

**BASIC ASSESSMENT REPORT FOR THE PROPOSED  
PROSPECTING IN SEA CONCESSION AREA 14C BY TRANS  
ATLANTIC DIAMONDS (PTY) LTD**

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TRANS ATLANTIC  
DIAMONDS

**Appendix 12:  
BID (Initial +Updated) & Questionnaires**

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## AANSOEKER: Trans Atlantic Diamonds (Edms) Bpk

### AANSOEK OM PROSPEKTEERREGTE EN OMGEWINGSMAGTIGING OM TE PROSPEKTEER IN DIE KUSLANGSE SEEKONSESSIEGEBIED 14C

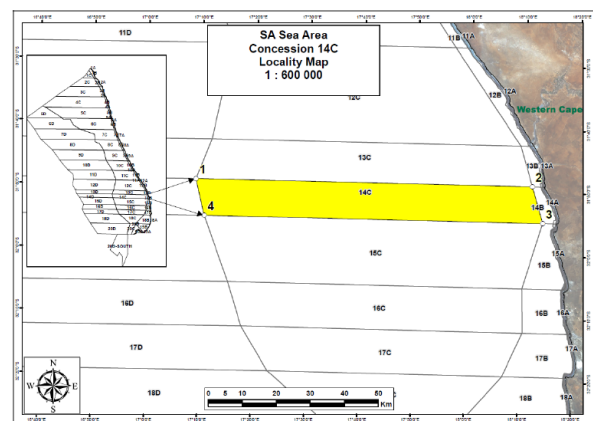
FEBRUARIE 2022

#### PROJEK AGTERGROND

Trans Atlantic Diamonds (Edms) Bpk (TAD) het aansoek gedoen vir die reg om diamante, edelgesteentes, swaar- en industriële minerale en yster-, basis en kosbare metale wat in Konsessiegebied 14C voorkom, te prospekter. Aansoek is ingedien ingevolge die Wet op Ontwikkeling van Minerale en Petroleumhulpbronne ((28 van 2002), soos gewysig)). Aangesien prospektering 'n genoteerde aktiwiteit is in term van die Omgewingsimpak-assesseringsregulasies, 2014 (gewysig en afgekondig ingevolge die Wet op Nasionale Omgewingsbestuur (107 van 1998), moet TAD ook aansoek doen om Omgewingsmagtiging (OM) by die bevoegde owerheid, d.w.s. die Departement van Minerale Hulpbronne en Energie (DMHE). Om aansoek te doen vir OM, moet 'n Basiese Assesseringsproses van die voorgestelde aktiwiteit asook die potensiële impak daarvan uitgevoer word, tesame met 'n Openbare Deelnameproses en die bevindinge as 'n verslag aan die DMHE voorgelê word. Die Aansoeker het Anchor Environmental Consultants (Edms) Bpk aangestel as die Onafhanklike Omgewingsassesseringspraktisyn (EAP) om te help met die aansoek om prospekterregte en omgewingsmagtiging.

#### PROJEK LIGGING

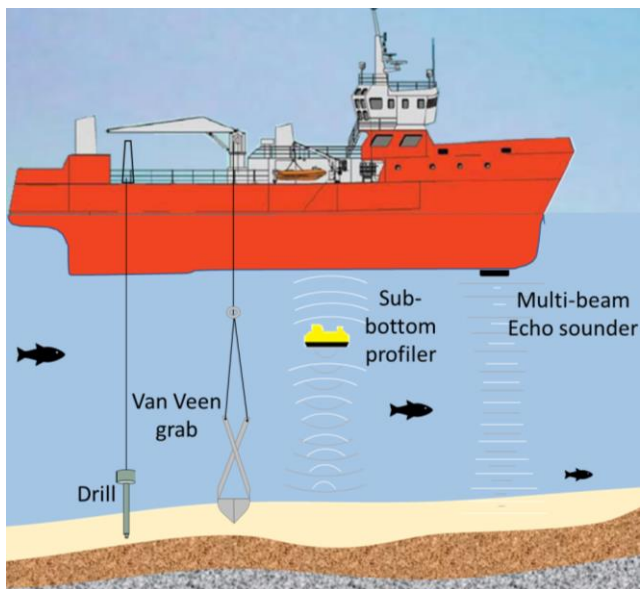
Seekonsessiegebied 14C is in die see langs die Weskus geleë en strek vanaf Doringbaai tot Groothoekbaai (Figuur 1). Die binneste grens is sowat 5 km van die kus geleë, en die buitenste grens strek tot by die 200m badmetrielyn (waterdiepte). Dit is verder 106 001 ha groot.



Figuur 1: Seekonsessiegebied 14C langs die Weskus

## PROSPEKTERINGSMETODE

**Geofisiese Opname:** 'n Hoëfrekwensie "Multibeam Echo Sounder" en middelfrekwensie "sub-bottom profiler" sal gebruik word om 'n model van die seabodem en grondlae te skep en spesifieke rotstipes van belang (geologiese eenhede) te identifiseer. Hierdie toerusting werk deur middel van klankgolwe wat na die seabodem gestuur word en dan terugboks vanaf die seabodem, deur die water na die ontvanger. Die seine wat ontvang word, word gebruik om 'n beeld van die seabodem te skep. Resultate van hierdie opname sal gebruik word om die toepaslike boormetode, boorterreine en die ontwerp van die mynbouvaartuig in te lig (Figuur 2 en 3).



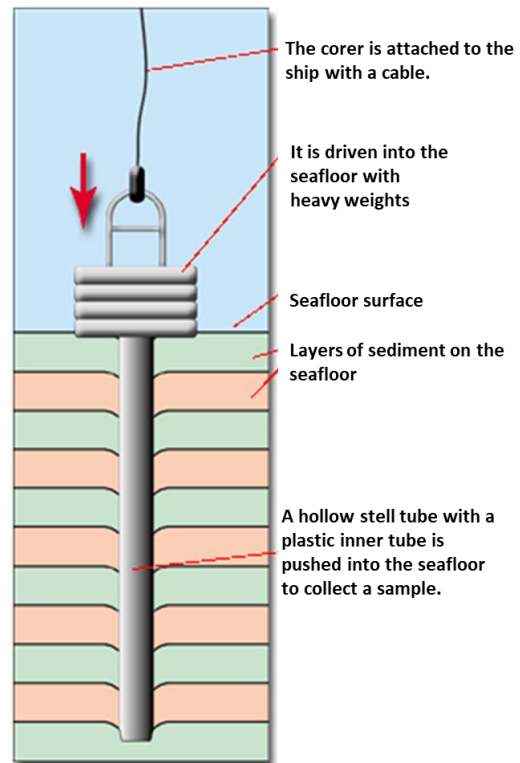
Figuur 2: Verskeie metodes wat gebruik sal word om grondmonsters te neem.



Figure 3. 'n Voorbeeld van 'n "sub-bottom profiler". Bron: Seatronics.

**Kernmonsters:** Seavloermonsters sal versamel word met behulp van 'n Vibracore, Gravity Core of Sonic Core (Figuur 4). 'n "Core" dring die seevloer binne en versamel grondmonsters. Dit

sal inligting oor die struktuur van die seevloer, grondlae en geologiese eenhede verskaf. Resultate van hierdie opname sal help met die ontwerp van die boorwerktuig (sien hieronder) en mynbouvaartuig.



Figuur 4. 'n Voorbeeld van 'n corer. Bron: British Ocean Sediment Core Research Facility.

**Boor:** Voornemende teikenareas moet ondersoek word deur 'n spesiaal-ontwerpte boorwerktuig wat grond uit die seabodem kan graawe. Grondmateriaal sal op die vaartuig deur 'n DMS-verwerkingsaanleg, verwerk word. Uitskot sal oorboord gegooi word. Resultate van hierdie opname sal help met die ontwerp van die mynvaartuig.

**Van Veen Grab (grypmonsters):** Die instrument versamel oppervlakige grondmonsters wat ontleed word om makrofauna (klein seediertjies soos wurms, mossels en krappies) wat op en in die seevloer woon, te identifiseer en om geologiese eenhede van die seevloer te bepaal (Figuur 5). Resultate sal gebruik word om die makrofauna gemeenskappe in die gebied tydens

en na prospektering en mynbou te beskryf en te monitor.



Figure 5. 'n Van Veen grab werk soos 'n klou om grond en makrofauna te "gryp" en op te skep.

## POTENSIËLE IMPAKTE

### Sosio-ekonomies:

- Sosio-ekonomiese impakte op visbedryf
- Streeks voordele
- Plaaslike voordele

### Mariene Ekologie en visserye:

- Seismiese versteuring op mariene organismes/diere(animals)
- Botsings met mariene organisms van 'n aansienlike grootte (dolfyne, walvis, en seëls ens.) as gevolg van opname vaartuie
- Seevloermonsters en grondafval
- Fyn sediment stofwolke
- Fisiese versteuring as gevolg van ankers en kettings
- Vrystelling van afval tydens skipbedrywighele
- Impak op visserye

### Erfernis:

- Impak van boor- en grypmonsterneming op onderwater prehistoriese hulpbronne
- Impak van boor- en grypmonsterneming op onderwater paleontologiese hulpbronne
- Impak van boor- en grypsmonsterneming op Argeologiese Hulpbronne soos skeepwrake

**"No-go" Opsie, d.w.s om nie met prospektering voort te gaan nie:**

### Positiewe impak van hierdie opsie

- Geen effekte op die bio- en geofisiese omgewing nie

### Negatiewe impak van hierdie opsie

- Verlies aan geleentheid om vas te stel of 'n diamanthulpbron in die konsessiegebied voorkom of nie
- Verlore ekonomiese geleenthele

## AANSOEKPROSES EN TYDLYN

### Fase 1: Indiening van aansoek

'n Prospekterreg- en omgewingsmagtigings-aansoek is by die DMHE ingedien en die aansoek op 21 Februarie 2022 aanvaar.

### Fase 2: Aanvanklike kommentaar tydperk

Belanghebbende en Geaffekteerde Partye (B&GPe) word uitgenooi om te registreer en aanvanklike kommentaar op die aktiwiteit te lewer.

### Fase 3: Sirkuleer Konsep BAR & Amptelike kommentaartydperk

'n Konsep Basiese-assesseringsverslag (BAR) sal vir 30-dae op ons webtuiste en by die Doringbaai e-sentrum, Doringbaai Biblioteek, Strandfontein Weskus Inligting-sentrum en Ebenhaeser Biblioteek vir die publiek beskikbaar wees. Dit sal 'n beskrywing van die voorgestelde projek, potensiële impakte en spesialisbevindinge insluit.

### Fase 4: Openbare Deelname Vergadering

'n Openbare vergadering sal in Doringbaai gehou word. Hiertydens sal lede van Anchor (die EAP) en Trans Atlantic Diamonds (die aansoeker) meer besonderhede oor die voorgestelde prospekteraktiwiteit verskaf en B&GPe raadpleeg. B&GPe sal dan ook die geleentheid hê om vrae te vra en kommentaar oor die aktiwiteit te lewer.

### Fase 5: Dien finale BAR by die DMHE in

Belanghebbendes se kommentaar sal aangespreek en in die belanghebbendekonsultasieverslag, wat deel vorm van die finale BAR, opgeteken word. Die finale BAR sal dan by die DMHE ingehandig word vir hersiening.

### Fase 6: Besluit deur die DMHE

Die DMHE het 107 dae om al die dokumente na te sien en te besluit of Omgewings-magtiging vir prospektering in konsessie-gebied 14C toegestaan moet word of nie.

## HOE OM DEEL TE NEEM

**B&GPe word uitgenooi om te registreer en kommentaar te lewer op die aansoek om prospekterregte en omgewingsmagtiging (waarvan besonderhede in die BAR sal wees) gedurende die Openbare Deelnameproses (datums sal nog bevestig word).**

### Metodes om te registreer en deel te neem:

- 1) Voltooi die vraelys of stel u kommentaar op 'n gewone dokument saam en stuur dit aan die kontakpersoon hieronder per pos, e-pos, telefonies, of handig dit by die Openbare Deelname Vergadering in;
- 2) Lewer u kommentaar tydens die Openbare Deelname Vergadering.

**Verseker dat u naam, kontakbesonderhede, belangstelling in hierdie aktiwiteit (bv. inwoner, visserman) en metode waarop u gekontak wil word (foon/ WhatsApp/ e-pos/ pos), verskaf is.**

***Cheruscha Swart***

*Ekoloog in Omgewingskonsultant*

**Anchor Environmental Consultants (Pty) Ltd**

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## APPLICANT: Trans Atlantic Diamonds (Pty) Ltd

### APPLICATION FOR PROSPECTING RIGHTS AND ENVIRONMENTAL AUTHORISATION TO PROSPECT IN THE OFFSHORE SEA CONCESSION AREA 14C

FEBRUARY 2022

#### PROJECT BACKGROUND

Trans-Atlantic Diamonds (Pty) Ltd (TAD) has applied for a right to prospect for diamondiferous and gemstone deposits in addition to other heavy minerals, industrial minerals, precious metals and ferrous and base metals that may exist within the application area, in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended, within Sea Concession Area 14C. As prospecting is a Listed Activity under the Environmental Impact Assessment Regulations, 2014 (amended and promulgated in terms of the National Environmental Management Act (Act No. 107 of 1998)), TAD is also required to apply for Environmental Authorisation (EA) from the competent authority, i.e., the Department of Mineral Resources and Energy (DMRE). To apply for EA, a Basic Assessment of the proposed activity and its potential impacts, along with a Public Participation Process, must be conducted and the findings submitted as a report to the DMRE. The Applicant has appointed Anchor Environmental Consultants (Pty) Ltd (Anchor) as the independent Environmental Assessment Practitioner to assist with applying for prospecting rights and Environmental Authorisation.

#### PROJECT LOCATION

Sea Concession area 14C is located offshore on the West Coast and is 106 001 ha in extent. It is located off the Western Cape Coast approximately 5 km offshore of Doringbaai and Groothoekbaai (Figure 1). The inshore boundary is situated about 5 km from the coast, and the outer boundary extends to the 200m isobath.

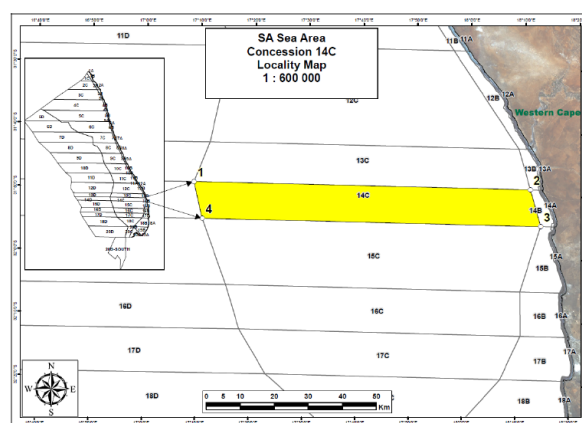


Figure 1: Sea concession 14C off the Western Cape Coast.

## PROSPECTING METHOD

**Geophysical Survey:** A high frequency Multibeam Echo Sounder and mid-frequency sub-bottom profiler will be used to create a model of the seafloor and layers of sediment and identify specific rock types (geological units) of interest. This equipment works by sending out sound towards the seabed. The sound energy is reflected from the seabed and travels back through the water to the receiver. The received signals are processed and used to create an image of the seafloor. Results from this survey will be used to inform the appropriate drilling method, drill sites and the design of the mining vessel (Figure 2 and 3).

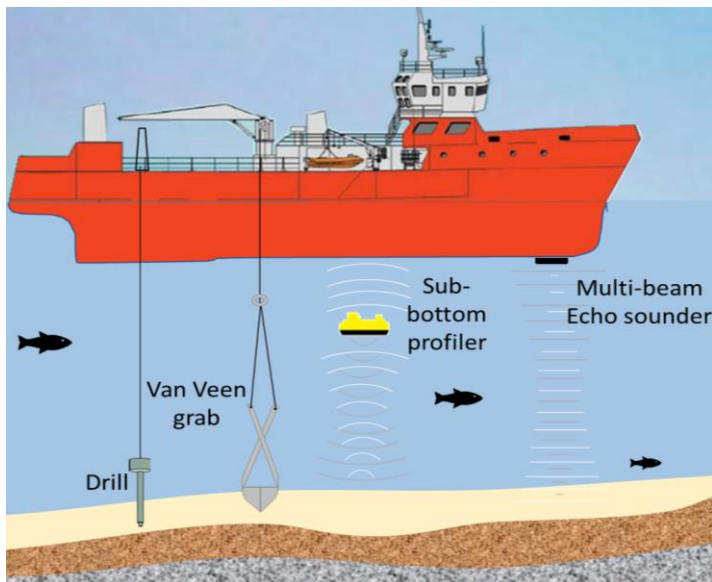


Figure 2: The various sampling methods that will be used.



Figure 3. An example of a sub-bottom profiler. Source: Seatronics.

**Coring:** Seabed samples will be collected using a Vibracore, Gravity Core or Sonic Core. A core penetrates the seafloor and collects sediment samples (Figure 4). It will provide information on the structure of the seafloor, sediment layers

and geological units. Results from this survey will be used to inform the engineering of the drilling tool (see below) and mining vessel.

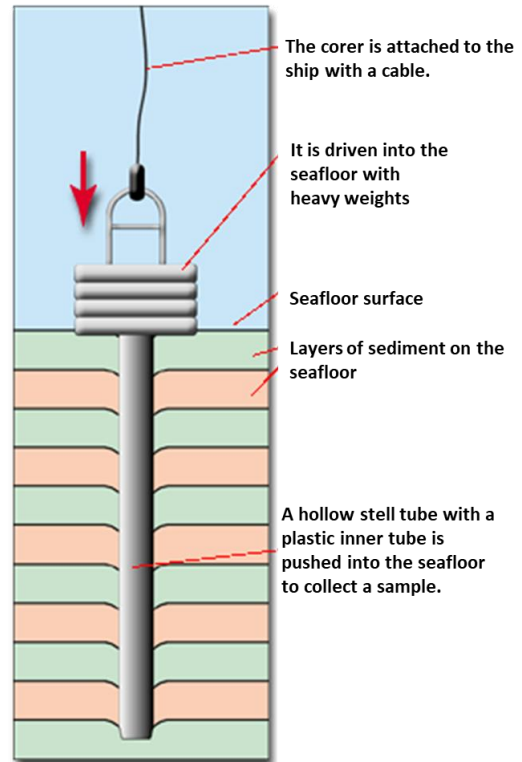


Figure 4. Example of a corer. Source: British Ocean Sediment Core Research Facility.

**Drilling:** Prospective targets need to be analysed by a uniquely designed drill tool that will dredge gravel from the seabed. Material will be processed onboard by a DMS processing plant and tailings discarded overboard. Results from this survey will be used to inform the engineering of the mining vessel.

**Van Veen Grab sampling:** The grab collects surficial sediment samples that are analysed to identify benthic macrofauna (small animals such as worms, mussels, and crustaceans) to determine geological units of the seafloor (Figure 5). Results from this survey will be used to describe and monitor the baseline macrofaunal communities in the area during and after prospecting and mining.



Figure 5. A Van Veen grab works like a claw to grab sediment containing macrofauna from the seafloor.

- Impacts of core and grab sampling on Maritime Archaeological Resources

**No-go Option, i.e., to not commence with the activity:**

**Positive impacts of this option**

- No effects to the bio- and geophysical environment

**Negative impact of this option**

- Loss of opportunity to establish whether viable offshore resources exist in the concession area
- Lost economic opportunities

## POTENTIAL IMPACTS

### Socio-economic:

- Socio-economic impacts on fishing industry
- Regional benefits
- Local benefits

### Marine Ecology and fisheries:

- Seismic disturbance to marine fauna
- Marine megafauna collisions with survey vessels
- Seabed sampling and tailings disposal
- Fine sediment plumes
- Physical disturbance due to anchors and chains
- Waste discharges during vessel operations
- Impact on fisheries

### Heritage:

- Impacts of core and grab sampling on submerged prehistoric resources
- Impacts of core and grab sampling on submerged palaeontological resources



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## APPLICATION PROCESS AND TIMELINE

### Phase 1: Lodge Application

A prospecting rights and environmental authorisation application has been lodged with the DMRE and was accepted 21 February 2022.

### Phase 2: Initial commenting period

Interested and Affected Parties (I&APs) were invited to register and provide initial comment on the activity.

### Phase 3: Circulate Draft BAR & Official Public Participation Period

A Draft Basic Assessment Report (BAR) will be available on our website and at the Doringbaai e-centre, Dorinbaai Library, Strandfontein West Coast Information Centre, and Ebenhaeser Library, for 30 days. It will include a detailed description of the proposed project, potential impacts, and specialist findings.

### Phase 4: Public Participation Meeting

A Public meeting is scheduled in Doringbaai during which members of Anchor (the EAP) and Trans-Atlantic Diamonds (the applicant) will provide more detail on the proposed prospecting activity and consult with I&APs who can ask questions and provide comment on the activity.

### Phase 5: Submit Final BAR to the DMRE

Stakeholder comments will be addressed and included in the stakeholder consultation report which forms part of the final BAR. The final BAR will then be submitted to the DMRE for review.

### Phase 6: Decision by the DMRE

The DMRE has 107 days to review all the documents and decide whether to grant Environmental Authorisation for prospecting in Concession area 14C.

## HOW TO PARTICIPATE

**I&APs are invited to register and provide comments on the application for prospecting rights and environmental authorisation (details of which are in the BAR) during the Public Participation Period (dates to be confirmed).**

### Methods to register and participate:

- 1) Complete the questionnaire or compile your comment on a document of your choice and submit it to the contact person below via email, post, telephonically or submit it during the Public Participation Meeting.
- 2) Attend and provide comment during the Public Participation Meeting.

**Ensure that your name, contact details, interest in this activity (e.g., fisherman, resident, etc.) and way you wish to be contacted (e.g., email) are provided.**

***Cheruscha Swart***

*Ecologist and Environmental Consultant*

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**APPLICANT: Trans Atlantic Diamonds (Pty) Ltd**

**PREPARED BY: Anchor Environmental (Pty) Ltd**

**APPLICATION: PROSPECTING RIGHTS AND ENVIRONMENTAL AUTHORISATION  
TO PROSPECT IN THE OFFSHORE SEA CONCESSION AREA 14C**

**APRIL 2022**

**The purpose of this document is to provide the reader with a summary of the most important information and findings of the Basic Assessment Report (BAR) and specialist impact studies which assessed the potential impacts of prospecting in Concession Area 14C. It is written in easier terms for readers to understand so that they do not have to read the entire BAR and specialist studies in order to understand the project, impacts or provide meaningful comment.**

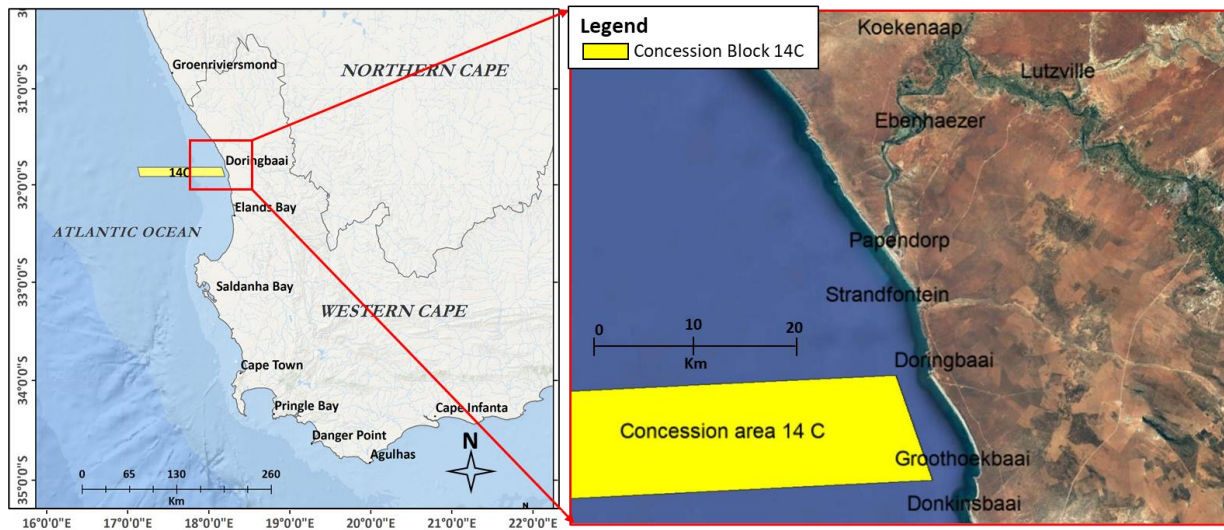
## PROJECT BACKGROUND

Prospecting is the search for commodities such as gemstones, minerals and metals in an area by means of drilling and excavation to determine if mining in that area would be economically feasible. It is also an opportunity to collect baseline environmental information on species present in an area, to monitor the impacts of potential future mining. Prospecting does not guarantee that mining will take place.

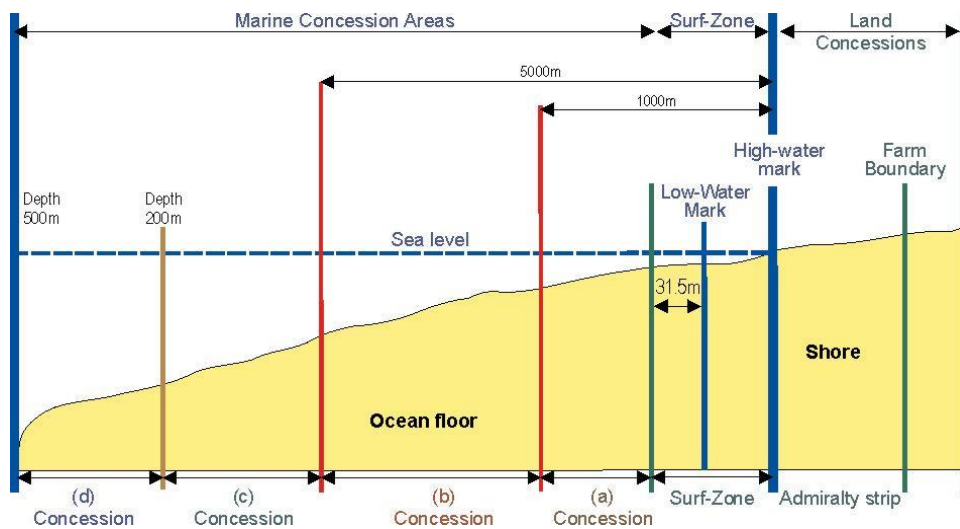
Mining-related activities contribute to our national and provincial economies and in meeting societal needs. With the global population increasing by approximately 83 million people per year, there has been an increased need for goods and services such as houses, transport, healthcare, schools, and the materials to manufacture these products. Minerals and metals are used, not only in jewellery, but in the manufacturing of these products. They are used in x-ray machines, pacemakers, dental implants, prosthesis, cell phones, laptops, computers, to make glass, fuel, paints, concrete and high-strength metal alloys (used to make tools, ships, vehicles, aircrafts, bridges, buildings and electric motors).

South Africa possesses some of the world's richest resources, minerals and other commodities which has the potential to supply the international markets. The law requires that, before an applicant (the company wanting to prospect) can prospect in an area, they need to apply for certain rights and authorisations according to relevant legislation.

Trans Atlantic Diamonds Pty Ltd (The Applicant) have applied for the right to prospect for precious metals (gold, silver and platinum), gemstones (alluvial diamonds, sapphires and garnets), ferrous and base metals such as rare earths (monazite mineral), black sand minerals (titanium minerals e.g. ilmenite and rutile), zirconium ore (zircon) and iron ore (magnetite), in Sea Concession Area 14C. This area covers 106 001 ha and extends from just north of Doringbaai (northern boundary) to just north of Donkinsbaai (southern boundary). It is situated 9 km south of Strandfontein and 21 km north of Lamberts Bay (Figure 1). The boundary closest to the shore starts approximately 5 km (2.7 nautical miles) west of the high-water mark at a water depth of 70 m. The concession extends 100 km westwards from this point to 200 m water depth (Figure 2).



**Figure 1. The location of Concession Area 14C along the West Coast.**



**Figure 2. Diagram of the onshore and offshore boundaries of the South African marine diamond mining concession areas.**

This prospecting rights application was submitted as required by the Mineral and Petroleum Resources Development Act (28 of 2002), the National Environmental Management Act (107 of 1998) and the Environmental Impact Assessment Regulations, 2014. In addition to prospecting rights, the Applicant must also apply for Environmental Authorisation (EA) from the relevant government department, referred to as the competent authority, prior to the commencement of prospecting activities. In this case the competent authority is the Department of Mineral Resources and Energy (DMRE). The application process requires that a Basic Assessment (BA) of the potential impacts of the proposed activity be conducted (this process). All findings are incorporated into the Draft Basic Assessment Report (BAR) and circulated, along with the Environmental Management Programme (EMPr), to the DMRE and the public for a 30-day commenting period (the 30-Day Public Participation Process). A Public Participation Meeting should also be held as part of the Public Participation Period to present the public with the findings and record their recommendations, concerns and questions.

Hereafter, all specialist findings and public comments are incorporated into the Final BAR which is then made available to the DMRE and the public along with the EMPr. The DMRE will then have 107 days to consider the Final BAR and make the final decision in terms of granting or rejecting the prospecting

rights. If the prospecting right is approved, it will allow Trans Atlantic Diamonds (Pty) Ltd to determine if mining within Concession Area 14C is economically viable. Any future intention to undertake mining within the application area would require a further application, investigation and public consultation process.

Anchor Environmental Consultants (Pty) Ltd has been appointed by the Applicant as the Independent Environmental Assessment Practitioner (EAP) to submit the applications and carry out a Basic Assessment and Public Participation process for a prospecting rights application for Concession Area 14C.

### DESCRIPTION OF THE PROPOSED ACTIVITY

The proposed prospecting programme is anticipated to be completed within five years. Sampling will be conducted in four phases and includes a combination of non-invasive (acoustic survey, data acquisition and analysis) and invasive activities (Van Veen grab, core and drill samples) (Figure 3). No infrastructure will be placed on shore or in the sea. The vessel will be operating out of the Port of Cape Town or possibly Saldanha Bay and will not dock in or near Doringbaai or other nearby towns. No access from land is required, neither will vessel crew be able to come on land. The four phases of the sampling program are as follows:

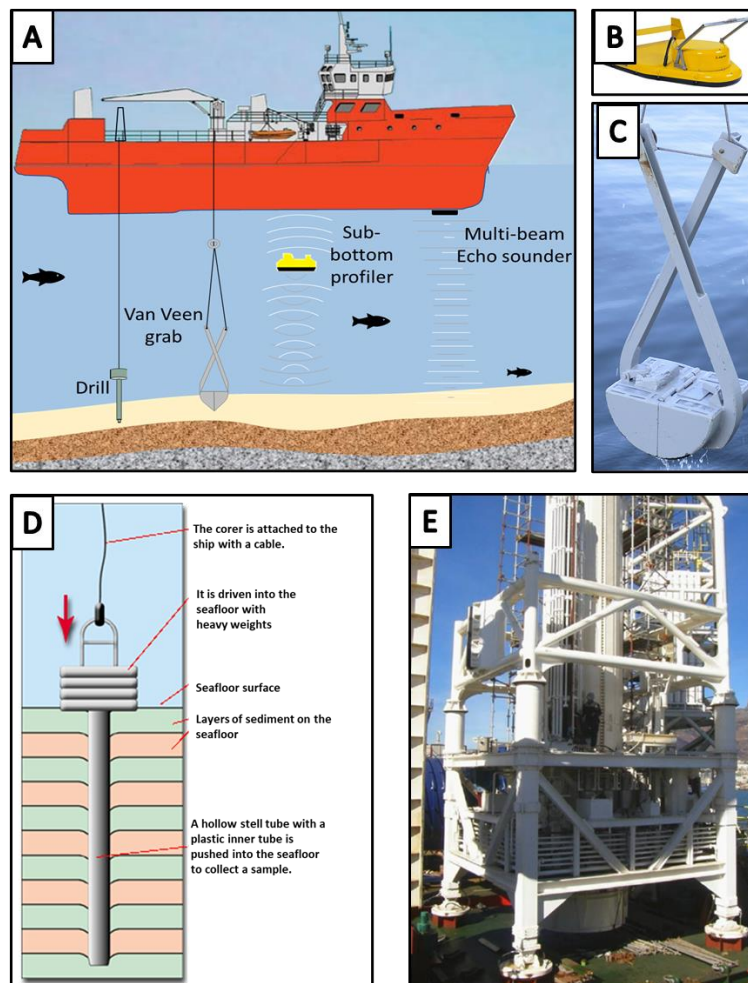


Figure 3 The various sampling methods that will be used (a), including (B) acoustic equipment, (C) a Van Veen grab, (D) corers and (E) a drill.

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1. **Geophysical/ Acoustic Survey:** Acoustic equipment is used to send out sound towards the seabed. The sound energy is reflected from the seabed and travels back to the receiver. The received signals are used to create an image or map of the seafloor. This allows the identification of important rock types and areas where prospecting should occur and sensitive areas such as reefs which need to be avoided.
  2. **Van Veen Grab sampling:** A Van Veen grab (clamshell bucket) collects sediment samples that are analysed to identify benthic macrofauna (small animals such as worms, mussels, and crustaceans) and sediment types (**Error! Reference source not found.**). Sampling will be done at 20–50 sites, disturb a total surface area of 5 square meters (m<sup>2</sup>) and a total volume of 1.5 cubic meters (m<sup>3</sup>). Results from this survey will be used to describe and monitor the baseline macrofaunal communities in the area during and after prospecting and mining.
  3. **Core sampling:** Core samples will be collected at 100–200 sites. A corer penetrates the seafloor to collect sediment samples used to determine the structure of the seafloor, sediment layers and types of sediment (i.e., sand, gravel and/ or rock and the hardness of the rock) (**Error! Reference source not found.**). This information is then used to engineer the drilling tool. Geotechnical sampling is also used to determine whether there are materials that can be mined in the area and whether it will be economically viable. The core samples will disturb a total surface area of 1.57 m<sup>2</sup> and collect a total volume of 4.71 m<sup>3</sup>.
  4. **Drilling:** Target areas will be sampled using a drill with a surface area of 5m<sup>2</sup> (**Error! Reference source not found.**). Drilling will be done in three steps: (1) An initial 150 samples will be collected and analysed. (2) An additional 150 samples will be collected during follow-up sampling. Should these follow-up samples indicate that there could be a potential resource, only then will step 3 (resource development phase) commence. (3) An additional 60 samples will be collected in a resource area of 500 m x 300 m. Approximately 20 resource development areas will be required. This equates to 1 200 samples. In total, 1 500 samples will be collected and will cover a surface area of 7 500 m<sup>2</sup>.

A total surface area of 7 507 m<sup>2</sup> (0.75 ha) will be disturbed during all phases and equates to 0.000007% of Concession Area 14C. The information acquired will be used for understanding the seafloor topography, resource evaluation, to determine if mining within Concession Area 14C is economically viable, inform the construction of the mining vessel and identify areas for mining.

## SUMMARY OF THE KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

**The assessment identified 29 potential negative impacts ranging from MEDIUM to INSIGNIFICANT and two potential positive impacts ranging from LOW to INSIGNIFICANT. With the implementation of mitigation measures, the negative impacts can be reduced to LOW, VERY LOW, or INSIGNIFICANT.**

The significance rating of impacts is done according to a specific scientific method as prescribed by the EIA regulations and is considered by decision-makers. This method takes into account the size of the area that will be impacted, the duration and the magnitude of the impact in relation to the sensitivity of the receiving environment (and the degree to which the impact may cause irreplaceable loss of resources).

- **INSIGNIFICANT:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity.

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- **VERY LOW:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity.
  - **LOW:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity.
  - **MEDIUM:** the potential impact should influence the decision regarding the proposed activity.
  - **HIGH:** the potential impact will affect a decision regarding the proposed activity.
  - **VERY HIGH:** The proposed activity should only be approved under special circumstances.

The negative impacts are associated with the disturbance of fauna (invertebrates, fish, mammals, seabirds and turtles), submerged prehistoric resources, shipping activities, fishing activities, tourism, and the community of Doringbaai. Mechanisms include disturbance by means of physical sampling activities, acoustic surveys or vessel movement and noise. These impacts have the potential to result in the loss of environmental integrity, social values and economic opportunities. It should, however, be noted that most of these impacts were assessed to be either INSIGNIFICANT or VERY LOW. Marine mammals and shipwrecks of high heritage significance are expected to be the most significantly affected by the prospecting activities. For mammals, this is due to the impacts that the acoustic surveys could have on their echolocation and hence behaviour and critical activities such as feeding. For shipwrecks, this would be related to damage during invasive prospecting activities. However, this latter impact is not likely to occur as vessels of high significance are improbable to be present in Concession Area 14C and would be detected during the acoustic survey before invasive activities commence.

Prospecting activities could also provide benefits in the form of local and regional socio-economic opportunities in addition to contributing towards scientific knowledge, specifically in terms of baseline environmental sediment, species and high-resolution bathymetry data. These benefits are, however, considered to be relatively low in the broader context.

**Marine ecology and fisheries:** Ten potential negative impacts on the Marine Environment and Fisheries were identified, with impacts before mitigation ranging from MEDIUM to INSIGNIFICANT. With effective mitigation these impacts can all be reduced to VERY LOW or INSIGNIFICANT. Impacts include seismic disturbance to marine fauna; survey vessel collision with marine megafauna; direct impact of seabed excavation and tailings disposal on benthic habitats (soft sediment and reef associated communities); impact of fine sediment plumes on surrounding benthos and water column; waste discharges during vessel operations; and impacts on fisheries and the livelihoods of fishing communities due to exclusion from fishing grounds and disturbance of target fish species. The potential impact of most concern is that of seismic disturbance to marine mammals and was assessed as MEDIUM negative significance prior to mitigation. It is known that migrating humpback, southern right whales, dusky dolphins and the near-threatened Heaviside's dolphin are frequently encountered on the west coast of southern Africa. Of the proposed seismic survey activities, the Topas sub-bottom profiler system could present a risk to dusky and Heaviside's dolphins. Effective implementation of mitigation measures should ensure that potential impacts on marine mammals arising from the proposed seismic survey activities in Concession 14C would be reduced to VERY LOW significance. The proposed sampling via coring and drilling is not expected to create significant underwater noise as the sound is largely restricted to the seabed material (sand/rock) and environmentally significant sound propagation in the water column is not anticipated. Seabird collision with the vessel is not anticipated as the vessel will not be creating fish offal to attract sea birds and is not expected to create light that will be brighter or more intense than that on any other operational vessel. Potential impacts of acoustic surveys on zooplankton were scoped out of the assessment as previous studies did not find any discernible effects on zooplankton. The limited spatial scale, temporary nature of operations (approximately two months over 5 years) and low volume of any

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sediment plumes generated during sampling are not anticipated to have noticeable impacts on small pelagic fish recruitment. It is worth noting that much of the West Coast constitutes a recruitment area for anchovies and only a tiny proportion may be impacted by the generation of turbidity plumes for a very short duration.

**Heritage:** Prospecting activities in Concession Area 14C are likely to have an impact on submerged Prehistoric Heritage, Marine Archaeological and Palaeontological Resources present within the concession area. In Sea Concession 14C, there may be 44 shipwrecks, dating from the 1500s through to modern times. According to the shipwreck databases, there is DEFINITELY one modern wreck within the area. There are five modern wrecks that are POSSIBLY in Sea Concession 14C. These would be able to be verified with geophysical data. The other 38 shipwrecks may be found in this area during work, although it is UNLIKELY. Two of these are modern and are not protected by the National Heritage Resource Act. The significance of most of these wrecks are considered low or medium. There are, however, a few that may have a high significance factor. These include very old ships, war-time losses, and other vessels with a specific national or international significance. The significance of a shipwreck is hard to pinpoint without significant research and would have to be dealt with on an ad hoc basis if they are discovered. The significance of prospecting-related impacts on Marine Archaeological Resources was assessed to range from MEDIUM to VERY LOW. The significance will depend on the type of maritime resource discovered and whether it has been damaged during prospecting. The significance of impacts on Prehistoric Heritage (stone-age artefacts) was assessed to be LOW and for Palaeontological Resources (fossils) VERY LOW. There is potential for the status of the potential impacts to be changed from negative to positive if core samples are retained for assessment of paleoenvironmental and prehistoric lithic material.

**Socio-economic:** Prospecting activities are anticipated to have potential negative impacts on several sectors and other aspects within Concession Area 14C. These include potential impacts to tuna pole and line, traditional linefish, small pelagic purse seine fishing sectors, local households, tourism and small businesses, sense of place, crime levels and noise levels. These impacts are related to the 1) the operation and physical presence of vessels in the area; 2) the temporary disturbance of marine resources; 3) exclusion of fishing vessels from the concession area 14C; and 4) the degradation of water quality. The impacts of all of these were assessed to be INSIGNIFICANT, except for impacts on the small pelagic purse seine fishing, the local households and tourism, which were assessed to be VERY LOW. These are expected to be reduced to INSIGNIFICANT after the implementation of appropriate mitigation measures. Despite this very low impact rating, the poor economic performance of the coastal communities should still be taken into consideration due to their high dependence on marine resources to support their household income and livelihoods. Potential positive impacts from the prospecting activities include the generation of local and regional economic opportunities, although the benefits of these are expected to be INSIGNIFICANT.

**Noise impacts:** The proposed sampling via coring and drilling is not expected to create significant noise as the sound is largely restricted to the seabed material (sand/rock) and environmentally significant sound propagation in the water column is not anticipated. It is also unlikely that any noise would be heard from the shoreline or from Doringbaai which is situated approximately 5 km to the east of the concession area. The potential noise impacts will be localised, of short duration, low intensity and are therefore expected to be INSIGNIFICANT without the need for mitigation measures.

**Safety of materials (radioactivity):** The natural maximum values of raw mineral radiation from any materials extracted during prospecting are not expected to exceed safety guidelines. All regulations and

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standards as set out by the South African Maritime Safety Authority (SAMSA), International Maritime Organization (IMO), the International Maritime Dangerous Goods (IMDG) Code and International Atomic Energy Agency Safety Standards (IAEA) should be complied with when prospecting, extracting, working with, storing and transporting any minerals. This should ensure that any impacts associated with radioactive material be INSIGNIFICANT.

**Interference with commercial shipping traffic:** The majority of shipping traffic is located on the outer edge of the continental shelf, which is well offshore of the outer edge of Concession Area 14C. The impacts of prospecting activities within concession area 14C on shipping activities are therefore considered to be INSIGNIFICANT.

**Visual integrity of the area:** The town closest to Concession Area 14C, Doringbaai, is situated approximately 5 km east of this concession area. It is unlikely that the survey vessel will be visible from the shoreline. The vessel will not be considered more conspicuous than any other vessel (such as fishing vessels) already visiting the area. As the entire survey phase is also expected to only take approximately two months (over the next 5 years) to complete, the vessel and activity in Concession Area are expected to have negligible impacts on the visual integrity of the area.

**Contribution to science and research:** Soil and biological samples will be collected during the prospecting activities using a clamshell bucket instrument called a Van Veen Grab. These samples will then be sent to an independent environmental consultancy for analysis to establish a baseline of environmental data. This comprises analysing sediment composition and determining the composition and abundance of benthic species in the sediment. Data collected during the acoustic survey can be used to map important features such as reefs that may be present in the area. Should artefacts, fossils or any other heritage resources be discovered during the prospecting, these will be donated to scientific institutions and can make an invaluable contribution to the palaeontological knowledge and potential of the continental shelf. The contribution of information to science collected during prospecting will be positive but was assessed to be of LOW significance.

**Cumulative impacts:** There has been a recent increase in applications for prospecting and exploration rights along the west coast and increased prospecting/survey activity in the short term and marine mining in the long-term is anticipated. Cumulative impacts of marine prospecting and mining must be considered at a broader spatial scale in a strategic manner for each potential impact identified. Obtaining detailed information on the scale, extent, methodology (and intensity) of various current and pending applications is, however, not possible within the prescribed timeframes of a Basic Assessment Process for a single application (such as this one). Instead, it is recommended that a revised strategic level EIA process based on marine spatial planning principles be undertaken to assess and manage potential cumulative impacts in a holistic manner with a medium to high level of confidence and to identify and implement regional level mitigation measures. The decision-making authority (DMRE) must take cognisance of this recommendation to do a strategic level Environmental Impact Assessment (EIA) in order for Specialists and Environmental Assessment Practitioners to accurately assess cumulative impacts.

It is, however, logical and reasonable, to anticipate that many of the potential impacts assessed for this project would continue together with other projects that are ongoing or scheduled to come on-line. The result is that the spatial extent of many impacts would change from “local” to “regional”, whilst the duration would change from short-term (<2 years) to at least medium term (2-15 years) or even long-term (>15 years, mostly reversible in the case of prospecting, but not always for mining). The intensity



of impacts is anticipated to remain as they are assessed here for operations of this nature but may be higher for other sea-based mineral and energy projects in different areas with different objectives. The cumulative effect of each of the identified impacts were assessed after mitigation and used a precautionary approach (assumption of simultaneous/consecutive prospecting and mining activities in the region) and ranged from MEDIUM to VERY LOW significance. The assessment of cumulative impacts has a low confidence rating due to the uncertainty of the timing and location of other anthropogenic activities in the region.

Cumulative impact could not be assessed for heritage resources. The value and significance of heritage resources is a highly emotive and subjective field. Certain sites are deemed significant due to their age, or the activity they were engaged in at the time of the event, these include slave and war ships, others may be unique in respect of their construction and rarity in the archaeological record. Some wrecks are not unique or even very old but may have spiritual significance to a local fishing community due to fatalities at the time of wrecking. While some wrecks are not necessarily deemed important now, destruction without due diligence can have a negative future impact. The wreck databases are built on reported wrecks. It is not possible to assess cumulative impacts with any level of confidence due to the unknown nature of the heritage resources in the region. Each wreck must be assessed as it is found, and if it is treated with the knowledge that we do not always know if it is significant, whether locally or internationally, we can mitigate against high, negative cumulative impacts.

**No-go option:** Negative impacts associated with not continuing with the prospecting activities include lost opportunities in terms of collecting baseline environmental data, determining the presence of offshore mining resources and socio-economic benefits. The positive implications of the no-go option are that there would be no effects on the biophysical environment. These impacts were all assessed to be of LOW significance.

### SUMMARY TABLE OF IMPACTS

Table 1. Potential impacts associated with prospecting in Concession Area 14C.

POTENTIAL IMPACT		CONSEQUENCE	PROBABILITY	SIGNIFICANCE	STATUS	CONFIDENCE
<b>IMPACTS ON MARINE AND FISHERIES RESOURCES</b>						
Impact 1	Underwater noise disturbance to invertebrates	Very low	Possible	INSIGNIFICANT	-ve	Medium
	<b>No mitigation</b>					
Impact 2	Underwater noise disturbance to fish	Very low	Possible	INSIGNIFICANT	-ve	Medium
	<b>No mitigation</b>					
Impact 3	Underwater noise disturbance to marine mammals	Medium	Probable	MEDIUM	-ve	Medium
	With mitigation	Low	Improbable	VERY LOW	-ve	Medium
Impact 4	Underwater noise disturbance to seabirds	Low	Probable	LOW	-ve	High
	With mitigation	Very Low	Improbable	INSIGNIFICANT	-ve	High
Impact 5	Underwater noise disturbance to turtles	Very low	Improbable	INSIGNIFICANT	-ve	High
	With mitigation	Very low	Improbable	INSIGNIFICANT	-ve	High

POTENTIAL IMPACT		CONSEQUENCE	PROBABILITY	SIGNIFICANCE	STATUS	CONFIDENCE
Impact 6	Marine megafauna collisions with survey vessels	Low	Possible	VERY LOW	-ve	High
	With mitigation	Very low	Improbable	INSIGNIFICANT	-ve	High
Impact 7	Offshore based seabed sampling and tailings disposal	Low	Definite	LOW	-ve	High
	<b>No mitigation</b>					
Impact 8	Fine sediment plumes	Very low	Definite	VERY LOW	-ve	High
	<b>No mitigation</b>					
Impact 9	Waste discharges during vessel operations	Very low	Probable	VERY LOW	-ve	High
	With mitigation	Very low	Improbable	INSIGNIFICANT	-ve	High
Impact 10	Impact on fisheries	Very Low	Probable	VERY LOW	-ve	High
	With mitigation	Very Low	Possible	INSIGNIFICANT	-ve	High
<b>MARINE HERITAGE RESOURCES IMPACTS</b>						
Impact 11	Cultural heritage and artefacts	Medium	Improbable	LOW	-ve	Medium
	With Mitigation	Medium	Improbable	LOW	+ve	Medium
Impact 12	Maritime Heritage - shipwrecks DEFINITELY present	Low	Definite	LOW	-ve	High
	With Mitigation	Low	Definite	LOW	+ve	High
Impact 13	Maritime Heritage - shipwrecks POSSIBLY present	Low	Possible	VERY LOW	-ve	Medium
	With mitigation	Low	Possible	VERY LOW	+ve	Medium
Impact 14	Maritime Heritage - shipwrecks IMPROBABLE to be present with NO heritage significance	Low	Improbable	VERY LOW	-ve	Medium
	With mitigation	Low	Improbable	VERY LOW	+ve	Medium
Impact 15	Maritime Heritage - shipwrecks IMPROBABLE to be present with LOW heritage significance	Low	Improbable	VERY LOW	-ve	Medium
	With mitigation	Low	Improbable	VERY LOW	+ve	Medium
Impact 16	Maritime Heritage - shipwrecks IMPROBABLE to be present with MEDIUM heritage significance	Medium	Improbable	LOW	-ve	Medium
	With mitigation	Medium	Improbable	LOW	+ve	Medium
Impact 17	Maritime Heritage - shipwrecks IMPROBABLE to be present with HIGH heritage significance	High	Improbable	MEDIUM	-ve	Medium
	With mitigation	High	Improbable	MEDIUM	+ve	Medium

POTENTIAL IMPACT		CONSEQUENCE	PROBABILITY	SIGNIFICANCE	STATUS	CONFIDENCE
<b>SOCIO-ECONOMIC IMPACTS</b>						
Impact 18	Tuna pole and linefisheries	Very Low	Improbable	INSIGNIFICANT	-ve	High
	With mitigation	Very Low	Improbable	INSIGNIFICANT	-ve	High
Impact 19	Traditional linefish Sector	Very Low	Improbable	INSIGNIFICANT	-ve	High
	<b>No mitigation</b>					
Impact 20	Small Pelagic Purse Seine Fisheries	Very Low	Probable	VERY LOW	-ve	High
	With mitigation	Very Low	Possible	INSIGNIFICANT	-ve	High
Impact 21	Local households	Very Low	Probable	VERY LOW	-ve	High
	<b>No mitigation</b>					
Impact 22	Local tourism and businesses	Very Low	Probable	VERY LOW	-ve	Medium
	With mitigation	Very Low	Improbable	INSIGNIFICANT	-ve	Medium
Impact 23	Sense of place, health and wellbeing	Very Low	Improbable	INSIGNIFICANT	-ve	High
	<b>No mitigation</b>					
Impact 24	Local crime	Very Low	Improbable	INSIGNIFICANT	-ve	High
	<b>No mitigation</b>					
Impact 25	Local and regional socio-economic performance	Very Low	Possible	INSIGNIFICANT	+ve	Medium
	<b>No mitigation</b>					
<b>LESS SIGNIFICANT IMPACTS</b>						
Impact 26	Palaeontological resources	Low	Possible	VERY LOW	-ve	Low
	With mitigation	Low	Possible	VERY LOW	+ve	Low
Impact 27	Noise impacts associated with prospecting	Low	Possible	INSIGNIFICANT	-ve	High
	<b>No mitigation</b>					
Impact 28	Safety of materials (radioactivity)	Medium	Improbable	LOW	-ve	Low
	With mitigation	Very Low	Possible	INSIGNIFICANT	-ve	High
Impact 29	Potential interference with commercial shipping traffic	Very Low	Possible	INSIGNIFICANT	-ve	Low
	<b>No mitigation</b>					
Impact 30	Visual integrity of the area.	Very Low	Possible	INSIGNIFICANT	-ve	Medium
	<b>No mitigation</b>					

POTENTIAL IMPACT		CONSEQUENCE	PROBABILITY	SIGNIFICANCE	STATUS	CONFIDENCE
Impact 31	Contribution to science and research	Low	Definite	LOW	+ve	High
	No mitigation					

**Table 2. Assessment of cumulative impacts for all impacts reviewed in the Basic Assessment Report, except for heritage resources. Note that these impacts are assessed “after mitigation”.**

CUMULATIVE IMPACT	CONSEQUENCE	PROBABILITY	SIGNIFICANCE	STATUS	CONFIDENCE
<b>IMPACTS ON MARINE AND FISHERIES RESOURCES</b>					
<b>Impact 1:</b> Underwater noise disturbance to invertebrates	Medium	Possible	LOW	-ve	LOW
<b>Impact 2:</b> Underwater noise disturbance to fish	Medium	Possible	LOW	-ve	Low
<b>Impact 3:</b> Underwater noise disturbance to marine mammals	High	Improbable	MEDIUM	-ve	Low
<b>Impact 4:</b> Underwater noise disturbance to seabirds	High	Improbable	MEDIUM	-ve	Low
<b>Impact 5:</b> Underwater noise disturbance to turtles	Medium	Improbable	LOW	-ve	Low
<b>Impact 6:</b> megafauna collisions with survey vessels	Medium	Possible	LOW	-ve	Low
<b>Impact 7:</b> Offshore based seabed sampling and tailings disposal	Medium	Possible	LOW	-ve	Low
<b>Impact 8:</b> Fine sediment plumes	Very low	Definite	VERY LOW	-ve	Low
<b>Impact 9:</b> Waste discharge during vessel operations	Low	Improbable	VERY LOW	-ve	Low
<b>Impact 10:</b> Impact on fisheries	Low	Probable	LOW	-ve	Low
<b>SOCIO-ECONOMIC IMPACTS</b>					
<b>Impact 18:</b> Tuna pole and linefisheries	Medium	Possible	LOW	-ve	Low
<b>Impact 19:</b> Traditional linefish Sector	Medium	Improbable	LOW	-ve	Low
<b>Impact 20:</b> Small Pelagic Purse Seine Fisheries	Medium	Probable	MEDIUM	-ve	Low
<b>Impact 21:</b> Local households	High	Probable	HIGH	-ve	Low
<b>Impact 22:</b> Local tourism and businesses	Medium	Possible	LOW	-ve	Low
<b>Impact 23:</b> Sense of place, health and wellbeing	Medium	Improbable	LOW	-ve	Low
<b>Impact 24:</b> Local crime	Medium	Improbable	LOW	-ve	Low
<b>Impact 25:</b> Local and regional socio-economic performance	High	Possible	MEDIUM	+ve	Low
<b>LESS SIGNIFICANT IMPACTS</b>					
<b>Impact 26:</b> Palaeontological resources	Medium	Probable	MEDIUM	+ve	Low
<b>Impact 27:</b> Noise impacts associated with prospecting	Low	Possible	VERY LOW	-ve	Low
<b>Impact 28:</b> Safety of materials (radioactivity)	Medium	Possible	LOW	-ve	Low
<b>Impact 29:</b> Potential interference with commercial shipping traffic	Medium	Probable	MEDIUM	-ve	Low
<b>Impact 30:</b> Visual integrity of the area.	Medium	Probable	MEDIUM	-ve	Low

CUMULATIVE IMPACT	CONSEQUENCE	PROBABILITY	SIGNIFICANCE	STATUS	CONFIDENCE
<b>Impact 31:</b> Contribution to science and research	Medium	Definite	<b>MEDIUM</b>	+ve	Low

**Table 3. Assessment of the “No-go” alternative in terms of the negative impact (top) and positive impact (bottom).**

	Consequence	Probability	Significance	Status	Confidence
Negative No-go alternative	Medium	Possible	<b>LOW</b>	-ve	Medium
Positive No-go alternative	Low	Probable	<b>LOW</b>	+ve	Medium
<b><u>Mitigation measures:</u></b>					
No essential or potential mitigation measures.					

## POTENTIAL MITIGATION MEASURES TO FORM PART OF EMPr

Should prospecting rights be granted, the applicant will be required by law to implement an Environmental Management Programme (EMPr) to mitigate any impacts and protect the environment. Essential mitigation must be implemented, while best practice is recommended. Below follows some of the mitigation measures that will form part of the EMPr.

### Marine ecology

#### Essential mitigation measures for impacts to marine megafauna

- Vessel operator must keep watch for marine megafauna in the path of the vessel during vessel operation.
- At least two on-board independent Marine Mammal and Seabird observers (MMSOs) with experience in marine megafauna, including, but not limited to, all marine mammals (cetaceans and seals), sea turtles and seabirds, as well as in identification and observation techniques must be employed to carry out daylight observations and ensure compliance with mitigation measures during geophysical surveying. It must be ensured that there are sufficient MMOs on board the vessel to prevent fatigue and meet health and safety requirements, during the survey periods.
- Activity must be restricted to specific areas or a time of year. This includes:
  - Avoid planning any surveys during the movement of migratory cetaceans (particularly baleen whales) from their southern feeding grounds into low latitude waters (beginning of June to end of November) and ensure that migration paths are not blocked by sonar operations;
  - Avoid planning any surveys during mating season (confirm these times with MMSOs); and,
  - Confine surveys to seasons when cetaceans are scarce to ensure minimal disturbance (confirm these times with MMSOs).
- MMSOs to conduct pre-survey visual scans of at least 30 minutes for the presence of megafauna around the survey vessel prior to any vessel movement.
- Protocol must be followed to avoid mortalities and/or injuries to marine animals when they are encountered. If no protocol exists, this must be developed by the Scientific Officer in consultation with the applicant and specialists, prior to commencement.
- “Soft starts” should be carried out for equipment with source levels greater than 210 dB re 1  $\mu$ Pa at 1 m over a period of 20 minutes to give adequate time for marine mammals to leave the vicinity. Where this is not possible, the equipment should be turned on and off over a 20-minute period to act as a warning signal and allow cetaceans to move away from the sound source.
- Passive Acoustic Monitoring (PAM) technology must be incorporated into the survey programme. A designated onboard PAM Observer uses the PAM technology to detect the vocalisations of

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marine species, particularly during periods of low visibility, such as at night or during adverse weather conditions and thick fog, to prevent collision and impact due to acoustic survey. It must be ensured that there are sufficient PAM operators on board the vessel to prevent fatigue and meet health and safety requirements, during the survey periods.

- Operations must be suspended if any obvious mortalities or injuries to marine life are observed.
- Marine mammal incidence data and sound source output data from surveys must be made available on request to the Marine Mammal Institute (MMI), the Department of Forestry, Fisheries and the Environment (DFFE) and the DMRE.
- Ensure that MMSOs compile a survey close-out report incorporating all recorded data to the relevant DFFE authorities
- Record encounters with marine life (seabirds, turtles, seals, fish), their behaviour and response to vessel, including any attraction of predatory seabirds and incidents of feeding behaviour around the survey vessel; data on position, distance from the vessel, swimming speed and direction and obvious changes in behaviour (e.g., startle responses or changes in surfacing/diving frequencies, breathing patterns).
- Record marine life (cetaceans, seabirds, turtles, seals, fish) incidences and responses to acoustic survey activity, including data on position, distance from the vessel, swimming speed and direction and obvious changes in behaviour (e.g., startle responses or changes in surfacing/diving frequencies, breathing patterns, feeding behaviour) along with noise levels.
- Wait until all marine megafauna have cleared an area of 500 m radius of the survey vessel (centre of the sound source) before resuming with acoustic survey. If, after a period of 30 minutes, megafauna is still within 500 m of the vessel, the normal “soft start” procedure should be allowed to commence for at least 20-minutes duration. Behaviour during “soft starts” must be monitored.
- Vessel transit speed must not exceed 12 knots (22 km/hr), except within 25 km of the coast where it should be kept to less than 10 knots (18 km/hr) as well as when sensitive marine fauna are present in the vicinity.
- Sound containment and improvement of current equipment used must be implemented.
- The potential marine impacts must be reassessed after completion of the geophysical surveys and biological analysis as these might elucidate areas that would need to be avoided and species of conservation concern.
- Should any ecologically sensitive features such as reefs be identified within the concession area during the initial acoustic survey, these areas must be avoided and suitably buffered. Appropriate buffers must be determined by a suitably qualified specialist. Once suitable buffers have been mapped it should be illustrated on a map and form part of the EMPr.
- Baseline grab samples should be collected before core samples to determine the nature of benthic communities before disturbance.
- Grab samples collected should be analysed as soon as possible to determine the benthic macrofaunal communities in the area. Results from this survey could be used to inform additional mitigation measures if required. Results will represent baseline data against which any change in macrofaunal communities in the area can be benchmarked after prospecting and mining.

**Best Practice Mitigation (Recommended) for impacts related to spills and waste generated by vessels:**

- Planning and management of potential discharges to ensure that tailings are not discarded onto potentially sensitive habitats.
- Inform & empower all staff about sensitive marine species & suitable disposal of waste.
- Ensure compliance with relevant MARPOL standards.
- Develop a waste management plan using waste hierarchy.

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- A Shipboard Oil Pollution Emergency Plan (SOPEP) must be prepared for all vessels and should be in place at all times during operations.
  - Deck drainage should be routed to a separate drainage system (oily water catchment system) for treatment to ensure compliance with MARPOL (15 ppm).
  - All process areas should be bunded to ensure drainage water flows into the closed drainage system.
  - Drip trays should be used to collect run-off from equipment that is not contained within bunded areas and the contents routed to the closed drainage system.
  - Low-toxicity biodegradable detergents should be used in the cleaning of all deck spillages.
  - All hydraulic systems should be adequately maintained, and hydraulic hoses should be frequently inspected.
  - Spill management training and awareness should be provided to crew members of the need for thorough cleaning-up of any spillages immediately after they occur in order to minimise the volume of contaminants washing off decks.

## **Fisheries, socio-economic and other shipping**

### **Essential mitigation measures**

- Prior to survey commencement, the following key stakeholders should be consulted and informed of the proposed survey activity (including navigational co-ordinates of the survey area, timing and duration of proposed activities) and the likely implications thereof:
  - Fishing industry / associations (contactable via [liason@fishsa.org](mailto:liason@fishsa.org)):
    - SA Marine Linefish Management Association (SAMLMA);
    - South African Pelagic Fishing Industry Association (SAPFIA);
    - South African Tuna Association (SATA);
    - South African Tuna Longline Association (SATLA)
    - Large Pelagic Small Medium & Micro Enterprises Association (LPSMME)
    - Local fishing communities;
  - Other associations and organs of state
    - DFFE;
    - SAMSA;
    - South African Navy Hydrographic office; and
    - Overlapping and neighbouring right holders.
- These stakeholders should again be notified at the completion of surveying when the survey vessel(s) is/are off location. The operator must request, in writing, that the South African Navy Hydrographic office release Radio Navigation Warnings and Notices to Mariners throughout the survey periods. The Notice to Mariners should give notice of (1) the co-ordinates of the proposed survey area, (2) an indication of the proposed timeframes of surveys and day-to-day location of the survey vessel(s), and (3) an indication of the required safety zone(s) and the proposed safe operational limits of the survey vessel. These Notices to Mariners should be distributed timeously to fishing companies and directly onto vessels where possible.
- Undertake surveys when fishing effort is lowest i.e., August to December (avoiding the small pelagic fishing during January-July and snoek line fishing peak during April-May).
- The survey and sampling vessels must be certified for seaworthiness through an appropriate internationally recognised marine certification programme (e.g., Lloyds Register, Det Norske Veritas). The certification, as well as existing safety standards, requires that safety precautions should be taken to minimise the possibility of an offshore accident. Collision prevention equipment should include radar, multi-frequency radio, foghorns, etc. Safety equipment and training of

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personnel to ensure the safety and survival of the crew in the event of an accident is a further legal requirement.



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**Best Practice Mitigation (Recommended):**

- Appoint a fisheries liaison officer (FLO) to facilitate communication with affected fishing sectors. The FLO should report daily on vessel activity and respond and advise on action to be taken in the event of encountering fishing gear in the survey area.
- Additional compensation and resource support measurements should be introduced to reduce the severity of the impacts on the socio-economic performance. These should include:
  - Skills Development through training programs and formal education opportunities such as financial management skills which was emphasised by the Lamberts Bay fisher's community.
  - Support of local initiatives, investments, and entrepreneurship (e.g., communal vegetable garden and opening of the jetty restaurant in Doringbaai).
- Prospecting activities should be restricted during important tourism events and seasons (i.e., during the perlemoen festival, the school holidays and summer months).
- Support should be provided to support the development of a local Lamberts Bay fisheries label and assistance in the export of fish locally and internationally should be investigated. In addition, assistance should be given to develop partnerships between local fisheries and retail markets.
- Assistance should be given to support local communities in navigating new Small Scale Fisheries Policy structures.
- Assistance should be given to support the development of a streamlined communication platform between the local community, community representatives, stakeholders, and government officials.
- Support the establishment of an annual abalone festival in Doringbaai.

**Heritage resources****Essential mitigation measures**

- Areas where shipwreck sites are identified during the geophysical surveys must be excluded prior to undertaking sampling activities.
- The contractor must be notified that archaeological sites could be exposed during sampling activities, as well as the procedure to follow should archaeological material be encountered during sampling.
- Any core sample sections which contain alluvial material, particularly where organic remains are present, are retained and are subject to paleo-environmental assessment.
- Any fossils found during the processing of cores must have the details of context recorded, must be kept for identification by an appropriate specialist and, if significant, be deposited in an appropriate institution.
- If shipwreck material is encountered during the course of sampling in any of the concession areas, the following mitigation measure should be applied:
  - Cease work in the directly affected area to avoid damage to the wreck until the South African Heritage Resources Agency (SAHRA) has been notified and the contractor has complied with any additional mitigation as specified by SAHRA; and
  - Where possible, take photographs of them, noting the date, time, location and types of artefacts found. Under no circumstances may any artefacts be removed, destroyed or interfered on the site, unless under permit from SAHRA.

**Best Practice Mitigation (Recommended)**

- It is recommended that the onboard Trans Atlantic representative must undergo a short induction on archaeological site and artefact recognition, as well as the procedure to follow should archaeological material be encountered during sampling.

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## Cumulative impacts on the environment and community

Mitigation measures as recommended for each individual impact should be implemented. Furthermore, a strategic level Environmental Impact Assessment (EIA) process based on marine spatial planning principles should be conducted to assess and manage potential cumulative impacts in a holistic manner and to identify and implement further mitigation measures.

## RECOMMENDATION

The EAP recommends that Environmental Authorisation for prospecting rights within sea Concession area 14C be granted to the applicant, on condition that mitigation measures be implemented and adhered to. This is because the significance of potential negative impacts due to prospecting in this area was assessed to range from LOW significance to INSIGNIFICANT with the implementation of mitigation measures. The EAP also strongly recommends that the DMRE commissions an updated Strategic Environmental Impact Assessment to better understand and manage cumulative impacts of marine and coastal mining along the South African West Coast. It is further requested that the DMRE extends the period granted for conducting Basic Assessment and Environmental Impact Assessment Processes as the time granted has proved to be insufficient to adequately consult with the community, conduct specialist studies and assess potential impacts of prospecting.

## PROCESS AND TIMELINE OF THE BASIC ASSESSMENT PROCESS

**Lodge Application:** A prospecting rights and environmental authorisation application were lodged with the DMRE. These applications were accepted by the DMRE on 21 February 2022. The DMRE informed Anchor about the acceptance of the application on 24 February 2022.

**Registration Period and Pre-Consultation:** Notices were sent out to stakeholders on 3 and 4 March 2022 to inform them that the application for prospecting rights and environmental authorisation in Concession Area 14C has been accepted by the DMRE and to invite them to register as Interested and Affected Parties (I&APs). Stakeholders were also asked to provide initial comment during the Pre-consultation phase which extended until 17 March 2022. A pre-consultation meeting was held at Doringbaai on 11 March 2022. The purpose was to consult with the communities before the impact studies were conducted, to provide details of the project, to get community input and answer questions. The pre-consultation was used as an opportunity to obtain contact details of important community representatives and organisations to inform them of the public participation process.

**Circulate Draft BAR & Official Public Participation Period:** The Draft Basic Assessment Report (BAR) will be made available on our website (<https://anchorenvironmental.co.za/>) and at the Doringbaai, Ebenhaeser and Lutzville Libraries and the Strandfontein West Coast Information Centre for 30 days during the Public Participation Period which will extend from **Monday 11 April 2022 to 23:59 on Wednesday 18 May 2022.**

**Public Participation Meeting:** Meetings will be held in **Cape Town, Doringbaai, Papendorp and Ebenhaeser.** Here, members of Anchor (the EAP) and Trans Atlantic Diamonds (the applicant) will provide more detail on the proposed prospecting activity and consult with I&APs who will then have the opportunity to ask questions and provide comment on the proposal.

**Submit Final BAR to the DMRE and their final decision:** Stakeholder comments will be addressed and included in the final BAR and EMPr. The Final BAR will then be submitted to the DMRE for consideration on 27 May 2022. The DMRE has 107 days to consider all the documents and decide whether to grant Environmental Authorisation for prospecting in Concession Area 14C.

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## OPPORTUNITY TO COMMENT ON THE DRAFT BAR

The public has the opportunity to provide their comments and concerns regarding the project. All comments/concerns and questions will be sent to the DMRE for their attention and should be considered together with the specialist studies and assessment by the Assessment Practitioner before granting or rejecting prospecting rights. Background Information Documents (this document), questionnaires, specialist studies and the draft BAR will be available on our website at <https://anchorenvironmental.co.za/>, the Doringbaai, Ebenhaeser and Lutzville Libraries and the Strandfontein West Coast Information Centre during the Public Participation Period. Interested and Affected Parties (I&APs) are invited to register, read the draft BAR and EMPr and provide comments on the application for prospecting rights and environmental authorisation during the Public Participation Period which will extend from **Monday 11 April 2022 to 23:59 on Wednesday 18 May 2022**. **Please note that the initial Public Participation Process dates of 6 April 2022 to 9 May 2002, as advertised on notices and in newspapers, are no longer valid.**

### Methods to register and participate:

- 1) Complete the questionnaire or comment on a document of choice and send it to the contact person below via post, e-mail or telephonically.
- 2) Hand comments/questionnaires in at the Doringbaai, Ebenhaeser or Lutzville Libraries or at the Strandfontein West Coast Information Centre.
- 3) Hand comments in during the Public Participation Meeting or provide comments verbally during the Meeting.

### Invitations are also extended to attend the closest Public Participation Meeting:

1. **Cape Town:** Monday, 11 April 2022 at 13:30 - 16:00; Steenberg House, Silverwood Close, Steenberg Office Park, Tokai, Cape Town
2. **Doringbaai:** Tuesday, 12 April 2022 at 18:00 - 20:00; Miriam Owies Community Center, 1 Harbour Road, Doring Bay
3. **Ebenhaeser:** Wednesday, 13 April 2022 at 18:00 - 20:00; Ebenhaeser Community Hall, 118 Louise Street, News Station, Ebenhaezer

*Cheruscha Swart*

**Anchor Environmental Consultants (Pty) Ltd**

Phone: 021 701 3420

Postal address: Suite 8 Steenberg House, Steenberg Office Park, Silverwood Close, Tokai, 7945

Email: [info@anchorenvironmental.co.za](mailto:info@anchorenvironmental.co.za)

Website: [anchorenvironmental.co.za](http://anchorenvironmental.co.za)

## HERE FOLLOWS A LIST OF ROLE-PLAYERS RESPONSIBLE FOR THE IMPLEMENTATION OF EMPR, AND THEIR RESPONSIBILITIES

### FUNCTION

#### Project Manager/ Applicant

##### Role

The Project Manager is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Responsible for providing and giving mandate to enable the ECO to perform responsibilities and must ensure that the ECO is integrated as part of the project team while remaining independent.

##### Responsibilities

- Be fully aware of the conditions of the EA;
- Overall management of the project and EMPr implementation;
- Ensure that all stipulations within the EMPr are communicated and adhered to by the Applicant, Sampling Contractor(s) and any crew on board the vessel;
- Monitor the implementation of the EMPr throughout the project;
- Ensure that periodic environmental performance audits are undertaken on the project implementation; and
- Provide updated information to the public.

#### Scientific Officer (Internal monitoring)

##### Role

The Scientific Officer reports directly to the Project Manager, oversees site works, liaises with the contractor(s) and the ECO. Responsible for the day-to-day implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and for ensuring the compliance of all contractors with the conditions and requirements stipulated.

##### Responsibilities

- Oversees site works, liaison with Contractor, Project Manager and ECO;
- Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Reporting the EMPr.
- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;
- Conduct environmental awareness training on site together with ECO and contractors;
- Ensure that the necessary legal permits and / or licenses are in place and up to date
- Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) and its sub-contractor(s);
- Conduct environmental internal audits with regards to EMPr.
- Assist the contractors in addressing environmental challenges
- Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared;
- Assist the contractor in investigating environmental incidents and compile investigation reports;
- Monitor the implementation of the EMPr throughout the project by means of weekly checklists and regular meetings.

#### Environmental Control Officer (ECO) (External or Independent monitoring)

##### Role

Employed by the applicant/project manager for the duration of the project. Should have appropriate training and experience in the implementation of environmental management specifications. Primary role is to act as an independent quality controller that monitors all environmental concerns and associated environmental impacts. Conducts site inspections, manages problems and suggest mitigation and be available to advise on incidental issues that arise. Required to conduct compliance audits, verifying the monitoring reports submitted by the Scientific Officer. Provides feedback to the Scientific Officer and Project Manager regarding all environmental matters. All role players answer to the ECO for non-compliance. Must also report to the relevant CA as and when required.

##### Responsibilities

- Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them;
- Undertake regular site inspections / audits of the activities according to the EMPr, including any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr;

- Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements;
- Liaison between the Project manager, Scientific Officer, Contractors, authorities and other stakeholders;
- Issuing of site instructions to the Contractor for corrective actions required;
- Reviewing all documents submitted by the Scientific Officer (method statements, incident reports, complaints register, etc.)
- Facilitate environmental awareness training;
- In case of non-compliances, the ECO must first communicate this to the Scientific Officer, who must address this matter. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance;
- Maintenance, update and review of the EMPr;
- Communication of all modifications to the EMPr to the relevant stakeholders.

#### **Sampling Contractor/ Employees on vessel**

##### **Role**

The contractors are required to provide Method Statements detailing the equipment, materials, labour and method(s) that will be used by them to conduct the sampling/work and also setting out in detail how the management actions contained in the EMPr will be implemented during activities. Overall responsibility to ensure that all work, activities, are in line with the EMPr and that Method Statements are implemented as described. All instructions relating to the EMPr will be given to contractors via the Scientific Officer. Contractors will report issues of concern to the scientific officer, who in turn will report on progress to the TAD. Contractors include the captain on the vessel, the crew handling the equipment and doing sampling, geologist, etc.

##### **Responsibilities**

- Preparing method statements of work that will be done;
- Conducting the sampling activities as per the method statements and EMPr;
- Ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly; operated and maintained, to facilitate proper access and enable any operation to be carried out safely; and
- Attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones.

#### **Fisheries Liaison Officer (FLO)**

##### **Role**

Appointed to facilitate communication with affected fishing sectors. Should report daily on vessel activity and respond and advise on action to be taken in the event of encountering fishing gear in the survey area.

##### **Responsibilities**

- Liaison between fishing sectors and Project Manager and Scientific Officer

#### **Marine Mammal and Seabird Observer (MMSO)**

##### **Role**

A designated onboard MMSO keeps watch for marine megafauna in the path of the vessel during all vessel activity, including the geophysical surveying. Marine megafauna will include, but are not limited to, all marine mammals (whales, cetaceans, seals, etc.), sea turtles, fish and seabirds. Also in charge of managing the passive acoustic monitoring (PAM) system during the survey activity to detect marine mammals that could be at risk.

##### **Responsibilities**

- Keeps watch for marine megafauna to prevent collision and impact due to acoustic survey.
- Records all sightings and incidents with marine megafauna and fish, including behaviour.

#### **Passive Acoustic Monitoring (PAM) Observer**

A designated onboard Passive Acoustic Monitoring (PAM) Observer uses passive acoustic hydrophones to detect the vocalisations of marine species. This person can also be a MMSO, but must not be the designated MMSO.

##### **Responsibilities**

- Managing the PAM system; listens out for underwater marine megafauna to prevent collision and impact due to acoustic survey.

**AANSOEKER: Trans Atlantic Diamonds**

**VOORBEREI DEUR: Anchor Environmental Consultants**

**AANSOEK: PROSPEKEERREGTE EN OMGEWINGSMAGTIGING OM IN SEEKONSESSIE AREA 14C TE PROSPEKEER**

**APRIL 2022**

Die doel van hierdie dokument is om 'n opsomming te voorsien van die belangrikste inligting en bevindinge van die Basiese Asseseringsverslag (BAR) en die spesialis-impakstudies wat die moontlike impakte van prospektering in Konsessiegebied 14C beoordeel het. Dit is in makliker terme geskryf sodat die leser dit makliker kan verstaan en nie nodig het om die hele BAR en spesialisstudies te lees om die projek en impakte te verstaan of om sinvolle kommentaar te lewer nie. Let daarop dat die tabel aan die einde van die dokument, nie vertaal is nie.

## PROJEK AGTERGROND

Prospektering behels die soek/ondersoek na kommoditeite (hulpbronne) soos edelstene, minerale en metale deur middel van boor en uitgrawings om te bepaal of mynbou in daardie gebied ekonomies haalbaar sal wees. Dit is ook 'n geleentheid om omgewingsinligting oor spesies in 'n gebied in te samel en die impak van moontlike toekomstige mynbou te monitor. Prospektering waarborg nie dat mynbou sal plaasvind nie.

Mynbouverwante aktiwiteite dra by tot ons nasionale en provinsiale ekonomie en voorsien in die publiek se behoeftes. Die wêreldbevolking styg met ongeveer 83 miljoen mense per jaar. Daar is dus 'n groter behoefte aan goedere en dienste soos huise, vervoer, gesondheidsorg, skole en die materiale om hierdie produkte te vervaardig. Minerale en metale word nie net in juwele gebruik nie, maar ook in die vervaardiging van hierdie produkte. Dit word gebruik in x-straalmasjiene, pasaangeërs, tandheelkunde, inplantings, prostese, selfone, skootrekenaars en rekenaars; om glas, brandstof, verf, beton en sterk metaal "alloys" te maak (bv. gereedskap, skepe, voertuie, vliegtuie, brûe, geboue en elektriese motors).

Suid-Afrika besit van die wêreld se rykste hulpbronne, minerale en ander kommoditeite en het die potensiaal om aan die internasionale markte te voorsien. Die wet vereis dat, voordat 'n aansoeker (die maatskappy wat wil prospekter) in 'n gebied kan prospekter, hulle aansoek moet doen vir sekere regte en magtigings volgens sekere wetgewing.

**Trans Atlantic Diamonds (Die Aansoeker)** het aansoek gedoen vir die reg om te prospekter vir edelmetale (goud, silwer en platinum), edelstene (alluviale diamante, saffiere en granate), ysterhoudende en basismetale, soos seldsame aardmetale (monasietmineraal), swartsandminerale (titaniumminerale, bv. ilmeniet en rutiel), sirkoniumerts (sirkon) en ystererts (magnetiet), in Seekonsessiegebied 14C. Hierdie gebied beslaan 106 001 ha en strek van net noord van Doringbaai (noordelike grens) tot net noord van Donkinsbaai (suidelike grens). Dit is 9 km suid van Strandfontein en 21 km noord van Lambertsbaai geleë (Figuur 1). Die grens naaste aan die kus begin ongeveer 5 km (2,7 seemyl) wes van die hoogwatermerk op 'n waterdiepte van 70 m. Die konsessie strek 100 km weswaarts vanaf hierdie punt tot by 200 m waterdiepte (Figuur 2).

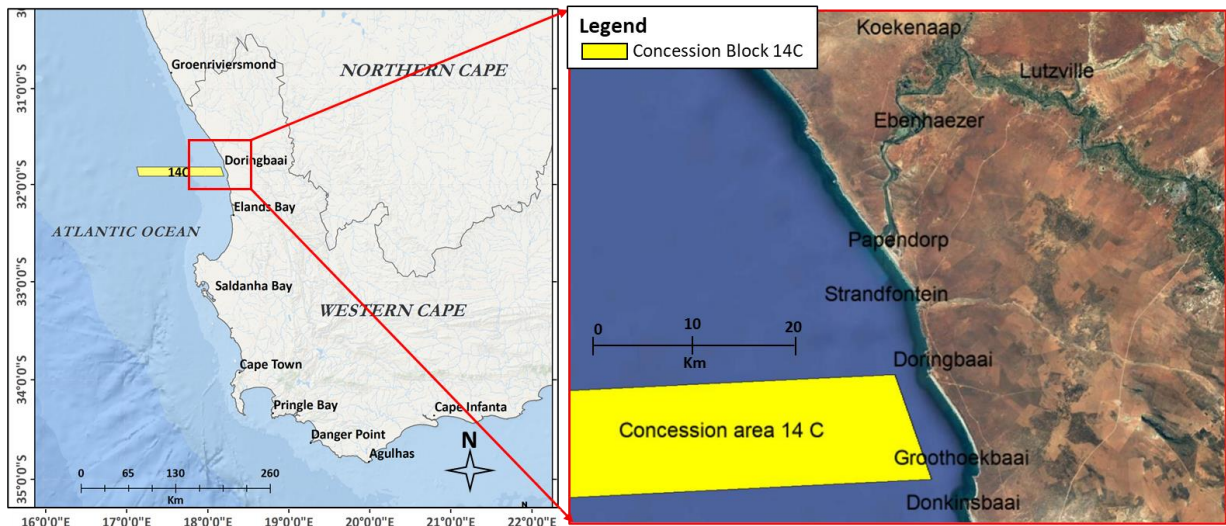


Figure 1 Die ligging van konsessiegebied 14C langs die Weskus.

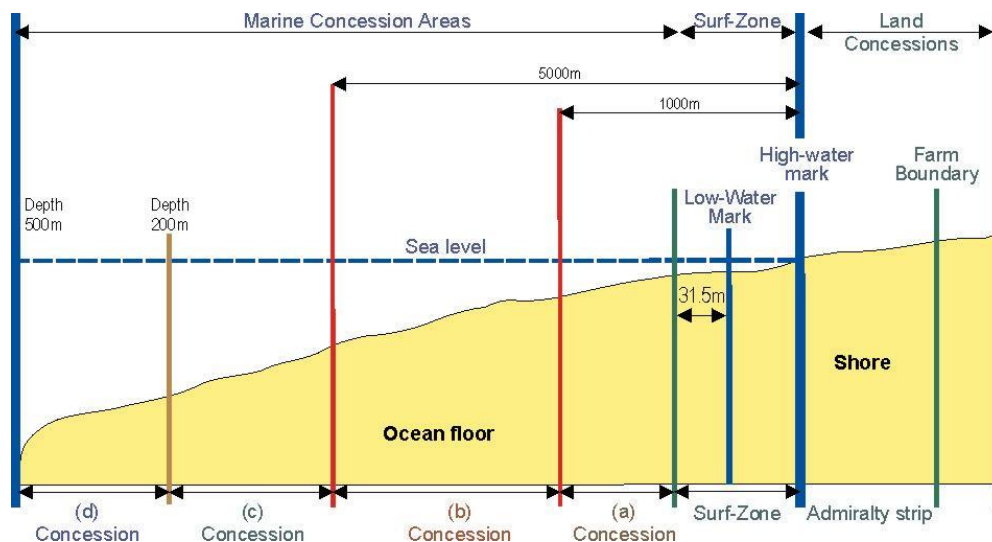


Figure 2 Diagram van die grense van die Suid-Afrikaanse mariene diamantmyn-konsessiegebiede.

Hierdie aansoek is ingedien soos vereis deur die Wet op die Ontwikkeling van Minerale en Petroleumhulpbronne (28 van 2002), die Wet op Nasionale Omgewingsbestuur (107 van 1998) en die Omgewingsimpakstudie-regulasies, 2014.

Behalwe vir prospekterregte, moet die Aansoeker ook aansoek doen vir Omgewingsmagtiging (EA) by die betrokke staatsdepartement, bekend as die bevoegde owerheid, voor prospekteraktiwiteit mag begin. In hierdie geval is die bevoegde owerheid die Departement van Minerale Hulpbronne en Energie (DMHE). Die aansoekproses vereis dat 'n assessering, bekend as 'n Basiese Assessering (BA), van die potensiële impakte van die voorgestelde aktiwiteit gedoen word. Alle resultate word in die Konsep Basiese Assesseringsverslag (BAR) opgeskryf en saam met die Omgewingsbestuursprogram (EMPr) aan die DMHE en publiek gesirkuleer vir 'n kommentaarperiode van 30-dae (30-dae Openbare Deelnameproses). 'n Openbare Deelnamevergadering moet ook gehou word as deel van die Openbare Deelnameproses om die resultate aan die publiek voor te lê en hulle kommentaar, aanbevelings, bekommernisse en vrae op te teken.

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Hierna word alle spesialisbevindinge en publieke kommentaar in die Finale BAR geïnkorporeer wat dan aan die DMHE en die publiek saam met die EMPr beskikbaar gestel word. Die DMHE sal dan 107 dae hê om die Finale BAR te oorweeg en te besluit of prospekterregte goedgekeur moet word of nie. Indien die prospekterregte goedgekeur word, sal dit Trans Atlantic Diamonds toelaat om te prospekter om te bepaal of mynbou binne Konsessiegebied 14C ekonomies vatbaar is. Enige mynbou binne die konsessiegebied vereis verdere aansoek-, ondersoek- en 'n Openbare Deelnameproses.

Anchor Environmental Consultants is deur die Aansoeker aangestel as die Onafhanklike Omgewingsassesseringspraktisyn (EAP) om die aansoek te hanteer en om 'n Basiese Assesering en Openbare Deelnameproses uit te voer vir prospekterregte in Konsessie area 14C.

### VOORGESTELDE AKTIWITEIT

Die voorgestelde prospekterwerk sal na verwagting binne vyf jaar voltooi wees. Monsterneming (sampling) sal in vier fases uitgevoer word en sluit 'n kombinasie van “non-invasive” (akoestiese/ sonar- opname, data insameling en analise) en “invasive” aktiwiteite in (Van Veen-gryp-, kern- en boormonsters) (Figuur 3). Geen infrastruktuur sal op land of in die see geplaas word nie. Die vaartuig sal vanaf die Kaapstad of moontlik Saldanhabaai hawe werk en sal nie in of naby Doringbaai of ander nabygeleë dorpe dok nie. Geen toegang vanaf land word vereis nie en bemanningslede sal ook nie aan land kan gaan nie.

1. **Akoestiese (sonar/ klank) Opname:** Akoestiese toerusting word gebruik om klank na die seabodem te stuur. Die seabodem reflekteer die klank wat dan terugbeweeg na die ontvanger toe. Die seine wat ontvang word, word gebruik om 'n beeld of kaart van die seabodem te skep. Dit laat die identifisering van belangrike rotstipes, gebiede waar prospektering moet plaasvind en sensitiewe gebiede soos riuwe wat vermy moet word, toe.
2. **Van Veen-grab (grypmonsters):** 'n Van Veen-grab versamel grondmonsters wat ontleed word om seabodem diere soos wurms, mossels en krappies (makrofauna) en grondtipes te identifiseer (Figuur 3) en om basis inligting te versamel. Monsters sal by 20–50 areas geneem word en 'n totale oppervlak van 5 vierkante meter ( $m^2$ ) en 'n totale volume van 1,5 kubieke meter ( $m^3$ ), versteur. Resultate sal gebruik word om die dieregemeenskappe in die gebied tydens en na prospektering en mynbou te beskryf en te monitor.
3. **Kernmonsters:** Kernmonsters sal by 100–200 areas geneem word. 'n Kernstuk dring die seabodem binne om grondmonsters te versamel. Dit word gebruik om die tipes grond (sand, gruis en/of rots asook die hardheid van die rots) te bepaal (Figuur 3). Hierdie inligting word dan gebruik om die boorwerk tuig te ontwerp. Hierdie monsters word ook gebruik om te bepaal of daar wel hulpbronne is wat gemyn kan word en of dit ekonomies die moeite werd sal wees (in terme van kwaliteit en hoeveelheid). Die kernmonsters sal 'n totale oppervlakte van 1,57  $m^2$  versteur en 'n totale volume van 4,71  $m^3$  versamel.
4. **Boor:** Monsters sal met 'n spesiale boor (met 'n oppervlak van 5  $m^2$ ) in teikenareas geneem word (Figuur 3). Die boor gaan net tot op 'n diepte van 3m. Boorwerk sal in drie stappe geskied: (1) Eers sal 150 monsters versamel en ontleed word. (2) Daarna sal 'n bykomende 150 “opvolg”-monsters versamel word. As hierdie opvolgmonsters wys dat daar 'n moontlike hulpbron kan wees, sal stap 3 plaasvind. (3) 'n Bykomende 60 monsters sal in 'n gebied van 500 m x 300 m versamel word. Ongeveer 20 sulke gebiede sal benodig word. Daar sal in total 1 500 monsters versamel word, wat 'n oppervlakte van 7 500  $m^2$  sal versteur en 'n totale volume van 22 501  $m^3$  sal versamel (15  $m^3$  per sample).



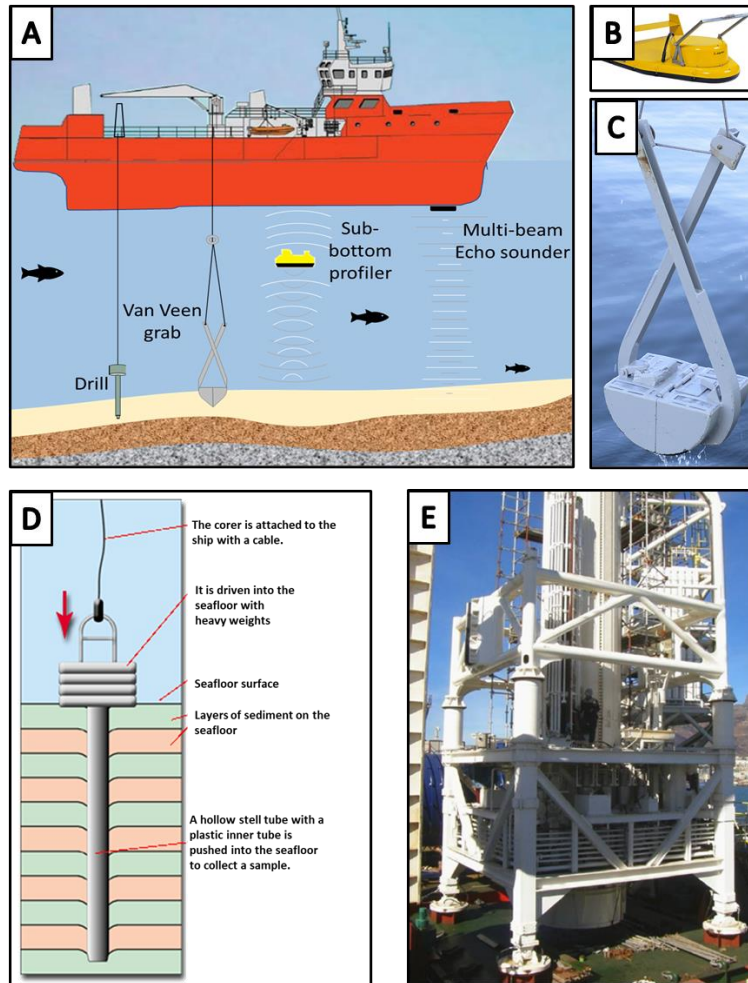


Figure 3 (A) Die verskillende metodes wat gebruik gaan word, insluitend (B) akoestiese toerusting, (C) 'n Van Veen-gryp, (D) kernbore en (E) 'n boor.

'n Totale oppervlakte van 7 507 m<sup>2</sup> (0,75 ha) sal gedurende alle fases versteur word. Dit is 0,000007% van Konsessiegebied 14C. 'n Totale volume van 22 507 m<sup>3</sup> sal versamel word. Die inligting wat versamel word, sal gebruik word om die seebodem te verstaan, hulpbronne te ondersoek, om te bepaal of mynbou binne Konsessiegebied 14C ekonomies die moeite werd sal wees en om belangrike gebiede vir mynbou te identifiseer.

### OPSOMMING VAN DIE BELANGRIKSTE RESULTATE VAN DIE IMPAKSTUDIES

Die studie het gevind dat daar moontlik 29 negatiewe impakte kan wees wat van MEDIUM tot ONBEDUIDEND (INSIGNIFICANT) sal wissel en twee positiewe impakte wat van LAAG tot ONBEDUIDEND sal wissel. As bewarings- of versagtingsmaatreëls toegepas word, kan die negatiewe impakte tot LAAG, BAIE LAAG of ONBEDUIDEND verminder word. Versagtingsmaatreëls is stappe wat geneem word om die omgewing te beskerm en die impak op die omgewing te verminder.

Impakte word volgens 'n spesifieke wetenskaplike metode (soos deur wet voorgeskryf) geassesseer en word deur die DMHE erken. Hierdie metode neem die grootte van die area wat geraak sal word, die tydsduur, die intensiteit van die impak en die sensitiwiteit van die omgewing in ag. Dit sluit ook in hoeveel die impak onherneubare hulpbronne sal beskadig.

- 
- **ONBEDUIDEND:** die potensiele impak is weglaatbaar klein en sal nie 'n invloed hê op die besluit rakende die voorgestelde aktiwiteit nie.
  - **BAIE LAAG:** die potensiele impak is baie klein en behoort geen betekenisvolle invloed op die besluit rakende die voorgestelde aktiwiteit te hê nie.
  - **LAAG:** die potensiele impak mag nie enige betekenisvolle invloed hê op die besluit rakende die voorgestelde aktiwiteit nie.
  - **MEDIUM:** die potensiele impak behoort die besluit rakende die voorgestelde aktiwiteit te beïnvloed.
  - **HOOG:** die potensiele impak sal 'n besluit rakende die voorgestelde aktiwiteit beïnvloed.
  - **BAIE HOOG:** Die voorgestelde aktiwiteit moet slegs onder spesiale omstandighede goedgekeur word.

Die negatiewe impakte sluit in: die versteuring van diere (klein seediertyes soos mossels en krappies, visse, soogdiere, seevoëls en skilpaaie), prehistoriese hulpbronne, ander skepe, visvangaktiwiteite, toerisme en die gemeenskap van Doringbaai. Hierdie impakte kan die omgewing, sosiale waardes en ekonomiese geleentheid negatief beïnvloed. Daar is egter bevind dat die meeste van hierdie impakte 'n ONBEDUIDENDE óf BAIE LAE negatiewe uitwerking sal hê. Seesoogdiere en skeepswrakke (van hoë erfenisbelang) sal die ergste deur die prospekteraktiwiteite geraak word. Soogdiere se eggolokasie, gedrag en voeding kan versteur word as gevolg van die klank (akoestiese) opnames. Skeepswrakke kan dalk tydens die aktiwiteite beskadig word. Dit is egter onwaarskynlik dat skeepswrakke van hoë erfeniswaarde in die area is. Dit is ook onwaarskynlik dat hulle beskadig sou word omdat die klank opname die wrakke sal identifiseer voor ander aktiwiteite sal plaasvind. As die wrakke ontdek word, sal dit 'n positiewe impak wees.

Prospektering kan ook voordele inhou. Dit kan werk skep, geld vir die land inbring en bydra tot wetenskaplike kennis, soos bv. die tipes spesies wat in die area voorkom. In die groter konteks word hierdie voordele as laag beskou.

**Mariene ekologie en visserye:** Tien moontlike negatiewe impakte op die mariene omgewing en visserye is geïdentifiseer. Die impakte voor versagtingsmaatreëls wissel van MEDIUM tot ONBEDUIDEND. As versagtingsmaatreëls toegepas word kan die impakte almal tot BAIE LAAG of ONBEDUIDEND verminder word. Die impakte sluit in: klankversteurings op seediere; botsings met seesoogdiere; versteuring van die seabodemhabitatte; impak van sandpluime op seediere en waterkwaliteit; besoedeling deur die vaartuig en aktiwiteite; en negatiewe impakte op visserye en die lewensbestaan van vissersgemeenskappe as gevolg van die versteuring van visse en visvangareas. Die impak wat die grootste kommer mag wek, is die impak wat die akoestiese opname op see-soogdiere sal hê. Die impak sal van MEDIUM-aard wees indien versagtingsmaatreëls nie in plek is nie. Migrerende 'Humpback' walvisse, 'Southern Right' walvisse, 'Dusky' dolfyne en die byna-bedreigde 'Heaviside' dolfyne kom gereeld langs die weskus van Suider-Afrika voor. Die Topas sub-bodem profielstelsel hou 'n risiko vir 'Dusky' en 'Heaviside' dolfyne in. Die implementering van versagtingsmaatreëls behoort te verseker dat moontlike impakte op seesoogdiere tot BAIE LAAG verminder sal word. Daar word nie verwag dat die voorgestelde sampling beduidende onderwatergeraas sal maak nie aangesien die klank beperk is tot die sand en rots en klank nie ver sal beweeg in die water nie.

Seevoëlbotsing met die vaartuig word nie verwag nie, aangesien die vaartuig nie visafval sal skep om seevoëls te lok nie. Daar gaan ook nie lig geskep word wat helderder sal wees as dié op enige ander vaartuig in die area nie. Moontlike impakte van akoestiese opnames op "zooplankton" word nie verwag nie aangesien vorige studies geen waarneembare effekte op zooplankton gevind het nie. Hierdie impak is dus nie geassesseer nie.

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Die tydelike aard van die aktiwiteite (ongeveer twee maande oor 5 jaar), die klein area wat versteur gaan word en die lae volume van enige sandpluime, sal na verwagting nie merkbare impakte op die voortplanting van klein pelagiese visse nie hê nie. 'n Redelike groot deel van die Weskus word deur ansjovis vir voorplanting gebruik.

**Erfenis:** Prospekteeraktiwiteite in Konsessiegebied 14C sal waarskynlik 'n impak hê op onderwater Prehistoriese Erfenis (steentydperk artefakte) -, Mariene Argeologiese (skeepswrakke)- en Paleontologiese Hulpbronne (fossiele) teenwoordig binne die konsessiegebied. Daar is moontlik 44 skeepswrakke binne Konsessie 14C wat dateer vanaf die 1500's tot moderne tye. Volgens die skeepswrak-databasis is daar BESLIS 'n moderne wrak binne die area. Daar is vyf moderne wrakke wat MOONTLIK in Seekonsessie 14C is. Dit sal met akoestiese data bevestig kan word. Die ander 38 skeepswrakke kan prospektering in hierdie gebied gevind word, hoewel dit ONWAARSKYNNLIK is. Twee hiervan is modern en word nie deur die Wet op Nasionale Erfenishulpbronne beskerm nie. Die belangrikheid van die meeste van hierdie wrakke word as laag of medium beskou. Daar is egter 'n paar wat van hoë erfenisbelang kan wees. Dit sluit in baie ou skepe, oorlogsskepe en ander skepe met 'n spesifieke nasionale of internasionale betekenis. Die belangrikheid van 'n skeepswrak is moeilik om vas te stel sonder navorsing en sal bevestig moet word as dit wel gevind word. Die impakte van prospektering op Mariene Argeologiese Hulpbronne is gevind om te wissel van MEDIUM tot BAIE LAAG. Die belangrikheid sal afhang van die tipe hulpbron wat ontdek word en of of dit tydens prospektering beskadig is.

Impakte op Prehistoriese Erfenis sal LAAG wees en impakte op Paleontologiese Hulpbronne (fossiele) BAIE LAAG. Hierdie impakte kan moontlik van negatief na positief verander word as artefakte en mosters behou word vir assessering en as wrakke aangeteken word.

**Sosio-ekonomies:** Daar word verwag dat prospektering moontlike negatiewe impakte binne Konsessiegebied 14C sal hê. Dit sluit in moontlike impakte op tunapole en lyn, tradisionele lynvis, klein pelagiese purse seine visserye, plaaslike huishoudings, toerisme en klein besighede, die kultuur (sense of place), misdaadvlakke en geraasvlakke.

Hierdie impakte hou verband met die 1) die fisiese teenwoordigheid en aktiwiteite van die vaartuig; 2) die tydelike versteuring van visse; 3) die uitsluiting van vissermanne uit die gebied; en 4) die verlaging van waterkwaliteit. Die meeste van hierdie impakte is gevind om ONBEDUIDEND te wees. Die impak op klein pelagiese purse seine visserye, die plaaslike huishoudings en toerisme is gevind om meer beduidend te wees en is geassesseer as BAIE LAAG. Dit sal na verwagting verminder word tot ONBEDUIDEND na die versagtingsmaatreëls toegepas word. Ten spyte van hierdie baie lae impakte, moet die swak ekonomiese prestasie van die kusbegemeenskappe steeds in ag geneem word weens hulle hoë afhanklikheid van marienehulpbronne om hul huishoudelike inkomste en lewensbestaan te ondersteun.

Moontlike positiewe impakte van die prospektering sluit plaaslike- en streekswerksgeleenthede in, alhoewel die voordele hiervan na verwagting ONBEDUIDEND sal wees.

**Geraasimpakte:** Daar word nie verwag dat die voorgestelde aktiwiteite geraas sal maak nie aangesien die klank grootliks beperk is tot die seabodem (sand/rots) en nie vanaf die kuslyn of Doringbaai (wat ongeveer 5 km oos van die konsessiegebied geleë is) gehoor sal kan word. Die moontlike geraasimpakte sal beperk wees tot die area waar werk plaas vind. Dit sal ook van korte duur wees en van lae intensiteit. Daar word dus verwag dat die impak ONBEDUIDEND sal wees.

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**Veiligheid van materiale (radioaktiwiteit):** Daar word nie verwag dat die enige rou minerale wat tydens prospektering onttrek word, veiligheidsriglyne sal oorskry nie. Alle regulasies en standarde soos uiteengesit deur die South African Maritime Safety Authority (SAMSA), International Maritime Organization (IMO), International Maritime Dangerous Goods (IMDG) Code en International Atomic Energy Agency Safety Standards (IAEA) moet nagekom word tydens prospektering, storing of vervoer van enige minerale. Hierdie impak sal dus ONBEDUIDEND wees.

**Inmeng met kommersiële skeepsverkeer:** Die meerderheid van skeepsverkeer is ver van die kus en die buitenste rand van Konsessiegebied 14C geleë. Hierdie impak word dus as ONBEDUIDEND beskou.

**Visuele integriteit van die gebied:** Die dorp die naaste aan Konsessiegebied 14C, Doringbaai, is ongeveer 5 km oos van hierdie konsessiegebied geleë. Dit is onwaarskynlik dat die vaartuig vanaf die kuslyn sigbaar sal wees. Die vaartuig sal ook nie meer opvallend wees as enige ander vaartuig (soos vissersskepe) wat reeds die area besoek nie. Aangesien die hele opnamefase ook na verwagting slegs ongeveer twee maande (oor die volgende 5 jaar) sal neem om te voltooi, word verwag dat die vaartuig en aktiwiteit in Konsessiegebied 'n ONBEDUIDENDE impak op die visuele integriteit van die gebied sal hê.

**Bydrae tot wetenskap en navorsing:** Grond- en biologiese monsters sal tydens die prospekteraktiwiteite ingesamel word met behulp van 'n instrument genaamd 'n Van Veen Grab. Hierdie monsters sal dan na 'n onafhanklike omgewingskonsultant gestuur word vir ontleding om basislyn omgewinginligting in te samel. Met ander woorde om vas te stel wat se diertjies in die grond in die omgewing voorkom. Data wat tydens die akoestiese opname ingesamel is, kan gebruik word om belangrike areas soos riuwe te identifiseer enook 'n kaart daarvan te skep. Sou artefakte, fossiele of enige ander erfenishulpbronne tydens die prospektering ontdek word, sal dit aan wetenskaplike instellings geskenk word en kan dit 'n groot bydrae tot wetenskap lewer. Die bydrae van die inligting tot die wetenskap sal positief wees, maar is as LAAG beoordeel.

**Kumulatiewe impakte:** Daar is 'n onlangse toename in die hoeveelheid aansoeke vir prospekter- en mynbouaktiwiteite langs die westkus. Kumulatiewe impakte van prospektering en mynbou in die mariene omgewing moet op 'n groter skaal en op 'n strategiese wyse beoordeel word in terme van al die impakte van elk. Nie net vir hierdie aansoek nie, maar ook vir ander aansoeke deur ander maatskappye. Om sulke gedetailleerde inligting op so 'n groot skaal van verskeie huidige en toekomstige aansoeke te kry, is egter nie moontlik binne die voorgeskrewe tydperk van 'n Basiese Assesseringsproses vir 'n enkele aansoek (soos hierdie een) nie.

Ons beveel dus aan dat daar 'n hersiene strategiese vlak EIA-proses, (Strategic level Environmental Impact Assessment process) uitgevoer word. Dit moet gebaseer wees op 'n Marine Spatial planning principles met die doel om moontlike kumulatiewe impakte op 'n holistiese wyse met 'n medium tot hoë vlak van vertroue te assesser en te bestuur en ook om versagtingsmaatreëls te identifiseer en implementeer. Die DMHE moet kennis neem van hierdie aanbeveling sodat Spesialiste en Omgewingsassesserings-praktisyne (EAPs) kumulatiewe impakte akkuraat kan evalueer.

Dit is egter logies en redelik om aan te neem dat baie van die moontlike impakte wat deur hierdie projek geïdentifiseer is, dieselfde sal wees vir ander aansoeke en projekte in die omgewing. Die omvang van baie van die impakte sal nou nie meer net op klein skaal plaasvind nie (plaaslik), maar op 'n groter skaal (streeksvlak). Die tydsduur van die impak sal dan nie meer korttermyn (<2 jaar) wees nie, maar tenminste mediumtermyn (2-15 jaar) of selfs langtermyn (>15 jaar, impakte meestal omkeerbaar in die geval van prospektering, maar nie altyd

vir mynbou nie). Die intensiteit van impakte sal na verwagting dieselfde bly, maar kan hoër wees vir ander aktiwiteite soos energieprojekte (oil and gas).

Die kumulatiewe effek van elk van die impakte soos geïdentifiseerde in hierdie verslag, is geasseseer. Die resultate is gebaseer op die impak nadat versagtingsmaatreëls toegepas is. Die assessering is ook gebaseer op die “worst case scenario”, met ander woorde dat daar gelyktydige en opeenvolgende prospektering en mynbou in die area sal geskied. Kumulatiewe impakte word verwag om van MEDIUM tot BAIE LAAG te wissel. Hierdie assessering het ‘n lae “confidence rating” as gevolg van die onsekerheid van die tydsberekening en ligging van ander aktiwiteite in die area.

Kumulatiewe impakte kon nie vir erfenishulpbronne beoordeel word nie. Die waarde en betekenis van erfenishulpbronne is 'n hoogs emosionele en subjektiewe veld. Sekere skeepswrakke word as betekenisvol geag weens hulle ouderdom, of die aktiwiteit waarmee hul besig was voor hulle onder gegaan het, bv. slawe- en oorlogskepe. Ander is kan uniek wees ten opsigte van hul konstruksie en uniekheid in die argeologiese rekord. Sommige wrakke is nie uniek of selfs baie oud nie, maar kan geestelike betekenis vir 'n plaaslike vissersgemeenskap hê as gevolg van sterftes tydens die vernietiging. Dit is nie moontlik om kumulatiewe impakte met enige vlak van vertroue te beoordeel nie as gevolg van die onbekende aard van die erfenishulpbronne in die streek. Elke wrak moet beoordeel word soos dit gevind word.

**“No-go”-opsie:** Negatiewe impakte wat verband hou met die opsie om nie voort te gaan met die prospektering nie sluit in verlore geleenthede in terme van die insameling van omgewingsdata, die bepaling van die teenwoordigheid van mynbouhulpbronne en sosio-ekonomiese voordele. Die positiewe implikasies van die opsie om nie voort te gaan met die prospektering nie sluit in dat daar geen impakte op die omgewing sal wees nie. Hierdie impakte is almal as LAAG beoordeel..

## OPSOMMING VAN IMPAKTE

Tabel 1. Potensiële impakte geassosieer met prospektering in Konsessiegebied 14C.

POTENSIEËLE IMPAK	GEVOLG	WAARSKYNLIKHEID	BELANGRIKHEID (Graad van impak)	STATUS	VERTROUE
<b>IMPAKTE OP MARIENE EN VISSERY HULPBRONNE</b>					
Impak 1	Onderwater geraas versteuring vir ongewerweldes	Baie laag	Moontlik	ONBEDUIDEND	-ve Medium
	Geen versagtingsmaatreëls				
Impak 2	Onderwater geraas versteuring vir visse	Baie laag	Moontlik	ONBEDUIDEND	-ve Medium
	Geen versagtingsmaatreëls				
Impak 3	Onderwater geraas versteuring vir mariene soogdiere	Medium	Waarskynlik	MEDIUM	-ve Medium
	Met versagtingsmaatreëls	Laag	Onwaarskynlik	BAIE LAAG	-ve Medium
Impak 4	Onderwater geraas versteuring vir seevoëls	Laag	Waarskynlik	LAAG	-ve Hoog
	Met versagtingsmaatreëls	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve Hoog

POTENSIEËLE IMPAK		GEVOLG	WAARSKYNLIKHEID	BELANGRIKHEID (Graad van impak)	STATUS	VERTROUE
Impak 5	Onderwater geraas versteuring vir seeskilpaaie	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
	Met versagtingsmaatreëls	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
Impak 6	Mariene megafauna botsings met vaartuie	Laag	Moontlik	BAIE LAAG	-ve	Hoog
	Met versagtingsmaatreëls	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
Impak 7	Seebodem uitgrawings en uitskot	Laag	Defnitief	LAAG	-ve	Hoog
	Geen versagtingsmaatreëls					
Impak 8	Fyn sediment wolke	Baie laag	Defnitief	BAIE LAAG	-ve	Hoog
	Geen versagtingsmaatreëls					
Impak 9	Afval en besoedeling tydens vaartuigbedrywighede	Baie laag	Waarskynlik	BAIE LAAG	-ve	Hoog
	Met versagtingsmaatreëls	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
Impak 10	Impak op visserye	Baie laag	Waarskynlik	BAIE LAAG	-ve	Hoog
	Met versagtingsmaatreëls	Baie laag	Moontlik	ONBEDUIDEND	-ve	Hoog
<b>MARIENE ERFENIS HULPBRONNE IMPAKTE</b>						
Impak 11	Kulturele erfenis en hulpbronne	Medium	Onwaarskynlik	LAAG	-ve	Medium
	Met versagtingsmaatreëls	Medium	Onwaarskynlik	LAAG	+ve	Medium
Impak 12	See Erfenis - skeepswrakke DEFINITIEF teenwoordig	Laag	Defnitief	LAAG	-ve	Hoog
	Met versagtingsmaatreëls	Laag	Defnitief	LAAG	+ve	Hoog
Impak 13	See Erfenis - skeepswrakke MOONTLIK teenwoordig	Laag	Moontlik	BAIE LAAG	-ve	Medium
	Met versagtingsmaatreëls	Laag	Moontlik	BAIE LAAG	+ve	Medium
Impak 14	See Erfenis - skeepswrakke ONWAARSKYNLIK om teenwoordig te wees met 'n GEEN erfenisbetekenis	Laag	Onwaarskynlik	BAIE LAAG	-ve	Medium
	Met versagtingsmaatreëls	Laag	Onwaarskynlik	BAIE LAAG	+ve	Medium
Impak 15	See Erfenis - skeepswrakke ONWAARSKYNLIK om teenwoordig te wees met 'n LAE erfenisbetekenis	Laag	Onwaarskynlik	BAIE LAAG	-ve	Medium
	Met versagtingsmaatreëls	Laag	Onwaarskynlik	BAIE LAAG	+ve	Medium
Impak 16	See Erfenis - skeepswrakke ONWAARSKYNLIK om teenwoordig te wees met 'n MEDIUM erfenisbetekenis	Medium	Onwaarskynlik	LAAG	-ve	Medium

POTENSIEËLE IMPAK		GEVOLG	WAARSKYNLIKHEID	BELANGRIKHEID (Graad van impak)	STATUS	VERTROUE
	Met versagtingsmaatreëls	Medium	Onwaarskynlik	LAAG	+ve	Medium
Impak 17	See Erfenis - skeepswrakke ONWAARSKYNLIK om teenwoordig te wees met 'n HOË erfenisbetekenis	Hoog	Onwaarskynlik	MEDIUM	-ve	Medium
	Met versagtingsmaatreëls	Hoog	Onwaarskynlik	MEDIUM	+ve	Medium
<b>SOSIO-EKONOMIESE IMPAKTE</b>						
Impak 18	Tuna paal en lynvisserye	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
	Met versagtingsmaatreëls	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
Impak 19	Tradisionele lynvissektor	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
	Geen versagtingsmaatreëls					
Impak 20	Klein Pelagiese Ringnet Visserye	Baie laag	Waarskynlik	BAIE LAAG	-ve	Hoog
	Met versagtingsmaatreëls	Baie laag	Moontlik	ONBEDUIDEND	-ve	Hoog
Impak 21	Plaaslike huishoudings	Baie laag	Waarskynlik	BAIE LAAG	-ve	Hoog
	Geen versagtingsmaatreëls					
Impak 22	Plaaslike toerisme en besighede	Baie laag	Waarskynlik	BAIE LAAG	-ve	Medium
	Met versagtingsmaatreëls	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Medium
Impak 23	Kultuur, gesondheid en welstand	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
	Geen versagtingsmaatreëls					
Impak 24	Plaaslike misdaad	Baie laag	Onwaarskynlik	ONBEDUIDEND	-ve	Hoog
	Geen versagtingsmaatreëls					
Impak 25	Plaaslike en streeks sosio- ekonomiese prestasie	Baie laag	Moontlik	ONBEDUIDEND	+ve	Medium
	Geen versagtingsmaatreëls					
<b>MINDER BELANGRIKE IMPAKTE</b>						
Impak 26	Paleontologiese hulpbronne	Laag	Moontlik	BAIE LAAG	-ve	Laag
	Met versagtingsmaatreëls	Laag	Moontlik	BAIE LAAG	+ve	Laag
Impak 27	Geraasimpakte geassosieer met prospektering	Laag	Moontlik	ONBEDUIDEND	-ve	Hoog
	Geen versagtingsmaatreëls					

POTENSIEËLE IMPAK		GEVOLG	WAARSKYNLIKHEID	BELANGRIKHEID (Graad van impak)	STATUS	VERTROUE
Impak 28	Veiligheid van materiale (radioaktiwiteit)	Medium	Onwaarskynlik	LAAG	-ve	Laag
	Met versagtingsmaatreëls	Baie laag	Moontlik	ONBEDUIDEND	-ve	Hoog
Impak 29	Potensiële inmenging met kommersiële skeepsverkeer	Baie laag	Moontlik	ONBEDUIDEND	-ve	Low
	Geen versagtingsmaatreëls					
Impak 30	Visuele integriteit van die gebied.	Baie laag	Moontlik	ONBEDUIDEND	-ve	Medium
	Geen versagtingsmaatreëls					
Impak 31	Bydrae tot wetenskap en navorsing	Laag	Defnitief	LAAG	+ve	Hoog
	Geen versagtingsmaatreëls					

Table 1. Evaluering van kumulatiewe impakte vir alle impakte wat in die Basiese Asseseringsverslag hersien is, behalwe vir erfenishulpbronne. Let daarop dat hierdie impakte geassesseer is "na versagting".

KUMULATIEWE IMPAKTE	GEVOLG	WAARSKYNLIKHEID	BELANGRIKHEID (Graad van impak)	STATUS	VERTROUE
<b>IMPAKTE OP MARIENE EN VISSERY HULPBRONNE</b>					
Impak 1: Onderwater geraas versteuring vir ongewerweldes	Medium	Moontlik	LAAG	-ve	Laag
Impak 2: Onderwater geraas versteuring vir visse	Medium	Moontlik	LAAG	-ve	Laag
Impak 3: Onderwater geraas versteuring vir seesoogdiere	Hoog	Onwaarskynlik	MEDIUM	-ve	Laag
Impak 4: Onderwater geraas versteuring vir seevoëls	Hoog	Onwaarskynlik	MEDIUM	-ve	Laag
Impak 5: Onderwater geraas versteuring vir skilpaaie	Medium	Onwaarskynlik	LAAG	-ve	Laag
Impak 6: Mariene megafauna botsings met vaartuie	Medium	Moontlik	LAAG	-ve	Laag
Impak 7: Seebodem uitgrawings en uitskot	Medium	Moontlik	LAAG	-ve	Laag
Impak 8: Fyn sedimentpluime	Baie laag	Defnitief	BAIE LAAG	-ve	Laag
Impak 9: Afvalstorting tydens vaartuigbedrywighede	Laag	Onwaarskynlik	BAIE LAAG	-ve	Laag
Impak 10: Impak op visserye	Laag	Waarskynlik	LAAG	-ve	Laag
<b>SOSIO-EKONOMIESE IMPAKTE</b>					
Impak 18: Tuna paal en lynvisserye	Medium	Moontlik	LAAG	-ve	Laag
Impak 19: Tradisionele lynvissektor	Medium	Onwaarskynlik	LAAG	-ve	Laag
Impak 20: Klein Pelagiese Ringnet Visserye	Medium	Waarskynlik	MEDIUM	-ve	Laag
Impak 21: Plaaslike huishoudings	Hoog	Waarskynlik	HOOG	-ve	Laag
Impak 22: Plaaslike toerisme en besighede	Medium	Moontlik	LAAG	-ve	Laag
Impak 23: Kultuur, gesondheid en welstand	Medium	Onwaarskynlik	LAAG	-ve	Laag
Impak 24: Plaaslike misdaad	Medium	Onwaarskynlik	LAAG	-ve	Laag



KUMULATIEWE IMPAKTE	GEVOLG	WAARSKYNLIKHEID	BELANGRIKHEID (Graad van impak)	STATUS	VERTROUE
<b>Impak 25:</b> Plaaslike en streeks sosio-ekonomiese prestasie	Hoog	Moontlik	<b>MEDIUM</b>	+ve	Laag
<b>MINDER BELANGRIKE IMPAKTE</b>					
<b>Impak 26:</b> Paleontologiese hulpbronne	Medium	Waarskynlik	<b>MEDIUM</b>	+ve	Laag
<b>Impak 27:</b> Geraasimpakte geassosieer met prospektering	Laag	Moontlik	<b>BAIE LAAG</b>	-ve	Laag
<b>Impak 28:</b> Veiligheid van materiale (radioaktiwiteit)	Medium	Moontlik	<b>LAAG</b>	-ve	Laag
<b>Impak 29:</b> Potensiële inmenging met kommersiële skeepsverkeer	Medium	Waarskynlik	<b>MEDIUM</b>	-ve	Laag
<b>Impak 30:</b> Visuele integriteit van die gebied.	Medium	Waarskynlik	<b>MEDIUM</b>	-ve	Laag
<b>Impak 31:</b> Bydrae tot wetenskap en navorsing	Medium	Definitief	<b>MEDIUM</b>	+ve	Laag

**Table 2. Assessering van die “No-go” alternatief in terme van die negatiewe impak (bo) en positiewe impak (onder).**

NO GO IMPAKTE	GEVOLG	WAARSKYNLIKHEID	BELANGRIKHEID (Graad van impak)	STATUS	VERTROUE
Negatiewe No-go” alternatief	Medium	Moontlik	<b>LAAG</b>	-ve	Medium
Positiewe No-go” alternatief	Laag	Waarskynlik	<b>LAAG</b>	+ve	Medium

## MOONTLIKE VERSAGTINGSMAATREËLS WAT DEEL UITMAAK VAN DIE OMGEWINGSBESTUURSPROGRAM (EMPR)

Indien prospekteerregte toegestaan word, sal die aansoeker volgens wet verplig word om 'n Omgewingsbestuursprogram (EMPr) te implementeer om enige impakte te versag en die omgewing te beskerm. Noodsaaklike versagting moet geïmplementeer word, terwyl beste-praktyk (best-practice) aanbeveel word. Hieronder volg sommige van die versagtingsmaatreëls wat deel is van die EMPr.

### Marine ecology

#### Essential mitigation measures for impacts to marine megafauna

- Vessel operator must keep watch for marine megafauna in the path of the vessel during vessel operation.
- At least two on-board independent Marine Mammal and Seabird observers (MMSOs) with experience in marine megafauna (including, but not limited to, all marine mammals (cetaceans and seals), sea turtles and seabirds) identification and observation techniques must be employed to carry out daylight observations and ensure compliance with mitigation measures during geophysical surveying. It must be ensured that there are sufficient MMOs on board the vessel to prevent fatigue and meet health and safety requirements, during the survey periods.
- Activity must be restricted to specific areas or a time of year. This includes:
  - Avoid planning any surveys during the movement of migratory cetaceans (particularly baleen whales) from their southern feeding grounds into low latitude waters (beginning of June to end of November) and ensure that migration paths are not blocked by sonar operations;
  - Avoid planning any surveys during mating season (confirm these times with MMSOs); and,

- 
- Confine surveys to seasons when cetaceans are scarce to ensure minimal disturbance (confirm these times with MMSOs).
  - MMSOs to conduct pre-survey visual scans of at least 30 minutes for the presence of megafauna around the survey vessel prior to any vessel movement.
  - Protocol must be followed to avoid mortalities and/or injuries to marine animals when they are encountered. If no protocol exists, this must be developed by the Scientific Officer in consultation with the applicant and specialists, prior to commencement.
  - “Soft starts” should be carried out for equipment with source levels greater than 210 dB re 1  $\mu$ Pa at 1 m over a period of 20 minutes to give adequate time for marine mammals to leave the vicinity. Where this is not possible, the equipment should be turned on and off over a 20-minute period to act as a warning signal and allow cetaceans to move away from the sound source.
  - Passive Acoustic Monitoring (PAM) technology must be incorporated into the survey programme. A designated onboard PAM Observer uses the PAM technology to detect the vocalisations of marine species, particularly during periods of low visibility, such as at night or during adverse weather conditions and thick fog, to prevent collision and impact due to acoustic survey. It must be ensured that there are sufficient PAM operators on board the vessel to prevent fatigue and meet health and safety requirements, during the survey periods.
  - Operations must be suspended if any obvious mortalities or injuries to marine life are observed.
  - Marine mammal incidence data and sound source output data from surveys must be made available on request to the Marine Mammal Institute (MMI), the Department of Forestry, Fisheries and the Environment (DFFE) and the DMRE.
  - Ensure that MMSOs compile a survey close-out report incorporating all recorded data to the relevant DFFE authorities
  - Record encounters with marine life (seabirds, turtles, seals, fish), their behaviour and response to vessel, including any attraction of predatory seabirds and incidents of feeding behaviour around the survey vessel; data on position, distance from the vessel, swimming speed and direction and obvious changes in behaviour (e.g., startle responses or changes in surfacing/diving frequencies, breathing patterns).
  - Record marine life (cetaceans, seabirds, turtles, seals, fish) incidences and responses to acoustic survey activity, including data on position, distance from the vessel, swimming speed and direction and obvious changes in behaviour (e.g., startle responses or changes in surfacing/diving frequencies, breathing patterns, feeding behaviour) along with noise levels.
  - Wait until all marine megafauna have cleared an area of 500 m radius of the survey vessel (centre of the sound source) before resuming with acoustic survey. If, after a period of 30 minutes, megafauna are still within 500 m of the vessel, the normal “soft start” procedure should be allowed to commence for at least 20-minutes duration. Behaviour during “soft starts” must be monitored.
  - Vessel transit speed must not exceed 12 knots (22 km/hr), except within 25 km of the coast where it should be kept to less than 10 knots (18 km/hr) as well as when sensitive marine fauna are present in the vicinity.
  - Sound containment and improvement of current equipment used must be implemented.
  - The potential marine impacts must be reassessed after completion of the geophysical surveys and biological analysis as these might elucidate areas that would need to be avoided and species of conservation concern.
  - Should any ecologically sensitive features such as reefs be identified within the concession area during the initial acoustic survey, these areas must be avoided and suitably buffered. Appropriate buffers must be determined by a suitably qualified specialist. Once suitable buffers have been mapped it should be illustrated on a map and form part of the EMPr.
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- Baseline grab samples should be collected before core samples to determine the nature of benthic communities before disturbance.
- Grab samples collected should be analysed as soon as possible to determine the benthic macrofaunal communities in the area. Results from this survey could be used to inform additional mitigation measures if required. Results will represent baseline data against which any change in macrofaunal communities in the area can be benchmarked after prospecting and mining.

**Best Practice Mitigation (Recommended) for impacts related to spills and waste generated by vessels:**

- Planning and management of potential discharges to ensure that tailings are not discarded onto potentially sensitive habitats.
- Inform & empower all staff about sensitive marine species & suitable disposal of waste.
- Ensure compliance with relevant MARPOL standards.
- Develop a waste management plan using waste hierarchy.
- A Shipboard Oil Pollution Emergency Plan (SOPEP) must be prepared for all vessels and should be in place at all times during operations.
- Deck drainage should be routed to a separate drainage system (oily water catchment system) for treatment to ensure compliance with MARPOL (15 ppm).
- All process areas should be bunded to ensure drainage water flows into the closed drainage system.
- Drip trays should be used to collect run-off from equipment that is not contained within bunded areas and the contents routed to the closed drainage system.
- Low-toxicity biodegradable detergents should be used in the cleaning of all deck spillages.
- All hydraulic systems should be adequately maintained, and hydraulic hoses should be frequently inspected.
- Spill management training and awareness should be provided to crew members of the need for thorough cleaning-up of any spillages immediately after they occur in order to minimise the volume of contaminants washing off decks.

**Fisheries, socio-economic and other shipping**

**Essential mitigation measures**

- Prior to survey commencement, the following key stakeholders should be consulted and informed of the proposed survey activity (including navigational co-ordinates of the survey area, timing and duration of proposed activities) and the likely implications thereof:
  - Fishing industry / associations (contactable via [liason@fishsa.org](mailto:liason@fishsa.org)):
    - SA Marine Linefish Management Association (SAMLMA);
    - South African Pelagic Fishing Industry Association (SAPFIA);
    - South African Tuna Association (SATA);
    - South African Tuna Longline Association (SATLA)
    - Large Pelagic Small Medium & Micro Enterprises Association (LPSMME)
    - Local fishing communities;
  - Other associations and organs of state
    - DFFE;
    - SAMSA;
    - South African Navy Hydrographic office; and
    - Overlapping and neighbouring right holders.
- These stakeholders should again be notified at the completion of surveying when the survey vessel(s) is/are off location. The operator must request, in writing, that the South African Navy Hydrographic office release

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Radio Navigation Warnings and Notices to Mariners throughout the survey periods. The Notice to Mariners should give notice of (1) the co-ordinates of the proposed survey area, (2) an indication of the proposed timeframes of surveys and day-to-day location of the survey vessel(s), and (3) an indication of the required safety zone(s) and the proposed safe operational limits of the survey vessel. These Notices to Mariners should be distributed timeously to fishing companies and directly onto vessels where possible.

- Undertake surveys when fishing effort is lowest i.e., August to December (avoiding the small pelagic fishing during January-July and snoek line fishing peak during April-May).
- The survey and sampling vessels must be certified for seaworthiness through an appropriate internationally recognised marine certification programme (e.g., Lloyds Register, Det Norske Veritas). The certification, as well as existing safety standards, requires that safety precautions should be taken to minimise the possibility of an offshore accident. Collision prevention equipment should include radar, multi-frequency radio, foghorns, etc. Safety equipment and training of personnel to ensure the safety and survival of the crew in the event of an accident is a further legal requirement.

#### **Best Practice Mitigation (Recommended):**

- Appoint a fisheries liaison officer (FLO) to facilitate communication with affected fishing sectors. The FLO should report daily on vessel activity and respond and advise on action to be taken in the event of encountering fishing gear in the survey area.
- Additional compensation and resource support measurements should be introduced to reduce the severity of the impacts on the socio-economic performance. These should include:
  - A Skills Development through training programs and formal education opportunities such as financial management skills which was emphasised by the Lamberts Bay fisher's community.
  - Support of local initiatives, investments, and entrepreneurship (e.g., communal vegetable garden and opening of the jetty restaurant in Doringbaai).
- Prospecting activities should be restricted during important tourism events and seasons (i.e., during the perlemoen festival, the school holidays and summer months).
- Support should be provided to support the development of a local Lamberts Bay fisheries label and assistance in the export of fish locally and internationally should be investigated. In addition, assistance should be given to develop partnerships between local fisheries and retail markets.
- Assistance should be given to support local communities in navigating new Small Scale Fisheries Policy structures.
- Assistance should be given to support the development of a streamlined communication platform between local community, community representatives, stakeholders, and government officials.
- Support the establishment of an annual abalone festival in Doringbaai.

#### **Heritage resources**

##### **Essential mitigation measures**

- Areas where shipwreck sites are identified during the geophysical surveys must be excluded prior to undertaking sampling activities.
- The contractor must be notified that archaeological sites could be exposed during sampling activities, as well as the procedure to follow should archaeological material be encountered during sampling.
- Any core sample sections which contain alluvial material, particularly where organic remains are present, are retained and are subject to paleo-environmental assessment.
- Any fossils found during the processing of cores must have the details of context recorded, must be kept for identification by an appropriate specialist and, if significant, be deposited in an appropriate institution.

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- If shipwreck material is encountered during the course of sampling in any of the concession areas, the following mitigation measure should be applied:
    - Cease work in the directly affected area to avoid damage to the wreck until the South African Heritage Resources Agency (SAHRA) has been notified and the contractor has complied with any additional mitigation as specified by SAHRA; and
    - Where possible, take photographs of them, noting the date, time, location and types of artefacts found. Under no circumstances may any artefacts be removed, destroyed or interfered on the site, unless under permit from SAHRA.

#### **Best Practice Mitigation (Recommended)**

- It is recommended that the onboard Trans Atlantic representative must undergo a short induction on archaeological site and artefact recognition, as well as the procedure to follow should archaeological material be encountered during sampling.

#### **Cumulative impacts on the environment and community**

Mitigation measures as recommended for each individual impact should be implemented. Furthermore, a strategic level Environmental Impact Assessment (EIA) process based on marine spatial planning principles should be conducted to assess and manage potential cumulative impacts in a holistic manner and to identify and implement further mitigation measures.

### **AANBEVELING**

Die EAP beveel aan dat Omgewingsmagtiging vir prospekteerregte binne seekonsessiegebied 14C aan die aansoeker toegestaan word, op voorwaarde dat versagtingsmaatreëls geïmplementeer en nagekom word. Dit is omdat die beduidendheid van moontlike negatiewe impakte as gevolg van prospektering in hierdie gebied beoordeel is om te wissel van LAAG tot ONBEDUIDEND met die implementering van versagtingsmaatreëls. Die EAP beveel ook sterk aan dat die DMHE 'n Strategic Level EIA studie laat doen om die kumulatiewe impakte van mariene- prospektering en -mynbou langs die Suid-Afrikaanse Weskus beter te verstaan en te bestuur. Daar word verder versoek dat die DMHE die tydperk wat toegestaan word vir die uitvoer van Basiese Assesserings en Omgewingsimpak Assesserings verleng word, aangesien die tyd wat toegestaan word onvoldoende is om 'n betekenisvolle konsultasieproses met die gemeenskap te hou, spesialisstudies uit te voer en moontlike impakte van prospektering te evalueer.

### **PROSES EN TYDLYN VAN DIE BASIESE ASSESSERINGSPROSES**

Loods aansoek: 'n Aansoek vir prospekteerregte en omgewingsmagtiging is by die DMHE ingedien. Hierdie aansoek is op 21 Februarie 2022 deur die DMRE aanvaar. Die DMHE het Anchor op 24 Februarie 2022 oor die aanvaarding van die aansoek ingelig.

**Registrasietydperk en Voorafkonsultasie:** Kennisgewings is op 3 en 4 Maart 2022 aan belanghebbendes uitgestuur om hulle in te lig dat die aansoek vir prospekteerregte en omgewingsmagtiging in Konsessiegebied 14C deur die DMHE aanvaar is en om hulle uit te nooi om as Belangstellendes en Geaffekteerde Partye (B&GPe)

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te registreer. Belanghebbendes is ook gevra om aanvanklike kommentaar te lewer tydens die Voorkonsultasiefase (Pre-consultation) wat gestrek het tot 17 Maart 2022. 'n Voorafkonsultasievergadering is op 11 Maart 2022 in Doringbaai gehou. Die doel was om met die gemeenskappe te konsulteer voordat die impakstudies uitgevoer is, om besonderhede van die projek te verskaf, om gemeenskapsinsette te kry en vrae te beantwoord. Die voorafkonsultasie is gebruik as 'n geleentheid om kontakbesonderhede van belangrike gemeenskapsverteenwoordigers en organisasies te bekom en om hulle oor die publieke deelnameproses in te lig.

**Sirkuleer Konsep BAR & Amptelike Openbare Deelname Periode:** Die Konsep Basiese Asseseringsverslag (BAR) sal beskikbaar gestel word op ons webwerf (<https://anchorenvironmental.co.za/>) en by die Doringbaai, Ebenhaeser en Lutzville Biblioteke en die Strandfontein Weskus Inligtingsentrum vir 30 dae gedurende die Openbare Deelnametydperk, wat vanaf Maandag 11 April 2022 tot 23:59 op Woensdag 18 Mei 2022 sal strek.

**Openbare Deelname Vergadering:** Vergaderings sal in Kaapstad, Doringbaai, Papendorp en Ebenhaeser gehou word. Hier sal lede van Anchor (die EAP) en Trans Atlantic Diamonds (die Aansoeker) meer besonderhede oor die voorgestelde prospekteraktiwiteit verskaf en met B&GP konsulteer, wat dan die geleentheid sal hê om vrae te vra en kommentaar op die projek te lewer.

**Dien Finale BAR by die DMHE in en hulle finale besluit:** Belanghebbendes se kommentaar sal aangespreek en ingesluit word in die finale BAR en EMPr. Die Finale BAR sal dan op 27 Mei 2022 aan die DMHE vir oorweging ingegee word. Die DMHE het 107 dae om al die dokumente te oorweeg en te besluit of Omgewingsmagtiging vir prospektering in Konsessiegebied 14C toegestaan moet word.

## GELEENTHEID OM KOMMENTAAR TE LEWER OP DIE KONSEP-BAR

Die publiek het die geleentheid om hul kommentaar en bekommernisse rakende die projek te verskaf. Alle kommentaar/bekommernisse en vrae sal aan die DMHE gestuur word vir hul aandag en moet saam met die spesialisstudies en assessering deur die EAP oorweeg word voordat prospekterregte toegeken of afgekeur word. Agtergrondinligtingsdokumente (hierdie dokument), vraelyste, spesialisstudies en die konsep-BAR sal beskikbaar wees op ons webwerf by <https://anchorenvironmental.co.za/>, die Doringbaai-, Ebenhaeser- en Lutzville-biblioteke en die Strandfontein Weskus-inligtingsentrum gedurende die Openbare Deelnametydperk.

Belanghebbende en Geaffekteerde Partye (B&GP'e) word uitgenooi om te registreer, die konsep BAR en EMPr te hersien en kommentaar te lewer op die aansoek om prospekterregte en omgewingsmagtiging gedurende die Openbare Deelnametydperk wat sal strek vanaf **Maandag 11 April 2022 tot 23:59 op Woensdag 18 Mei 2022**. **Neem asseblief kennis dat die aanvanklike Openbare Deelnameproses-datums van 6 April to 9 Mei, soos geadverteer op kennisgewings en in koerantadvertensies, nie meer geldig is nie.**

### **Metodes om te registreer en deel te neem (kommentaar te lewer):**

- 1) Voltooi die vraelys of lewer kommentaar op 'n dokument van u keuse en stuur dit aan die kontakpersoon hieronder per pos, e-pos of telefonies.
- 2) Handig dit by die Doringbaai-, Ebenhaeser- of Lutzville Biblioteek of die Strandfontein Weskus-Inligtingsentrum in.
- 3) Handig dit tydens die Openbare Deelname Vergadering in of lewer u kommentaar mondelings tydens die vergadering.

**U WORD OOK UITGENOOI NA DIE OPENBARE DEELNAME VERGADERING NAASTE AAN U:**

- 1. Kaapstad: Maandag, 11 April 2022 om 13:30 – 16:00; Steenberg House, Silverwood Close, Steenberg Office Park, Tokai, Kaapstad**
- 2. Doringbaai: Dinsdag, 12 April 2022 om 18:00 – 20:00; Miriam Owies Gemeenskapsentrum, Haweweg 1, Doringbaai**
- 3. Ebenhaeser: Woensdag, 13 April 2022 om 18:00 – 20:00; Ebenhaeser Community Hall, 118 Louise Street, Nuwestasie, EbenhaezerCape Town: Monday, 11 April 2022 at 13:30 - 16:00; Steenberg House, Silverwood Close, Steenberg Office Park, Tokai, Cape Town**

***Cheruscha Swart***

***Anchor Environmental Consultants (Pty) Ltd***

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E-pos: [info@anchorenvironmental.co.za](mailto:info@anchorenvironmental.co.za)

Webtuiste: [anchorenvironmental.co.za](http://anchorenvironmental.co.za)

**HIER VOLG 'N LYS VAN ROLSPELERS VERANTWOORDELIK VIR DIE IMPLEMENTERING VAN DIE EMPr, EN HUL VERANTWOORDELIKHEDE**

**FUNCTION**

**Project Manager/ Applicant**

**Role**

The Project Manager is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Responsible for providing and giving mandate to enable the ECO to perform responsibilities and must ensure that the ECO is integrated as part of the project team while remaining independent.

**Responsibilities**

- Be fully aware of the conditions of the EA;
- Overall management of the project and EMPr implementation;
- Ensure that all stipulations within the EMPr are communicated and adhered to by the Applicant, Sampling Contractor(s) and any crew on board the vessel;
- Monitor the implementation of the EMPr throughout the project;
- Ensure that periodic environmental performance audits are undertaken on the project implementation; and
- Provide updated information to the public.

**Scientific Officer (Internal monitoring)**

**Role**

The Scientific Officer reports directly to the Project Manager, oversees site works, liaises with the contractor(s) and the ECO. Responsible for the day-to-day implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and for ensuring the compliance of all contractors with the conditions and requirements stipulated.

**Responsibilities**

- Oversees site works, liaison with Contractor, Project Manager and ECO;
- Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Reporting the EMPr.

- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;
- Conduct environmental awareness training on site together with ECO and contractors;
- Ensure that the necessary legal permits and / or licenses are in place and up to date
- Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) and its sub-contractor(s);
- Conduct environmental internal audits with regards to EMPr.
- Assist the contractors in addressing environmental challenges
- Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared;
- Assist the contractor in investigating environmental incidents and compile investigation reports;
- Monitor the implementation of the EMPr throughout the project by means of weekly checklists and regular meetings.

#### **Environmental Control Officer (ECO) (External or Independent monitoring)**

##### **Role**

Employed by the applicant/project manager for the duration of the project. Should have appropriate training and experience in the implementation of environmental management specifications. Primary role is to act as an independent quality controller that monitors all environmental concerns and associated environmental impacts. Conducts site inspections, manages problems and suggest mitigation and be available to advise on incidental issues that arise. Required to conduct compliance audits, verifying the monitoring reports submitted by the Scientific Officer. Provides feedback to the Scientific Officer and Project Manager regarding all environmental matters. All role players answer to the ECO for non-compliance. Must also report to the relevant CA as and when required.

##### **Responsibilities**

- Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them;
- Undertake regular site inspections / audits of the activities according to the EMPr, including any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr;
- Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements;
- Liaison between the Project manager, Scientific Officer, Contractors, authorities and other stakeholders;
- Issuing of site instructions to the Contractor for corrective actions required;
- Reviewing all documents submitted by the Scientific Officer (method statements, incident reports, complaints register, etc.)
- Facilitate environmental awareness training;
- In case of non-compliances, the ECO must first communicate this to the Scientific Officer, who must address this matter. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance;
- Maintenance, update and review of the EMPr;
- Communication of all modifications to the EMPr to the relevant stakeholders.

#### **Sampling Contractor/ Employees on vessel**

##### **Role**

The contractors are required to provide Method Statements detailing the equipment, materials, labour and method(s) that will be used by them to conduct the sampling/work and also setting out in detail how the management actions contained in the EMPr will be implemented during activities. Overall responsibility to ensure that all work, activities, are in line with the EMPr and that Method Statements are implemented as described. All instructions relating to the EMPr will be given to contractors via the Scientific Officer. Contractors will report issues of concern to the scientific officer, who in turn will report on progress to the TAD. Contractors include the captain on the vessel, the crew handling the equipment and doing sampling, geologist, etc.

##### **Responsibilities**

- Preparing method statements of work that will be done;
- Conducting the sampling activities as per the method statements and EMPr;
- Ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly; operated and maintained, to facilitate proper access and enable any operation to be carried out safely; and
- Attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones.

#### **Fisheries Liaison Officer (FLO)**

##### **Role**

Appointed to facilitate communication with affected fishing sectors. Should report daily on vessel activity and respond and advise on action to be taken in the event of encountering fishing gear in the survey area.

##### **Responsibilities**

- Liaison between fishing sectors and Project Manager and Scientific Officer

#### **Marine Mammal and Seabird Observer (MMSO)**

##### **Role**



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A designated onboard MMSO keeps watch for marine megafauna in the path of the vessel during all vessel activity, including the geophysical surveying. Marine megafauna will include, but are not limited to, all marine mammals (whales, cetaceans, seals, etc.), sea turtles, fish and seabirds. Also in charge of managing the passive acoustic monitoring (PAM) system during the survey activity to detect marine mammals that could be at risk.

**Responsibilities**

- Keeps watch for marine megafauna to prevent collision and impact due to acoustic survey.
- Records all sightings and incidents with marine megafauna and fish, including behaviour.

**Passive Acoustic Monitoring (PAM) Observer**

A designated onboard Passive Acoustic Monitoring (PAM) Observer uses passive acoustic hydrophones to detect the vocalisations of marine species. This person can also be a MMSO, but must not be the designated MMSO.

**Responsibilities**

- Managing the PAM system; listens out for underwater marine megafauna to prevent collision and impact due to acoustic survey.