required.
52	**Matter:** Underwater sound impacts on sei and minke whales.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has provided a comprehensive description of the existing environment, including the identification of cetaceans known to be or potentially present within the Operational Area (see

	Claim: The survey will take place over sei and minke whale habitat. In particular, November through to May is the feeding period for the sei and minke whale in the Operational Area.	Section 4.5.6.1 of the EP). Sei whales and minke whales (particularly Antarctic minke whales) have been identified as having a known and likely presence within the Operational Area respectively, although densities of these species are likely to be low (see Table 25 of the EP). There are no BIAs identified for sei or minke whales in the vicinity of the Operational Area, however, both species have been identified in the Otway Basin region in association with the Bonney Upwelling. A detailed assessment of the potential impacts on cetaceans from acoustic emissions has been provided in Section 7.2 of the EP. Control measures that will be implemented for the duration of the Otway Basin 3D MC MSS to manage potential impacts on cetaceans are provided in Table 95 of the EP. In accordance with the control measures set out within Table 95 of the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks from acoustic emissions on sei and minke whales will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
53	**Matter:** Mass beaching/stranding. **Claim:** Seismic is why hundreds of whales reportedly strand themselves worldwide every year. Seismic potentially leads to mass strandings which in turn attract sharks creating a risk to humans swimming at beaches.	While there has been considerable conjecture that the displacement of cetaceans from seismic surveys (as a consequence of avoidance) could result in stranding events, no solid evidence has yet been forthcoming to support this link. The most recent assessment of whale stranding patterns in Victoria (Foord *et al*., 2019) makes no reference to seismic surveys, and found no seasonal stranding pattern. While Foord *et al* (2019) didn't specifically investigate the relationship between strandings and seismic surveys, seismic surveys typically occur over the summer months off the south coast of Australia; hence if causal links were present, some evidence of seasonal patterns would be expected. Further to this, NOPSEMA (2019) states that *"Evidence of mass whale stranding exists from six to seven million years ago, long before anthropogenic sound became a factor, and it is likely that any observable increase in occurrence* [of stranding events] *is due to greater visibility of previously inaccessible coastline."* The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. **Updates have been made to Section 7.2.2.3.6 of the EP in response to these submissions.** Reference: Foord, C.S., Rowe, K.M.C,, Robb K , 2019. '*Cetacean biodiversity, spatial and temporal trends based on stranding records (1920-2016), Victoria, Australia*'. PLoS ONE 14(10): e0223712. https://doi.org/10.1371/journal.pone.0223712 NOPSEMA, 2019. Environment and Communications References Committee. Inquiry into the impact of seismic testing on fisheries and the marine environment. Submission 66 from the National Offshore Petroleum Safety and Environmental Management Authority. December 2019. pp. 103. Available online at: https://www.nopsema.gov.au/sites/default/files/documents/2021-06/A706091.pdf

54	**Matter:** Australian Whale Sanctuary and International Convention for the Regulation of Whaling. **Claim:** The Operational Area and EMBA overlap the Australian Whale Sanctuary. Australia is a signatory to the International Convention for the Regulation of Whaling and has obligations under this convention to provide for the conservation of whales. There is no mention in the EP of how this activity will manage these impacts.	TGS has assessed the comments pertaining to the Australian Whale Sanctuary and International Convention for the Regulation of Whaling to have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has identified the Australian Whale Sanctuary as relevant to the Otway Basin 3D MC MSS within Section 4.4.5 of the EP, and the International Convention for the Regulation of Whaling within Section 2.2 of the EP. Control measures that will be implemented throughout the duration of the Otway Basin 3D MC MSS to manage impacts on whales are provided in Table 66 (for physical presence of seismic vessel and towed equipment) and Table 95 (for acoustic emissions) of the EP. Species-specific management plans, recovery plans and conservation advice have been taken into consideration when developing these control measures. Where appropriate, TGS has provided increased protection (above that required by Policy Statement 2.1) for marine mammals. Control measures to protect marine mammals from acoustic emissions have been developed through discussions with experts in the field of marine mammals. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. As this matter has already been addressed within the EP, no further EP updates are required.
55	**Matter:** Impacts to sperm whales. **Claim:** Sperm whales have been recorded in the deep water areas of the Operational Area off the west coast of Tasmania, with the greatest number of sightings occurring in October and November.	The EP assesses the likelihood of encountering sperm whales during the Otway Basin 3D MC MSS as moderate and describes the distribution and ecology of this species in Section 4.5.6.2.1. A key component of the EP is to describe how underwater noise from seismic surveys can impact marine mammals, noting that underwater noise has been identified as the most significant impact to marine mammals. Potential physiological, behavioural and perceptual impacts from underwater noise are comprehensively discussed in Section 7.2.2.2.7, Section 7.2.2.3.6 and Section 7.2.2.4.2 of the EP respectively. For the purpose of understanding these potential effects on marine mammals underwater acoustic modelling was undertaken to predict the onset distances for hearing injury (PTS and TTS) and behavioural effects. Sperm whales belong to the 'high frequency' functional hearing group. The key underwater acoustic modelling results for this group were that 1) no permanent threshold shift (PTS) is predicted, 2) a temporary threshold shift (TTS) could occur if high-frequency cetaceans remain within 100 m of the active source for 24-hours. However, the likelihood of this occurring is virtually nil as free-ranging pelagic animals would only be expected to remain in proximity of the active source for a short time, and 3) the onset distance for behavioural response ranges from c 4-12 km, depending on species, location and context. The implications of these predictions have been thoroughly discussed throughout Section 7.2 of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.

		TGS has not updated the EP in response to these comments.
56	**Matter:** Overlap of Operational Area with whale migratory paths. **Claim:** Every year up to 25 different whale species migrate through the Otway coast to feed, breed, and give birth to their young. The Operational Area lies directly over the top of the area where many of these species are highly active.	The EP acknowledges a wide variety of whale species are known to be or could possibly be present in and around the Operational Area (see Table 25 of the EP). Descriptions of the distribution and ecology of those whale species most likely to be present are described in Section 4.5.6.1 and 4.5.6.2 of the EP. These accounts include descriptions of any known migratory behaviours (including migration corridors and timing of migration season) that have been published in the scientific literature and that are relevant to the Operational Area. On this basis, the EP fully acknowledges and describes whale migrations and spatial and temporal overlap with the planned Otway 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
57	**Matter:** Whales will leave the area. **Claim:** Whales don't come back if frightened off by an area they perceive as dangerous. There has been a recent decline in whale numbers along the Victorian coastline due to activities such as this.	The EP acknowledges that displacement from or avoidance of an area is a common impact associated with MSS (see Section 7.2.2.3.6 of the EP). The claim that there has been a recent decline in whale numbers along the Victorian coastline is unfounded. It is noteworthy that despite the occurrence of MSS's off Australia's south coast in recent history, several whale populations continue to recover; for instance, humpback whales (see Section 4.5.6.1.3) and southern right whales (see Section 4.5.6.1.2). For other species data is generally not available. The Marine Mammal Control Measures have been developed to minimise the potential for displacement (see Appendix Q). In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs** but has made no further updates to the EP with regard to this matter.
58	**Matter:** Very high likelihood of pygmy blue whale presence throughout the Operational Area. **Claim:** The EP focuses much of its discussion about	Submitter/s claim that blue whale sightings data collected during the SLB 2D Otway MSS has been largely overlooked, and that this data when considered alongside other datasets indicates pygmy blue whales probably readily move between the Bonney Upwelling and the STC and that this species has a greater level of offshore presence than previously thought. **TGS has updated Section 4.5.6.1.1 of the EP** in response to these comments. Changes include a more thorough description of the SLB 2D Otway MSS sightings of pygmy blue whales, and the discussion regarding

	pygmy blue whale distribution over the continental shelf without adequately acknowledging their offshore distribution and connections with the Sub-tropical Convergence (STC). There is evidence that blue whales feed year-round.	foraging habitat links between the Bonney Upwelling and the STC has been expanded to clarify that there is a high likelihood of blue whale presence throughout the Operational Area. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
59	**Matter:** Timing of pygmy blue whale feeding season. **Claim:** Peak feeding season for pygmy blue whales is November to April, not January to June.	Section 4.5.6.1.1 of the EP includes a comprehensive discussion on pygmy blue whale seasonality and timing of the foraging season. Following further discussions with the Blue Whale Study Inc on 26 September 2023, the 'peak foraging season' for pygmy blue whales has been refined as follows: • PBW Foraging Shoulder Season – September to December, and May to July; and • PBW Peak Foraging Season – January to April (inclusive). TGS have adopted these changes throughout the EP and these definitions have been used for the purpose of developing a suite of control measures to manage the impact of underwater seismic noise on pygmy blue whales. The EP acknowledges that significant temporal variation occurs between years and individuals and that reasonable numbers of pygmy blue whales may, in some years, be present in and around the operational area as early as November and December. The proposed control measures stipulate different management procedures for both the 'peak foraging season' and the 'foraging shoulder season'. The utilisation of a 'shoulder season' addresses this identified interannual variation by allowing seismic operations to proceed in accordance with heightened control measures during those months when pygmy blue whale presence is possible, but not certain. This approach is used by TGS such that operations are not unnecessarily prohibited in the period immediately preceding the arrival of whales at the start of the foraging season, noting that during the 'peak foraging season', TGS has committed to no 3D acquisition inside the blue whale BIAs/buffer, and while 2D tie-line acquisition could possibly occur in the BIAs/buffer during the 'peak foraging season' it will be subject to additional operational restrictions (including restricted hours of operation, increased MMO coverage, and mandatory aerial surveys in the preceding four days) (see AMP 2 in Appendix Q). BMP 6 (see Appendix Q) outlines the proposed management procedures that are specifically relevant to managing the risks to pygmy blue whales in the BIAs/buffer during the 'foraging shoulder season'. BMP 6 requires that acquisition in the BIA/buffer will be subject to aerial surveys and if surveys cannot occur, then no night-time/low visibility operations can occur. Extra restrictions are also in place for start-ups in the BIA/buffer during the shoulder season.

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<td>In addition to this, BMP 9 also requires that if three or more pygmy blue whale instigated shutdowns are made during the preceding 48-hour period, acquisition in the BIA/buffer must cease (regardless of timing). This adaptive management procedure ensures that 3D acquisition in the BIAs/buffer will discontinue as soon as the foraging season commences.

<u>TGS has updated the EP in response to these comments (Section 4.5.6.1.1, throughout Section 7.2, and Appendix Q).</u></td>
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<td>60</td>
<td>Matter: Estimations of onset distance for behavioural effects for pygmy blue whales.

Claim: The onset distance of behavioural effects as overly optimistic, direct observations from pygmy blue whales suggest behavioural effects out to at least c 20 km.</td>
<td>In the most part, the underwater acoustic modelling undertaken by JASCO used the following widely accepted noise exposure threshold (based on the current US National Oceanic and Atmospheric Administration (NOAA, 2019) criterion for marine mammals) to predict distances within which behavioural responses from marine mammals are expected:

• 160 dB re 1 µPa (SPL; Lp) for impulsive sound sources. At this noise level it is generally expected that there is a 50% probability of response across all species and in the context of most behaviours (see Section 3.1 of Welch et al., (2023); presented as Appendix B of the EP).

To further assist in the assessment of potential behavioural responses by marine mammals, Welch et al (2023) also used a graded probability of response for impulsive sounds using a frequency weighted SPL metric, as described in Wood et al. (2012). Wood et al. (2012) defined behavioural response categories for 1) sensitive species (e.g. harbor porpoise), 2) migrating mysticetes, and 3) all other species/behaviours. For the underwater acoustic modelling used to inform the Otway 3D MC MSS, JASCO applied the migrating mysticete category to pygmy blue whales to assess behavioural response to impulsive sounds (see table below). The table below which is presented in Appendix B of the EP indicates how the probability of a behavioural response varies with sound pressure level and species/context:

<table>
<tr><th></th><th>Migrating mysticetes</th><th>All other species/behaviours</th></tr>
<tr><th>Frequency-weighted* SPL ($L_{p,LF}$; dB re 1 µPa)</th><th colspan="2">Probability of response</th></tr>
<tr><td>120</td><td>10%</td><td></td></tr>
<tr><td>140</td><td>50%</td><td>10%</td></tr>
<tr><td>160</td><td>90%</td><td>50%</td></tr>
<tr><td>180</td><td></td><td>90%</td></tr>
</table>
* from Southall et al. (2019).

This illustrates how behavioural responses from individual PBWs are expected to vary with received SPL, and onset of a response is predicted in the range 120 – 180 dB re 1 µPa (SPL; L_{pLF}). The modelling approach used</td>
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</table>

		represents best practice and realistically represents the distance at which most whales are expected to respond to underwater noise from the proposed Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
61	**Matter:** Cumulative effects on blue whales have not been sufficiently addressed. **Claim:** A 156 km Shut-down Zone should be established to protect blue whales from cumulative hearing injury.	Submitter/s have interpreted the JASCO modelling results to mean that temporary threshold shift (TTS) in blue whales could occur out to 156 km from the active acoustic source, and on this basis, they request that this distance is adopted as the Shut-down Zone for this species. While it is true that acoustic propagation modelling (underwater acoustic modelling) predicts the maximum onset distance for TTS_{24h} to be 156 km for low frequency cetaceans (i.e. baleen whales), JASCO also undertook 'Animat' modelling to better understand the risk that the Otway Basin 3D MC MSS poses to pygmy blue whales. This animat modelling incorporated species-specific ecological parameters to understand how animal movement (both vertically and horizontally) affects risk of exposure during relevant life stages. In particular, animat modelling used movement simulations specific to the ecology of pygmy blue whales. Animat modelling therefore provides exposure ranges that are significantly more realistic than those produced by underwater acoustic modelling and because of this the EP places more weight on the results of the animat modelling than on those from the underwater acoustic modelling, and the animat modelling results have therefore been used to underpin the control measures for pygmy blue whales. Exposure ranges from animat modelling for TTS thresholds are typically shorter than those predicted underwater acoustic modelling because of the shorter dwell time of moving animals which represents a more realistic approach for free-ranging pelagic marine mammals. As well as not accounting for animal movement, it is also noteworthy that underwater acoustic modelling results showed a high degree of variance between modelling scenarios (see Appendix B of the EP). While the maximum onset distance predicted by underwater acoustic modelling for TTS_{24h} is large (156 km), the likelihood of this occurring is considered to be low on account of both Seismic Vessel movement and the free-ranging nature of any exposed animals. Hence a Shut-down Zone of 156 km is entirely unwarranted. TGS has not updated the EP in response to these comments.
62	**Matter:** No season where whales aren't present.	The EP acknowledges that many of the whale species that are known to be or could possibly be present in the Operational Area are migratory and are characterised as having large oceanic distributions that are influenced by spatial and temporal variances between feeding and breeding grounds. Table 26 of the EP specifically describes the predicted timing of baleen whale presence within the Operational Area, and individual accounts of species

	Claim: There is no season in which seismic blasting would not negatively affect whales. Allowing seismic blasting in these periods fails to protect whales from the impacts of seismic blasting.	ecology (including detail about spatial and temporal variations in distribution) are provided throughout Sections 4.5.6.1 and Section 4.5.6.2 of the EP. The information presented in Table 26 supports the claim that there is no season when whales are not expected in the Operational Area and surrounding waters; however on this basis, specific care has been taken in developing the control measures for marine mammals (see Appendix Q of the EP) to operationally avoid the times and places that are considered to be of highest importance to those threatened species that have the highest probability of being impacted by the proposed survey. In particular, the following closed seasons will be implemented to protect the designated blue whale and southern right whale BIAs during the 'peak foraging season' and 'core breeding months' respectively: • No acquisition will occur within the blue whale BIAs or the 16 km buffer during the 'peak foraging season' from January to April (inclusive) based on the expected consistent and widespread presence of whales in the foraging areas during these months (Gill *et al*., 2011; 2015). The only exception allowed is the acquisition of the 2D tie-lines which will be subject to additional operational restrictions (see AMP 2 in Appendix Q of the EP) and will only take approximately 12 hours to acquire; and • No acquisition will occur within the southern right whale Reproduction BIA or the 42 km buffer during the core breeding months of May to September (SWIFFT, 2023). The only exception allowed is the acquisition of the 2D tie-lines which will be subject to additional operational restrictions (see AMP 2 in Appendix Q of the EP) and will only take approximately 12 hours to acquire. In addition, a comprehensive suite of control measures is proposed in Appendix Q to protect all whale species from acoustic disturbance and injury from the Otway Basin 3D MC MSS. These controls include measures that substantially exceed the requirements of Policy Statement 2.1 including extended Observation Zones and Shut-down Zones for all whale species. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. On the basis of the strong suite of control measures already proposed, TGS has not updated the EP in response to these comments. However, **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs**.
63	**Matter:** Masking of whale vocalisations. **Claim:** The noise of seismic blasting covers whale calls.	The masking of marine mammal vocalisations is addressed by the EP in Section 7.2.2.4.2. As such, TGS has not updated the EP in response to these comments. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.

64	**Matter:** Use of Marine Fauna Observers (MFOs) is ineffective. **Claim**: Many whale species can dive for prolonged periods and cannot be detected by MFOs while submerged. In addition, the detection abilities of MFOs have limitations during poor visibility (fog, rough seas, high winds etc) and visual observations are not possible during the hours of darkness.	The effectiveness of MFOs was questioned by several submitters. During the Otway Basin 3D MC MSS, MFOs will be employed to undertake marine mammal sightings, with two dedicated, trained, and experienced MFOs onboard the Seismic Vessel and two dedicated, trained, and experienced MFOs onboard the Attending Support Vessel. MFOs will maintain watch at all times for marine mammals during daylight hours. TGS acknowledge that visual detection of whales is restricted to daylight hours and reasonable sightings conditions and that animal behaviour, such as deep diving, has the ability to further affect detection probability. Several management procedures (as discussed below) are proposed to counter these limitations. In recognition that whales will not be visually detectable when they are submerged, and in accordance with the EPBC Act Policy Statement 2.1, MFOs will be required to undertake pre-start up visual observations of the Observation Zone (7+ km for blue whales and southern right whales; and 5+ km for all other whale species) in order to monitor for the presence of whales for at least 30 minutes before the commencement of a Soft-start Procedure. The 30 minute pre-start observation period is sufficient for the purpose of the Otway Basin 3D MC MSS on the basis that: • The species identified as deep/long diving cetacean species that could be present in the Operational Area are high frequency odontocete species (e.g. sperm whales and beaked whales) for which modelling predicts that PTS will not occur from exposure to either a single pulse or cumulative exposure over 24 hours. For high-frequency species, TTS is also not predicted to occur from exposure to a single pulse and the onset distance for cumulative TTS is limited to within 100 m of the source; • The acoustic source is moving continuously at a speed of ~8km/hr and therefore commencing observations earlier would include waters well outside the area in which tangible benefits would be relevant; and • For pygmy blue whales which are the species expected at greatest densities during the Seismic Survey, 30 minutes of pre-start observations is sufficient based on the dive times published by Owen *et al.* (2016) for this species. Passive Acoustic Monitoring (PAM) will run 24-hours per day on the Seismic Vessel, with dedicated, trained, and experienced PAM Operators conducting acoustic monitoring for the presence of cetaceans while the acoustic source is active and during the 30-minutes before the commencement of any Soft Start Procedures. The PAM system will be programmed to cover the frequency range 10 Hz to 200 kHz to theoretically detect a) low frequency vocalisations of baleen whales, and b) the high frequency echolocation clicks of sperm whales. A full replacement PAM system will be kept onboard the Seismic Vessel and will be used as a back-up in the event that the PAM system malfunctions and is unable to be repaired. PAM software will be incorporated into the PAM system to assist with locating and classifying the vocalisations of marine mammals. This sophisticated software

		allows the trained PAM Operators to make robust decisions during real-time mitigation operations, such as requesting shutdowns based on whales entering the Precaution Zones. Several submitters are of the opinion that nighttime/poor visibility operations should not occur. However, Policy Statement 2.1 permits operations during these times and outlines management procedures for nighttime and low visibility operations. TGS have adopted these procedures, and where appropriate, have improved on them to provide further protection to marine mammals during nighttime and periods of low visibility as follows: • MP 9: Low Visibility or Night-time Operations may occur provided that there have not been three or more whale instigated shut-down situations during the preceding 24-hour period. • AMP 1: Soft start procedures throughout the Operational Area can only proceed under the following circumstances: a. If no acquisition has occurred in the preceding 24 hours, soft starts may only commence in daylight hours and when conditions allow visual inspection of the 5+ km Observation Zone; b. If acquisition has occurred within the preceding 24 hours and no whale initiated shut downs have been made during this period, then soft starts may commence at night or during periods of low visibility providing they occur outside of the BW BIAs/buffer and the SRW Repro BIA/buffer. • AMP 2: 2D tie line acquisition inside any BW BIA/buffer or the SRW Repro BIA/buffer will only be permitted to occur in daylight hours and the 'Extended Observation Zone' (as described in BMP 4) must be implemented. • BMP 5: Low Visibility or Night-time Operations may occur provided that no BW/PBW shut downs have been instigated during the preceding 24 hours within 32 km of the planned acquisition (i.e. the survey lines that will occur during the hours of darkness or the period of low visibility). • BMP 6: During the 'foraging shoulder season' months of September to December and May to July the seismic vessel will not be permitted to operate in the BW BIAs/buffer during low visibility or at night unless an aerial survey has been undertaken within 7 days prior to commencement of any acquisition here. In addition, start-up (via soft start) can only commence in the BW BIAs/buffer during the 'foraging shoulder season' if a minimum of two hours of daylight remains before nightfall and good sightings conditions prevail that allow visual observations of the Extended Observation Zone. • BMP 9: If higher than anticipated numbers of BW/PBW are observed (three or more BW/PBW instigated shut downs are made during the preceding 48 hour period) at any time or location during the survey, low visibility or night-time operations must cease and may only resume after 24 hours of no BW/PBW instigated shut downs.

		• SRMP 5: Low Visibility or Night-time Operations may occur provided that no SRW shut downs have been instigated during the preceding 24 hours within 42 km of the planned acquisition (i.e. the survey lines that will occur during the hours of darkness or the period of low visibility). • SRMP 6: During April and October (shoulder months) the Seismic Vessel is not permitted to operate in the SRW Repro BIA/buffer during low visibility or at night unless an aerial survey has been undertaken within 7 days prior to commencement of any acquisition here. In addition, start-up (via soft start) can only commence in the SRW Repro BIA/buffer during the shoulder months if a minimum of two hours of daylight remains before nightfall and good sightings conditions prevail that allow visual observations of the Extended Observation Zone. • SRMP 9: If higher than anticipated numbers of SRW are observed (three or more SRW instigated shut downs are made during the preceding 48 hour period) at any time or location during the survey, low visibility or night-time operations must cease and may only resume after 24 hours of no SRW instigated shut downs. The above control measures that TGS have committed to are detailed in Table 95 of the EP and are collated in Appendix Q. These controls will be adopted for the duration of the Otway Basin 3D MC MSS. In accordance with these control measures, seismic activities associated with the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to MFOs and cetacean monitoring to have specific relevance, however, as this matter has already been addressed within the EP, no further EP updates are required.
65	**Matter:** Use of spotter planes. **Claim:** Use of spotter planes on a daily basis while acquisition is proposed.	On the basis that submitter/s claim that MFOs undertaking visual observations for cetaceans to be ineffective, it was stated that spotter planes should be used every day that acquisition is proposed to increase the detection probability of marine mammals. The control measures outlined within Table 95 of the EP include the use of MFOs onboard the Seismic Vessel and Attending Support Vessel, and the use of PAM for acoustic detections. This represents current best practise and TGS do not consider daily use of spotter planes to be necessary or practicable (on account of weather constraints and aircraft availability). Aerial surveys will however be used when operating within the relevant blue whale and southern right whale BIAs during the respective 'shoulder seasons', as described in Table 95, to assist with whale detection in these BIAs. In accordance with these control measures, seismic activities associated with the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to spotter planes to have specific relevance, however, as this matter has already been addressed within the EP, no further EP updates are required. **TGS has updated Section**

		4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs but has made no further updates to the EP with regard to this matter.
66	**Matter:** Mitigation measures around large marine mammals are inadequate. **Claim**: The measures planned to be implemented to avoid blasting whilst large marine mammals nearby are wholly inadequate.	TGS has developed a comprehensive suite of marine mammal control measures as collated in Appendix Q of the EP. The proposed controls adopt the best national and international approaches to minimise the risk of seismic surveys to marine mammals, including the use of marine fauna observers, shut-down zones, spatio-temporal measures to prohibit acquisition in and around BIAs during peak seasons, passive acoustic monitoring, soft-starts, delayed starts, limitations on night-time and low visibility operations, and adaptive management procedures for higher than anticipated numbers of whales and at times when calves are present. In particular, the Otway 3D MC MSS will adopt the EPBC Act Policy Statement 2.1 and oftentimes exceeds the requirements of this policy statement to ensure that the risks to marine mammals are reduced to the lowest possible level. On this basis, TGS has not updated the EP in response to these comments.
67	**Matter:** Acoustic impacts to dolphins. **Claim:** Seismic can damage the hearing of dolphins and keep them away from key feeding and breeding grounds.	A key component of the EP is to describe how underwater noise from seismic surveys can impact marine mammals. Potential physiological, behavioural and perceptual impacts are comprehensively discussed in Section 7.2.2.2.7, Section 7.2.2.3.6 and Section 7.2.2.4.2 of the EP respectively. For the purpose of understanding these potential effects on marine mammals underwater acoustic modelling was undertaken to predict the onset distances for hearing injury (PTS and TTS) and behavioural effects. Most dolphin species belong to the 'high frequency' functional hearing group. The key underwater acoustic modelling results for this group were that 1) no permanent threshold shift (PTS) is predicted, 2) a temporary threshold shift (TTS) could occur if high-frequency cetaceans remain within 100 m of the active source for 24-hours. However, the likelihood of this occurring is virtually nil as free-ranging pelagic animals would only be expected to remain in proximity of the active source for a short time, and 3) the onset distance for behavioural response ranges from c 4 – 12 km, depending on species, location and context. The implications of these predictions have been thoroughly discussed throughout Section 7.2 of the EP. TGS has not updated the EP in response to these comments.
68	**Matter:** Independent observers on board the seismic vessel. **Claim:** Exploration companies are largely self-regulated. There is a need for independent observers on board the seismic vessel at	As outlined within the Implementation Strategy (Section 10.3.5) of the EP, TGS will employ dedicated, trained, and experienced MFOs for the duration of the Otway Basin 3D MC MSS. These MFOs will have the minimum level of experience that is outlined within the EP and so will have proven 'at sea' experience in whale identification and will hold appropriate certifications. While these MFOs will be contracted by TGS, they are independent to TGS and are there for the sole purpose of identifying marine mammals and implementing the appropriate management measures. The use of an independent NOPSEMA observer onboard the Seismic Vessel is outside of scope for TGS and as such has not been considered within the EP. However, as outlined within Section 10.7 of the EP, under Part 5 of

	the expense of the exploration company. If any company is being paid by TGS (or by any company working with TGS), then these spotters are most certainly not independent.	the OPGGS Act, NOPSEMA inspectors have authority to enter TGS premises for the purposes of undertaking monitoring or investigations against the EP. This includes boarding the survey vessels. Furthermore, weekly and monthly reporting will occur during survey activities as part of routine operations onboard the Seismic Vessel (see Section 10.4.1 of the EP). NOPSEMA will have access to these reports if requested. TGS will fully cooperate with NOPSEMA during such inspections. TGS has not updated the EP in response to these comments.
69	**Matter:** PAM is ineffective. **Claim:** PAM is ineffective in locating protected species because of vessel noise and because blue whales and other species do not vocalise in feeding grounds. PAM cannot detect range and bearing of animals with confidence, resulting in an inability to determine whether animals are too close to the air gun or Shut-Down Zone.	The EP acknowledges that PAM is not a particularly reliable method for detecting low-frequency cetaceans (Sections 7.2.2.3.6 and 7.2.2.4.2) in exclusivity. On this basis, management measures for baleen whales have been developed to remove the reliance on PAM while still maintaining a high level of protection. PAM is however a useful tool for the detection of high-frequency and very high-frequency odontocetes (e.g. sperm whales, beaked whales and porpoises); hence will be used to assist with the implementation of the 2 km Shut-down Zone for 'other whales'. PAM software, which allows for advanced signal processing will be used in conjunction with sophisticated hydrophone arrays to provide 3D locations. PAM is however only effective at detecting animals when they are actively vocalising; hence while PAM has its limitations, for many species it can significantly increase the probability that they are detected and increase the effectiveness of mitigation. TGS has not updated the EP in response to these comments.
70	**Matter:** Marine Mammal Shut-down Zones and Buffers around BIAs. **Claim:** The 10 km distance that informs the Shut-down Zone and Buffer is not sufficiently justified in the EP, instead submitter/s request that a 60 km range is considered.	There is no proposed 10 km Shut-down Zone or Buffer proposed for the Otway 3D MC MSS, and it is unclear where this distance originates from. The following distances are fundamental to the proposed marine mammal control measures and are underpinned by the modelled predictions provided within the JASCO Underwater Acoustic Modelling Report (see Appendix B of the EP): • Shut-down Zone for blue whales and southern right whales is 7 km • Buffer around the blue whale BIAs is 16 km • Buffer around the southern right whale Reproduction BIA is 42 km • Shut-down Zone for 'other whales' is 2 km Full justification for all distances used in the proposed marine mammal control measures for the Otway 3D MC MSS is outlined clearly in Appendix Q of the EP.

		In addition, submitter/s suggest that a '60 km range' should be considered on the basis of previous JASCO modelling for the Scarborough Gas Field. TGS notes that modelling is site specific and accounts for project specific bathymetry, sound speed profiles, substrate type and noise source. The results of the Scarborough Gas Field modelling are not applicable to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
71	**Matter:** Aerial surveys are ineffective. **Claim:** Monitoring with aerial surveys is ineffective, insufficient and ridiculous as whales are migratory and move all the time. Aerial surveys up to 7 days prior within the BIAs and buffer zones is wholly inadequate given the movements of mammal species. Aerial surveys should be undertaken immediately prior to, and during, seismic blasting within BIAs/buffer zones. Aerial surveys should be undertaken by two experienced observers from a suitable aircraft.	TGS proposes to use aerial surveys in the following ways during the Otway Basin 3D MC MSS: 1 In accordance with AMP 2 (see Appendix Q of the EP), an aerial survey must be undertaken in the four days prior to commencing 2D tie line acquisition inside any BW BIA/buffer or the SRW Repro BIA/buffer. This aerial survey must focus on the area of planned acquisition that overlaps the BIA/buffer and must extend to at least 42 km on either side of the planned 2D sail line. 2D tie line acquisition inside any BW BIA/ buffer or the SRW BIA/buffer can only commence if no baleen whales are detected during the requisite aerial survey; 2 In accordance with BMP 6 (see Appendix Q of the EP), all reasonable efforts will be made to conduct an aerial survey in the seven days prior to commencement of any acquisition in the blue whale BIAs/buffers during the 'foraging shoulder season' to identify any blue whales/pygmy blue whales that may be present. Any such detections will result in acquisition within the blue whale BIAs/buffers being redirected away from areas in which such detections have been made. The intent of this control is to allow TGS to respond adaptively to detections of blue whale/pygmy blue whales in the blue whale BIAs/buffer by relocating to parts of the BIAs/buffer where potential impacts on this species are less likely. If this requirement for aerial surveys cannot be achieved, no low visibility or night time operations may occur inside the blue whale BIAs/buffer until such time as the aerial survey requirement is met; and 3 In accordance with SRMP 6 (see Appendix Q of the EP), all reasonable efforts will be made to conduct an aerial survey in the seven days prior to commencement of any acquisition in the southern right whale Reproduction BIA/buffer during the 'shoulder months' to identify any southern right whales that may be present. Any such detections will result in acquisition within the southern right whale Reproduction BIA/buffer being redirected away from areas in which such detections have been made. The intent of this control is to allow TGS to respond adaptively to detections of southern right whales in the BIA/buffer by relocating to parts of the OA where potential impacts on SRWs are less likely. If this requirement for aerial surveys cannot be achieved, no low visibility or night time operations may occur inside the southern right whale Reproduction BIA/buffer until such time as the aerial survey requirement is met. TGS recognises that in some circumstances aerial surveys may not be possible due to weather or aircraft availability. It is noteworthy that aerial surveys as described in bullet point 1. above are a strict prerequisite, i.e.

		2D tie line acquisition inside any BW BIA/buffer or the SRW Repro BIA/buffer cannot occur until this survey requirement has been met. With this strict requirement in place (along with the other controls outlined in AMP 2), TGS proposes that the 2D tie lines that approach or extend onto the Continental Shelf may be acquired during any month of the year. The aerial surveys described in bullet points 2. and 3. above are however subject to additional operational flexibility on the basis that a) restrictions will be placed on night time and low visibility operations in the event that these aerial surveys cannot be flown; and b) 3D acquisition is prohibited within the relevant BIA/buffers during the blue whale peak foraging season and the core breeding months for southern right whales. In the large part the proposed aerial surveys will not be linked to immediate mitigation measures (e.g. shut downs) as generally the aerial survey effort will be focussed on the upcoming acquisition area, not in the immediate vicinity of the operating seismic vessel. Aerial surveys are routinely used to describe marine mammal distribution and have successfully been conducted over parts of the Otway Basin in the past (e.g. Gill *et al*. 2011). TGS has been in discussion with a potential service provider for the proposed aerial surveys. Discussions are continuing regarding aircraft availability, potential airfields, flight durations, aerial survey plans and in-flight communications. These details will be finalised before the survey commences. The specific requirements relating to the proposed aerial surveys for blue whales and southern right whales are detailed in BMP 6 and SRMP 6 respectively (see Appendix Q of the EP). These requirements specify that aerial surveys must be undertaken by two experienced observers from a suitable aircraft, and at least one of the observers must demonstrate previous experience in the detection and identification of blue whales and southern right whales from the air. **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs** but has made no further updates to the EP with regard to this matter..
72	**Matter:** Observation area for whales. **Claim:** If you are going to blast, extend the observation area for whales.	The standard observation zone for whales that is required by the EPBC Act Policy Statement 2.1 is 3+ km. The Observation Zone proposed by TGS for all marine mammals during the Otway Basin 3D MC MSS is 5+ km in accordance with MP 2 (see Appendix Q of the EP). In order to provide additional protection to blue whales and southern right whales, the proposed Observation Zone increases to 7+ km (see BMP 4 and SRMP 4). In practise this means that MFOs will be required to scan as far as possible towards the horizon given the prevailing sightings conditions. It is noteworthy that MFOs will be stationed on both the Seismic Vessel and the Attending Support Vessel, and during periods when visibility is < 7 km, the Extended Observation Zone (for blue whales and southern right whales) will be monitored by the combined efforts of the MFOs on both the Seismic Vessel and at least one Support Vessel travelling approximately 5 – 7 km ahead of the Seismic Vessel.

		In addition to this, aerial surveys will be used prior to operations in the blue whale and southern right whale BIA/buffers to assist with the detection of these species during the respective 'shoulder seasons'. TGS has not updated the EP in response to these comments.
73	**Matter:** Soft starts. **Claim:** Soft starts are inadequate and ineffective.	Soft-Start Procedures over a 30 minute period are a requirement of EPBC Policy Statement 2.1 and theoretically allow time for mobile marine fauna (including whales) to leave the area before being exposed to the highest sound levels that could elicit physiological responses. The implementation of soft-start procedures represents international best practise for marine seismic surveys. In addition to the basic requirements of EPBC Policy Statement 2.1, during the Otway Basin 3D MC MSS the commencement of soft start procedures will be limited depending on whether acquisition occurred in the preceding 24 hours. If acquisition has occurred during this timeframe and no whale instigated shut-downs were made, then soft-starts may occur at night or during periods of low visibility providing they occur outside of the blue whale BIAs/buffer and the southern right whale Repro BIA/buffer. This provision is adopted on the basis that prior acquisition without sightings is indicative that the likelihood of whales going undetected in poor sightings conditions (night/low visibility) is low. However, if no acquisition occurred in the preceding 24 hours, then a more precautionary approach is warranted, and soft starts may only commence in daylight hours and when conditions allow visual inspection of the 5+ km Observation Zone. The implementation of soft-start procedures represents an Australian Government requirement and international best practise for marine seismic surveys. **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs** but has made no further updates to the EP with regard to this matter..
74	**Matter:** Support vessels as observation platforms for marine mammals are ineffective. **Claim:** MFOs from a previous seismic survey in the same area reported smaller vessels were not conductive to effective marine mammal monitoring.	The control measures that will be implemented during the Otway Basin 3D MC MSS include the use of the 'Attending Support Vessel' as an additional MFO platform. Two support vessels will be contracted for the Otway Basin 3D MC MSS, and the role of 'Attending Support Vessel', in terms of MFO capabilities, will be shared (i.e. both support vessels will take this role at different times). TGS has yet to confirm the specific support vessels for the Otway 3D MC MSS; however, while both vessels will be smaller than the Seismic Vessel, at least one of the support vessels will provide a suitable platform for MFOs (in terms of both height and stability). In addition, both support vessels will be, of suitable class for safely operating in the offshore environment comprising the Operational Area, be crewed by competent persons, have all required operational procedures and systems in-place, and carry all required communication and safety equipment.

		TGS has not updated the EP in response to these comments.
75	**Matter:** Control measures for pygmy blue whales. **Claim:** Controls are largely tailored towards the BIA, instead of being applicable throughout the Operational Area.	Strong control measures are proposed for blue whales/pygmy blue whales throughout the Operational Area. In particular, the 7 km Shut-down Zone will be adopted throughout the Operational Area as will the Extended Observation Zone that that will facilitate shutdowns to this distance. The only controls that are specifically associated with the BIAs/buffer are: • The prohibition of acquisition during peak foraging season (see BMP 2). In relation to this, TGS notes that exclusion of acquisition throughout the entire Operational Area during the peak foraging season would largely preclude any operations in this area. • The specific intention to undertake aerial surveys for blue whales/pygmy blue whales in the seven days prior to acquisition commencement during the foraging shoulder season (see BMP 6a-d). • The restrictions on start-up that relate to hours of daylight remaining, sightings conditions and the start-up location relative to previous blue whale/pygmy blue whale detections (see BMP 6e). • The requirements for undertaking 2D tie-line acquisition inside any BIA/buffer (including restricted hours of operation, increased MFO coverage, and mandatory aerial surveys in the preceding four days) (see AMP 2). All other controls for blue whales/pygmy blue whales will be applied throughout the Operational Area. In particular, BMP 9 requires that if more than three pygmy blue whale instigated shut downs occur within 48 hours, then low visibility and night time operations must cease until 24 hours have passed without a blue whale/pygmy blue whale detection. In addition, submitter/s claim that TTS is not a relevant metric on which to base control measures. Submitter/s consider that the more relevant metric is the predicted onset distance for behavioural response which could result in displacement from foraging areas. TGS notes that the proposed controls to protect blue whales/pygmy blue whales from acoustic disturbance are summarised in Appendix Q. Animat modelling results (see Appendix B of the EP) underpin these controls as follows: • The predicted distance within which 95% of all behavioual threshold exceedances (160 SPL) will occur for pygmy blue whales is 7 km. This distance underpins the Shut-down Zone for PBW and the Extended Observation Zone which is applicable throughout the Operational Area. Submitter/s agree that this metric is relevant. • The maximum predicted onset distance for $TTS_{24\ hr}$ occurs in a downslope direction and is 32 km. This distance underpins the relocation requirements for the Seismic Vessel in the event that a blue whale/pygmy blue whale instigated shutdown occurs at any time/location during the survey. This

		distance was chosen in accordance with the precautionary approach that is required by the Blue Whale Conservation Management Plan (i.e. it is more conservative than the 7 km onset distance for behavioural effects). The 32 km TTS onset distance also informs several other adaptive management procedures in keeping with this precautionary approach. TGS is committed to this precautionary approach as opposed to adopting the less conservative 7 km behavioural response onset distance here, or a graduated relocation requirement depending on the directional variations in the modelled predictions. • The predicted onset distance for $TTS_{24\ hr}$ in an upslope direction (i.e. towards the continental shelf) reduces to c 16 km. This distance has been used to define a buffer zone around the blue whale foraging BIAs, within which acquisition is prohibited during the peak foraging season, and additional controls are applied during the foraging shoulder season. TGS notes that this buffer distance correctly applies the model predictions and is greater (hence more conservative) than the predicted onset distance for behavioural response. TGS has not updated the EP in response to these comments.
76	**Matter:** Insufficient effort to cover proposed observation zones for marine mammals. **Claim:** Extended Observation Zone does not sufficiently address whales off to the side of the acquisition line	TGS proposes to implement a 7+ km Extended Observation Zone to support the detection of blue whales and facilitate the 7 km Shut-down Zone that will apply to this species. Submitter/s have raised concerns that the Extended Observation Zone Protocol that is proposed (see BMP 4) will not facilitate detection of blue whales throughout the full 7 km Shut-down Zone radius. TGS considers that the protocols outlined in BMP 4 are appropriate to ensure sufficient observer effort to cover the requisite 7 km. BMP 4 also requires that whenever possible a support vessel (termed the EOZ Support Vessel) will assist with MFO coverage of this zone, noting that the EOZ Support Vessel must be stationed 5-7 km ahead of the Seismic Vessel to observe for marine mammals when visibility is <7 km. Focusing the efforts of the EOZ Support Vessel ahead of the Seismic Vessel is considered to be the best approach as noise levels will increase in that direction as the Seismic Vessel moves along each acquisition line. Further to this, some submitter/s have requested that acquisition be limited to daylight hours only to address the inability of MFOs to detect marine mammals visually at night. As stated in Table 92 of the EP, this potential control was considered by TGS during the survey planning phase and was dismissed on the basis that while excluding night time operations would reduce the probability of a cetacean occurring within the Shut-down Zones without being detected, this approach would double the amount of time and the cost required to acquire the same amount of seismic data. Instead, strong adaptive management procedures will be implemented to determine when night time operations may proceed based on the number and location of whale detections in the previous 24 hours. A more conservative approach is proposed for night-time operations within the relevant blue whale or southern right whale BIA/buffers which will be contingent on aerial surveys occurring within 7 days prior to acquisition occurring here. TGS has not updated the EP in response to these comments.

77	**Matter:** Aerial surveys are limited to within the BIA. **Claim:** Aerial surveys should include the wider Operational Area to reflect the high probability of blue whales throughout the Operational Area.	The marine mammal control measures are summarised in Appendix Q of the EP. Aerial surveys over the blue whale BIAs/buffer are proposed during the months of the foraging shoulder season (see BMP 6). In accordance with these controls, any such detections would result in acquisition within the blue whale BIAs/buffers being redirected away from areas in which such detections have been made. The intent of this control is to allow TGS to respond adaptively to detections of blue whales/pygmy blue whales in the blue whale BIAs/buffer by relocating to parts of the blue whale BIAs/buffer where potential impacts on blue whales/pygmy blue whales are less likely. Aerial surveys are also a pre-requisite to 2D tie-line acquisition inside any BIA/buffer in accordance with AMP 2 (see Appendix Q of the EP). While TGS acknowledges that pygmy blue whales are likely to occur throughout the Operational Area (i.e. beyond the blue whale BIAs/buffers), the reliance on consistent aerial survey support for offshore acquisition is unfeasible due to potential weather constraints and uncontrollable constraints on aircraft and MFO availability. For this reason, the proposed marine mammal controls throughout the Operational Area are all vessel-based. That said, discussions are continuing with aerial survey providers, to clarify a proposed scope for additional aerial surveys over the wider Operational Area. However, such a project would not be specifically linked to marine mammal control measures for the Otway Basin 3D MC MSS but would represent standalone scientific survey/s to augment the existing understanding of blue whales in the deeper offshore waters of the Otway Basin. TGS has not updated the EP in response to these comments.
78	**Matter:** Fatigue of PAM operators. **Claim:** At least two PAM Operators will be on the Seismic Vessel, with at least one maintaining 'acoustic watch' at all times. A 24-hour roster between two PAM Operators is likely to result in fatigue and omissions in observations. More than two PAM Operators are required for 24-hour operations.	Throughout the Otway Basin 3D MC MSS, TGS commits to running a PAM system for 24 hours per day on the Seismic Vessel in accordance with AMP 6 below. • AMP 6: At least two dedicated, trained and experienced PAM Operators will be on the Seismic Vessel for the duration of the survey, with at least one PAM Operator maintaining 'acoustic watch' at all times while the acoustic source is active and during the 30 minutes before the commencement of any Soft Start Procedure. The presence of more than two PAM operators is supported by this management procedure (although not strictly necessary). TGS is yet to engage service providers for PAM and decisions around resourcing will be made in consultation with the provider in due course. It is noteworthy that if the acoustic source is in the water but inactive, the PAM Operators have the discretion to stand down from acoustic watch and resume at an appropriate time prior to recommencing seismic operations. Policy Statement 2.1 does not provide guidance relating to PAM operator effort. In lieu of this, TGS will adopt the following guidance from DOC (2013):

		• An MFO with adequate understanding of the PAM system in operation while not required for visual observation duties, may provide temporary cover in place of a qualified PAM operator to ensure continuation of 24-hour monitoring. This strictly limited exception is in order to allow for any necessary meal or refreshment breaks. A direct line of communication must be maintained between the MFO and the supervising PAM Operator at all times. In such instances, the qualified PAM operator remains ultimately responsible for the duration of the duty watch; and • The maximum on-duty shift duration for observers (MFOs and PAM Operators) must not exceed 12 hours in any 24-hour period. Schedules must provide for completion of reporting requirements. **TGS has updated the EP to include these provisions (see Table 92 in Section 7.2.5 and Table 95 in Section 7.2.7).**
79	**Matter**: MFO effort and management of fatigue, sea sickness and cover for MFOs on breaks. **Claim:** Seasickness of MFOs should be a consideration during resource planning as it can impact observation duties and lead to fatigue in those required to cover for the affected person/s. Likewise, resourcing must also plan for MFO assistance over meal and toilet breaks	Throughout the Otway Basin 3D MC MSS, TGS commits to using MFOs in accordance with the management procedures outlined below. MP 1: During daylight hours at least one MFO will be on duty at all times from the Seismic Vessel and one MFO will be on duty at all times from the Attending Support Vessel to undertake continuous visual observations for marine mammals. MP 7: If a whale is detected within any nominated Observation Zone during the Otway Basin 3D MC MSS, an additional MFO will be stationed on the bridge of the vessel from which the detection was made to assist with observations. The only permissible exception to this is when the off-duty MFO is on a meal or toilet break or is standing-down having reached maximum shift duration for that particular working day. In these instances, a trained crew member will assist with marine mammal observations. AMP 4: A minimum of two MFOs will be onboard the Seismic Vessel for the duration of the Seismic Survey and two additional MFOs will be stationed on the Attending Support Vessel. The presence of more than two MFOs on each of the requisite vessels is supported by AMP 4 (although not strictly necessary). TGS is yet to engage service providers for MFOs and decisions around resourcing and candidate suitability will be made in consultation with the provider in due course. TGS notes that submitter/s recommend planning for MFO redundancy to cover incidents of sea sickness, fatigue and bathroom breaks. Following EPBC Policy Statement 2.1, 'Trained Crew' are able to assist with MFO duties. In particular, vessel crew are required to have sufficient training in order to implement the mitigation procedures of Policy Statement 2.1. TGS will ensure that all crew are trained to understand the basic requirements of Policy Statement 2.1 and the specific Precaution Zones that will be implemented as part of the Otway Basin 3D MC MSS. Crew will be informed that they have a responsibility to report any opportunistic marine mammal sightings that they may make to an on-duty MFO. At the start of the survey a briefing will be provided to all crew on board all survey vessels to provide basic training in relation to environmental matters, including marine mammal control measures (following

		Appendix Q of the EP). Hence while MFOs will have primary responsibility for whale observation and compliance with the Precautionary Zones, trained crew will act in a support role by immediately reporting any opportunistic marine mammal sighting (from either the Seismic Vessel or any of the support vessels) to the on-duty MFO, and by assisting the MFO with any duties as requested. Policy Statement 2.1 does not provide guidance relating to MFO effort. In lieu of this, TGS will adopt the following guidance from DOC (2013) that stipulates "*The maximum on-duty shift duration for observers (MFOs and PAM Operators) must not exceed 12 hours in any 24-hour period. Schedules must provide for completion of reporting requirements*". **TGS has updated the EP to include these provisions (see Table 92 in Section 7.2.5 and Table 95 in Section 7.2.7).**
80	**Matter:** Aerial surveys when operating during poor visibility. **Claim:** Seismic surveys should not be undertaken during poor visibility during daylight hours without a concurrent aerial survey.	TGS proposes to use aerial surveys as follows: • To assist with marine mammal detection prior to the acquisition of 2D tie lines that that approach or extend onto the Continental Shelf (see AMP 2 of Appendix Q of the EP). • To assist with the detection of blue whales in the blue whale BIAs/buffer during the 'foraging shoulder season' months of September to December and May to July (see BMP 6 of Appendix Q of the EP). • To assist with the detection of southern right whales in the southern right whale Reproduction BIA/buffer during April and October (see SRMP 6 of Appendix Q of the EP). In recognition that aerial surveys carry with them significant health and safety risks they will be subject to strict operational constraints relating to weather conditions. On this basis it is unfeasible that aerial surveys could occur at times of poor visibility (which is typified by inclement weather). Instead TGS has committed to a suite of additional control measures to manage the risks to marine mammals during periods of low visibility (see MP 9, AMP 1, BMP 5, BMP 6, BMP 9, SRMP 5, SRMP 6, SRMP 9 in Appendix Q of the EP for detail). On the basis that this matter has already been addressed, TGS has not made any further updates to the EP in response to these comments.
81	**Matter:** MFO training. **Claim:** There is vague and broad details provided on the relevant prior training and experience of MFOs, including being "*confident in the identification of those*	MFO training and experience requirements are clearly stated in AMP 3 (see Appendix Q of the EP) and Section 10.3.5 of the EP as follows: AMP 3: Marine mammal observations made during the Seismic Survey will be undertaken by dedicated, trained and experienced MFOs. All MFOs must have proven 'at sea' experience in whale identification and behaviour, and distance estimation, and must be confident in the identification of those species that the EP predicts will be present in the Operational Area. All MFOs will hold a JNCC Marine Mammal Observation certification (or

	species that the EP predicts will be present in the Operational Area".	equivalent). In addition, the lead MFO on the Seismic Vessel must have logged a minimum of 20 weeks' relevant sea-time engaged in marine seismic survey operations in Australian waters as an MFO. TGS is yet to engage service providers for MFOs and decisions around candidate suitability will be made in consultation with the provider in due course. MFO candidates will be required to demonstrate the competencies outlined in AMP 3 above through their CVs and the interview process. In particular, they will need to produce authentic qualification documents, and a comprehensive description of relevant previous work experience that demonstrates familiarity with the key species expected in the Operational Area. **TGS has clarified these requirements in Table 95 of the EP.**
82	**Matter:** Incomplete information on aerial surveys. **Claim:** Proponent were unable to provide details of aerial surveys to detect whales. Submitter was therefore unable to comment adequately on a proposal that is incomplete in detail including the argument for the feasibility or otherwise of aerial surveys.	TGS proposes to use aerial surveys as follows: • To assist with marine mammal detection prior to the acquisition of 2D tie lines that that approach or extend onto the Continental Shelf (see AMP 2 of Appendix Q of the EP). • To assist with the detection of blue whales in the blue whale BIAs/buffer during the 'foraging shoulder season' months of September to December and May to July (see BMP 6 of Appendix Q of the EP). • To assist with the detection of southern right whales in the southern right whale Reproduction BIA/buffer during April and October (see SRMP 6 of Appendix Q of the EP). TGS recognises that in some circumstances aerial surveys may not be possible due to weather or aircraft availability; and in these instances, further limits will be placed on night time and low visibility operations. In the large part the proposed aerial surveys will not be linked to immediate mitigation measures (e.g. shut downs) as generally the aerial survey effort will be focussed on the upcoming acquisition area, not in the immediate vicinity of the operating seismic vessel. As full details are provided in Appendix Q of the EP, no further updates to the EP have been made in response to this comment.
83	**Matter:** Radar for marine mammal monitoring. **Claim:** Implement radars that search for whales under the ocean water that are monitored 24/7 or whilst the seismic blasts are being conducted.	The limitations of using MFOs to detect marine mammals has been previously discussed. In an effort to counter these limitations some submitter/s recommend the use of alternative technologies such as Radio Detection and Ranging (RADAR). During EP development TGS investigated alternative technologies, and these were assessed in Table 94 of the EP. RADAR works by detecting the range and direction of radio or micro-waves that are emitted into the air from an animal's body, blow or sea surface disturbance. While RADAR is showing promise in some circumstances (see Mingozzi *et al.*, 2020), RADAR cannot detect submerged animals, has reduced effectiveness in high sea

		states, cannot differentiate between species and has range limitations whereby detection probabilities are poor beyond 1 km (Verfuss *et al*., 2018) The combination of PAM and visual observations by MFOs, that will be implemented during the Otway Basin 3D MC MSS represents the most effective detection technique for marine mammals during seismic surveys (Smith *et al*., 2020) and while other detection methods could be compliment detection abilities, in the most part such techniques (e.g. RADAR) have their own weaknesses and have not yet been commercially proven or validated (including for detection distance) (Verfuss et al., 2018). TGS has not updated the EP in response to these comments. References: Mingozzi, M., Salvioli, S., Serafino, F. 2020. X-band Radar for cetacean detection (focus on Tursiops truncatus) and preliminary analysis of their behaviour. Remote Sensing 12, 388; doi:10.3390/rs12030388 Smith, H., Zitterbart, D., Norris, T., Flau, M., Ferguson, E., Jones, C., Boebel, O., Moulton, V. 2020. A field comparison of marine mammal detections via visual, acoustic, and infrared (IR) imaging methods offshore Atlantic Canada. Marine Pollution Bulletin, https://doi.org/10.1016/j.marpolbul.2020.111026
84	**Matter:** Shut-downs for dolphins. **Claim:** TGS has rejected a shut-down zone for dolphins.	Dolphin presence in the immediate vicinity of the Seismic Vessel is expected, however, it will be transitory (typically < 1 hour) and will certainly be less than the 24 hours for which TTS and PTS predictions apply. For dolphins (HF cetaceans), the predicted onset distance for TTS_{24h} is 100 m, and PTS is not predicted for dolphins (either from cumulative exposure or exposure to a single pulse). On this basis, the modelled results support the decision to continue operations in the presence of dolphins. It is however noteworthy that spectacled porpoises (which are part of the 'very high frequency cetacean' hearing group) should be afforded additional protection from acoustic injury associated with underwater noise (see Section 7.2.2.2.7 of the EP). For this reason, spectacled porpoises will be afforded additional protection as per their inclusion as 'other whales' in Appendix Q of the EP. TGS has not updated the EP in response to these comments.
85	**Matter:** Omitted environmental management requirements. **Claim:** Omission of the decision criteria that must be met before PAM can be validated as suitable for estimating distances for low	TGS recognises that PAM is ineffective at detecting LF cetaceans. For this reason, the Marine Mammal Control Measures have been developed without reliance on PAM for these species. Validation of the PAM system is therefore irrelevant to the control measures that will be implemented for low frequency cetaceans. TGS has not updated the EP in response to this comment.

	frequency cetaceans during the application of Shut-down Zones.	
86	**Matter:** Spatio-temporal closures should be implemented during periods when species are known to be inhabiting the area. **Claim:** The EP should outline boundaries against seismic blasting during periods when species are known to be inhabiting the area since it has been proven that the activity will harm and disrupt cetaceans.	TGS will implement spatio-temporal closures for blue whales and southern right whales in recognition that these are endangered species for which BIAs have been designated in the vicinity of the Operational Area. For blue whales, predictions regarding cumulative TTS suggest that acquisition within 16 km of the pygmy blue whale foraging BIAs has the potential to result in injury or displacement of individuals from these areas. On this basis a 16 km buffer will be established around the blue whale foraging BIAs, and no acquisition will occur within the BIAs/buffer during the 'peak foraging season' from January to April (inclusive) based on the expected consistent and widespread presence of whales in the foraging areas during these months (Gill *et al*., 2011; 2015). The only exception allowed is the acquisition of the 2D tie-lines which will be subject to additional operational restrictions (see AMP 2 of Appendix Q of the EP) and will only take approximately 12 hours to acquire. For southern right whales, modelling conservatively predicts that behavioural effects to mother/calf pairs may occur up to 42 km inshore of acquisition when it occurs closest to the Reproduction BIA. This distance has been used to define a buffer around the southern right whale Reproduction BIA and acquisition will occur within this BIA/buffer during the core breeding months of May to September (SWIFFT, 2023). The only exception allowed is the acquisition of the 2D tie-lines which will be subject to additional operational restrictions (see AMP 2 of Appendix Q of the EP) and will only take approximately 12 hours to acquire. On the basis that this matter has already been addressed by TGS in the EP no further updates are required. **TGS has however updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale**
87	**Matter:** Underwater sound impacts on sea lions. **Claim:** Sea lions have been identified as having their habitat impacted by the activity.	The issue raised by submitters contains specific relevance that pertain to the EP. However, no additional updates to the EP are required. TGS has provided a comprehensive description of the existing environment, including marine mammal species that may be present in the Operational Area. Sea lions have been assessed as having a low likelihood of being encountered during the Otway Basin 3D MC MSS. The Operational Area is located east of the distributional range for Australian sea lions and there is no overlap between the Operational Area and any BIA for this species, the closest BIA being approximately 97 km northwest of the Operational Area. In accordance with the control measures set out within Table 95 of the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks from acoustic emissions on Australian sea lions will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.

88	**Matter:** Impacts to dugong. **Claim:** The survey will have impacts to dugong which are undergoing a southward migration due to climate change.	TGS has provided a comprehensive description of the existing environment, including the identification of marine fauna that may be present within the Operational Area. Identification of species was based on the results of the EPBC Act Protected Matters search, which identified several protected species as potentially present within the Operational Area. The species potentially present within the Operational Area have been described throughout Section 4 of the EP. Dugong were not identified as potentially present within the EPBC Act Protected Matters search and as such have not been assessed within the EP. The Department of Climate Change, Energy, the Environment and Water has mapped the distribution of dugong to approximately Canberra and as such, the Otway Basin 3D MC MSS will not have any impacts on dugong populations. TGS has not updated the EP in response to these comments.
89	**Matter:** Additional mitigation measures required to manage risks. **Claim:** As more evidence appears about the deleterious effect that this will have on our fishing industry and the migration of whales, this necessitates the imperative of many spotter planes, at least six MMOs, drone facilities, CCTV, and more.	With regard to managing the risk on whale behaviours, TGS has developed a comprehensive suite of marine mammal control measures as collated in Appendix Q of the EP. The proposed controls adopt the best national and international approaches to minimise the risks (physiological, behavioural and perceptual) of seismic surveys to marine mammals, including the use of marine fauna observers, shut-down zones, spatio-temporal measures to prohibit acquisition in and around BIAs during peak seasons, passive acoustic monitoring, soft-starts, delayed starts, limitations on night-time and low visibility operations, and adaptive management procedures for higher than anticipated numbers of whales and at times when calves are present. In particular, the Otway Basin 3D MC MSS will adopt the EPBC Act Policy Statement 2.1 and oftentimes exceeds the requirements of this policy statement to ensure that the risks to marine mammals are reduced to the lowest possible level. Several alternative control measures were assessed in Table 92 of the EP and were dismissed for a variety of reasons as reported in Table 92. TGS considers that the control measures proposed are sufficient to manage the risks to whales. In particular, the proposed controls exceed the statutory requirements. Through the relevant persons consultation programme, TGS has developed control measures in consultation with SETFIA around the orange roughy Western Roughy Central Research Zone. **Section 7.2.3.1, and Table 92 – 95 of the EP have been updated with these control measures.** The Commercial Fisheries Compensation Protocol that has been developed for the Otway Basin 3D MC MSS for cases where commercial fishers experience an economic loss as a result of the Otway Basin 3D MC MSS.
	THEME	**ENVIRONMENTAL/ECOLOGICAL INFORMATION AND EFFECTS**
#	COMMENTS RECEIVED	*Titleholder response*

90	**Matter:** EP is lacking sufficient information/detail. **Claim:** There is a lack of detail provided regarding the identification and description of environmental features in the EP and therefore a lack of understanding of the environment of the Operational Area and EMBA.	The issue raised by submitters is within the scope of the adverse effects of the Otway Basin 3D MC MSS. TGS has provided a comprehensive description of the existing environment (Section 4) of relevance to the Operational Area and EMBA. Identification of species was based on the results of the EPBC Act Protected Matters search. **TGS has added additional information to Section 4 following identification of additional receptors** during the public comment period, as well as recent literature searchers undertaken by TGS. Updates have been made to the following sections with regard to identifying and describing the relevant environmental features of the existing environment: • **Section 4.3.3.3 has been updated to provide additional details on the wave environment;** • **Section 4.3.3.4 has been updated to describe the Great Southern Australian Coastal Upwelling system;** • **Addition of Section 4.4.1.1 and 4.4.1.2 to further describe the Zeehan and Nelson AMPs;** • **Addition of Section 4.4.8.1 to describe the values of the Budj Bim World Heritage Site;** • **All Marine Protected Areas and Sensitive Areas described within Section 4.4 are depicted in the figures provided throughout their respective sub-sections. Due to the number of sites of relevance, Marine National Parks, Marine Sanctuaries, Marine Reserves and Fisheries Research Areas listed within Table 15 are mapped with these figures provided in Appendix E;** • **Addition of Section 4.5.2.1, Section 4.5.2.2 and Section 4.5.2.3 to provide additional descriptions of southern rock lobster, giant crab and scallop, including descriptions on larval/planktonic and adult life stages;** • **Section 4.5.3.1.2 has been updated to provide additional details on southern bluefin tuna stocks;** • **Addition of Section 4.5.3.1.3 to describe the biology of short-finned eels;** • **Section 4.5.6.1 has been updated following identification of new literature;** • **Section 4.5.7 has been updated to provide details on the Middle Island penguin colony. Table 31 within Section 4.5.7 has been added to provide details on bird species only relevant to the EMBA;** • **Section 4.6.1 has been updated to provide further details on cultural values of the Operational Area**; • **Fisheries described within Section 4.7.3 have been updated with the most recent catch data provided by SETFIA.**
91	**Matter:** EP is lacking sufficient information/detail. **Claim:** EP is lacking information/detail on the	The issue raised by submitters is within the scope of the EP. TGS has provided extensive discussions within the EP on the impacts of seismic surveys on marine life. These have been broken down by “activity” associated with the survey, for example, physical presence of the survey vessels and towed equipment, acoustic emissions, artificial light emissions, etc., with discussions then provided for each environmental receptor that may be impacted by that specific “activity”.

	impacts of seismic on marine life.	Information pertaining to the impacts from the Otway Basin 3D MC MSS on marine life provided within the EP is based on the most up to date scientific literature, with references to all claims/statements provided in the reference list contained within Section 12 of the EP. Additional information has been added throughout the impact assessment (Section 7 and Section 8) where appropriate (e.g. when submitters have suggested literature to be considered, or recent literature has been identified). Updates have been made within the following sections: • **Section 7.2.2.2.1, Section 7.2.2.2.2, Section 7.2.2.3.1 have been updated following review of recent literature (ie. Solé et al, 2023);** • **Section 7.2.2.1.4, Section 7.2.2.2.2, Section 7.2.2.2.5, and Section 7.2.2.3.4 have been updated following review of recent literature (i.e Day *et al*., 2023);** • **Section 7.2.2.5 has been updated following review of additional literature;** • **Section 7.2.2.3.3 has been updated following review of additional literature** • **Section 7.2.2.3.6 has been updated to provide further details around strandings following concerns raised during the public comment period; and** • **Section 7.2.3.1 has been updated following further consultation with SETFIA around orange roughy control measures.**
92	**Matter:** EP is lacking sufficient information/detail. **Claim:** EP is lacking information/detail on the measures that will be taken to avoid harming marine life and enforceable measures to ensure species will not be harmed.	The issue raised by submitters contains specific relevance that is within the scope of the EP. TGS has provided details on the control measures that will be implemented for the duration of the Otway Basin 3D MC MSS to ensure the impacts and risks are reduced to ALARP and an Acceptable Level. TGS has considered a number of control measures to determine the benefits of their implementation towards risk reduction, based on a hierarchy of controls methodology. Each planned activity within Section 7 and those unplanned activities within Section 8 of the EP contains an appropriate assessment of the available control measures to determine the practicability and effectiveness of adoption. A set of EPSs have also been developed as a statement of performance required of a control measure to ensure the control measure consistently performs to reduce impact or risk to ALARP and to an Acceptable Level. Based on the above, this matter has already been addressed in detail within the EP, therefore no further EP updates are required.
93	**Matter:** A detailed map of threats within the EMBA is not available. **Claim:** Despite the level of threat to many species and	The issue raised by submitters contains specific relevance that is within the scope of the EP. TGS provided tables outlining the sensitivities that may be impacted in the event of an oil spill, as identified in the Fuel Oil Spill Trajectory Modelling Report contained within Appendix C. However, in response to public comments on this matter, **TGS has provided maps depicting how each of the modelling results (floating, shoreline, dissolved and entrained) impact on each of the sensitivities identified by RPS, with these**

	ecosystems within the EMBA, a detailed map of these threats is not available.	**maps now located in Appendix S of the EP. Maps have been updated throughout Section 4.6 to ensure all Protected Areas and Sensitive Areas are depicted – maps pertaining to Marine National Parks, Marine Sanctuaries, Marine Reserves and Fisheries Research Areas are provided in Appendix E**
94	**Matter:** Failure to map overlays. **Claim:** EP fails to provide adequate information in the form of a map outlining the Ramsar areas, National Parks, State Marine Parks, Indigenous Protected Areas, Wilderness Zones, World Heritage Areas, Key Ecological Features.	The issue raised by submitters contains specific relevance that is within the scope of the EP. Maps have been provided throughout Section 4 of the EP showing Australian Marine Parks, Biologically Important Areas, RAMSAR wetlands, and Nationally Important Wetlands. Due to the number of sites along the coastline of the EMBA, maps outlining the location of State protected areas (i.e. Marine Parks, Marine National Parks, Marine Sanctuaries, Marine Reserves and Fisheries Research Areas) were not originally mapped. **To address this matter, an updated set of maps showing the various state protected areas identified in the EPBC Act Protected Matters Search Tool have been included within Appendix E of the EP. In addition, a set of maps has been produced showing the overlap of the EMBA with various Threatened Ecological Communities which are contained within Appendix F. World Heritage Properties, National Heritage Places, and Commonwealth Heritage Places of relevance to the Operational Area and EMBA are depicted in Figure 17 to Figure 19, respectively.**
95	**Matter:** Need for adequate baseline data. **Claim:** The need for adequate base line data on marine life before seismic testing can be approved. The impacts of seismic testing on marine life cannot be assessed without adequate baseline data of the ecosystems where seismic testing is proposed.	Section 4.5 of the EP describes what is known of the existing biological environment of the Operational Area and EMBA. The information presented in the EP and pertaining to the existing biological environment has been amassed via published and unpublished sources (studies, data, and reports) to produce a comprehensive baseline understanding of the environmental sensitivities in the region. In all instances, the source of the information presented in Section 4.5 of the EP is fully referenced to ensure transparency of the information that has been relied upon. Further to this, any uncertainty, bias, or unreliability that has been identified has been duly identified and discussed. Section 4.5 of the EP has been prepared in accordance with the NOPSEMA (2020) Guidance Note 'Environment Plan Content Requirement'. In particular, the following requirements are noted: • The EP must provide adequate information about the EMBA by the activity in sufficient detail to inform the evaluation of environmental impacts and risks. This includes the EMBA by planned components of the activities, and the area that may be exposed to hydrocarbons in the event of a hydrocarbon spill. • The description of the environment must include details of the particular relevant values and sensitivities of the environment where the activity is proposed, including (but not limited to) matters protected under Part 3 of the EPBC Act that will or may be affected by the activity. • If the activity is within or has the potential to impact on an Australian Marine Park, the EP must describe the values, including the representative values of the park(s) that may be affected.

		• The level of detail within the plan should be appropriately scaled to the nature of the impacts and risks to the particular values and sensitivities. • Publicly available studies, data and reports should be reviewed to compile the description of the environment and must be accurately referenced in the environment plan. • Consideration should be given to reliability, bias and any uncertainties associated with the information being referenced. The effort applied to addressing reliability and uncertainty should be directly proportionate to the significance of that information to the risk evaluation process. • Any relevant shortcomings in the information, or the level of information about the existing environment may need to be addressed with appropriate sources of information, additional field surveys or studies. Consideration should be given to the type and currency and applicability of environmental baseline information that may be necessary to measure environmental performance during the implementation phase of the activity. TGS has not updated the EP in response to these comments. Reference: NOPSEMA (2020). https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A339814.pdf
96	**Matter:** Scientific literature has not been considered or is inadequately addressed. **Claim:** There is no serious consideration of the science in the EP. The EP inadequately addresses necessary scientific research to support its objectives or the environmental impacts of the activity.	TGS has provided detailed discussions on the sensitivities within the Operational Area and EMBA and potential impacts to those sensitivities from various activities associated with the Otway Basin 3D MC MSS throughout the EP. These discussions are based on up-to-date relevant scientific literature. The majority of specific literature cited within submissions has already been incorporated in the EP. As such, TGS has not updated the EP in response to these claims. When relevant literature has been identified by submitters which was not previously considered within the EP, TGS has reviewed these documents and updated the EP accordingly. Note that not all references used by submitters were assessed to be relevant for inclusion within the EP. The following bullet points outline where additions have been made to the EP: • **Section 7.2.2.2.1, Section 7.2.2.2.2, Section 7.2.2.3.1 have been updated following review of recent literature (ie. Solé et al, 2023);** • **Section 7.2.2.1.4, Section 7.2.2.2.2, Section 7.2.2.2.5, and Section 7.2.2.3.4 have been updated following review of recent literature (i.e Day *et al*., 2023);** • **Section 7.2.2.5 has been updated following review of additional literature;** • **Section 7.2.2.3.3 has been updated following review of additional literature; and** • **Section 7.2.2.3.6 has been updated to provide further details around strandings following concerns raised during the public comment period.**
97	**Matter:** Impacts on World Heritage properties.	The Tasmanian Wilderness World Heritage Area covers an expanse of Tasmanian temperate rainforest. **This area has been acknowledged within Table 19, and depicted in Figure 17 of the EP**. On account of the terrestrial values of the Tasmanian Wilderness World Heritage Area, this area will not be impacted by acoustic

	Claim: The seismic survey may impact the overall ecology of declared World Heritage properties, including the Tasmanian Wilderness. Potential impacts on the New Zealand Sub-Antarctic Islands and seabird species that migrate across these areas and the seismic survey's Operational Area.	emissions produced during the Otway Basin 3D MC MSS, although it is acknowledged that the coastline in the vicinity of this area may be subject to oiling based on the worst-case presented within the EMBA. The EP provides information on the impacts of a potential oil spill. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline environment that may be affected (or "EMBA"), that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. Control measures include our fuel oil spill response planning. Based on the worst-case spill scenario modelling for the Otway Basin 3D MC MSS, New Zealand's Sub-Antarctic Islands will not be impacted by activities associated with the Otway Basin 3D MC MSS and are therefore out of scope of the EP. TGS has provided a comprehensive description of the existing environment, including the identification of seabirds potentially present within the Operational Area and EMBA. Identification of species was based on the results of the EPBC Act Protected Matters search. Potential impacts the Otway Basin 3D MC MSS on seabirds have been assessed throughout Section 7 (planned activities) and Section 8 (unplanned activities). Based on TGS' impact assessment, the biggest threat the Otway Basin 3D MC MSS poses to seabirds is through a marine diesel spill. However, as provided in Section 8.3.8, TGS will implement several control/mitigation measures to ensure the risk of a spill is reduced to Acceptable Levels and ALARP. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. With the exception of the addition of Figure 17, TGS has not updated the EP in response to these comments.
98	**Matter:** Underwater sound impacts on plankton/zooplankton communities. **Claim:** Seismic testing impacts on plankton/zooplankton by anthropogenic sources have	The EP contains a comprehensive assessment of the potential effects of seismic surveys on marine life, including the planktonic communities present within the Operational Area and wider Otway Basin. This assessment can be found within Section 7.2.2.2.1 of the EP. The assessment of potential effects of acoustic emissions contained within the EP has been based on the Underwater Acoustic Modelling undertaken specifically for the Otway Basin 3D MC MSS using widely accepted noise effect criteria. Based on the results of the Underwater Acoustic Modelling undertaken specifically for the Otway Basin 3D MC MSS, the zone of impact for zooplankton in the water column has been predicted to extend 140 m from the

	implications for ocean ecosystem structure and health, and a significant component of zooplankton communities comprises the larval stages of many commercial fisheries species.	acoustic source for fish eggs and larvae, throughout the 3D AA. This distance increases slightly to 150 m for the shallowest part of the 2D tie line. The Otway Basin 3D MC MSS will be managed so that potential impacts and risks to marine life are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining plankton/zooplankton communities to have specific relevance. No further updates are required within the EP, however, **TGS has amended Section 7.2.2.2.1.2 where a mistake in transcribing results from the Underwater Acoustic Modelling has been identified. TGS has also provided further details on the planktonic stages of southern rock lobster (Section 4.5.2.1), giant crab (Section 4.5.2.2) and scallops (Section 4.5.2.3).**
99	**Matter:** Death of zooplankton out to 1 km from 'blast site' (i.e. McCauley *et al*. (2017) paper). **Claim**: Impacts to zooplankton, including krill, have not been adequately evaluated. EP has not taken into consideration the McCauley *et al*. (2017) which states that zooplankton death occurs out to distances of 1 km from a 'blast site'. The results presented in the EP from the McCauley et al paper are not an accurate representation of the study.	TGS has provided a detailed risk assessment on the potential impacts on plankton arising from the acoustic emissions released during the Otway Basin 3D MC MSS. This assessment is based on up to date scientific literature and utilises sound exposure thresholds for zooplankton. Sound exposure thresholds presented within the EP are widely accepted and used amongst the scientific community. As stated within the Underwater Acoustic Modelling Report (Appendix B of the EP), the noise criteria and sound levels used were chosen because they include standard thresholds, thresholds suggested by the best available science, and sound levels presented in literature for species with no suggested thresholds. Section 3 of the Underwater Acoustic Modelling further explains the threshold levels used. The risk assessment contained within Section 7.2.2.2 of the EP includes a discussion on the findings of the McCauley *et al*. (2017) reference. TGS disagrees with the submitter's comments that the assessment contained within Section 7.2.2.2 has not provided an accurate representation of the McCauley *et al*. (2017) study. TGS has not updated the EP in response to these comments but notes that **changes have been made to plankton sections (Section 7.2.2.2) based on responses to other matters.**
100	**Matter:** Displacement of keystone species. **Claim**: There is no consideration on	A keystone species is a species that has a disproportionately large effect on its natural environment relative to its abundance. They play a critical role in maintaining the structure of an ecological community. TGS has provided extensive discussions pertaining to the potential impacts on marine species within the Operational Area and EMBA throughout Section 7 (planned activities) and Section 8 (unplanned activities). While this does not explicitly state what species are considered keystone species, the impact assessment takes

	displacement of keystone species.	into consideration the species predicted to occur within the Operational Area and EMBA and therefore covers potential keystone species. The Otway Basin 3D MC MSS will be managed so that potential impacts and risks to marine life are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
101	**Matter:** Impacts to food webs. **Claim:** There is no consideration of the impacts to food webs.	TGS has provided extensive discussions pertaining to the potential impacts on marine species within the Operational Area and EMBA throughout Section 7 (planned activities) and Section 8 (unplanned activities). This includes assessments on all marine life from primary producers (i.e plankton) through to animals higher in the food chain (i.e. cetaceans, fish, pinnipeds). TGS has not updated the EP in response to these comments.
102	**Matter:** *National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna*. **Claim:** Intended outcome of this document is the development of a mitigation measures "toolkit" which to date has not yet been developed.	The *National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna* is a guiding framework for identifying species most at risk of vessel collision, areas where these species are most at risk of vessel collision, and appropriate mitigation measures to reduce the risk of vessel collisions with marine megafauna. An outcome of this document is the development of a mitigation measures toolkit accompanied by a set of criteria that provides guidance on measures to be used which will be made available to stakeholders (Note: stakeholders in this case does not mean stakeholders considered as relevant persons to the Otway Basin 3D MC MSS, but rather stakeholders of relevance to the Department of Climate Change, Energy, and the Environment and Water (**DCCEEW**) such as titleholders undertaking activities in the marine environment) once completed. This document was developed by the Australian Government – Department of the Environment and Energy (now the DCCEEW) and as such, claims pertaining to updating this document is outside the scope of the EP for the Otway Bain 3D MC MSS and as such do not have specific relevance. No updates are required in the EP in response to these claims, however, TGS notes that the *National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna* was taken into consideration when preparing the EP.
103	**Matter:** Impacts to Marine Protected Areas. **Claim:** The Operational Area overlaps two AMPs and the EMBA overlaps a further eight. This is unacceptable when Marine Protected	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. The South-east Commonwealth Marine Reserves Network Management Plan 2013 – 2023 sets out the management zoning and IUCN categorisation within each AMP and determines the activities allowed within each zone in accordance with the EPBC Act. This plan allows for marine seismic surveys within the Nelson and Zeehan marine parks in accordance with a class approval issued by the Director of National Parks. Class approvals are issued subject to conditions that are considered necessary, including to ensure the activity is

	Areas have a primary goal of contributing to the long-term conservation of marine ecosystems and protect marine biodiversity.	conducted in a manner to avoid or minimise impacts. TGS has consulted with the Director of National Parks. The Director of National Parks' objections and claims regarding noise emissions on sensitivities within the marine parks are provided within Section 7.2.2.5.1 of the EP. TGS has not updated the EP in response to these comments.
104	**Matter:** Threatened and/or migratory species are found in the EMBA. **Claim:** Threatened and/or migratory species have been identified within the EMBA and will be affected by an oil spill.	TGS has provided a comprehensive description of the existing environment (Section 4) of relevance to the EMBA. Identification of species was based on the results of the EPBC Act Protected Matters search, which has identified several species classified as threatened and/or migratory. TGS has provided a detailed impact assessment on the potential impacts of a marine diesel spill on marine sensitivities within Section 8.3 of the EP. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has not updated the EP in response to these comments.
105	**Matter:** Impacts to coastal areas. **Claim:** The EP neglects to address the significant impacts on the coastline of Warrnambool and Port Fairy.	Potential impacts to coastal sensitivities are discussed throughout Section 8.3 of the EP, with sensitivities described based on their presence within the EMBA. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGs has provided more clarity around the extremely unlikely likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.

		On the basis that this topic is already addressed by the EP, TGS has not updated the EP in response to these comments.
106	**Matter:** Acoustic impacts to marine turtles. **Claim**: Seismic can damage the hearing of marine turtles and keep them away from key feeding and breeding grounds.	There are three species of marine turtle that may be present within the Operational Area: the loggerhead turtle, leatherback turtle, and green turtle. No breeding behaviours occur within the Operational Area (or wider EMBA), however, TGS acknowledges that some foraging, feeding, or related behaviour is known to occur within the Operational Area. As such, TGS will implement a 100 m Precautionary Shut-down Zone for marine turtles, whereby the acoustic source will be shut-down, or start-up will be delayed for 15 minutes if a marine turtle is observed within 100 m of the acoustic source. Operation of the acoustic source using soft starts may only resume when the turtle has been observed to move outside the 100 m Shut-down Zone, or when 15 minutes have lapsed since the last turtle sighting. Mitigation measures have been outlined within Table 95 of the EP. In accordance with the management measures outlined within the EP, the Otway Basin 3D MC MSS will be managed so that potential impacts and risks to marine turtles are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to marine turtles to have specific relevance, however, as this matter has already been addressed within the EP, no further EP updates are required.
107	**Matter:** Turtle entanglement. **Claim:** Request studies into the probability of turtle entanglement with seismic testing equipment and the adequacy of known risk mitigation strategies.	TGS has provided discussion on the potential for turtle engagement within Section 7.1.2.1 of the EP. TGS has used the National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna to guide the Otway Basin 3D MC MSS. Despite the low expected presence of marine turtles in the Operational Area, TGS have committed to having turtle guards fitted to tail buoys that are not of a design that does not represent an entrapment risk to marine turtles. The installation of turtle guards on tail buoys or use of buoys of a design that does not represent an entrapment risk to marine turtles, and the slow speed of the Seismic Vessel are considered to be effective measures against ship strike and entanglement for marine turtles. Any incidents with turtles will be reported, as recommended under the National Strategy. TGS has not updated the EP in response to these comments.
108	**Matter:** Misrepresentation of the Bonney Upwelling. **Claim:** The EP misrepresents the location and full extent of the BIA, the Bonney Upwelling. It intentionally shows the Operational Area does not	The figure referred to in the EP by submitters depicts the Key Ecological Features relevant to the Otway Basin 3D MC MSS. These areas have been defined by the DCCEEW, not TGS. DCCEEW states that "*the spatial boundary of the Bonney Upwelling Key Ecological Feature, as defined in the Conservation Values Atlas, was derived through a review of enhanced chlorophyll occurrence for summer seasonal data (1998 – 2010) provided by CSIRO*". TGS directs submitters to Section 4.3.3.4 and Section 4.4.3.2 for a description of the Bonney Upwelling, with these descriptions based on publish scientific literature. This description acknowledges the variability of the Bonney Upwelling throughout the years. Figure 14 within the EP depicts the Bonney Upwelling Key Ecological

	overlap with this region which is just an artefact of the map chosen by TGS. TGS needs to include a map that shows the continuity of plankton between the Bonney Upwelling and an area that extends beyond the Operational Area.	Feature, which the spatial extent of the Bonney Upwelling Key Ecological Feature depicted in this figure based on the shapefiles provided by the Department of Climate Change, Energy, the Environment and Water. TGS has not updated the EP in response to these comments.
109	**Matter:** Changes to the extent of the blue whale BIA. **Claim:** The map used in the EP is an artifact that does not represent the area where blue whales occur. An application has been made to the Department of Climate Change, Energy, the Environment and Water to extent the BIA.	The map outlining the extent of the blue whale BIA presented within the EP has been prepared using the current shapefiles available from the Department of Climate Change, Energy, the Environment and Water. TGS makes note of the potential for this area to change following review within Section 4.5.6.1 of the EP. TGS has committed to several mitigation measures pertaining to the blue whale BIA which will use whatever BIA is in force at the time. TGS has processes in place within the EP to monitor for any new information relevant to the Otway Basin 3D MC MSS and will update the EP if/when required under the Management of Change process (see Section 10.4.6). TGS has not updated the EP in response to these comments.
110	**Matter:** Impacts on biodiversity. **Claim:** Long term environmental effects of seismic could be detrimental to the delicate ecosystem and biodiversity of the area. Threats include negative impacts to local biodiversity such as giant kelp marine forests.	TGS has provided a comprehensive description of the potential impacts of the Otway Basin 3D MC MSS on the marine environment throughout Section 7 (planned activities) and Section 8 (unplanned activities). The assessments contained within the impact assessment are based on up-to-date scientific literature. In accordance with the control measures provided within the Impact Assessment of the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks to threatened fauna will be managed to ALARP and Acceptable levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to impacts on biodiversity to have specific relevance, however, as this matter has already been addressed within the EP, TGS has not updated the EP in response to these comments.

111	**Matter:** Impacts on threatened species. **Claim:** There are threatened species within, or directly adjacent to the Operational Area including elasmobranchs, marine reptiles, marine mammals, and the Tasmanian live-bearing seastar.	TGS has provided a comprehensive description of the existing environment, including the identification of marine fauna that may be present within the Operational Area and wider EMBA. Identification of species was based on the results of the EPBC Act Protected Matters search, which identified several threatened species as potentially present within the Operational Area and EMBA. The species potentially present have been described throughout Section 4 of the EP, with potential impacts assessed throughout Section 7 (planned activities) and Section 8 (unplanned activities) of the EP based on each individual receptor (i.e. marine mammals, fish, elasmobranchs, seabirds, etc.). The assessment of potential impacts to marine fauna and threatened species has been based on the most up to date scientific literature. The Otway Basin 3D MC MSS will be managed so that potential impacts and risks to threatened marine species are not inconsistent with the relevant Recovery Plans, Management Plans, or Conservation Advice. In accordance with the control measures provided within the Impact Assessment of the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks to threatened fauna will be managed to ALARP and Acceptable levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to threatened marine fauna to have specific relevance, however, as this matter has already been addressed within the EP, no additional updates to the EP are required.
112	**Matter:** Impacts to threatened ecological communities. **Claim:** The Giant Kelp Marine Forests of South East Australia are protected under the EPBC Act as a Threatened Ecological Community. There is no mention in the EP of how the activity will manage impacts to kelp forests.	Section 4.4.9.2 of the EP describes the Giant Kelp Marine Forests of South East Australia Threatened Ecological Community. **Appendix F has been added to the EP to depict the spatial overlap of Threatened Ecological Communities with the EMBA**. A risk assessment on the potential impacts of a marine oil spill on the Giant Kelp Marine Forests of South East Australia Threatened Ecological Community is provided within Section 8.3.3.4.3 of the EP. Acoustic emissions will not impact this Threatened Ecological Community on account of the distance of the Operational Area from this sensitive area. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. However, as this matter has already been addressed within the EP, no additional updates to the EP are required.

113	**Matter:** Ecosystem-scale impacts. **Claim**: Ecosystem-scale impacts have not been researched in the region and therefore more research is needed. Seismic is known to disrupt marine ecosystems.	The potential impacts of acoustic emissions from the Otway Basin 3D MC MSS are described at length throughout Section 7.2 of the EP. No ecosystem-scale impacts are expected from the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
114	**Matter:** Habitat destruction. **Claim:** Seismic causes loss for habitat for all sea life.	Marine seismic surveys cause no habitat destruction; hence this claim is unfounded. However, the underwater noise generated can cause physiological, behavioural, and perceptual effects to marine organisms. These potential effects are described at length in Section 7.2 of the EP. Seismic surveys are used to produce detailed images of the various rock types beneath the ocean floor. This sound is generated by compressed air. The air makes controlled sound waves that bounce off underground rock formations. The basic principles of seismic survey technology are presented in Section 3.1 of the EP. Seismic data is collected without physical disturbance to the seabed and the underwater noise generated by a MSS is temporary and ceases at the completion of the survey. TGS has not updated the EP in response to these comments.
115	**Matter:** 2023 Kunming Montreal biodiversity agreement. **Claim:** Losses of habitat for alterations under the impacts of future climate change, where Southern Ocean refuges and connectivity between these is considered vitally important under the 2023 Kunming Montreal biodiversity agreement.	In 2022, the Conference of the Parties to the UN Convention on Biological Diversity reached a new global biodiversity agreement called the Kunming-Montreal Global Biodiversity Framework. It addresses escalating rates of biodiversity loss and includes the adoption of a monitoring framework and mechanisms for planning, reporting, and review. It commits all actors to implementing the framework with a human rights-based approach. Responsibility for implementation of the 2023 Kunming Montreal biodiversity agreement lies at the national and local levels. TGS has provided a detailed discussion of the scientific literature outlining potential impacts to marine fauna from seismic surveys throughout Section 7 (planned activities) and Section 8 (unplanned activities) of the EP. In acknowledgement of the potential for the Otway Basin 3D MC MSS to impact marine fauna within the Otway Basin region, TGS has committed to various control/mitigation measures to ensure that impacts are reduced to ALARP and Acceptable Levels. Control/mitigation measures are provided throughout Section 7 and Section 8 of the EP.

		In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
116	**Matter:** Ecosystem services **Claim:** Additional weight should be applied to conserving the Otway Basin marine environment because of the myriad of services it provides for non-human and human life.	As described within Section 6 of the EP, TGS has adopted a hierarchy of controls, which follows a tiered system of "eliminate-substitute-reduce-mitigate" to identify alternate, substitute, and additional control measures. This means that, where possible, TGS has endeavoured to eliminate a risk, however, where this is not possible, the alternatives (in preferred order) is to substitute, reduce, and mitigate. Throughout Section 7 and Section 8 of the EP, TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures and details the control measures that will be adopted, with corresponding Environmental Performance Standard/s to reduce impact or risk to ALARP and to an acceptable level. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
117	**Matter:** Animals will move away argument is flawed. **Claim:** TGS has consistently presented the argument that animals (cetaceans, fish, birds) will move away from the seismic source during acquisition. TGS conclude that by moving away from the seismic source, the impact of seismic to these animals will be minimised. This argument holds significant flaws. There is no guarantee that wildlife will migrate away	In relation to this matter, submitter/s raise the following concerns: • Animals will experience increased energy expenditure to move away from their preferred foraging/breeding grounds and to find alternative food sources and breeding locations; • Such displacement results in additional pressure on surrounding foraging/breeding habitat and can result in decreased reproductive success (e.g., Laysan and black-footed albatrosses, following Thorne *et al.*, 2015); • The overall spatial scale of the Operational Area is large, so the displacement distance is large (≥350 km) to avoid effects. TGS acknowledges that displacement is a possible consequence for some marine fauna exposed to underwater seismic survey noise, and that displacement equates to increased energy expenditure and potential temporary relocation to lower quality habitat. These consequences are fully discussed in Section 7.2.2.3 of the EP. While some displacement is expected from mobile taxa during the Otway Basin 3D MC MSS, the survey will not preclude animals from the Operational Area in its entirety. Instead, animals are expected to temporarily move

	from the blasting and the EP cannot guarantee the safeguarding of, for example, cetaceans.	away from the active seismic vessel, but once the acoustic source passes, animals will be free to move back into the habitat that they departed from. For marine turtles and marine mammals, the onset distances for behavioural response (including displacement) are predicted by underwater acoustic modelling and these results are presented in Sections 7.2.2.3.5 and 7.2.2.3.6. respectively. The modelling results generally suggest that behavioural effects are predicted out to c. 4 km for marine turtles and out to 12 km for marine mammals (noting that for southern right whale mother calf pairs this distance could increase to a maximum of 42 km). For fish, and based on the available scientific literature, Section 7.2.2.3.2 of the EP concludes that the potential for behavioural impacts in Group I and Group II fishes (which are the species predominantly expected in the Operational Area) is high in the near-field (tens of metres), moderate at intermediate distances (hundreds of metres) and low in the far field (thousands of metres). On this basis any displacement of fish species is predicted to be short-term and localised. Based on the summary presented here, displacement of individuals over long distances (≥ 350 km as claimed by submitter/s) is not predicted; however, TGS recognises that displacement may occur over tens of kilometres for some species and that the acoustic source may be audible beyond these distances. It is noteworthy that EPBC Act Policy Statement 2.1 that guides proponents on management procedures to minimise the risks of biological consequences to whales from acoustic disturbance from seismic surveys, relies upon a degree of displacement "*as a form of mitigation to prevent whales from approaching or being approached closely enough to cause acoustic injury from intense or prolonged sound exposure*". On this basis, the Australian government presumably expects and accepts some displacement of whales from areas in which seismic operations occur. However, for the Otway Basin 3D MC MSS, TGS has gone to great lengths to specifically develop controls for blue whales/pygmy blue whales that take a highly precautionary approach in managing the potential for displacement of this species as the Blue Whale Conservation Management Plan requires that no blue whale will be displaced from a foraging area. **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs** but has made no further updates to the EP with regard to this matter..
118	**Matter**: Population level impacts on marine fauna **Claim:** Although there is a large volume of literature relating to seismic surveys, acoustic disturbance and	Population level responses of marine fauna are assessed via the Risk Assessment framework, detailed in Section 6 of the EP. This process includes the Criteria for Assessing Potential Consequence Levels (Table 54); the 'Effect on Populations and Protected Species and Recovery Period' are incorporated across all consequence levels in this step.

	marine species, there is little understanding of population level responses to invertebrate, fish and marine mammal species. Population level responses are of particular concern as they are difficult to quantify and reverse.	These Consequence Levels, along with the Likelihood of Consequence Occurring, are then incorporated into the Overall Residual Risk of Impacts Matrix, which in turn informs the Residual Risk Ranking and Impact Description for the specific receptor assessed. Specific Impact and Risk Acceptability Criteria (Table 58) also incorporate assessment of risk to population level assessments to the acceptability criteria. Specifically, TGS have noted in the absence of a definition of 'serious' environmental damage in relation to the Principles of ESD under the EPBC Act, TGS considers a serious impact to be impacts with the potential to result in a threat to population or community viability. TGS considers an impact or risk to be unacceptable where the residual risk or impact attributed to a planned or unplanned event is High or greater, or, where the assessment shows the defined Acceptable Level cannot be met. None of the assessments for planned or unplanned activities resulted in a residual risk of High or greater. TGS has assessed the comments pertaining to impacts on population level of impacts to have specific relevance, however, as this matter has already been addressed within the EP, TGS has not updated the EP in response to these comments.
119	**Matter:** Irreparable damage to the area. **Claim:** There is no realistic way to mitigate the effects of such exploration when the direct, indirect and cumulative effects are not fully known. Additionally, there is minimal environmental reparation that can be performed in these areas if negative effects are to occur as a result of this exploration.	TGS has provided a detailed assessment of the potential impacts of the Otway Basin 3D MC MSS on the marine environment throughout Section 7 (planned activities) and Section 8 (unplanned activities). Based on this assessment, and in accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. Population level responses of marine fauna are assessed via the Risk Assessment framework, detailed in Section 6 of the EP. This process includes the Criteria for Assessing Potential Consequence Levels (Table 52); the 'Effect on Populations and Protected Species and Recovery Period' are incorporated across all consequence levels in this step. These Consequence Levels, along with the Likelihood of Consequence Occurring, are then incorporated into the Overall Residual Risk of Impacts Matrix, which in turn informs the Residual Risk Ranking and Impact Description for the specific receptor assessed. Specific Impact and Risk Acceptability Criteria (Table 58) also incorporate assessment of risk to population level assessments to the acceptability criteria. Specifically, TGS have noted in the absence of a definition of 'serious' environmental damage in relation to the Principles of ESD under the EPBC Act, TGS considers a serious impact to be impacts with the potential to result in a threat to population or community viability. TGS considers an impact or risk to be unacceptable where the residual risk or impact attributed to a planned or unplanned event is High or greater, or, where the assessment shows the defined Acceptable Level cannot be met. TGS has not updated the EP in response to these comments.

120	**Matter:** Water quality impacts **Claim:** The vibrations from seismic blasting can disturb sediment on the ocean floor, potentially releasing toxins and impacting water quality. Suspended sediments can affect marine ecosystems, leading to smothering of habitats and alterations in nutrient cycles.	Seismic surveys use 'reflection seismology' to estimate the properties of the earth's subsurface from reflected seismic waves. The basic principles of seismic survey technology are presented in Section 3.1 of the EP. During a MSS an acoustic source releases a bubble of compressed air, and as the bubble collapses it sends a directionally focused low frequency sound wave towards the seabed. These sound waves reflect off formations below the seafloor and the time taken for each sound wave to return to the towed hydrophones provides information about the depth of different subsurface structures. Seismic data is collected without physical disturbance to the seabed and the underwater noise generated by a MSS is temporary and ceases at the completion of the survey. Marine seismic surveys cause no physical disturbance to benthic sediments as the vibrational force transmitted by sound waves is weak; hence this claim is unfounded. However, the underwater noise generated can cause physiological, behavioural, and perceptual effects to marine organisms. These potential effects are described at length in Section 7.2 of the EP. TGS has not updated the EP in response to these comments.
121	**Matter:** Water pollution. **Claim**: Pollution of water ways and surrounding areas.	TGS has assessed the potential for water pollution within Section 7.3 (routine permissible waste discharges), Section 8.3 (vessel collision, sinking, and bunkering and associated hydrocarbon spills). Control/mitigation measures have been provided throughout these sections to ensure there is no water pollution associated with the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
122	**Matter:** Air/atmospheric pollution. **Claim:** Knock on effect of air pollution in an already struggling environment. No concerns were raised in regard to possible impacts from atmospheric emissions and as such, no additional control measures/mitigation measures were put in place.	No concerns were raised during the relevant persons consultation program with regard to possible impacts from atmospheric emissions; however, TGS has provided control/mitigation measures within Table 105 of the EP to minimise the atmospheric emissions produced by the Survey Vessels during the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.

123	**Matter:** Environmental footprint. **Claim:** The EP acknowledges that the impact of this seismic testing is likely to have an enormous environmental footprint that spans across the state of Victoria, Tasmania and South Australia and NSW.	The EP described three areas associated with the Otway Basin 3D MC MSS: • The Operational Area – the area where all activities managed under the EP will take place. This area includes the Acquisition Area and a surrounding buffer that could be used for operational purposes; • The Acquisition Area – the area where prospective clients may be interested in acquiring seismic data and the acoustic source will be active; and • The EMBA – the maximum extent of the oil spill trajectory modelling at which entrained hydrocarbons were above the low threshold from the modelled release locations. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely unlikely likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS disagrees with the submitters use of the word '*likely*' in this context - a collision and release of marine fuel has never occurred within Australian waters, or during any of TGS' operations internationally. TGS has not updated the EP in response to these comments.
124	**Matter:** Impacts on benthic environment. **Claim:** Benthic invertebrates provide important ecosystem services and therefore these species may be keystone species.	TGS has provided a comprehensive description of the existing environment, including the identification of benthic invertebrates that may be present within the Operational Area, throughout Section 4.5 of the EP. Identification of specific species was based on the results of the EPBC Act Protected Matters search, which identified several protected species as potentially present within the Operational Area. TGS has provided extensive discussions within Section 7 (planned activities) and Section 8 (unplanned activities) the EP on the impacts of seismic surveys on marine life. Information pertaining to the impacts of seismic on marine life provided within the EP is based on the most up to date scientific literature. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to the benthic environment to have specific relevance, however, as this matter has already been addressed within the EP, TGS has not updated the EP in response to these comments.

125	**Matter:** Underwater sound impacts on marine fauna (general). **Claim:** Seismic testing has been demonstrated to have impacts of various marine species, some of which are protected. If the mitigation plan pertained to all marine species there would be very few opportunities to actually acquire data.	TGS has provided a comprehensive description of the existing environment, including the identification of marine fauna that may be present within the Operational Area. Identification of species was based on the results of the EPBC Act Protected Matters search, which identified several protected species as potentially present within the Operational Area. The species potentially present within the Operational Area have been described throughout Section 4 of the EP, with potential impacts from acoustic emissions assessed throughout Section 7.2 of the EP based on each individual receptor (i.e. marine mammals, fish, elasmobranchs, seabirds, etc.). The assessment of potential impacts to marine fauna and protected species has been based on the most up to date scientific literature. The Otway Basin 3D MC MSS will be managed so that potential impacts and risks to protected marine species are not inconsistent with the relevant management plans. In accordance with the control measures provided in Table 97 of the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks to marine fauna will be managed to ALARP and Acceptable levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to marine fauna to have specific relevance, however, as this matter has already been addressed within the EP, TGS has not updated the EP in response to these comments.
126	**Matter:** Animal cruelty **Claim**: Death and injury inflicted on marine life can be considered to be animal cruelty. Just because an act is permitted does not mean it is ethical.	TGS has assessed the comments pertaining to the animal cruelty to have specific relevance with regard to the Otway Basin 3D MC MSS. TGS agrees with the submitters that the activity has the potential to result in impacts to marine life. As a result, TGS prepared an environmental risk assessment to evaluate the impacts and risks arising from the Otway Basin 3D MC MSS. As part of the environmental risk assessment process, TGS identified the sensitivities of relevance to the Otway Basin 3D MC MSS (outlined throughout Section 4 of the EP), with potential impacts and risks to these sensitivities as a result of the activities associated with the Otway Basin 3D MC MSS assessed throughout Section 7 (planned activities) and Section 8 (unplanned activities) for each sensitivity/receptor. Those control measures that were deemed to be practical to implement and would prevent or reduce impact on sensitivities/receptors were developed into Environmental Performance Standards for implementation during the Otway Basin 3D MC MSS. Potential environmental impacts and risk to sensitivities/receptors were only deemed to be acceptable once all reasonably practicable control measures have been adopted to reduce the potential impacts and risks to ALARP. No changes have been made to the EP in response to these comments.
127	**Matter:** Impacts of seismic are felt outside of the zone described in the EP.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS.

	Claim: Research has shown seismic noise travels over 100 km in the ocean, meaning it can impact marine life in areas well beyond the zone described in the EP.	The Operational Area represents the area within which the acoustic source may be activated and not the area within which acoustic impacts will be restricted to. TGS acknowledges that sound will travel outside of the Operational Area, however, Underwater Acoustic Modelling has been utilised to describe the spatial extent of impacts on marine sensitivities. Interpretation of this modelling has focussed on the maximum predicted zones of impact and for the purpose of developing appropriate control measures these maxima have typically been applied regardless of the position of the acoustic source within the Operational Area. This approach ensures that any spatial controls adopted are conservative. For example, the predicted onset distance for behavioural effects for southern right whales were assessed for 'mother/calf pairs' as 31.5 km, but the maximum-over-depth acoustic modelling results predicted behavioural effects out to 42 km for this cohort. In this instance the 42 km distance was used to define a buffer zone around the southern right whale Reproduction BIA in acknowledgement that underwater noise from the seismic survey could elicit responses well outside the Operational Area. TGS also recognises that the noise from the proposed Otway Basin 3D MC MSS will be audible to some marine fauna over an area much larger than that in which injury or behavioural effects are predicted. This is a well-recognised occurrence in the marine soundscape on a global scale; however, as audibility does not intrinsically equate to an adverse effect, this is an accepted consequence of virtually any noise generating activity in the marine environment (e.g. seismic surveys, commercial shipping, recreational boating, oil and gas production, marine construction, aquaculture etc.). **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs** but has made no further updates to the EP with regard to this matter..
128	**Matter:** Cumulative impacts. **Claim:** No consideration has been given to cumulative impacts of seismic.	Section 9 of the EP addresses the potential for cumulative effects of the Otway Basin 3D MC MSS from 1) concurrent and/or consecutive marine seismic surveys, and 2) multiple exposures of the acoustic source from infilling; concluding that the potential for cumulative noise impacts is low. On the basis that this topic is already addressed by the EP, no further updates are required in response to these submissions.
129	**Matter:** Impacts on plants. **Claim:** Larger species feed on smaller species which in turn depend on plants.	TGS is not aware of any scientific literature published into the potential impacts of marine seismic surveys on phytoplankton (the basis of the food chain). Due to the depths associated with the Operational Area, and thus restricting light penetration to the seabed, there are unlikely to be large plants and therefore TGS does not anticipate any impacts on larger plants arising from the activities associated with the Otway Basin 3D MC MSS. There is potential for kelp in shallower, more coastal areas to be impacted in the highly unlikely event of a marine oil spill, as demonstrated by oil spill modelling. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an

		explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. I TGS has not updated the EP in response to these comments.
130	**Matter:** Physiological impacts are not addressed. **Claim:** EP does not address physiological evidence provided about the stress or welfare impacts of seismic operations.	TGS has provided a detailed discussion of the scientific literature outlining potential physiological impacts to marine fauna from seismic surveys throughout Section 7.2 of the EP. In acknowledgement of the potential for the Otway Basin 3D MC MSS to result in physiological effects in marine fauna within the Otway Basin region, TGS has committed to various control/mitigation measures to ensure that impacts are reduced to ALARP and Acceptable Levels. Control/mitigation measures to protect marine fauna from acoustic impacts are provided in Table 97 of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
131	**Matter:** Underwater sound impacts on the Bonney Upwelling. **Claim:** The Bonney Upwelling is an important system off the coast of Victoria and processes such as seismic testing that damage this food source or drive marine life away from the upwelling should be prevented.	The EP contains a description of the Bonney Upwelling system within Section 4.4.3.2, including a detailed description of the physical processes associated with this upwelling system and the biological sensitivities it supports. The potential impacts to the biological sensitivities of the Bonney Upwelling from acoustic emissions have been assessed throughout Section 7.2 for each biological receptor. The Otway Basin 3D MC MSS will be managed so that potential impacts and risks to marine fauna are not inconsistent with the relevant management plans, and, in accordance with the control measures outlined in Table 97 of the EP, the Otway Basin 3D MC MSS will be managed so that potential impacts and risks to marine fauna, including those that inhabit within, or utilise the Bonney Upwelling are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has assessed the comments pertaining to the Bonney Upwelling system to have specific relevance, however, as this matter has already been addressed within the EP, no further EP updates are required.
132	**Matter:** Impacts on Marine Parks.	Section 4.4.1 of the EP provides details on the Zeehan Australian Marine Park, with this description based on that provided within the South-East Marine Reserves Network Management Plan (2013 – 2023). TGS acknowledges the ecological significance of the Zeehan Marine Park with values including ecosystems, habitats,

	Claim: EP fails to address the ecological significance of the Zeehan and Nelson Marine Parks.	and communities associated with the Western Bass Strait Shelf Transition and the Bass Strait Shelf Province, seafloor features (deep/hole/valley, and shelf), migration areas for blue, fin, sei, and humpback whales, foraging areas for black browed and shy albatross, Australasian gannet, short-tailed shearwater, and crested tern, and the heritage wreck site of the *MV City of Rayville*. TGS has assessed the comments pertaining to the ecological significance of the Zeehan and Nelson Marine Parks to have specific relevance. In response**, TGS has provided additional text describing the ecological significance of the Zeehan Marine Park above that described by the South-East Marine Reserves Network Management Plan (2013 – 2023) within the EP. Additional descriptions can be found in Section 4.4.1.1 and Section 4.4.1.2 of the EP.**
133	**Matter:** Impacts on KEFs **Claim:** Seriously concerned about the impact to the surrounding areas KEFs.	Key Ecological Features of relevance to the Otway Basin 3D MC MSS have been described within Section 4.4.3 and depicted in Figure 14 of the EP. TGS has provided extensive discussions within the EP on the impacts of seismic surveys on marine life. Information pertaining to the impacts of seismic on marine life provided within the EP is based on the most up to date scientific literature. TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures to determine the benefits of their implementation towards risk reduction, with corresponding Environmental Performance Standard/s to ensure the control measure consistently performs to reduce impact or risk to ALARP and to an acceptable level. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. On the basis that this matter has already been addressed in detail within the EP, no further EP updates are required.
134	**Matter:** Operational Area overlaps with BIAs. **Claim:** The area of operations directly overlaps biologically important areas of many species.	Submitter/s correctly identify that the Operational Area overlaps with several Biologically Important Area (BIAs). The EP clearly identifies the BIAs in the vicinity of the Operational Area and EMBA in Section 4.4.4 of the EP and discussed these in more detail through the respective subsections of Section 4.5 of the EP. BIAs of the following species are subject to overlap: whale sharks, blue whales/pygmy blue whales, southern right whales, wedge-tailed shearwater, short-tailed shearwater, wandering albatross, Antipodean albatross, Australasian gannet, white faced storm petrel, common diving petrel, Buller's albatross, shy albatross, Indian Ocean yellow-nosed albatross, black browed albatross, and Campbells albatross.

		For those affected species for which residual risks are assessed as being greater than low, controls are proposed to manage the potential risks of operating in these areas, for example: • BMP 2: The Seismic Vessel will not activate the acoustic source(s) within any blue whale BIAs/buffer from January to April (inclusive) which represents the peak foraging season during which BW/PBW are expected to consistently be present at foraging areas in and around the Operational Area at elevated densities. The only exception allowed relates to the acquisition of the 2D tie lines in accordance with the criteria outlined in AMP 2 in Appendix Q of the EP; • SRMP 2: The Seismic Vessel will not activate the acoustic source(s) within the southern right whale Reproduction BIA/buffer from May to September (inclusive) which represents the core breeding months during which SRWs are expected to be present here. The only exception allowed relates to the acquisition of the 2D tie lines in accordance with the criteria outlined in AMP 2 in Appendix Q of the EP. On the basis that this topic is already addressed by the EP, no further updates are required. However, **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs**.
135	**Matter:** Damage to marine sanctuaries. **Claim:** Marine sanctuaries at Port Addis and elsewhere along the Surf Coast would be severely damaged.	Marine protected areas and sensitive areas of relevance to the Operational Area and EMBA have been identified within Section 4.4 of the EP. Coastal areas such as along the Surf Coast will not be "*severely damaged*" by acoustic emissions from the Otway Basin 3D MC MSS TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
136	**Matter:** Marine Parks must be avoided.	Objections or claims pertaining to Marine Parks are within the scope of the EP. These comments have been assessed to have specific relevance with regard to the Otway Basin 3D MC MSS. However, seismic surveys are

<table>
<tr><td></td><td>Claim: Hotspots designated by marine parks must be avoided. The Australian Government is currently reviewing the management of the southeast marine park network. Commonwealth marine parks are not supposed to be blasted while they are under review. Impacts on Marine Parks are unacceptable.</td><td>permitted within the Nelson and Zeehan Australian Marine Parks in accordance with a class approval from the Director of National Parks.

TGS has provided detailed discussions on the sensitivities within the Operational Area, including those associated with the Zeehan and Nelson AMPs and potential impacts to sensitivities from various activities associated with the Otway Basin 3D MC MSS throughout the EP. These discussions are based on up-to-date relevant scientific literature.

Throughout Section 7 and Section 8 of the EP, TGS has considered all control measures to determine the benefits of their implementation towards risk reduction, and a table outlining the control measures that will be adopted, with corresponding Environmental Performance Standard/s.

In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.

TGS has not updated the EP in response to these comments.</td></tr>
<tr><td>137</td><td>Matter: Temporal overlap of survey with presence of conservation dependant marine fauna.

Claim: Survey will overlap with the peak PBW season. Noting that temporal overlap with sooty shearwaters, blue fin tuna, and southern right whales is also of concern.</td><td>The ecology of biological receptors that submitter/s specifically name is discussed throughout Section 4.5 of the EP, and the temporal presence of these species is summarised below:

<table>
<tr><th></th><th>J</th><th>F</th><th>M</th><th>A</th><th>M</th><th>J</th><th>J</th><th>A</th><th>S</th><th>O</th><th>N</th><th>D</th></tr>
<tr><td>Pygmy blue whale (Section 4.5.6.1.1)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Southern right whale (Section 4.5.6.1.2)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Blue fin tuna (Section 4.5.3.1.2)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sooty shearwater (Sagar, 2013)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Key</td><td colspan="3"></td><td colspan="3">= Peak season</td><td colspan="3"></td><td colspan="3">= Shoulder season</td></tr>
</table>

While submitter/s correctly identify that pygmy blue whales (endangered), southern right whales (endangered), southern blue fin tuna (conservation dependent) have an EPBC Act conservation status listing, the sooty shearwater is currently afforded no threat listing under the EPBC Act.

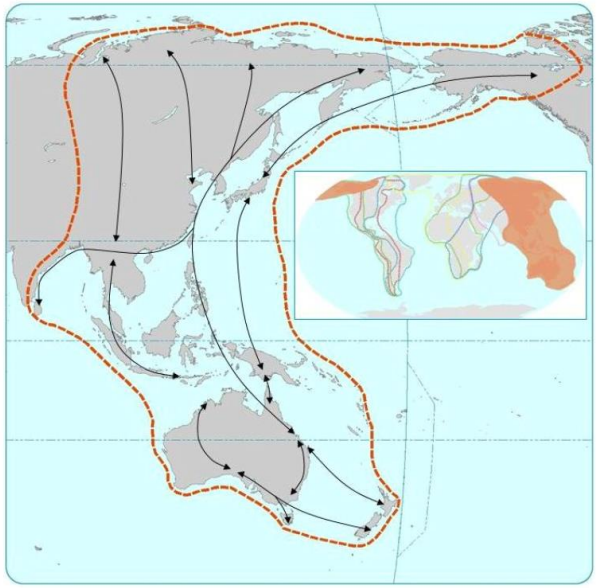
The exact timing of the Otway Basin 3D MC MSS is yet to be determined, but TGS notes that survey commencement in October is their preference on account of generally favourable weather at this time of year and to reduce the potential for temporal overlap with key biological receptors. Despite this, survey timing could</td></tr>
</table>

		be influenced by many factors including the EP approval process and the availability of survey vessels and personnel. For this reason, the EP has been drafted to enable survey operations at any time of the year, noting that controls have been developed to protect important habitat during key periods (e.g., prohibition of 3D acquisition in blue whale and relevant southern right whale BIAs/buffers during peak seasons), to implement adaptive management to response appropriately to higher than anticipated numbers of key species, and to ensure controls throughout the Operational Area are strong and appropriate to manage all potential identified risks. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. On the basis that this topic is already addressed by the EP, no further updates are required in response to these submissions. However, **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs**. Reference: Sagar PM (2013) (updated 2022) Sooty shearwater, in CM Miskelly (Ed), New Zealand Birds Online. Available at: https://www.nzbirdsonline.org.nz/species/sooty-shearwater.
138	**Matter:** Overlap with KEFs **Claim:** The proponent has an exclusion zone for the WWII dumpsite which lies on the continental shelf. This should be extended to include the entire length of the shelf within the Operational Area covering the KEFs.	Key Ecological Features of relevance to the Operational Area are described within Section 4.4.3. The Operational Area overlaps directly with the West Tasmania Canyon Key Ecological Feature. This Key Ecological Feature is recognised for its high biodiversity of benthic invertebrates and high productivity. TGS has provided a detailed risk assessment on the potential impacts of the Otway Basin 3D MC MSS on the sensitivities associated with the West Tasmania Canyon Key Ecological Feature throughout Section 7.2 of the EP. As described within Section 7.2.2.5.3 of the EP, the main risk to sensitivities associated with the West Tasmanian Canyon Key Ecological Feature are those to marine mammals, however, TGS will implement several additional control measures in place when operating within the relevant pygmy blue whale and southern right whale BIAs and during sensitive periods for these species. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all regulatory requirements. On the basis that TGS has adequately addressed this topic within the EP, no further updates have been made in response to these submissions.
	THEME	**SEABIRDS**
#	COMMENTS RECEIVED	*Titleholder response*

139	**Matter:** Impacts on little penguin populations. **Claim:** Seismic testing creates additional threats to threatened little penguins, with potential direct impacts on little penguin feeding and breeding. This is counterproductive to efforts to protect these seabirds. The Middle Island penguin colony is within the immediate proximity of the survey area.	TGS has provided a comprehensive description of the existing environment, including the identification of seabirds potentially present within the Operational Area. Identification of species was based on the results of the EPBC Act Protected Matters search which identified little penguins as potentially present within the wider EMBA, but not the Operational Area. However, potential impacts on little penguins have been assessed within the EP in Section 7.1 (physical presence of Seismic Vessel and towed equipment), and Section 7.2 (physiological and behavioural impacts of acoustic emissions). Although there is no scientific evidence of physiological impacts on little penguins (or seabirds in general) from seismic acoustic emissions, TGS acknowledge within the EP that physiological impacts could occur. Section 7.2.2.3.7 provides a discussion on the available scientific literature pertaining to behavioural effects on seabirds, including the references referred to by the submitter. Submitters raised concerns around little penguins at the Middle Island colony – this colony is 59 km from the closest point of the Operational Area. **TGS has updated Section 4.5.7 the EP in response to submissions to include a description of the Middle Island little penguin colony.** In accordance with the management measures outlined within the EP, the Otway Basin 3D MC MSS will be managed so that potential impacts and risks to little penguins are reduced to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.
140	**Matter:** Impacts from artificial light emissions. **Claim:** Concerns were raised by relevant persons around the potential impacts of artificial light emissions on seabirds.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. No additional control/mitigation measures will be put in place for the duration of the Otway Basin 3D MC MSS with regard to light emissions. The control measures associated with industry best practice are considered appropriate to ensure the environmental impacts relating to light emissions from survey vessels are considered to be ALARP and at Acceptable Levels; these control/mitigation measures are provided in Table 112 of the EP. In particular, TGS has taken into consideration the National Light Pollution Guidelines for Wildlife. These guidelines recommend using Best Practice Lighting Design and undertaking an environmental risk assessment where there is important habitat within 20 km of a project. This distance is based on grounding behaviour of fledgling seabirds in response to artificial light 15 km away. The closest known breeding/nesting area for seabirds is reported to be King Island, approximately 40 km from the Operational Area. All collisions with seabirds will be recorded and reported within the final survey report. Handling procedures for the retrieval of seabirds on the vessels' deck will be detailed within the Marine Fauna Mitigation Plan – to be prepared by the lead MFO. TGS has not updated the EP in response to these comments.

141	**Matter**: Impacts on short-tailed shearwaters **Claim:** The birds are under stress due to environmental factors, including increasing light pollution and food shortages within breeding grounds. Short-tailed shearwaters are also a licensed commercial and recreationally harvested species, highly valued by the north-west Tasmanian community.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. No additional control/mitigation measures will be put in place for the duration of the Otway Basin 3D MC MSS with regard to light emissions. The control measures associated with industry best practice are considered appropriate to ensure the environmental impacts relating to light emissions from survey vessels are considered to be ALARP and at Acceptable Levels; these control/mitigation measures are provided in Table 110 of the EP. In particular, TGS has taken into consideration the National Light Pollution Guidelines for Wildlife. These guidelines recommend using Best Practice Lighting Design and undertaking an environmental risk assessment where there is important habitat within 20 km of a project. This distance is based on grounding behaviour of fledgling seabirds in response to artificial light 15 km away. The closest known breeding/nesting area for seabirds is reported to be King Island, approximately 40 km from the Operational Area. All collisions with seabirds will be recorded and reported within the final survey report. Handling procedures for the retrieval of seabirds on the vessels' deck will be detailed within the Marine Fauna Mitigation Plan – to be prepared by the lead MFO. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
142	**Matter:** Orange bellied parrot. **Claim:** Continuous lighting on board the ship will impact migratory birds flight paths. This is particularly true for the critically endangered orange bellied parrot. We could find no mention of orange bellied parrots in the EP.	The issue raised by submitters contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. As such, these comments have been assessed to have specific relevance with regard to the Otway Basin 3D MC MSS. TGS directs submitters to Table 30 of the EP within which the orange-bellied parrot has been included as a species that is potentially present within the EMBA (i.e. Breeding KNOWN to occur within EMBA overfly area) based on identification of this species within the EPBC Act Protected Matters Search. TGS notes that following feedback from DEECA Victoria, **a footnote has been added to Table 30** regarding orange-bellied parrot presence within the EMBA to state that this species does not breed in the EMBA under the jurisdiction Victoria, rather they migrate over this area before and after breeding in Tasmania. The Listing Advice for this species has also already been included within Table 33 which lists the relevant EPBC Act Conservation Management Plans, Recovery Plans, and Conservation Advice. **TGS has updated Section 7.5.2.4** to provide a description of the migrations of the orange-bellied parrot and an assessment on the risk associated with artificial lights from the Survey Vessels on this species.

143	**Matter:** Vessel strike on birds. **Claim:** Specify the control measures needed to reduce the impact of seismic vessels and towed vessels for shearwater populations.	Potential vessel strike on seabirds from the Otway Basin 3D MC MSS has been discussed within Section 7.1.2.3 of the EP. While this acknowledges there is potential for vessel strike to occur, this potential is expected to be low due to the low operating speeds of the Seismic Vessels – seabirds in the path of the vessels are expected to relocate to avoid collision as is typical of most interactions between vessels and seabirds. Potential impacts of artificial light have been discussed within Section 7.5.2.4 of the EP which acknowledges that artificial light may act as an attractant to some species of seabird. Although there are no specific control/mitigation measures in place to stop vessel strike on seabirds, Section 7.5.6 provides several control/mitigation measures to reduce the potential for artificial lighting on the Survey Vessels to act as an attractant to seabirds and therefore increase the risk of vessel strike on seabirds. TGS has assessed the comments pertaining to vessel strike on shearwaters to have specific relevance, however, as this matter has already been addressed within the EP, no further EP updates are required.
144	**Matter:** Cumulative impacts of light. **Claim:** The cumulative impacts of artificial lighting on migratory shorebirds' populations were not investigated.	Migratory shorebirds that may occur in the EMBA are identified in Table 31 of the EP and include the common sandpiper, ruddy turnstone, sanderling, whimbrel, red-necked phalarope, ruff, grey-tailed tattler, wandering tattler, and marsh sandpiper. Of these species only the ruff and the marsh sandpiper are noted as potentially overflying the Operational Area during migrations. The East Asia/Australasia Flyway extends from Arctic Russia and North America to Australia and New Zealand (as depicted below). While this flyway incorporates some of the Operational Area and EMBA, the south coast of Australia generally represents one of the southern-most limits of this flyway, so south-bound migration of shorebirds from the coastline of the EMBA is not typical.



The potential effects of artificial lighting from the Otway Basin 3D MC MSS on avifauna are described in Section 7.5.2.4 of the EP. This section highlights the Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2022) which characterises light pollution as a moderate risk that may have a minor impact on individuals. It stands to reason that this conclusion would be relevant to migratory shorebirds as well, particularly seeing that few shorebirds are expected to embark on southbound migration from the south coast of Australia through the Operational Area. Further to this, BirdLife International does not list artificial lighting as one of the primary threats faced by migratory shorebirds on the East Asia/Australasia Flyway (Birdlife, 2023).

Section 9 of the EP assesses the potential for cumulative effects, with a focus on underwater noise exposure. While submitter/s correctly identify that cumulative effects from artificial lighting on migratory shorebirds were not specifically assessed in Section 9, for the following reasons the potential for cumulative lighting effects on shorebirds is considered to be negligible as:

- When considered independently (see Section 7.5.2.4 of the EP) artificial lighting effects from the Otway Basin 3D MC MSS are assessed as low (Minor x Unlikely);
- Any impacts would be restricted to individuals and no population level effects are expected;
- Few shorebirds are expected to embark on southbound migration from the south coast of Australia through the Operational Area; and
- The seismic vessel will confer no greater risk than a large fishing vessel in respect of light pollution.

		TGS has updated Section 9 of the EP to clarify that because underwater acoustic disturbance from the Otway Basin 3D MC MSS is identified in Section 7 as having the greatest potential impact of all the potential effects discussed, the discussion regarding cumulative effects focuses on this underwater acoustic disturbance. All other potential impacts from planned activities (i.e., physical presence of seismic vessel and towed equipment, routine permissible waste discharges, atmospheric emissions, and artificial light emissions) when assessed individually, had a residual risk ranking of low or negligible; hence are unlikely to be of ecological significance in a cumulative context. Map sourced from Birdlife (2023). http://datazone.birdlife.org/userfiles/file/sowb/flyways/8_East_Asia_Australasia_Factsheet.pdf
145	**Matter:** Acoustic impacts to seabirds. **Claim:** TGS notes that only birds displaying diving behaviour have the potential to be physiologically impaired by the sound source of the survey. However, almost every species that occurs within the area undertake diving behaviours. TGS have failed to thoroughly address details of diving birds and provide mitigation measures to prevent harm to diving birds. The EP fails to use the most up-to-date and relevant research when determining impacts to seabirds. Many offshore species actively follow boats in the search for prey.	Section 4.5.7 of the EP describes the seabird species that could be present in the Operational Area and EMBA and highlights the fact that the Operational Area overlaps with several BIAs for seabirds. Impacts to foraging seabirds have not been observed previously during seismic surveys. Only birds diving and foraging within the immediate vicinity of the acoustic source have the potential to be exposed while diving for fish. Such behaviours may result in a startle response during diving. However, given the likely avoidance response from fish and other prey species in the waters immediately surrounding the acoustic source, birds are unlikely to forage near the operating acoustic source. In the unlikely event that birds dive and forage near the acoustic source, this is likely to only affect individual birds, resulting in a startle response with the affected birds expected to move away from the area as a result. The consequence of this is expected to be negligible and impacts at a population level are extremely unlikely to occur. Regarding the claim that 'TGS have failed to thoroughly address details of diving birds', the EP clearly indicates that oceanic habitat provides critically important feeding grounds for seabirds, and Table 30 lists the seabird species that have been identified as having a certain or possible presence in the Operational Area or EMBA, of which c. 50 are diving seabirds. Further to this, additional ecological information (e.g., distribution, habitat, and life stages) is provided in Appendix H for those species considered as threatened under the EPBC Act. TGS considers that sufficient detail about diving seabirds has therefore been incorporated into the EP. On the basis of the points listed above no specific mitigations are proposed for seabirds during the Otway Basin 3D MC MSS, as the residual risk to seabird physiology arising from acoustic disturbance during the Otway Basin 3D C MSS has been assessed as Low (Minor x Rare). Submitters have noted that many offshore species actively follow boats in search of prey, with Corbeau *et al*. (2019) cited as evidence. This study investigated the response of birds to fishing vessels. The Survey Vessels associated with the Otway Basin 3D MC MSS are not fishing vessels and as such are not expected to have the same attraction effect on foraging seabirds. However, TGS acknowledges that through learned behaviours, some seabirds within the Operational Area may follow the Survey Vessels. This has been addressed within Section 7.1.2.3 of the EP with reference to potential impacts from the physical presence of the Survey Vessels and towed equipment.

		TGS has not updated the EP in response to these comments.
146	**Matter:** National Recovery Plan for Threatened Albatrosses and Giant Petrels. **Claim:** TGS has failed to identify the most recent conservation advice for albatross and petrels and only references the Draft National Recovery Plan for Threatened Albatrosses and Giant Petrels 2021. TGS has failed to consider all relevant key threats under the Plan.	Marine threats to albatrosses and great petrels covered under the National Recovery Plan for Threatened Albatrosses and Giant Petrels are: fisheries interactions and bycatch, deliberate take, marine pollution, competition with fisheries for prey species, dependence of fisheries discards, marine infrastructure interactions, and climate variability and change. **Table 33 has been updated to expand on the "marine pollution" threat to cover fuel and oil spills, chemical contaminants, and marine debris and to also include marine infrastructure interactions.** These threats have been covered under Section 7.3, Section 8.3 and Section 8.5, including adoption of appropriate mitigation measures. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. **TGS has updated Table 33** of the EP to reflect that the National Recovery Plan for Threatened Albatrosses and Giant Petrels has been through the review phase and is no longer in draft format.
147	**Matter:** Impacts to shy albatross prey. **Claim:** EP fails to detail the risks and measures to mitigate risks on impacts and harm to the cephalopods, crustacea, and tunicates foraged by the shy albatross.	TGS has provided an assessment on the potential impacts of acoustic emissions from the Otway Basin 3D MC MSS on cephalopods, crustaceans, fish, and plankton throughout Section 7.2 of the EP. These organisms constitute the diet of shy albatross. TGS also acknowledges within Section 7.2.2.3.7 that the behaviour and distribution of seabird prey may be affected. As this matter has been addressed within the EP, TGS has not made any updates to the EP in response to these submissions.
148	**Matter:** Incorrect threat classification. **Claim:** The EP states that there is no listing for the double-banded plover. This is an error as the double-banded plover is a listed marine species under the EPBC Act and a listed	Submitter is correct in that the double-banded plover is listed as marine and migratory, however, it does not have a 'threatened category' as can be seen in the table referred to by the submitter (Table 30 in the EP), and in the results of the EPBC Act Protected Matters Search (Appendix D). Submitter claims that the EP incorrectly lists the threat status of the hooded plover (*Thinornis rubricollis*) within Table 30 of the EP. The hooded plover has been reported to not have a threat classification. This is correct as per the DCCEEW SPRAT database whereby hooded plover are listed as marine, but do not have a threatened status listed.

	migratory species under the EPBC Act Bonn. The threat status attributable to the hooded plover in the report is incorrect	TGS has not updated the EP in response to these comments. **TGS has however, added the Eastern hooded plover (*Thinornis cucullatus cucullatus*) into Table 30 of the EP**, which has been listed under this species name as Vulnerable.
	THEME	**OIL SPILLS**
#	COMMENTS RECEIVED	*Titleholder response*
149	**Matter:** Extent of an oil spill and severity of effects. **Claim:** Unplanned activities may potentially cause even greater harm than planned activities. A marine diesel oil spill will detrimentally affect stocks of commercially harvested kelp, accumulate on beaches, and have long-term and/or permanent impacts. There is no socially acceptable level for these serious and irreversible impacts.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined. The EMBA was derived using stochastic hydrocarbons dispersion and fate modelling. This modelling simulated the occurrence of 100 realistic spill events of 1,066 m^3 of marine diesel oil from five locations within the Operational Area over six hours on the sea surface. Once all 100 simulations were run per location, the results were combined to determine the maximum potential extent as which various environmental thresholds were reached. The extent of the EMBA was based on a combination of the maximum extent of the spill trajectory at which entrained hydrocarbons were above the low threshold from each of the five modelled release locations. Utilising the maximum extent from all spill locations results in a worst-case scenario for the spatial extent of impacts from the Otway Basin 3D MC MSS. It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has not updated the EP in response to these comments.
150	**Matter:** The size of the EMBA is the whole of Victoria's coastline.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS.

	Claim: The size of the EMBA is the whole of Victoria's coastline and seismic blasting should not be allowed. Even if it is allowed, the extent and frequency is too significant and should be massively reduced.	See Matter 149. TGS has not updated the EP in response to these comments.
151	**Matter:** Oil spills at sea are an unnecessary risk. **Claim:** Refuelling should be conducted within a port.	The issue raised by submitters contains specific relevance that pertain to potential environmental impacts from the Otway Basin 3D MC MSS and as such, TGS has assessed the submission to have specific relevance. TGS has considered a number control/mitigation measures to determine the benefits of their implementation towards risk reduction, including the control measure of refuelling of vessels exclusively within port. As stated within Table 138 of the EP, refuelling at sea cannot be completely removed from operations during the Otway Basin 3D MC MSS on account of the offshore nature of the Operational Area. Refuelling exclusively in port is not considered a practical option and will increase vessel activity throughout the Otway Basin. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. With regard to reducing the risk of an oil spill, these control/mitigation measures are outlined within Table 138 of the EP. TGS has not updated the EP in response to these comments.
152	**Matter:** Oil spills may reach the coastline. **Claim:** The EMBA zone shows oil spills may reach much of the Victorian and Tasmanian coastlines that are inaccessible to enable amelioration of the damage.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined. The extent of the EMBA was based on a combination of the maximum extent of the spill trajectory at which entrained hydrocarbons were above the low threshold from each of the five modelled release locations. Utilising the maximum extent from all spill locations results in a worst-case scenario for the spatial extent of impacts from the Otway Basin 3D MC MSS. It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimize the extent of any impact. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP.

		In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
153	**Matter:** Chemical dispersants. **Claim:** Many of the chemical dispersants utilised by industry to clean up oil spills are known carcinogens.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. However, as stated in Table 137 contained within Section 8.4 of the EP, TGS state that the use of dispersants as a clean-up option in the unlikely event of an oil spill is not recommended as it is not beneficial for reducing the net environmental impacts of a marine diesel oil spill. TGS has not updated the EP in response to these comments.
154	**Matter:** Water quality impacted by oil spills. **Claim:** Water quality will be impacted by potential oil spills.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has provided a detailed discussion on the potential impacts from a marine diesel spill on environmental receptors throughout Section 8.3 of the EP, including potential marine environment quality impacts (i.e. water quality). Included within Section 8.3.8 of the EP are the control/mitigation measures that TGS will implement to ensure that the risk of an oil spill is reduced to Acceptable Levels and ALARP. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has not updated the EP in response to these comments.
155	**Matter:** Sea conditions increase risk of oil spills. **Claim:** The high swell environment of the Operational Area significantly increases the risk of oil spills.	The issue raised by submitters contains specific relevance that pertain to potential environmental impacts from the Otway Basin 3D MC MSS and as such, TGS has assessed the submission to have specific relevance. TGS has assessed the potential risk of a marine diesel oil spill within Section 8.3 of the EP. TGS has incorporated more specific information into Section 8.3 of the revised EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). Each survey vessel will have a refuelling and bunkering procedure that outlines the steps to be taken during refuelling operations to ensure this is carried out in a safe manner and without incidents. Furthermore, at sea refuelling will only take place during daylight hours and within strict weather limit guidelines. These control/mitigation measures have been committed to by TGS within Table 136 of the EP.

		TGS has not updated the EP in response to these comments.
156	**Matter:** Oil Spill Emergency Response Plan details are unknown. **Claim**: Submitter/s call on TGS to supply them with copy of the plan including a description of chemicals used to clean up spilled oil (incl. SDSs), and the location and number of vessels available to assist in the case of an emergency.	Section 10.10 of the EP sets out the Oil Pollution Emergency Plan to be followed in the event of a Type 1 or Type 2 hydrocarbon spill. This is set out in accordance with Regulation 22(9)(d) of the Environment Regulations. The OPEP includes arrangements for notifying AMSA and engaging the National Plan resources. All vessels over 400 gross registered tonnage contracted for the Otway Basin 3D MC MSS will hold an approved and tested Shipboard Oil Pollution Emergency Plan, with crew trained in its implementation. Prior to the commencement of survey operations, the Shipboard Oil Pollution Emergency Plan will be tested including testing of communications and a vessel-based drill in hydrocarbon spill response. This document is vessel-specific and will be available to NOPSMEA if requested following contracting of the survey vessels for the Otway Basin 3D MC MSS. As addressed in Table 137 of the EP, TGS does not recommend the use of chemical dispersants when responding to a marine diesel spill. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has not updated the EP in response to these comments. *Regulation 22(9)(d) of the 2023 Environment Regulations have replaced Regulation 14(8AA)(d) of the 2009 Environment Regulations.
157	**Matter:** Hydrocarbon spills on seabird nesting sites. **Claim:** The risk of hydrocarbon spills on the nesting habitat of seabirds has not been addressed. There is risk to all three breeding grounds for albatross in Tasmania (Mew Stone, Pedra Branca, and Albatross Island). A Recovery Plan needs to be designed for the event of an	The potential for shoreline oiling at seabird nesting sites has been addressed within Section 8.3.3.2.6 of the EP. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations) It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP.

	oil spill for Mew Stone, Pedra Branca, and Albatross Island.	Section 10.10 of the EP contains details of the Oil Pollution Emergency Plan that will be implemented in the event of a spill to the marine environment resulting from activities associated with the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
	THEME	**IMPACT, RISKS AND MITIGATION INCLUDING NOISE MODELLING**
#	COMMENTS RECEIVED	*Titleholder response*
158	**Matter:** Omitted environmental management requirements. **Claim:** Absence of a requirement that prohibits soft-starts until pre-start up requirements are met and the vessel is verified to be outside of the BIA.	Restrictions on soft starts are included in Appendix Q of the EP as follows: AMP 1: Soft start procedures throughout the Operational Area can only proceed under the following circumstances: • If no acquisition has occurred in the preceding 24 hours, soft starts may only commence in daylight hours and when conditions allow visual inspection of the 5+ km Observation Zone; • If acquisition has occurred within the preceding 24 hours and no whale initiated shut downs have been made during this period, then soft starts may commence at night or during periods of low visibility providing they occur outside of the blue whale BIAs/buffer and the southern right whale Reproduction BIA/buffer. This 'additional management procedure' exceeds the requirement of EPBC Policy Statement 2.1 and will be implemented in conjunction with MP 3 and MP 4 (see Appendix Q of the EP) that stipulate 30 minutes of Pre Start-up Visual Observations prior to the commencement of Soft-Start Procedures. On this basis that this issue has already been addressed as described above, TGS has not updated the EP in response to these comments.
159	**Matter:** Impacts have not been reduced to Acceptable Levels and ALARP. **Claim:** Impacts have not been reduced to Acceptable Levels and ALARP. Given large gaps in scientific knowledge, it is impossible to determine if the risks and impacts are of an 'acceptable	As described within Section 6 of the EP, TGS has adopted a hierarchy of controls, which follows a tiered system of "eliminate-substitute-reduce-mitigate" to identify alternate, substitute, and additional control measures. This means that, where possible, TGS has endeavoured to eliminate a risk, however, where this is not possible, the alternatives (in preferred order) is to substitute, reduce, and mitigate. Throughout Section 7 and Section 8 of the EP, TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures and details the control measures that will be

	level'. 'Acceptable' by whose measure?	adopted, with corresponding Environmental Performance Standard/s to reduce impact or risk to ALARP and to an acceptable level. TGS' impact and risk acceptability are clearly outlined in Table 57 and Table 68 of the EP. TGS acknowledges that, as with all activities, there are data gaps and a level of uncertainty within the science relating to the potential effects of seismic surveys on the marine environment and marine species. However, based on scientific literature that has been carried out on the impacts of seismic surveys, including the most up to date published literature, TGS does not believe that the data gaps and level of uncertainty around potential effects of marine seismic surveys is such that reasonable conclusions and decisions regarding such impacts and the level of risk involved cannot be made. TGS has not updated the EP in response to these comments.
160	**Matter:** Zero impacts. **Claim:** Companies involved must not merely reduce the impact, they have a responsibility for their conduct to have no negative consequences. There is no confidence provided in the methods to reduce harm. Any risk is unacceptable. The strategy should be to prevent hard to the animal in question, not just strive to ensure you don't do any more harm than anyone else.	As stated within TGS' Environmental Policy (provided within Appendix A of the EP), TGS is committed to protecting the environment, while also conducting operations in an environmentally sustainable and responsible manner. Under the Environment Regulations, TGS is required to reduce impacts to As Low as Reasonably Practicable (ALARP). The Titleholder must show through reasoned and supported arguments that there are no other practicable options that could reasonably be adopted to further reduce risks. Practicable does not mean 'possible' – a decision on whether an option is practicable involves consideration of several factors, including the sensitivity of the receiving environment to adverse effects, the financial implications of the option when compared with other options, and the current state of technical knowledge and the likelihood that the option can be successfully applied. An 'acceptable level' is the specified amount of environmental impact and risk that an activity may have which is tolerable, is consistent with all relevant principles, and does not compromise the management/conservation/protection objectives of the environment. As described within Section 6 of the EP, TGS has adopted a hierarchy of controls, which follows a tiered system of "eliminate-substitute-reduce-mitigate" to identify alternate, substitute, and additional control measures. This means that, where possible, TGS has endeavoured to eliminate a risk, however, where this is not possible, the alternatives (in preferred order) are to substitute, reduce, and mitigate. Throughout Section 7 and Section 8 of the EP, TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures and details the control measures that will be adopted, with corresponding Environmental Performance Standard/s to reduce impact or risk to ALARP and to an acceptable level.

		In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
161	**Matter:** Inadequate Risk Management Planning and Risk Mitigation. **Claim:** The risk management plan and mitigation are not appropriate for this survey. The plans should cover identification, assessment, mitigation management, and consequences to both marine life and species individually and overall ecosystems, habitat and food chains.	See Matter 160. TGS has not updated the EP in response to these comments.
162	**Matter:** Disagreement with TGS' risk assessment ranking. **Claim**: Submitter/s disagree with the risk ranking that TGS has assigned to certain environmental receptors.	Section 6 of the EP outlines TGS' methodology for risk assessment, which is in accordance with ISO 31000 guidelines, an international standard using a common approach to managing any type of risk across any activity and industry. Risk consequence rankings are determined based on a combination of the scale of effects, duration of effects, effect on populations, protected species and recovery period, effect on socio-economic receptors, and effect on habitat and ecosystem function, and likelihood of the consequence occurring. The risk assessment was carried out for each planned and unplanned activity on each individual receptor – e.g. the residual risk ranking for noise effects on marine mammals is higher than for seabirds. TGS has not updated the EP in response to these comments.
163	**Matter:** JASCO model assumptions. **Claim:** JASCO model assumption used in the EP	Submitter/s have correctly identified that the underwater acoustic model assumes the acoustic source will be active for an average of 20 hours per day. Accounting for line turn periods when the source will be shut down, the most representative scenario that has been modelled is based on an average of 20 hours of active source time per day. The actual amount of time the acoustic source is active will likely be less when taking into consideration weather downtime and mitigation measures such as shut-downs in the presence of marine mammals.

	only accounts for blasting for 20 hours per day.	These assumptions are clearly stated in Appendix B of the EP and are representative of the likely survey lines and acquisition pattern. TGS has not updated the EP in response to these comments.
164	**Matter:** JASCO modelling uncertainty. **Claim:** The JASCO model does not report estimates of potential modelling uncertainty, which undermines the statistical and scientific validity.	Characteristics of sound sources, such as the sound levels in different frequency bands and the directivity of the sources, were used with acoustic propagation modelling to determine quantify the received sound levels to which marine fauna are exposed. Field measurements of an operating source that has been modelled can be used to determine the overall uncertainty associated with the source level modelling. Uncertainties in the source parameterisation and geoacoustics (which influences bottom loss) can, as examples, have a significant influence on the magnitude of the Rmax and R95% radii, which will be most apparent for isopleths at long distances from the source, such as those below 160 dB (SEL or SPL). Real world measurements would likely result in distances to isopleths different than reported herein and demonstrate their own variability due to environmental and source variability. However, the selected parametrisation, has erred on reasonable conservativeness reduce the likelihood of underestimating distances to effects criteria. The models used by JASCO to generate the predictions of underwater noise that underpin this EP are consistently found to be reliable and robust. This provides confidence in the impact assessment which was based on the acoustic modelling results. It is noteworthy that, a verification study for four different acoustic sources in Australian waters found that measured data showed good agreement with the modelling in all cases (McPherson *et al*. 2018). This validation study used fixed loggers on the seafloor which are far superior to streamer-based measurements that have been used previously for the collection of in-field measurements during seismic surveys. With regards to the acoustic array sound source specifications, there is little to no uncertainty in the source model when the acoustic array is a standard type (MacGillivray 2018; McPherson *et al.* 2018). JASCO has confirmed that the proposed acoustic source for the Otway Basin 3D MC MSS fits this description.
165	**Matter:** JASCO involvement in the revision of the National Anthropogenic Underwater Noise Guidelines. **Claim:** JASCO should provide the reports and data they have submitted to the government as part of this review process to ensure currently of the EP modelling.	TGS notes that the review process pertaining to the EPBC Act Policy Statement 2.1 is unrelated to the EP submission process and the associated work that JASCO has been engaged to provide. On this basis, JASCO's involvement with the guidance revision is outside the remit of relevant persons engagement. TGS will comply with the relevant guidance at the time of acquisition of the proposed Otway 3D MC MSS. TGS has not updated the EP in response to these comments.

166	**Matter:** JASCO modelling methodology. **Claim:** The JASCO model does not use a dose-response function to estimate number of affected animals.	Submitter/s have correctly identified that the modelling provides no estimate of number of affected animals, and claim that as well as the noise propagation modelling, an estimate of the number of affected animals should have been produced using a dose response function applied to whale distribution data for the region. This approach is not possible as the local population sizes of key species are unknown. Instead, ANIMAT modelling was used to address the probability of animals being exposed to noise levels above accepted threshold levels for the two key species (pygmy blue whales and southern right whales) in the region. TGS has not updated the EP in response to these comments.
167	**Matter:** Recovery period. **Claim:** There are no details in the consistency and length of time of blasting will occur (e.g. no time provided for species to recover).	Section 3.3 of the EP describes the details regarding the anticipated commencement of the Otway Basin 3D MC MSS, and gives details regarding the proposed duration. In this, the EP describes the data acquisition will occur 24-hours, 7 days a week. Note that whilst the vessel will be operating 24/7, the acoustic source will be active, on average, less than 20 hours per day. This will be further reduced in the event of shut-downs such as in response to the detection of marine mammals. In addition, the EP specifies that where no data infill is required, the seismic vessel will not need to collect data in that area again. Further to this, Section 9 of the EP addresses the potential cumulative effects due to exposure to seismic energy across four scenarios: consecutive/concurrent MSS, multiple MSS in the same region, multiple exposures during a single MSS, and interactions between different sources of sound. On the basis of the details set out above, and accounting for relevant temporal control measures outlined in Section 7 of the EP, the recovery for potentially affected species within the Operational Area are accounted for, i.e. these are specifically addressed via the Risk Assessment framework, as applied to biological receptors discussed in Section 7 of the EP. No updates have been made to the EP in response to these comments.
168	**Matter:** Unknown long-term effects. **Claim:** The long-term impacts of seismic blasting on marine ecosystems and species are not fully understood. It's possible that there are effects that are yet to be discovered.	TGS has provided a comprehensive description of the potential impacts of the Otway Basin 3D MC MSS on the marine environment throughout Section 7 (planned activities) and Section 8 (unplanned activities) of the EP. The assessments contained within the impact assessment are based on up-to-date scientific literature. In addition, Section 9 addresses the potential cumulative effects due to exposure to seismic energy across four scenarios: consecutive/concurrent MSS, multiple MSS in the same region, multiple exposures during a single MSS, and interactions between different sources of sound. In accordance with the control measures provided within the Impact Assessment of the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks to threatened fauna will be managed to ALARP and Acceptable levels in accordance with all environmental regulatory requirements.

		TGS has assessed the comments pertaining to impacts on population and ecosystem level impacts to have specific relevance, however, as this matter has already been addressed within the EP, TGS has not updated the EP in response to these comments.
169	**Matter:** Sea conditions are inappropriate for seismic surveys. **Claim:** The high wave/swell environment is inappropriate for seismic surveys.	Seismic vessels are purpose built and designed to work in a range of environments globally from the arctic to tropics. This includes harsh locations such as Southern Australia. Seismic surveys have already been undertaken in the general vicinity of the Operational Area without issues for decades (the first Gippsland 3D survey was more than 40 years ago). As stated in Section 10.9 of the EP, TGS will ensure that approved vessel contractors have procedures in place that covers dangerous weather situations. TGS will ensure that the approved vessels' adverse weather procedures and controls align with TGS' HSE-MS Policies and Standard Operating Procedures prior to commencing the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
170	**Matter:** Sea conditions have not been correctly represented. **Claim:** The data regarding swell size is incorrectly represented in the report.	The issue raised by submitters contains specific relevance that pertain to the EP and as such, TGS has assessed the submission/s to have specific relevance. **In response to these submissions, TGS has updated the EP within Section 4.3.3.3 to provide further wave data relevant to the Operational Area.** Due to the strict protocols that will be in place during the Otway Basin 3D MC MSS (as detailed within Table 136 of the EP), these updates do not change the risk associated with the Otway Basin 3D MC MSS.
171	**Matter:** Sea conditions increase risk of equipment damage. **Claim:** The high swell environment of the Operational Area will increase the risk of equipment damage (i.e. entanglement of the streamers).	Seismic surveys have already been undertaken in the general vicinity of the Operational Area without issues. Seismic Vessels have strict operating procedures in place to ensure that activities conducted are managed in a safe manner – this covers both crew and equipment. As stated in Section 10.9 of the EP, TGS will ensure that approved vessel contractors have procedures in place that covers adverse weather situations. Survey equipment (i.e. streamers and the acoustic source) will be prepared, deployed, used, and retrieved in accordance with relevant vessel Standard Operating Procedures for each equipment type. Furthermore, TGS will ensure that the approved vessels' adverse weather procedures and controls align with TGS' HSE-MS Policies and Standard Operating Procedures prior to commencing the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
172	**Matter:** Sea conditions increase operational time.	Seismic vessels are purpose built and designed to work in a range of environments globally from the arctic to tropics. This includes harsh locations such as Southern Australia. As stated within Section 3.3 of the EP, TGS commits to a maximum annual acquisition of 200 days or 8,000 km^2 (which ever is reached first), and no more

	Claim: The high swell environment of the Operational Area will increase operational time.	than 400 days or 15,000 km^2 (which ever is reached first) for the duration of the EP. Downtime due to weather has been taken into consideration within this period. TGS has not updated the EP in response to these comments.
173	**Matter:** Health and safety risk to vessel crew. **Claim:** Sea conditions in the proposed area will dramatically hinder work and increase the risk of danger to workers' safety.	Seismic Vessels have strict operating procedures in place to ensure that activities conducted are managed in a sage manner – this covers both crew and equipment. As stated in Section 10.9 of the EP, TGS will ensure that approved vessel contractors have procedures in place that covers dangerous weather situations. TGS will ensure that the approved vessels' adverse weather procedures and controls align with TGS' HSE-MS Policies and Standard Operating Procedures prior to commencing the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
174	**Matter:** Navigational hazard from streamers. **Claim:** The navigational hazard posed by a survey dragging 10 km of 1,600 m wide seismic streamers at 4.5 knots is a significant issue.	The issue raised by submitters contains specific relevance that pertain to the EP. TGS has assessed the navigational hazard posed by the Seismic Vessel and towed equipment within Section 7.1 of the EP. TGS will implement several control/mitigation measures to manage the navigational hazard posed by the Seismic Vessel and towed equipment. These include adherence to national and international legislation (i.e. COLREGS, SOLAS, the Navigation Act, STCW Convention), notification of the survey through Notice to Mariners, notification to the JRCC for promulgation of navigational warnings, identification of the vessel and towed equipment (e.g. lights, radar reflectors, AIS), provision of look-ahead reports to those who register for the service, etc. Furthermore, TGS will have a support vessel to assist with intercepting other marine users and warn them of the approaching vessel and towed equipment. These measures (and others as appropriate) have been committed to within Table 123 of the EP. TGS has not updated the EP in response to these comments.
175	**Matter:** Entanglement hazards. **Claim:** Past surveys have shown that companies may declare it to be unsafe or unpracticable (i.e. not cost effective) to retrieve lost equipment, such as 10 km long streamers resulting in	Potential impacts pertaining to streamer loss have been assessed within Section 8.2 of the EP. This includes a description of the control/mitigation measures that TGS will implement for the duration of the Otway Basin 3D MC MSS to minimise the risk of a streamer loss within Table 123. Various control measures will be implemented during the Otway Basin 3D MC MSS (Table 123), including, but not limited to, the utilisation of solid streamers, integration of self-recovery devices and recording real-time positioning of the streamers, all of which are implemented to prevent the loss of streamer should it break free and stop it from reaching the seabed. For large scale items which pose navigation risks, such as streamers, tail buoys, etc., vessels will go to significant recovery effort. These items can be tracked for a period of time as they are fitted with tracking devices (e.g. AIS).

	entanglement hazards remaining in the ocean.	TGS has not updated the EP in response to these comments.
176	**Matter:** Titleholder should prove they are not going to hurt marine life. **Claim:** The onus should be on titleholder to prove they are not going to hurt marine life rather than on the communities or the scientists. Schlumberger and TGS should be shouldering this cost – not firing ahead only to leave the consequences in their wake.	As described within Section 6 of the EP, TGS has adopted a hierarchy of controls, which follows a tiered system of "eliminate-substitute-reduce-mitigate" to identify alternate, substitute, and additional control measures. This means that, where possible, TGS has endeavoured to eliminate a risk, however, where this is not possible, the alternatives (in preferred order) is to substitute, reduce, and mitigate. Throughout Section 7 and Section 8 of the EP, TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures and details the control measures that will be adopted, with corresponding Environmental Performance Standard/s to reduce impact or risk to ALARP and to an acceptable level. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS' Commercial Fisheries Compensation Protocol details an evidence-based process for commercial fishers to make a claim for loss of catch, displacement, or gear loss/damage associated with the Otway Basin 3D MC MSS. It is not considered appropriate for TGS to state, or provide proof, of the economic loss of any particular commercial fisher. Therefore, as outlined within Section 7.1.5 of the EP, for TGS to accept a payment claim, fishers will need to provide suitable documented evidence and data to demonstrate their unavoidable economic loss in accordance with the Commercial Fisheries Compensation Protocol for the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
177	**Matter:** Chemical weapon dumpsite. **Claim**: There is a lack of precaution taken around the chemical weapons dump site. An exclusion zone has been shown on a map but there are no coordinates given. TGS must demonstrate how they intend avoiding a circular shaped	TGS has described the defence activities and UXOs of relevance to the Operational Area and EMBA within Section 4.7.7 and depicted these in Figure 79 of the EP. A risk assessment on the potential impacts of acoustic emissions on these areas is provided in Section 7.2.3.3 of the EP, with this section also describing consultation that has been undertaken with the Department of Defence with regard to the Otway Basin 3D MC MSS. TGS acknowledges that the location of the UXOs within the Operational Area (if the UXO remains intact) may not match that of the co-ordinates of the dump site due to variables such as ocean currents. However, based on the research conducted by TGS into the degradation of UXOs and noting that seismic surveys have been used to map Chemical Warfare Agent dumpsites, TGS believes that the use of a 3 NM Acoustic Exclusion Area around the centre point of UXO site SDS006 (as depicted in Figure 94) is sufficient as a precautionary control measure.

	exclusion zone and describe how they will cease and then resume.	Shapefiles will be loaded onto the Survey Vessel's navigation system outlining the extent of the UXO SDS006 Acoustic Exclusion Area within which the acoustic source cannot be activated. TGS has not updated the EP in response to these comments.
178	**Matter:** Particle motion. **Claim:** TGS' assessment and mitigation of potential impacts pertaining to particle motion has been negligent. There are currently no threshold guidelines for particle motion for marine animals, despite acknowledgement that particle motion can negatively impact various marine species. TGS should conduct a literature review and establish threshold guidelines for particle motion.	Submitters are correct in stating that there are currently no threshold guidelines for particle motion for marine animals. TGS acknowledges the potential for impacts arising from particle motion within Section 7.2 of the EP. Sound exposure thresholds presented within the EP are widely accepted and used amongst the scientific community. As stated within the Underwater Acoustic Modelling Report (Appendix B of the EP), the noise criteria and sound levels used were chosen because they include standard thresholds, thresholds suggested by the best available science, and sound levels presented in literature for species with no suggested thresholds. In the event that particle motion threshold guidelines are developed prior to the completion of the Otway Basin 3D MC MSS, TGS will take this into consideration and undertake a review of the risk posed by the survey on marine life, as stated within Section 10.4.5 of the EP. TGS has not updated the EP in response to these comments.
179	**Matter:** Decibel limits for wildlife. **Claim:** TGS lists decibel limits for a range of wildlife species in the area but limits are per pulse and don't take into consideration the 24-hour exposure limits. A per-pulse level, the dB threshold to avoid damage in wildlife will be far exceeded by the seismic pulse blasting, and at a 24 hour time inclusion one can only assume this will	Sound exposure thresholds presented within the EP are widely accepted and used amongst the scientific community. As stated within the Underwater Acoustic Modelling Report (Appendix B of the EP), the noise criteria and sound levels used were chosen because they include standard thresholds, thresholds suggested by the best available science, and sound levels presented in literature for species with no suggested thresholds. Section 3 of the Underwater Acoustic Modelling Report further explains the threshold levels used. Underwater acoustic modelling was undertaken by Welch *et al.* (2023) for the purpose of quantifying the potential effects on marine mammals of underwater survey noise (see Section 7.2.1.2 of the EP). For marine mammals, the predicted zones of impact from a single pulse of the acoustic source are presented alongside the predicted zones of cumulative impact over a 24-hour period (during which c. 12,000 – 14,000 pulses would occur) (see Table 78). For the purpose of the EP, both the single pulse and the cumulative modelling results are used to assess the potential zones of impact on marine mammals; however, the larger threshold distance generated by the cumulative results is generally regarded as being of greatest relevance when assessing ecological impacts. In reality, both scenarios are imperfect as the length of time that free-ranging wild animals would spend near the active source would inevitably be longer than a single pulse, but

	cause even more significant damage	shorter than the 24-hour cumulative metric. Additional animal movement modelling has been undertaken for pygmy blue whales and southern right whales on account of the relative proximity of the Operational Area to the blue whale foraging BIA and the southern right whale Reproduction BIA. This Animat modelling uses the best available ecological data to more realistically incorporate travel speeds, dive durations and dive depths for these species to approximate the time that they could realistically be present within the zones of TTS, PTS and behavioural response. Animat modelling results are therefore considered to be the most representative for these two species and consequently underpin the Precautionary Zones that TGS will implement during the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
180	**Matter:** Omitted environmental management requirements. **Claim:** It is not clear that there is a real-time verification process in place to ensure that there is no discharge of the seismic array inside the BIA. There are no roles and responsibilities for this critical verification step specified in the EP. Request a real-time verification process be put in place to ensure there is no discharge of the seismic array inside the BIA.	Table 95 of the EP contains the EPSs pertaining to restrictions on operation of the acoustic source within the blue/pygmy blue whale and relevant southern right whale BIAs. TGS is not proposing complete prohibition of activation of the acoustic source within these BIAs, rather, TGS will implement several spatio-temporal measures around critical periods of whale presence within the BIAs. These are also provided in Table 95. Table 95 clearly states the 'Measurement Criteria' used to determine if TGS has complied with the corresponding EPS, as well as the person/s responsible for ensuring the EPSs are complied with. The Implementation Strategy of the EP (Section 10) outlines the roles and responsibilities for those onboard the Seismic Vessel for ensuring the EP is adhered to. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. As this matter has already been addressed within the EP, no further EP updates are required.
181	**Matter:** Eliminate not minimise. **Claim:** TGS has made a conscious effort to limit survey overlap with the continental shelf and shallow nearshore waters. However, minimising overlap with	As described within Section 6 of the EP, TGS has adopted a hierarchy of controls, which follows a tiered system of "eliminate-substitute-reduce-mitigate" to identify alternate, substitute, and additional control measures. This means that, where possible, TGS has endeavoured to eliminate a risk, however, where this is not possible, the alternatives (in preferred order) is to substitute, reduce, and mitigate. Throughout Section 7 and Section 8 of the EP, TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures and details the control measures that will be

	foraging areas (e.g. Bonney Upwelling) is not sufficient. The Acquisition Area should be redesigned so that overlap is eliminated, rather than minimised.	adopted, with corresponding Environmental Performance Standard/s to reduce impact or risk to ALARP and to an acceptable level. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
182	**Matter:** No acquisition when specific species are present. **Claim:** Seismic during the months when sooty shearwaters, southern bluefin tuna, pygmy blue whales, or southern right whales are present in and around the survey area should be rejected.	Within the risk assessment, TGS has addresses the risk to threatened species arising from activities associated with the Otway Basin 3D MC MSS and has provided control/mitigation measures to ensure that potential impacts to threatened species are mitigated to ALARP and Acceptable Levels. This includes measures such as temporal and spatial exclusions around important habitats. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. **TGS has updated Section 4.5.6.1.2 to address the recent changes that have been made to the southern right whale BIAs** but has made no further updates to the EP with regard to this matter..
183	**Matter:** Claim of "*costs would be disproportionate to the benefit gained*". **Claim:** This is clear evidence TGS is not using/applying the Risk Related Decision Making Framework they are meant to be using.	TGS has provided justifications for all considered control measures as to whether or not each control measure will be adopted for the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
	THEME	**TOURISM, RECREATION AND COMMUNITIES**
#	COMMENTS RECEIVED	*Titleholder response*
184	**Matter:** Impacts on tourism.	TGS has described the existing environment of the Operational Area and EMBA, with a description of tourism and recreation provided in Section 4.7.2 of the EP. Due to the offshore nature of the Operational Area, activities associated with the Otway Basin 3D MC MSS will not impact use of the marine environment by tourist or

	Claim: The negative impact on the marine environment will ultimately extend to the tourism industry as the natural features of these areas will potentially be destroyed in the long term. The Tasmanian tourism industry is based on its world class reputation as a natural wonder and the exploration for gas is jeopardising the opportunity for growth and job opportunities in the tourism industry.	recreational users. However, TGS acknowledges that coastal areas may be impacted in the extremely unlikely event of a fuel oil spill. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. Potential impacts on tourism and recreation are discussed within Section 8.3.4.2 of the EP. Included within Section 8.3.8 of the EP are the control/mitigation measures that TGS will implement to ensure that the risk of an oil spill is reduced to Acceptable Levels and ALARP. TGS has not updated the EP in response to these comments.
185	**Matter:** Impacts to tourism and recreation destinations from oil spills. **Claim:** The EMBA covers vast areas including popular and iconic tourism destinations of the Twelve Apostles. The Great Ocean Road and Bells Beach Surfing Reserve may also be harmed by unexpected spills or incidents. Impacts have the potential to disrupt social and recreational users of coastal spaces.	TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was determined. The EMBA was derived using stochastic hydrocarbons dispersion and fate modelling. This modelling simulated the occurrence of 100 realistic spill events of 1,066 m^3 of marine diesel oil from five locations within the Operational Area over six hours on the sea surface. Once all 100 simulations were run per location, the results were combined to determine the maximum potential extent as which various environmental thresholds were reached. The extent of the EMBA was based on a combination of the maximum extent of the spill trajectory at which entrained hydrocarbons were above the low threshold from each of the five modelled release locations. Utilising the maximum extent from all spill locations results in a worst-case scenario for the spatial extent of impacts from the Otway Basin 3D MC MSS. It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimize the extent of any impact. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has provided a detailed discussion on the potential impacts from a marine diesel spill on environmental receptors throughout Section 8.3 of the EP, with potential impacts to tourism discussed in Section 8.3.4.3 of the EP. Included within Section 8.3.8 of the EP are the control/mitigation measures that TGS will implement to ensure that the risk of an oil spill is reduced to Acceptable Levels and ALARP.

		TGS has not updated the EP in response to these comments.
186	**Matter:** Impacts to diving. **Claim:** Seismic companies tell divers to avoid recreation near a survey as it can be 'discomforting'.	The issue raised by submitters contains specific relevance that pertain to the EP and as such, TGS has assessed the submission to have specific relevance. TGS has assessed the potential risk to commercial and recreational divers within Section 7.2.3.2 of the EP. While it is acknowledged that acoustic emissions from the Otway Basin 3D MC MSS have the potential to impact divers, this impact is limited to commercial divers at offshore oil and gas installations. Recreational diving will be concentrated in coastal waters at popular diving spots, with these spots typically limited to water depths of 30 m or less. Based on the acoustic modelling, maximum-over-depth ranges to exceedance of the 145 dB re 1 µPa SPL criteria for divers at modelling sites on the shelf edge off South Australia and VIC were between 12.5 and 30.2 km inshore towards coastal waters. The 30 m depth contour is over 27 km inshore of the Acquisition Area, therefore the 145 dB re 1 µPa criteria is not expected to be exceeded. With regard to commercial divers, installation operators will be kept updated throughout the programme with the 48-hour look-ahead so that they may schedule any dive operations as they deem appropriate to ensure the safety of their divers as they undertake their own risk assessment as part of their diving procedures. TGS will be in regular contact with gas installation operators who will be able to schedule dive operations as they deem appropriate. No additions have been made to the EP in response to these submissions.
187	**Matter:** Inadequate identification of surf spots. **Claim:** The nature and scale of surfing within the broader EMBA is not sufficiently described.	TGS provides a discussion on surfing of relevance to the Operational Area and EMBA within Section 4.7.2.4 within the EP. TGS has not updated the EP in response to these comments.
188	**Matter:** Impacts on the amenity and usability of the beaches, breaks and surf spots within the EMBA. **Claim:** The continuous nature of the proposed seismic survey and the disturbance and disruption to	As discussed within Section 7.1 and Section 7.2 of the EP, the water depths within the Operational Area (97 – 5,000 m), its distance from shore (31 km to the closest point on the mainland), and the exposed and changeable sea and weather conditions within the Operational Area mean that opportunities for tourism and recreation activities within the Operational Area are limited. TGS has incorporated more specific information into Section 8.3 of the revised EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision. TGS has provided more clarity around the extremely low likelihood of this type of event occurring, as well as an explanation of how the area was

	the marine environment this will cause, will impact the amenity and usability of the beaches, breaks and surf spots within the EMBA.	determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). While the oil spill trajectory modelling identifies the coastline throughout the EMBA as potentially contacted by oil and a marine oil spill, it is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. TGS will implement strict control measures for the duration of the Otway Basin 3D MC MSS to mitigate against the potential for a marine oil spill. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has not updated the EP in response to these comments.
189	**Matter:** The EP focuses primarily on commercial fishing operations. **Claim:** The environmental performance outcomes, standards, and measures set out at Section 7.1.7 of the EP focus primarily on commercial fishing operators, and controls have not been identified for other marine users, such as suffers.	The submitter is correct in that the focus of Section 7.1 is based on the potential impacts to commercial fishers. TGS has focused this discussion, including the provision of control measures, towards commercial fishers and commercial shipping as they are the marine users that will be present within the Operational Area. The Operational Area lies 39 km at the closest point from the coastline in water depths in excess of 500 m. Therefore, other marine users such as surfers will not utilise the waters of the Operational Area and are not at risk from the physical presence of the Survey Vessels and towed equipment. TGS has incorporated more specific information into Section 8.3 of the EP to explain the area that may be impacted by a release of fuel oil from a potential vessel collision, which includes coastal areas utilized by surfers. TGs has provided more clarity around the extremely unlikely likelihood of this type of event occurring, as well as an explanation of how the area was determined (i.e. using modelling that involved multiple locations and 100 spill simulations at each of those locations). It is important to note that this modelling produced a baseline EMBA, that does **not** consider the strict control measures TGS has incorporated to prevent this type of event from occurring in the first place, or to minimise the extent of any impact. These are provided within Table 136 of the EP, with spill response measures outlined in Table 142 of the EP. TGS has not updated the EP in response to these comments.
190	**Matter:** Social costs. **Claim:** The EP should have consideration of the flow-on impacts such as the social costs associated with impacts and consequences.	TGS has prepared the EP in accordance with the requirements of the Environment Regulations. As required by Regulation 21(3) of the Environment Regulations, a comprehensive description of the environmental values and key sensitivities within the EMBA has been provided within this EP. In addition to describing and assessing potential effects to the biological environment, the socio-economic features of the environment have also been included. In light of this, Section 4.7 of the EP describes the following: • Coastal settlements

		• Tourism and Recreation • Commercial fisheries • Shipping • Oil and gas activities • Submarine cables • Defence activities • Research activities Throughout Section 7 of the EP, and for each topic therein, the known and potential impacts and risks to relevant persons and marine users are evaluated. The socio-economic features of the environment are captured via this evaluation process. On the basis that social impacts have already been described and assessed in the EP, TGS has not updated the EP in response to these comments. *Regulation 21(3) of the 2023 Environment Regulations have replaced Regulation 13(3) of the 2009 Environment Regulations.
191	**Matter:** Economic cost. **Claim:** The economic cost to coastal communities has not been addressed.	TGS has prepared the EP in accordance with the requirements of Environment Regulations. A description of the coastal settlements across the extent of the EMBA are described in Section 4.7.1 of the EP. Inherent in assessing the economic cost to coastal communities is understanding the full suite of socio-economic features of the environment as described in Section 4.7 of the EP, of key importance to coastal communities are the potential impacts on tourism and commercial fisheries, which are typically of high economic value to these communities. Where limited information was available on the extent, population, and socio-economic environment for community settlements, including indigenous community settlements, the precautionary principle has been applied and assumed a direct association with the marine environment. To this end, potential impacts to these coastal settlements has been evaluated and managed through consultation with the nominated State Government and the Traditional Owners/First Nations people Representatives. This consultation process, as required under Division 3 and Regulation 34(g) of the Environment Regulations, is detailed within Section 5 and related appendices of the EP. In addition to the consultation process, throughout Section 7 of the EP, and for each topic therein, the known and potential impacts and risks to relevant persons and marine users are evaluated. The socio-economic features of the environment are captured via this evaluation process. On the basis that economic impacts have already been described and assessed in the EP, TGS has not updated the EP in response to these comments.

		*Division 3 and Regulation 34(g) of the 2023 Environment Regulations have replaced Division 2.2A and Regulation 10A(g) of the 2009 Environment Regulations.
192	**Matter:** Clean-up costs **Claim:** Costs associated with cleaning up and rehabilitating areas damaged by seismic activities can be substantial. Taxpayers may ultimately bear the financial burden of restoring ecosystems and habitats that have been impacted. This diverts funds that could have otherwise been invested in more sustainable and diverse economic activities.	All costs associated with the Otway Basin 3D MC MSS are the responsibility of TGS. TGS has developed a Commercial Fisheries Compensation Protocol to address the potential for financial loss to commercial fishers. All evidence-based claims that are assessed (by an independent third-party) to require compensation, will be paid by TGS. Although an oil spill response will be coordinated by AMSA, AMSA has in place a Cost Recovery Implementation Statement 2023-24. Under this process, AMSA has established statutory authority to recover costs for ship-sourced marine pollution. TGS is also required under the Environment Regulations to provide a demonstration of financial assurance. TGS will submit a financial assurance declaration to NOPSEMA and will review the level of financial assurance in the event of changes in the survey plan or circumstances that affect the insurance risk profile. **TGS has added Section 1.6 into the EP to cover these requirements.**
	THEME	**LITERATURE, RESEARCH AND SCIENCE**
#	COMMENTS RECEIVED	*Titleholder response*
193	**Matter:** Peer-reviewed literature. **Claim:** EP must ensure studies on risks are of research grade quality and have been subjected to peer review.	TGS has provided detailed discussions on the sensitivities within the Operational Area and EMBA and potential impacts to those sensitivities from various activities associated with the Otway Basin 3D MC MSS throughout the EP (see Section 7 and Section 8 of the EP). These discussions are based on up-to-date relevant scientific literature. A full list of the literature used within the EP is provided in Section 12 of the EP. TGS has not updated the EP in response to these comments.
194	**Matter:** Literature has been misrepresented. **Claim:** Existing research has been misquoted in the EP.	Information pertaining to the impacts of seismic on marine life provided within the EP is based on the most up to date scientific literature, with references contained within the claims already provided in the reference list contained within Section 12 of the EP. TGS has provided summaries of this literature throughout the EP in order

		to describe the potential impacts from the Otway Basin 3D MC MSS on the marine environment and assess the risk the project poses. TGS has provided these summaries as they are presented within the literature. TGS has not updated the EP in response to these comments.
195	**Matter:** Trust the science. **Claim:** Harmful impacts on marine life are well documented and we need to 'trust the science'. Evidence that seismic harms marine life is growing.	Refer to Matter 194.
196	**Matter:** Lack of research and studies are flawed. **Claim:** There is a lack of research into the effects of seismic. Most studies have either been done in a laboratory environment or funded directly by offshore oil and gas companies.	Information describing the impacts of seismic on marine life provided within the EP is based on the most up to date scientific literature, with references to claims/statements provided in the reference list contained within Section 12 of the EP. TGS has provided summaries of this literature throughout the EP in order to describe the potential impacts from the Otway Basin 3D MC MSS on the marine environment and assess the risk the project poses. TGS has made comment on laboratory studies and their applicability to the "real world" within Section 7.2 and clearly identified the studies that have been carried out in a laboratory setting. Although studies may have been funded by oil and gas companies, published literature goes through an extensive peer-review process before publication, meaning that statements pertaining to the results of the study have been critiqued by fellow scientists. TGS has not updated the EP in response to these comments.
197	**Matter:** Scientific literature cited is flawed and not representative. **Claim:** The attempts to use data gathered from the North West Shelf (a tropical system) and apply them to the Otway Basin (a temperate ecosystem) are scientifically flawed because	In the preparation of Section 7 of the EP, TGS has gone to significant lengths to review and incorporate the best available, relevant scientific literature on the potential environmental impacts associated with the planned activities. With regard to this claim, submitter/s raise the concern that data pertaining to the reported impacts of seismic surveys in one type of marine environment (e.g., the tropical North West Shelf as described by Meekan *et al.*, 2021) are irrelevant to another marine environment (e.g., the temperate Otway Basin). It is noteworthy that the NOPSEMA (2020a) Information Paper 'Acoustic impact evaluation and management' does not discount comparisons between taxa or environments, but states that any such comparisons must be "*justified with rigorous peer reviewed references*".

	of key differences. The effect of testing on THIS marine ecosystem is unknown, and TGS lacks understanding of temperate species or communities.	Further to this, the NOPSEMA (2020b) Guidance Note 'Environment Plan Content Requirement', states that "*environmental information that is not specifically linked to the activity location (i.e., information from a similar environment elsewhere) may inform the description of the existing environment that may be affected where the titleholder is able to make a well-founded case for relevance*". The Meekan *et al.* (2021) study is discussed in detail in two places within the EP (Sections 7.2.3.1 and 7.2.2.3.2). In both cases the description given clearly identifies that this research took place in a tropical environment and the results are clearly interpreted in this context. With regard to the potential for seismic surveys to elicit behavioural responses in fish, numerous studies are discussed over a range of different species, environments, and contexts; and a range of results are reported in the EP. In this respect the EP concludes that "*different fish may exhibit different behavioural responses when exposed to MSS noise, depending on their activities, motivation and the context in which they receive sound*". The findings of the Meeken *et al* (2021) study, in conjunction with numerous other reported findings across different species, environments and contexts, contribute to this conclusion. TGS has not updated the EP in response to these comments. References: NOPSEMA (2020a). https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A625748.pdf NOPSEMA (2020b). https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A339814.pdf
198	**Matter:** Impacts have not been assessed over a long enough time period. **Claim:** 'Community level' impacts were assessed over eight months rather than the year long assessment widely adopted by the scientific community to incorporate seasonal variations.	TGS has provided detailed discussions on the sensitivities within the Operational Area and EMBA and potential impacts to those sensitivities from various activities associated with the Otway Basin 3D MC MSS throughout the EP. These discussions are based on up-to-date relevant scientific literature. TGS has not updated the EP in response to these comments.
199	**Matter:** Impossible to determine risks and impacts are of an 'Acceptable Level'. **Claim:** Given the large gaps in scientific knowledge, it is	As described within Section 6 of the EP, TGS has adopted a hierarchy of controls, which follows a tiered system of "eliminate-substitute-reduce-mitigate" to identify alternate, substitute, and additional control measures. This means that, where possible, TGS has endeavoured to eliminate a risk, however, where this is not possible, the alternatives (in preferred order) are to substitute, reduce, and mitigate.

	impossible to determine risks and impacts are of an 'Acceptable Level'.	Throughout Section 7 and Section 8 of the EP, TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures and details the control measures that will be adopted, with corresponding Environmental Performance Standard/s to reduce impact or risk to ALARP and to an acceptable level. TGS' impact and risk acceptability are clearly outlined in Table 57 and Table 58 of the EP. TGS acknowledges that, as with all activities, there are data gaps and a level of uncertainty within the science relating to the potential effects of seismic surveys on the marine environment and marine species. However, based on scientific literature that has been carried out on the impacts of seismic surveys, including the most up to date published literature, TGS does not believe that the data gaps and level of uncertainty around potential effects of marine seismic surveys is such that reasonable conclusions and decisions regarding such impacts and the level of risk involved cannot be made. TGS has not updated the EP in response to these comments.
200	**Matter:** Thresholds not backed up by science. **Claim:** TGS has only sourced a few bodies of research to identify the acceptable noise thresholds for wildlife. The reader has to assume that these are credible sources, and not tailored to TGS standards.	Sound exposure thresholds presented within the EP are widely accepted and used amongst the scientific community. As stated within the Underwater Acoustic Modelling Report (Appendix B of the EP), the noise criteria and sound levels used were chosen because they include standard thresholds, thresholds suggested by the best available science, and sound levels presented in literature for species with no suggested thresholds. Section 3 of the Underwater Acoustic Modelling Report further explains the threshold levels used. TGS has not updated the EP in response to these comments.
201	**Matter:** TGS' assessment is biased. **Claim:** TGS provides a biased assessment of the impacts of seismic on the marine environment to meet their agenda. This is 'cherry picked' science.	Information pertaining to the impacts of seismic on marine life provided within the EP is based on the most up to date scientific literature. The references contained within the submissions have been utilised within the EP, and are listed within the reference list contained within Section 12 of the EP. TGS has provided summaries of this literature throughout the EP in order to describe the potential impacts from the Otway Basin 3D MC MSS on the marine environment and assess the risk the project poses. TGS has provided these summaries as they are presented within the literature. TGS has not updated the EP in response to these comments.

202	**Claim:** Citizen science. **Matter:** Compare data against reputable citizen science sites such as E-bird and I-naturalist. Ensure all listed species are included.	TGS has provided a comprehensive description of the existing environment throughout Section 4 of the revised EP. Identification of species was based on the results of the EPBC Act Protected Matters search. This search identifies all listed species potentially present within the Operational Area and/or EMBA. There are no observations on E-Bird for the area within the Operational Area. TGS has checked the I-Naturalist website. Species identified within the Operational Area on I-Naturalist have already been included within the EP. TGS has used the Whaleface citizen science database, alongside numerous additional published and unpublished information sources to inform the description of southern right whale distribution in and around the Otway Basin. TGS has not updated the EP in relation to these comments.
	THEME	**GOVERNMENT, REGULATORY AND PROCESS ISSUES (INCLUDING TIMING)**
#	COMMENTS RECEIVED	*Titleholder response*
203	**Matter:** Consultation is inadequate and public not given notification of EP for comment. **Claim:** Consultation is inadequate for a project of this scale which is not supported by anything more than a listing on NOPSEMA's website. There is no transparency to this process. Advertisement for public comment is insufficient to ensure comprehensive consultation has been undertaken. Broader advertising on this proposal is required to engage and	TGS has undertaken extensive consultation as required under Division 3 and Regulation 34(g)of the Environment Regulations. This has been detailed within Section 5 and related appendices of the EP. The consultation methodology explains how TGS identified and consulted with relevant persons throughout the EP development. This often included tailored correspondence in the form of emails, phone calls, in-person meetings, online meetings, and/or text messages. TGS provided relevant persons with information sheets and presentations (where applicable) to be shared with their members and frequently asked relevant persons whether there were other persons or organisations they should contact in order to capture persons that may be interested in the survey. TGS has provided regular update emails to relevant persons on the status of their survey including advising them the EP had been released for public comment and provided information on where they could access the EP and a guideline for providing feedback on the EP. TGS advertised that NOPSEMA had released the EP for public comment in the following regional, state and national newspapers which included the location on the NOPSEMA website where the EP could be accessed: Bega District News, Eden Magnet, The Border Watch, The Circular Head Chronicle, Colac Herald, Portland Observer, Sentinel Times, Orbost Snowy River Mail, The Sydney Morning Herald, The Age, Surf Coast Times, The Australian (as well as digital advertising), Warrnambool Standard, The Advertiser, The Herald Sun, The Hobart Mercury, King Island Courier, and Tasmanian Country. Copies of each advertisement are provided in Appendix L of the EP. TGS also advertised the invitation for public comment on their website. TGS also provided information on their website advertising the Otway Basin 3D MC MSS and inviting people to contact TGS with any questions or concerns (www.tgs.com/seismic/multi-client/asia-pacific/australia/otway-relevant-persons-consultation). A webpage for fishers was developed that provided fisheries-specific information

	meet meaningful consultation standards.	(www.tgs.com/seismic/multi-client/asia-pacific/australia/otway-fishers). This website provided a downloadable form of the commercial fisheries information sheet. Based on the above, TGS considers an extensive effort has been made to carry out adequate and comprehensive consultation to inform survey planning and the development of the EP, including providing relevant persons and the public reasonable effort to review and provide comment on the EP for the Otway Basin 3D MC MSS. **TGS has updated Section 5 and relevant appendices of the EP to include consultation that has continued since the submission of the EP to NOPSEMA for their completeness check. Updates have been made throughout the EP to reflect information provided during the relevant persons consultation process and public comment period.** *Division 3 and Regulation 34(g) of the 2023 Environment Regulations have replaced Division 2.2A and Regulation 10A(g) of the 2009 Environment Regulations.
204	**Matter:** Breaches of EP. **Claim:** Severe penalties should be applied to all associated with breaches of this EP.	TGS acknowledges that where a breach of the Environment Regulations has occurred, NOPSEMA may take enforcement action. Enforcement action by NOPSEMA can include issuing improvement notices, giving directions, with-drawing acceptance of an EP and/or prosecution. TGS has strict control measures in place that will be followed throughout the duration of the Otway Basin 3D MC MSS, to ensure it complies with its accepted EP and to mitigate any risk of a breach occurring. The Implementation Strategy of the EP (Section 10) outlines the roles and responsibilities of those onboard the survey vessels for ensuring the EP is adhered to for the duration of the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
205	**Matter:** Requirements of Regulation 10A. **Claim**: Submitter/s do not believe that the EP meets the criteria for acceptance of an EP set out under Regulation 10A of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.	The issue raised by submitters contains specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has developed the EP based on the criteria outlined within Regulation 34 of the Environment Regulations and believes that the EP meets all the required criteria. Furthermore, the Otway Basin 3D MC MSS has gone through the NOPSEMA completeness check and has been assessed as complete against the requirements of Regulation 34. TGS has not updated the EP in response to these comments. * Regulation 34 of the 2023 Environment Regulations have replaced Regulation 10A of the 2009 Environment Regulations.
206	**Matter:** Survey contravenes the OPGGS Act.	Submitters correctly state that the OPGGS Act requires that "*an activity in an offshore area must be undertaken in a manner that does not interfere with fishing, conservation of the resources of the sea and seabed, any*

	Claim: OPGGS Act requires that an activity in an offshore area must be undertaken in a manner that does not interfere with fishing, conservation of the resources of the sea and seabed, any lawfully established activities of another person and the enjoyment of native title rights and interests.	*lawfully established activities of another person and the enjoyment of native title rights and interests*", however, the OPGGS Act continues this with "*to a greater extent than is necessary for the reasonable exercise of the rights and performance of the duties of the first person*" which has been omitted by submitters, with "the first person" meaning that carrying out the activity, i.e. the titleholder. TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against potential impacts on the rights of other persons, native title rights and interests, and lawfully established activities, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. Throughout Section 7 and Section 8 of the EP, TGS has considered all control measures to determine the benefits of their implementation towards risk reduction, and details the control measures that will be adopted, with corresponding Environmental Performance Standard/s. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements, including the OPGGS Act. On the basis that this matter has already been addressed in detail within the EP, no further EP updates are required.
207	**Matter:** Precautionary principle. **Claim:** The precautionary principle under the EPBC Act should be applied. A lack of scientific certainty should not be used as a reason for allowing this project to proceed.	Section 391 of the EPBC Act defines the Precautionary Principle as "*The Precautionary Principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage*". Section 391 of the EPBC Act further states that "*the Minister must consider the precautionary principle in decision making*". TGS acknowledges that, as with all activities, there are data gaps and a level of uncertainty within the science relating to the potential effects of seismic surveys on the marine environment and marine species. Whilst acknowledging there are some data gaps, TGS are considering ways in which to reduce these data gaps through collaborations with local groups, academia, and industry bodies. Based on scientific literature that has been carried out on the impacts of seismic surveys, including the most up to date published literature, TGS does not believe that the data gaps and level of uncertainty around potential effects of marine seismic surveys is such that reasonable conclusions and decisions regarding such impacts and the level of risk involved cannot be made. Based on TGS' understanding of the published scientific literature, the potential impacts of the Otway Basin 3D MC MSS on the marine environment and marine species are not considered to be "*serious or irreversible*". TGS therefore does not consider that the EP for the Otway Basin 3D MC MSS should be declined on these grounds. TGS has not updated the EP in response to these comments.
208	**Matter:** Ecologically Sustainable Development. **Claim:** Outdated definition of Ecologically Sustainable	Ecologically Sustainable Development is defined in the EP as '*using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'*.

	Development used when claiming acceptability of risk.	Under the EPBC Act (1999), Objective 1 (b) of the Act is to "*promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources*". The EPBC Act (1999) defines ecologically sustainable use as follows: Ecologically sustainable use of natural resources means use of the natural resources within their capacity to sustain natural processes while maintaining the life-support systems of nature and ensuring that the benefit of the use to the present generation does not diminish the potential to meet the needs and aspirations of future generations. The EP has referred to the most current definition of Ecologically Sustainable Development as listed in the current regulations, and has applied this definition across the Risk Assessment framework set out in Section 6 of the EP. No further changes to the definition of Ecologically Sustainable Development are required.
209	**Matter:** Ecologically Sustainable Development. **Claim:** The core principles of Ecologically Sustainable Development have not been adequately addressed or assessed. Of particular concern is lack of attention to Ecologically Sustainable Development principles a – c.	The OPGGS Act requires the principles of Ecologically Sustainable Development, as listed in the EPBC Act, to be adhered to. Specifically, Section 3(a) of the OPGGS Act requires the activity (in this case, the seismic survey) to be "*carried out in a manner consistent with the principles of ecologically sustainable development set out in section 3A of the EPBC Act".* In addition, Section 5C2bi, and Section 5C6di refer to the requirement that the EP sets out appropriate Environmental Performance Outcomes that are consistent with the principles of Ecologically Sustainable Development. Section 3A of the EPBC Act sets out three main matters; the first of which is that the activity needs to be carried out in a manner consistent with the principles of Ecologically Sustainable Development. As stated in the EP, Ecologically Sustainable Development is an integral aspect in determining risk/impact acceptability. Section 6 of the EP sets out the Risk Assessment method (in accordance with Australian & New Zealand International Standard Risk Management – Guidelines, (AS/NZS ISO 31000:2018)), that incorporates the assessment of risks to Ecologically Sustainable Development. Section 7 and 8 of the EP also sets out the risk assessments have assessed impacts to Ecologically Sustainable Development for each of the environmental factors addressed, to ensure that effects are ALARP. All Environmental Performance Measures are therefore aligned with the risk assessment process to ensure that all effects are ALARP, and that EP is consistent in upholding the principles of Ecologically Sustainable Development. No further updates to the assessment of the principles of Ecologically Sustainable Development are required.
210	**Matter:** Code of Environmental Practice.	The APPEA Code of Environmental Practice gives guidance on objectives to be achieved when managing environmental impacts associated with petroleum exploration and production. The Code of Environmental Practice includes four basic recommendations which can be read in Section 2.2 of the EP. The following bullet

	Claim: The Code of Environmental Practice 2008 provides guidance on ensuring that exploration and production operations are conducted using effective management in order to be sustainable within the Australian government. This includes the need to avoid or minimise and manage impacts to the environment, focusing on four basic recommendations. This code has not been adequately met by TGS.	points outline the four basic recommendation of the Code of Environmental Practice and how TGS has followed these recommendations with regard to the Otway Basin 3D MC MSS: • **Assess the risk to, and impacts on, the environment as an integral part of the planning process** – TGS has provided a detailed discussion of the scientific literature outlining potential impacts to marine environment (including biological, cultural and heritage, and socio-economic receptors) from seismic surveys throughout Section 7 (planned activities) and Section 8 (unplanned activities) of the EP; • **Reduce the impact of operations on the environment, public health and safety to ALARP and to an Acceptable Level by using the best available technology and management practises** – TGS has committed to various control/mitigation measures to ensure that impacts are reduced to ALARP and Acceptable Levels. Control/mitigation measures are provided throughout Section 7 and Section 8 of the EP; • **Consult with relevant persons regarding industry activities** – TGS has undertaken an extensive consultation program as required under Division 3 and Regulation 34(g) of the Environment Regulations. A list of all Relevant Persons consulted with for the Otway Basin 3D MC MSS is provided in Appendix J of the EP. Consultation that has been undertaken with Relevant Persons is summarised in Appendix M. For confidentiality reasons, full unedited correspondence and meeting minutes cannot be provided, as per the Environment Regulations, although this has been provided to NOPSEMA as Appendix I of the EP. • **Develop and maintain a corporate culture of environmental awareness and commitment that supports the necessary management practices and technology, and their continuous improvement** – TGS is committed to protecting the environment in which it lives and works, whilst also conducting operations in an environmentally sustainable and responsible manner. TGS strives to lead the industry in minimizing the impact of its operations on the environment and is dedicated to the continuous improvement of environmental programs and standards across all operations. The TGS corporate Environment Policy provides a public statement of the company's commitment to protecting the environment during offshore operations, including seismic surveys. The TGS Health and Safety Policy aims to assist in providing a safe, healthy, and sustainable workplace for employees, contractors, vendors, and clients of TGS, while protecting the working environment. Accordingly, TGS outlines its commitment to the promotion and maintenance of the physical, psychological, and social well-being of all employees. TGS' Environmental and Health and Safety Policies are provided as Appendix A of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.

		*Division 3 and Regulation 34(g) of the 2023 Environment Regulations have replaced Division 2.2A and Regulation 10A(g) of the 2009 Environment Regulations.
211	**Matter:** Survey contravenes the EPBC Act. **Claim:** Under the EPBC Act, environment assessments are undertaken to support environmental and heritage protection and biodiversity conservation. A person must not take an action that has, will have or is likely to have a significant impact on any of the matter of environmental significance without approval from the Commonwealth Minister for the Environment. The actions and activities of NOPSEMA and the proponents of such activities with respect to seismic surveys, at face value, are a breach of the obligations under the EPBC Act.	TGS has provided a detailed environmental assessment of the scientific literature outlining potential impacts from the Otway Basin 3D MC MSS throughout Section 7 (planned activities) and Section 8 (unplanned activities) of the EP. In acknowledgement of the potential for the Otway Basin 3D MC MSS to impact environmental and socio-economic receptors, TGS has committed to various control/mitigation measures to ensure that impacts are reduced to ALARP and Acceptable Levels. Control/mitigation measures to protect whales from acoustic impacts are provided throughout the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
212	**Matter:** Activity is inconsistent with conservation management plans. **Claim**: Impacts and risks to all species is inconsistent with their respective conservation management plans.	Conservation management plans were taken into consideration when preparing the EP and additional control measures were adopted to make sure the Otway Basin 3D MC MSS is undertaken in a manner that is consistent with these management plans. A summary of how the requirements of relevant conservation management plans have been addressed can be found in Tables 63, 92, 98, 103 and 108 of the EP (for planned activities). In particular, and with regard to blue whales, submitter/s claim that underwater noise from the Otway Basin 3D MC MSS could cause injury and/or displacement and is therefore inconsistent with the Conservation Management Plan for the Blue Whale. The potential for injury and displacement are comprehensively discussed in Sections 7.2.2.2.7 and Section 7.2.2.3.6 of the EP, along with the proposed control measures and a description of how the proposed control measures will ensure consistency with the Conservation Management Plan for the Blue Whale.

		TGS has not updated the EP in response to these comments.
213	**Matter:** TGS regulates its own activities. **Claim:** The role of TGS as both a 'player' and an 'umpire' is a ridiculous proposition, possibly illegal, and cannot be allowed. Both TGS and fishers are proposed to be operating in the same waters at the same time, but TGS claims it has the right to adjudicate over any conflict where fishers suffer a loss due to TGS activities. TGS has made it clear on numerous occasions in the EP that its own commercial interests are the main focus point and key aspect in decision making hence it cannot be allowed to assess the validity of claims of fishers seeking compensation.	Activities associated with the Otway Basin 3D MC MSS are regulated by NOPSEMA. The Otway Basin 3D MC MSS cannot go ahead until the EP has been accepted by NOPSEMA. Under Part 5 of the OPGGS Act, NOPSEMA inspectors have authority to enter TGS premises, including the survey vessel/s for the purposes of undertaking monitoring or investigations against the EP. TGS will fully cooperate with NOPSEMA during such inspections. With regard to the Commercial Fisheries Compensation Protocol, TGS, at their expense and in consultation with the claimant, will engage a suitably experienced and qualified independent person or organisation as the assessor of the claim. If a claimant disagrees with a claim assessment outcome, and cannot reach agreement with TGS, the claimant may opt to request that an additional suitably experiences and qualified independent third-party is engaged to review and determine the outcome of the claim. The appointment of the independent third-party will be agreed mutually between TGS and the claimant. A "*suitably experienced and qualified third-party assessor*" has been defined within the Commercial Fisheries Compensation Protocol as "*a person or organisation with proven demonstrated experience in data analysis and data auditing processes and procedures within the industry*" Furthermore, fisheries representatives (.e.g SETFIA and TSIC.) will be made aware of any claims and the progress of such claims. TGS has not updated the EP in response to these claims.
214	**Matter:** Omissions will require a resubmission for approval. **Claim:** Any omissions will require significant revaluation of the plan and a resubmission for approval and will also trigger a new consultation process as the	As outlined within Section 10.4.5 of the EP, Regulations 38 and 39 of the OPGGS Regulations required the resubmission of an EP to NOPSEMA in the event of a change or proposed change to circumstances or operations. Criteria that will trigger this requirement are: • Any significant modification or new stage of the Otway Basin 3D MC MSS that is not provided for in the EP currently in force; • The occurrence of any significant new environmental impact or risk, or significant increase in an existing environmental impact or risk, not provided for in the EP in force for the Otway Basin 3D MC MSS;

	risks and management strategies will have changed.	• The occurrence of a series of new environmental impacts or risks, or a series of increases in existing environmental impacts or risks, which, taken together, amount to the occurrence of a significant new environmental impact or risk, or a significant increase in an existing environmental impact or risk that is not provided for in the EP in force; • Identification of recent scientific publications that may have an influence on the risk assessment and increase the environmental risk of the Otway Basin 3D MC MSS; • Identification of any changes to the biological (including the presence of threatened species not already considered under the EP), physical, and socio-economic environment which may have an influence on the risk assessment and increase the environmental risk of the survey; • The existing suite of control measures are no longer considered suitable to reduce the environmental risk of the survey to ALARP and Acceptable Levels; • During operations the number of sightings and/or power-downs of whales are higher than anticipated (i.e. three or more shut-downs in the preceding 48 hours for BW/PBW or SRW, or three or more within the preceding 24-hours for 'other whales) during the planning of the Otway Basin 3D MC MSS; and/or • As requested by NOPSEMA. TGS will assess all received public comments and will assess if information raised during the public comment process requires a full resubmission of the EP. TGS has not updated the EP in response to these comments. * Regulations 28 and 39 of the 2023 Environment Regulations have replaced Regulation 17 of the 2009 Environment Regulations.
	Theme	**OUT OF SCOPE**
#	Comments received	Titleholder response
215	**Matter:** Special Prospecting Authority permits. **Claim:** Special Prospecting Authority permits sidesteps usual government bidding and decision-making	Special Prospecting Authority Permits are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the impacts and risks will be ALARP and Acceptable Levels in accordance with all environmental regulatory requirements.

	process, facilitating hasty and damaging oil and gas exploration proposals to progress rapidly through the regulatory approvals process.	TGS has not updated the EP in response to these comments.
216	**Matter:** Public comment period is inadequate. **Claim:** The public comment period of just 30 days for such a large and complex document is totally inadequate. Australian people and communities need a reasonable amount of time and opportunity to respond to EPs.	The public comment period is set by the Environment Regulations. Objections or claims pertaining to the inadequate length of time of the public comment period are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments; however, **further updates to Section 5 of the EP have been provided to reflect consultation with Relevant Persons that has continued following the submission of the EP to NOPSEMA for its completeness check. The EP has also been updated throughout to reflect the submissions/claims raised during the public comment period.**
217	**Matter:** Establish regulatory thresholds. **Claim:** Establish regulatory thresholds to assess potential hearing impairment or behavioural responses by diving birds to underwater noise.	The issue raised by submitters does not contain specific relevance that pertain to the EP as this issue is relevant to regulators, not titleholders. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
218	**Matter:** Guidelines are being updated. **Claim**: The Australian Government is currently developing National Anthropogenic Underwater Noise Guidelines which	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS as this issue is relevant to the Australian Government, not titleholders. As such, these comments have been assessed to not have with regard to the Otway Basin 3D MC MSS and TGS has not updated the EP in response to these comments. However, TGS has followed the most up to date versions of any relevant guidelines, including the EPBC Act Policy Statement 2.1. TGS is required to continuously look for ways to improve operations during the Otway Basin 3D MC MSS and will assess any guidelines that are released prior to or during the acquisition of the Otway Basin 3D MC MSS. The

	include an update to EPBC Act Policy Statement 2.1. NOPSEMA should delay its response to this EP until the guidelines are updated.	EP contains provisions for incorporating changes to requirements through the Management of Change process (Section 10.4.6 of the EP). TGS has not updated the EP in response to these comments.
219	**Matter:** Disassociation between governments and the protection of the environment. **Claim:** Australian government should prioritise conservation efforts and enforce the principles set out in the Environment Protection and Biodiversity Conservation Act 1999.	Objections or claims pertaining to the Government are outside of the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
220	**Matter:** Government wasting time and money. **Claim**: All the Governments does is talk and waste time and money while people are fighting to end destruction of this continent.	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS and as such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
221	**Matter:** Government support of damaging projects. **Claim:** The willingness of Australian government to support projects that will damage the natural environment is absolutely appalling. How can the government say they are	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS and as such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.

	committed to getting out of fossil fuels and then consider this destructive proposal?	
222	**Matter:** Seismic should not be legal. **Claim:** Surprised a proposal such as this is legal.	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS as this issue is relevant to the Australian Government, not titleholders. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
223	**Matter**: EPBC Act Policy Statement 2.1 terminology and change to policy. **Claim:** EPBC Act Policy Statement 2.1 uses terminology which is too vague and gives too much power to the company doing the survey to breach the policy statement.	EPBC Act Policy Statement 2.1 was developed by the Australian Government – Department of the Environment and Energy (now the Department of Climate Change, Energy, and the Environment and Water) and as such, these claims are not aimed at TGS. No updates are required in the EP in response to this comment, however, TGS notes that EPBC Act Policy Statement 2.1 will be adopted for the duration of the Otway Basin 3D MC MSS which is considered Industry Best Practice for minimising the effects of MSSs on marine mammals. The control measures that will be implemented for the duration of the Otway Basin 3D MC MSS have been developed in accordance with EPBC Act Policy Statement 2.1, as well as through discussion with experts in the field of marine mammals. Where appropriate, TGS has provided increased protection for marine mammals above that which is required within EPBC Act Policy Statement 2.1. TGS has not updated the EP in response to these comments.
224	**Matter:** Senate inquiry. **Claim:** In 2021 Senate inquiry was established to investigate the impact of seismic testing on commercial fishing and marine life. Almost no significant changes have been made since the inquiry released its report.	TGS is aware of the Senate inquiry report. All recommendations contained within the Senate inquiry report are outside the scope of TGS' Otway Basin 3D MC MSS or are not targeted at titleholders. TGS has not updated the EP in response to these comments.

225	**Matter:** NOPSEMA obligations under the OPGGS Act. **Claim:** NOPSEMA must meet their obligations under the OPGGS Act to ensure applicants are trustworthy and have the appropriate history of compliance.	The issue raised by submitters does not contain specific relevance that pertain to EP. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
226	**Matter:** NOPSEMA to clarify what constitutes community consultation. **Claim:** To clarify what constitutes community, industry consultation NOPSEMA should establish the criteria for what will constitute acceptable community consultation including the minutes of such meetings to be signed off by parties to the meeting.	Objections or claims pertaining to NOPSEMA's role are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
227	**Matter:** Surveyed area is too deep and remote. **Claim:** Developing this area would require deep-sea, high-risk drilling	The issue raised by submitters does not contain specific relevance that pertain to the EP. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
228	**Matter:** No benefits to the local community. **Claim:** Cannot think of anyone who benefits in the	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS and as such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.

	local community, except for a few who may work temporarily for a multinational company.	
229	**Matter:** General opposition. **Claim:** EP should be rejected, and seismic survey not allowed to go ahead.	These submitters have a fundamental objection to oil and gas activities or the oil and gas industry. Objections or claims pertaining to oil and gas are outside of the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
230	**Matter:** Oil and gas drilling. **Claim:** Oppose this application for oil and gas drilling. Formulate a plan on how TGS will mitigate leaks or cracked pipes to avoid gas leaks into the atmosphere.	This EP is for a marine seismic survey and not drilling for oil and gas. Objections or claims pertaining to oil and gas are outside of the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. As identified in Section 4.7.5 of the EP, the OA overlaps or is in proximity to existing petroleum titles. Any vessels associated with the Otway Basin 3D MC MSS will not enter any Petroleum Safety Zone surrounding petroleum wells, structures, or equipment. TGS has been consulting with all relevant petroleum titleholders as relevant persons through the consultation program. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
231	**Matter:** Enough current oil and gas supplies **Claim:** Proposal is unnecessary as there are sufficient oil and gas supplies for the next 40 years, as stated by Geoscience Australia in May 2023.	Objections or claims pertaining to oil and gas supplies are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.

232	**Matter:** Deep-sea mining. **Claim:** There are many alternatives to deep sea mining exploration. Mining will have a hideous impact.	This EP is for a 3D seismic survey. Objections or claims pertaining to deep-sea mining are outside the scope of the EP. The activity proposed is not "*deep sea mining*". As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
233	**Matter:** Seismic surveys lead to fossil fuel extraction and drilling rigs. **Claim**: Seismic surveys lead to fossil fuel extraction and drilling rigs which bring additional threats with them.	This EP is for a 3D seismic survey. Objections or claims pertaining to fossil fuel extraction and drilling are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. Decisions about future development of gas resources will be made by other entities and would be subject to separate and specific environmental approval processes. TGS has not updated the EP in response to these comments.
234	**Matter:** Seismic surveys lead to petroleum prospecting. **Claim:** The purpose of the survey is to aid in the identification and de-risking of petroleum prospectivity across the surveyed area, however, there is no further discussion of petroleum prospectivity in the EP.	This EP is for a 3D seismic survey. Seismic surveys are used throughout the world in order to: identify potential oil and gas reservoirs below the seafloor; identify reservoirs suitable for storing waste carbon dioxide; study the geological formations and rock layers beneath the seabed; and characterise sites for renewable energy developments. Objections or claims pertaining to fossil fuel extraction and drilling are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. Decisions about future development of gas resources will be made by other entities and would be subject to separate and specific environmental approval processes. TGS has not updated the EP in response to these comments.
235	**Matter:** Climate change, global warming, loss of sea	These submitters have a fundamental objection to oil and gas activities or the oil and gas industry. Objections or claims pertaining to climate change are outside of the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS.

	ice, and ending of fossil fuel exploration/extraction. **Claim:** Should be moving to renewable energy and putting a stop to oil and gas exploration and extraction. Oil and gas use exacerbates climate change and the effect of climate change. The oil and gas industry has a finite lifetime. Fundamental objection to oil and gas activities or industry.	In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
236	**Matter:** Climate change has not been addressed in the EP. **Claim:** The issue of climate change has not been addressed in the EP, and the proponent has carefully skirted the issue by scoping the project as just a survey.	Objections or claims pertaining to climate change are outside of the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS are not required to assess the potential impacts of climate change on the marine environment or how the activities associated with the Otway Basin 3D MC MSS may contribute to climate change. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
237	**Matter:** Australia's commitments to reduce greenhouse gas emissions and to Net Zero emissions. **Claim:** Plans to continue exploration go directly against Australia's commitments to reduce greenhouse gas emissions by 43% from 2005 levels, and Net Zero emissions by 2050. Request details on	Objections or claims pertaining to Australia's commitments to reducing greenhouse gas emissions are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.

	whether the EP will help or hinder Australia reaching net zero.	
238	**Matter:** Paris Agreement. **Claim:** Plans to continue exploration are incompatible with achieving the Paris Agreement target of limiting global warming by 1.5°C	Objections or claims pertaining to the Paris Agreement are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
239	**Matter:** Threat to human existence. **Claim:** Oil and gas is threatening the existence of humans and a huge proportion of other life forms. Continuing with these types of human activities will cause further damage to the world and loss of everything.	These submitters have a fundamental objection to oil and gas activities or the oil and gas industry. The objections or claims are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the revised EP in response to these comments.
240	**Matter:** Future generations. **Claim:** Need to protect our environment for future generations.	The objections or claims are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
241	**Matter:** Embrace and invest in renewables. **Claim:** Embracing renewable energy solutions fosters	Objections or claims pertaining to embracing renewable energy are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS.

	innovation and job creation, providing a pathway to a greener and more resilient future.	In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. Note, TGS delivers high-quality data and insights to power the future of energy across the energy mix, including renewables. Seismic surveys are used throughout the world in order to: identify potential oil and gas reservoirs below the seafloor; identify reservoirs suitable for storing waste carbon dioxide; study the geological formations and rock layers beneath the seabed; and characterise sites for renewable energy developments. TGS has not updated the EP in response to these comments.
242	**Matter:** Transparency. **Claim:** With regard to the transparency of the processes and operational delivery, it must be transparent, rather than the clause of 'sensitive' information being used to enable the corrupt use of public information.	Regulation 26(8) of the Environment Regulations states that "*All sensitive information (if any) in an Environment Plan, and the full text of any response by a relevant person to consultation under regulation 11A in the course of preparation of the plan, must be contained in the sensitive information part of the plan and not anywhere else in the plan"*. NOPSEMA is required to publish (on their website) the Environment Plan with all sensitive information removed. All information, including sensitive information, has been provided to NOPSEMA for their assessment. TGS has not updated the EP in response to these comments. * Regulation 26(8) of the 2023 Environment Regulations have replaced Regulation 9(8) of the 2009 Environment Regulations.
243	**Matter:** Silence is not consent. **Claim:** Silence does not equal consent.	TGS agrees with the statement that silence is not consent. TGS has not stated that a relevant person has consented to the Otway Basin 3D MC MSS unless this is supported by a written claim. TGS has not updated the EP in response to these comments.
244	**Matter:** EP should be summarised for general public. **Claim:** It is near impossible to read through the EP due to the size of it. The EP should be summarised with key findings, so that the proposal and inherent risks	TGS acknowledges that the high volume of technical information isn't ideal for public to understand or process. However, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. The Environment Regulations impose a duty on TGS to demonstrate to NOPSEMA in the EP that the proposed activity is to be carried out in a manner that is consistent with the principles of Ecologically Sustainable Development and by which the impacts and risks of the activity will be reduced to ALARP, and separately, that the impacts and risks of the activity will be of an Acceptable Level. Often highly technical information is required in order to appropriately address this duty to a sufficient level to satisfy NOPSEMA.

	can be general understood by the general public. The technology that is being proposed is not understood - the community has not had time to understand or react.	TGS notes that although the public comment period length (30 days) is set by the Environment Regulations, TGS has provided additional information or met with interested parties to discuss aspects of, or concerns with, the proposed activity. TGS has not updated the EP in response to these comments.
245	**Matter:** Proposal has been passed through under the radar. **Claim**: This proposal has passed through under the radar.	The claim is outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. The EP has been through NOPSEMA's 30 day public comment period, with the release of the EP for public comment advertised within newspapers as demonstrated within Appendix L of the EP. Likewise, public meetings have been notified within several newspapers (refer to Appendix L for copies of advertisements). TGS has not updated the EP in response to these comments.
246	**Matter:** Offshore Project Proposal. **Claim:** Could not find a copy of the Offshore Project Proposal document linked to the Otway Seismic project. It was therefore impossible to assess if the contents of the EP address all of the activities mentioned in the Offshore Project Proposal.	The claim is outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. The proponent for all offshore projects is required to submit an Offshore Project Proposal. An 'offshore project' is defined as one or more petroleum activities for the recovery of petroleum. Petroleum activities that comprise an offshore project include the construction, commissioning, operations and decommissioning of facilities and pipelines as well as production drilling and any other activity undertaken for the recovery of petroleum. It does not include drilling for exploration or appraisal purposes, or any other petroleum exploration activities such as seismic surveys. Therefore, an Offshore Project Proposal is not available for the proposed activity. TGS has not updated the EP in response to these comments.
247	**Matter:** Extent of the Operational Area. **Claim:** EP fails to adequately explain why the proposed survey Operational Area extends from South Australia to west of the Tasmanian Coast.	Objections or claims pertaining to the Operational Area are within the scope of the EP. As described within Section 3 of the EP, the Operational Area represents the area where all planned activities managed under the EP will take place. It includes both the Acquisition Area (the only area where the acoustic source will be activated) and a buffer that could be used for operational purposes. There will be spatial restrictions with regard to the maximum area acquired during the Otway Basin 3D MC MSS. While the Acquisition Area covers a total of 45,000 km^2, TGS will only be acquiring a maximum total area within

		the Acquisition Area of 15,000 km^2 over the duration of the Otway Basin 3D MC MSS, with a maximum annual acquisition of 8,000 km^2. **<u>This has been clarified within Section 3.3.2, and 3.3 of the EP.</u>** TGS has not updated the EP in response to these comments.
248	**Matter:** Survey design uncertainties. **Claim:** Because no information is provided on how long each line is, how far apart the lines are, or how many lines constitute a survey, there is no indication of the actual area being exposed to this almost-continuous noise, or the total time that animals in the acquisition zone are being subjected to it.	As described within Section 3 of the EP, TGS will be acquiring the Otway Basin 3D MC MSS in multiple survey mobilisations over the four-year duration of the EP. The exact location and areas of individual survey phases depends upon the areas of interest from petroleum titleholders in the region. Although exact details are currently unavailable, all acquisition will occur within the boundaries of the Acquisition Area (as shown in Figure 4 of the EP), and the maximum acquisition time during any calendar year is 200 days or 8,000 km^2 (which ever is reached first), and no more than 400 days or 15,000 km^2 (which ever is reached first) for the duration of the EP. Due to temporal controls for managing impacts to various environmental sensitivities, the duration is likely to be less. TGS further notes that, as described within Section 10.4.5 of the EP, TGS will continuously look for ways to improve operations during the Otway Basin 3D MC MSS. Regulation 40 of the Environment Regulations require the resubmission of the EP to NOPSMEA in the event of a change or proposed change to circumstances or operations. The EP contains provisions for incorporating changes to requirements through the Management of Change process (Section 10.4.6 of the EP). TGS has not updated the EP in response to these comments. *Regulation 40 of the 2023 Environment Regulations have replaced Regulation 17 of the 2009 Environment Regulations.
249	**Matter:** Independent review. **Claim**: A thorough and independent review of the EP should be undertaken to determine the quality of information and scientific evidence.	Objections or claims pertaining to independent reviews are outside the scope of the EP. These comments have been assessed to not have merit specific relevance with regard to the Otway Basin 3D MC MSS. The EP will be reviewed by NOPSEMA who is responsible for ensuring all offshore petroleum and greenhouse gas activities in Commonwealth waters are undertaken in accordance with the Environment Regulations, including being consistent with the principles of Ecologically Sustainable Development and have an acceptable level of environmental impact and risk that is reduced to acceptable levels and ALARP. TGS has not updated the EP in response to these comments.
250	**Matter**: Independent scientific studies. **Claim:** If approval is to be granted, TGS should be required to sponsor future independent scientific studies	Proponent support of future scientific studies on the effect of seismic surveys on marine mammals is not a regulatory requirement of operators; hence this matter is outside of scope of the EP and TGS has not updated the EP in response to these comments. It is however noteworthy that TGS is in continuing discussions with a service provider to potentially undertake additional aerial surveys for blue whales over the Operational Area. Such a project would not be specifically linked to marine mammal control measures for the Otway Basin 3D MC MSS but would represent standalone

	on the effect of acoustics from seismic surveys on marine mammals.	scientific survey/s to augment the existing understanding of blue whales in the deeper offshore waters of the Otway Basin. In addition, MMO data collected during the Otway Basin 3D MC MSS will also contribute to the existing knowledge of marine mammals in the Otway Basin and the understanding of potential impacts of seismic operations on these species. The EPBC Act Policy Statement 2.1 confirms this through the following statement: "*information on any whales (or other species) sighted during the survey may be useful in the planning and assessment of future marine industry activities*". TGS has not updated the EP in response to these comments.
251	**Matter:** Use of alternative exploration techniques. **Claim:** Different, less hazardous techniques for marine exploration should be used. A full cost benefit analysis of emerging lower impact technologies should be conducted and quantified against the reduced damage to the marine environment.	The technology that will be utilised for the Otway Basin 3D MC MSS involves a series of acoustic sources that create acoustic emissions within a specified frequency and amplitude, to detect geological formations. The technology that will be used for the Otway Basin 3D MC MSS is the only technology currently available that is feasible for the Otway Basin 3D MC MSS. All other seismic technology is still being developed and is not technically or commercially feasible for the Otway Basin 3D MC MSS. Table 92 of the EP provides the full assessment of alternative technologies. A comprehensive assessment of the potential impacts and risks associated with seismic surveys is provided throughout Section 7.2 of the EP. In accordance with the control measures set out in Table 95 that will be adopted for the duration of the Otway Basin 3D MC MSS, seismic activities associated with the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.
252	**Matter:** No need for 3D seismic. **Claim**: 2D surveys can give equivalent information and have a lower impact. Half of this area has already been 2D surveyed. 3D is heavy-handed, excessive, and unnecessary. TGS must have highest priority as obtaining the existing 2D information, then applying	These objections or claims are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. 2D acquisition only occurs along the line of the receiver(s) with the resultant image only representing a section below the line which does not always produce a clean subsurface image. In comparison, to gain a truly representative image of the subsurface, 3D seismic surveys are capable of more accurately imaging reflected waves as it uses multiple points of observations (along a number of receiver(s) along multiple streamers). The information provided by previous surveys does not spatially cover the areas required or does not provide sufficient resolution. $2D^{cubed}$ is a regional screening tool which utilizes sufficiently sampled data in minimum 2 azimuths to create a 3D subsurface regional image. The Operational Area is not suitable for $2D^{cubed}$ as the 2D line spacing is too large. While $2D^{cubed}$ is a good tool for regional studies, it's not intended to replace conventional 3D seismic as it doesn't provide the resolution which is required to carry out detailed subsurface geological and geophysical interpretation

	their 2D^{cubed} regional screening tool.	to identify hydrocarbon prospects for drilling by companies. TGS has access to the 2D data that was acquired in 2020, and also historical 2D data, and can confirm that the line spacing complexity in the geology in the region is not suitable for 2D^{cubed}. TGS has not updated the EP in response to these comments.
253	**Matter:** 4D seismic. **Claim:** Given there are now also 4D seismic surveys available, a 4D survey will also be required in the future.	Objections or claims pertaining to potential future 4D seismic surveys are outside the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
254	**Matter:** Technology is not proven. **Claim:** The technology being proposed has not been demonstrated to work anywhere in the world and is therefore too risky to implement.	Marine seismic surveys have been used globally for more than 50 years and are used to: identify potential oil and gas reservoirs below the seafloor; identify potential reservoirs suitable for storing waste carbon dioxide; study the geological formations and rock layers beneath the seabed; and characterise sites for renewable energy developments. This technology is proven to be effective in achieving data requirements. TGS has not updated the EP in response to these comments.
255	**Matter:** Short-term seismic discharges. **Claim:** The description of seismic blasting as "short-term seismic discharges" is incorrect. A single discharge may be short-term, but the surveying is scheduled to be conducted continuously by repeated discharges. Impacts in terms of consistency and length of time of blasting will provide	Section 3.3 of the EP describes the details regarding the anticipated commencement of the Otway Basin 3D MC MSS and gives details regarding the proposed duration. In this, the EP describes the data acquisition will occur 24-hours, 7 days a week. However, although the Seismic Vessel will be active 24-hours, the acoustic source will only be active for an average of 20-hours per day. Shut-down measures such as in response to marine mammal presence will further reduce the amount of time the acoustic source is active in a day. In addition, the EP specifies that where no data infill is required, the seismic vessel will not need to collect data in that area again. Further to this, Section 9 of the EP addresses the potential cumulative effects due to exposure to seismic energy across four scenarios: consecutive/concurrent MSS, multiple MSS in the same region, multiple exposures during a single MSS, and interactions between different sources of sound. On the basis of the details set out above, and accounting for relevant temporal control measures outlined in Section 7 of the EP, the recovery for potentially affected species within the Operational Area are accounted for, i.e. these are specifically addressed via the Risk Assessment framework, as applied to biological receptors discussed in Section 7 of the EP.

	next to no time for the species to recover.	No updates have been made to the EP in response to these comments.
256	**Matter:** Death sentence. **Claim:** Seismic surveys in the Otway Basin are somewhat comparable to a death sentence for life as we know it in that area.	The statement that the proposed survey is "*somewhat comparable to a death sentence of life as we know it in that area*" is incorrect. TGS has provided a detailed discussion of the scientific literature outlining potential impacts to marine fauna from seismic surveys throughout Section 7 (planned activities) and Section 8 (unplanned activities) of the EP. In acknowledgement of the potential for the Otway Basin 3D MC MSS to impact marine fauna within the Otway Basin region, TGS has committed to various control/mitigation measures to ensure that impacts are reduced to ALARP and Acceptable Levels. Control/mitigation measures are provided throughout Section 7 and Section 8 of the EP. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. On the basis that this matter has already been addressed in detail within the EP, TGS has not updated the EP in response to these comments.
257	**Matter:** Reputation of titleholder. **Claim:** The record of operations by TGS and Schlumberger shows they cannot be trusted.	TGS will be the titleholder and operator responsible for implementing the Otway Basin 3D MC MSS and the EP. Schlumberger's involvement as project partner does not affect that in any way, including it does not affect TGS's decision making responsibility for, nor its ability to implement the EP. As such, it does not affect the potential environmental impacts from the Otway Basin MC MSS. TGS (which will be the titleholder and operator of the Otway Basin 3D MC MSS) is not currently under investigation and has never been the subject of an investigation for a breach of an EP. TGS has not updated the EP in response to these comments.
258	**Matter:** Schlumberger under investigation. **Claim**: Schlumberger is the silent partner behind the project and NOPSEMA is currently preparing a criminal case against them. Schlumberger should not be allowed to perform any offshore projects in	TGS will be the titleholder and operator responsible for implementing the Otway Basin 3D MC MSS and the EP. Schlumberger's involvement as project partner does not affect that in any way, including it does not affect TGS' decision making, responsibility for, nor its ability to implement the EP. As such, it does not affect the potential environmental impacts from the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.

	Australian waters whilst criminal charges are outstanding.	
259	**Matter:** Schlumberger involvement. **Claim:** Schlumberger is a silent partner in the project. TGS has been evasive and unclear regarding their partnership with SLB.	See Matter 258. TGS has not updated the EP in response to these comments.
260	**Matter:** TGS cannot prove that its previous activities have not harmed the environment. **Claim**: Submitter/s call on TGS to fund independent before and after assessments.	TGS has provided a detailed risk assessment of the potential impacts of the Otway Basin 3D MC MSS on the marine environment throughout Section 7 (planned activities) and Section 8 (unplanned activities). These impacts have been described based on existing scientific literature that has been published on the potential for impacts from decades of seismic surveys being conducted within both Australia and worldwide. TGS has not updated the EP in response to these comments.
261	**Matter:** TGS are a data management company. **Claim:** TGS are a data management company, not a company that should be charge of offshore testing. Why have they been given this role?	The issue raised by submitters does not relate to the potential environmental impacts from the Otway Basin 3D MC MSS. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has over 40 years of experience acquiring seismic surveys globally and over 20 years in Australia. (https://www.tgs.com/) TGS has not updated the EP in response to these comments.
262	**Matter:** Planet before profit and short-term gain. Company greed and	The issue raised by submitters does not relate to the scope of the EP. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS.

	disregard for the natural environment. **Claim:** Time to put our planet and its animals before profit and short-term gain. Project shows company greed and wanton disregard of the natural environment. This is another example of criminal mentality, a mentality based on what you can steal and get away with before the actual understanding of your actions and consequences are truly understood.	In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS have not updated the EP in response to these comments.
263	**Matter:** Sick of Australia being treated so poorly. **Claim:** This country is all I know and love and sick of it being treated so poorly.	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
264	**Matter:** Untouched waters. **Claim:** Don't blast untouched waters.	These submitters have a fundamental objection to oil and gas activities or the oil and gas industry, with these objections or claims outside of the scope of the EP. These comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS notes that within Section 4.7 of the EP, TGS has provided a description of the industries/activities that are already undertaken in the waters of the Operational Area and/or EMBA. TGS has not updated the EP in response to these comments.
265	**Matter:** Blasting of the Twelve Apostles. **Claim:** Blasting of the Twelve Apostles area is not	The Twelve Apostles Marine National Park is approximately 55 km from the Operational Area and as such will not be surveyed as there will be no seismic acquisition in proximity to the Twelve Apostles Marine National Park. TGS has not updated the EP in response to these comments.

	acceptable neither by man's judgement nor by God's.	
266	**Matter:** Democracy. **Claim:** We live in a democracy so shouldn't such actions such as seismic be voted upon by the people who will be impacted by it most?	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS and as such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
267	**Matter:** Australian economy. **Claim:** There will be little benefit, even monetary for the Australian economy.	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS and as such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
268	**Matter:** Survey going ahead is more important than protection. **Claim:** TGS admits that whales and tuna would be adversely impacted by recommendations to reduce the risk have been refused on the grounds that "*it could mean that it is not possible to complete a survey phase*". Ensuring the completion of a survey phase is more important to TGS than injuring and/or killing marine creatures. TGS has a clear conflict of interest in assessing what harm it is willing to avoid (or pay for).	As stated within TGS' Environmental Policy (provided within Appendix A of the EP), TGS is committed to protecting the environment, while also conducting operations in an environmentally sustainable and responsible manner. As described within Section 6 of the EP, TGS has adopted a hierarchy of controls, which follows a tiered system of "eliminate-substitute-reduce-mitigate" to identify alternate, substitute, and additional control measures. This means that, where possible, TGS has endeavoured to eliminate a risk, however, where this is not possible, the alternatives (in preferred order) is to substitute, reduce, and mitigate. Throughout Section 7 and Section 8 of the EP, TGS has provided details on the control/mitigation measures that will be implemented for the duration of the Otway Basin 3D MC MSS to mitigate against environmental impacts for each planned activity, as well as control/mitigation measures to mitigate against the potential for an unplanned activity. TGS has considered all control measures and details the control measures that will be adopted, with corresponding Environmental Performance Standard/s to reduce impact or risk to ALARP and to an acceptable level. In accordance with the control measures set out within the EP, the Otway Basin 3D MC MSS will be managed so that the potential impacts and risks will be mitigated to ALARP and Acceptable Levels in accordance with all environmental regulatory requirements. TGS has not updated the EP in response to these comments.

269	**Matter:** Explosions/blasts. **Claim:** The explosions/blasts this makes will have impacts on the marine environment and marine life. Seismic surveys are in fact explosions and have a well-documented history alluding to their impacts on marine mammals. There have been observational reports of the strong impact of blasting on Southern rockhopper penguins.	Seismic surveys are not 'blasts' and the technology used does not produce 'blasts' or explosions. Seismic surveys utilise technology that uses acoustic arrays comprised of different sized air-chambers that fill with compressed air to generate sound by expansion of the released air bubble and the air bubble collapsing on itself. The acoustic waves caused by the air bubble travel into the rock layers beneath the seafloor and are bounced back to the receiving hydrophones within the streamers. Nothing is fired and no by-products are released such as with an explosion or blast. Sounds produced during seismic surveys are not explosive. The acoustic source releases a relatively slowly expanding air bubble. In comparison, explosives are a much more rapid chemical reaction that produces a ball of super-heated plasma (gas) which expands faster than the speed of sound, producing both sound and a supersonic shock wave. Explosives are designed for other purposes, with sound produced as a waste product. The sound produced by explosives is a by-product of a process that generates a lot of heat and chemical pollution that are absent from seismic emissions. TGS notes that the literature referred to by submitters regarding impacts on southern rockhopper penguins are for studies on the impacts of underwater explosives and are therefore not applicable to the Otway Basin 3D MC MSS and have not been considered within the EP. TGS has not updated the EP in response to these comments.
270	**Matter:** Volcanos and earthquakes. **Claim:** Newer volcano activity on the mainland just above the area of blasting may cause eruptions and devastation to the mainland as well as marine life.	The issue raised by submitters does not contain specific relevance that pertain to the potential environmental impacts from the Otway Basin 3D MC MSS. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
271	**Matter:** Aquifer damage. **Claim:** The Otway Basin is linked to aquifers under the Otway Ranges which have been damaged by groundwater extraction for many years. Just like in	The Otway Basin 3D MC MSS EP is for a marine seismic survey, not oil and gas exploration/extraction. The issue raised by submitters does not relate to the potential environmental impacts from the Otway Basin 3D MC MSS, nor are the Otway Ranges within the Operational Area for the Otway Basin 3D MC MSS. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. Accordingly, TGS has not updated the EP in response to these comments.

	Gippsland, gas extraction is a water driven process.	
272	**Matter:** Effects on the shallow sea area of the Bass Strait. **Claim:** The Bass Strait, is a shallow sea subject to all the changes of its surrounding oceans, which include areas of potential blasting. This exploration does not have sufficient data to ensure it works without inflicting unpredictable environmental damage.	Water depths within the Acquisition Area (the area within which activation of the acoustic source is limited to) range from approximately 115 – 5,000 m; with the exception of the 2D tie lines, most of the water depths across the Acquisition Area are deeper than 510 m. As a result, there will be no direct overlap between the Otway Basin 3D MC MSS and shallow sea area of the Bass Strait. No updates have been made to the EP in response to these comments.
273	**Matter:** Rehabilitation bond. **Claim:** The matter of some form of 'rehabilitation bond' or trialling liability commitment should be secured before the survey is allowed to proceed. Trailing liability costs are now being locked in for 'upstream' oil and gas extraction activities so there is no reason that the same principles should not apply for exploration.	Objections or claims pertaining to rehabilitation bonds are outside the scope of the adverse effects of the Otway Basin 3D MC MSS. TGS is not required to provide a bond before commencing activities associated with the Otway Basin 3D MC MSS and enforcing such a bond is not within the scope of TGS. However, TGS is required to demonstrate financial assurance to NOPSEMA. The requirement to maintain sufficient financial assurance for the life of the title rests with the titleholder. **Section 1.6 of the EP has been updated to reflect this.**
274	**Matter:** Reparation or compensation. **Claim:** What is the reparation or compensation	AMSA has in place a Cost Recovery Implementation Statement 2023-24. Under this process, AMSA has established statutory authority to recover costs for ship-sourced marine pollution. Immediate funds (i.e. for immediate mobilisation of oil spill response resources under the National Plan) for covering clean up costs are sourced via levies collected under the Protection of the Sea (Shipping Levy) Act 1981.

	that TGS are responsible for if seismic survey activities cause damage to the marine ecosystem.	Under the Protection of the Sea (Prevention of Pollution from Ships) Act 1983, AMSA has arrangements in place to make sure that in the event of a Level 2 spill, for the financial costs of any response under the National Plan, potential costs that might arise can be recovered from the organization/ship responsible. TGS will be responsible to meeting all costs associated with an oil spill response. TGS has not updated the EP in response to these comments.
275	**Matter:** Injury or death not dealt with. **Claim:** No control measure is provided to deal with the possibility of injury or death to other marine users due to TGS activities.	Objections or claims pertaining to injury or death are within the scope of the adverse effects of the Otway Basin 3D MC MSS. These comments have been assessed to have specific relevance with regard to the Otway Basin 3D MC MSS. TGS acknowledges the risk of collision with both marine fauna and other marine users, and has addressed this risk within Section 7.1 and Section 8.3 of the EP. As outlined in Table 66 and Table 136 of the EP, TGS will implement a suite of control measures to prevent a collision at sea. These include (but are not limited to): • The Survey Vessels will be manned by experienced Vessel Masters; • Adherence to national and international legislation and conventions including (but not limited to) the Navigation Act 2012, COLREGS, the International Convention on the Safety of Life at Sea 1974, and the STCW Convention which covers use of lighting, navigation, radio communication at sea, and bridge watch; • Compliance of Support/Chase Vessels (when safe to do so), with the relevant requirements of EPBC Regulations 2000 Part 8, Division 8.1 with regard to vessel movements in the presence of marine mammals; • Notification to the AHO for the publication of a Notice to Mariners of survey presence and towed array; • Notification to the JRCC for the promulgation of navigational warnings; • Prior notification to relevant persons and 48-hour look-ahead notifications provided to those who request this information; • Presence of a support and chase vessel that are able to monitor for any potential vessels on a collision course; and • The use of RADAR, AIS and ARPA to monitor other vessels and their movements to ensure they are not on a collision course. There has not been a death resulting from a collision in Australian waters or globally as a result of seismic vessels. TGS has not updated the EP in response to these comments.

276	**Matter:** Supports project **Claim:** Submitters support project for reasons such as provision of jobs, keeping price of fuel down, etc.	This issue relates to support of the project. No response from TGS is required.
277	**Matter:** Speculative survey. **Claim:** The 55,000km^2 proposed is for a speculative survey, with speculative economic outcomes. There is no customer for this survey so testing for testing sake is unnecessary.	The issue raised by submitters are out of the scope of the EP. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.
278	**Matter:** This is not a real Environment Plan. **Claim:** The document submitted is not an Environment Plan. TGS should pre-present an actual EP which is a new and separate document that is focused solely on what will be done to reduce risk to ALARP levels.	Division 2 (Regulations 21 – 24) of the Environment Regulations outline the content requirements of an EP. The information contained within the EP has been included to cover off all requirements within Division 2 which requires a titleholder to provide information such as a description of the existing environment, and the control measures TGS will implement to reduce risk to ALARP levels. A stand-alone document is not required. TGS has not updated the EP in response to these comments. *Division 2 and Regulations 21 – 24 of the 2023 Environment Regulations have replaced Division 2.3 and Regulation2 12 – 16 of the 2009 Environment Regulations.
279	**Matter:** Life-cycle analysis. **Claim:** A life-cycle analysis should be employed for this project – from the very start of the project with seismic blasting, to the very end with closure of the possible oil rig.	This EP is for a single activity – a marine seismic survey. As a result, the EP covers the entire life-cycle of the project. Activities that are not a marine seismic survey are outside of the scope of the EP and are not required to be taken into consideration by TGS. These submissions do not have specific relevance with regard to the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.

280	**Matter:** Length of survey. **Claim:** The length of the survey is a period of four years.	Submitter/s claim the length of the survey is a period of four years, however, this is a misunderstanding of the Otway Basin 3D MC MSS. While the timeframe of the EP is for a period of four years (from 1 October 2023 – 30 September 2027, subject to acceptance of the EP), the maximum acquisition time during any calendar year is 200 days or 8,000 km^2 (which ever is reached first), and no more than 400 days or 15,000 km^2 (which ever is reached first) for the duration of the EP. This 200 days includes downtime due to weather, temporal controls for managing impacts to various environmental sensitivities (e.g. whale instigated shut-downs), deployment of the towed equipment, etc, therefore the actual acquisition period will be less. Based an analysis of the weather and sea state in the Otway Basin, seismic data acquisition is most likely to occur during the period from October to March in any calendar year covered by this EP. This has been described within Section 3.3 of the EP. TGS has not updated the EP in response to these comments.
281	**Matter:** SLR involvement in SLBs 2019 survey. **Claim:** SLR consulting were the environmental consultants for SLB during their 2019 operations. If there are questions over environmental compliance for those operations we would consider that the community can have not confidence that SLR are an appropriate company to safeguard the environmental impacts of this project.	The issue raised by submitters does not contain specific relevance that pertain to the EP. As such, these comments have been assessed to not have specific relevance with regard to the Otway Basin 3D MC MSS. However, SLR was not involved in the at-sea activities associated with SLBs 2019 survey. TGS has not updated the EP in response to these comments.
282	**Matter:** Incorrect titleholder. **Claim:** Submitters providing comments on the EP of other titleholders.	TGS received submissions during the public comment period specifically relating to aspects of other offshore petroleum activities and EPs currently being prepared/assessed. TGS considers these submissions out of scope as they are not related to TGS' proposed activities or the EP for the Otway Basin 3D MC MSS. TGS has not updated the EP in response to these comments.