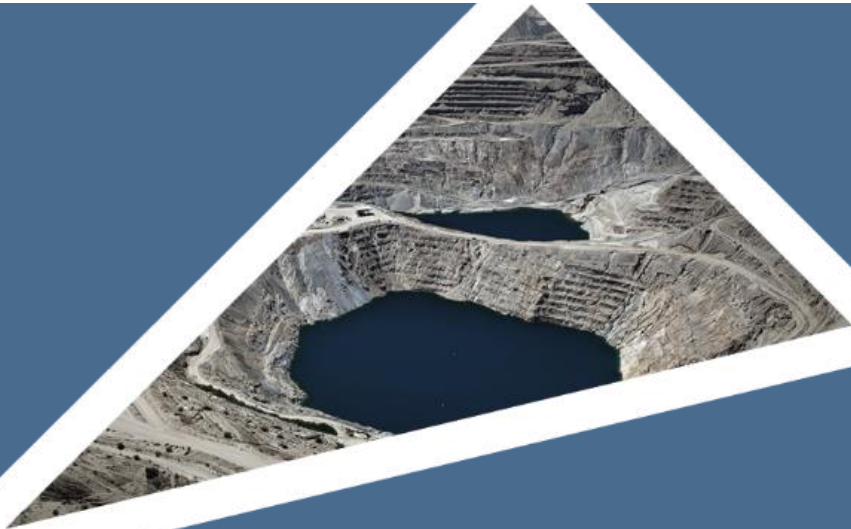




# PROPOSED TGS ORANGE BASIN 3D SEISMIC SURVEY PROJECT

Basic Assessment Report Presentations: 31 October – 5 November 2022



# Introduction

- Project Team

- Environmental Assessment Practitioner: GP Kriel (EIMS)
  - Public Participation Consultant: Andisiwe Xuma (EIMS)
  - Fisheries specialist: Sarah Wilkinson (Capmarine)
  - Marine fauna specialist: Dr Andrea Pulfrich (Pisces)
  - Social specialist: San-Marie Aucamp and Dr Ilse Aucamp (Equispectives)
  - Heritage specialist: Wouter Fourie (PGS Heritage)
  - MMO / FLO: Michelle Roffe (Seiche)
- Representative from TGS: Michael Fayard
  - The main aim of this second round of meetings is present the findings of our environmental basic assessment report and capture any additional concerns or comments.



# Outline

- Welcome and Introductions
- Project Description
- Impact Assessment
- Public Participation
- Key Mitigation Measures
- Conclusion and way forward



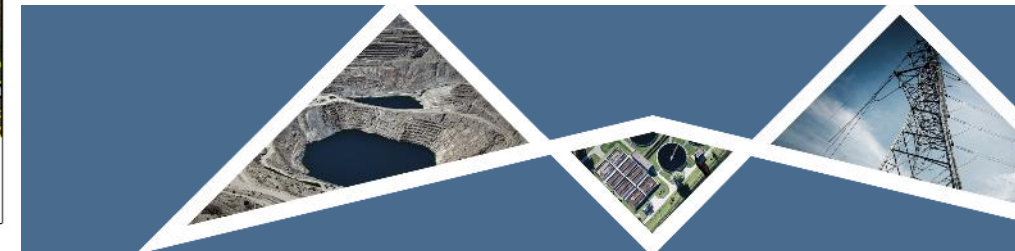
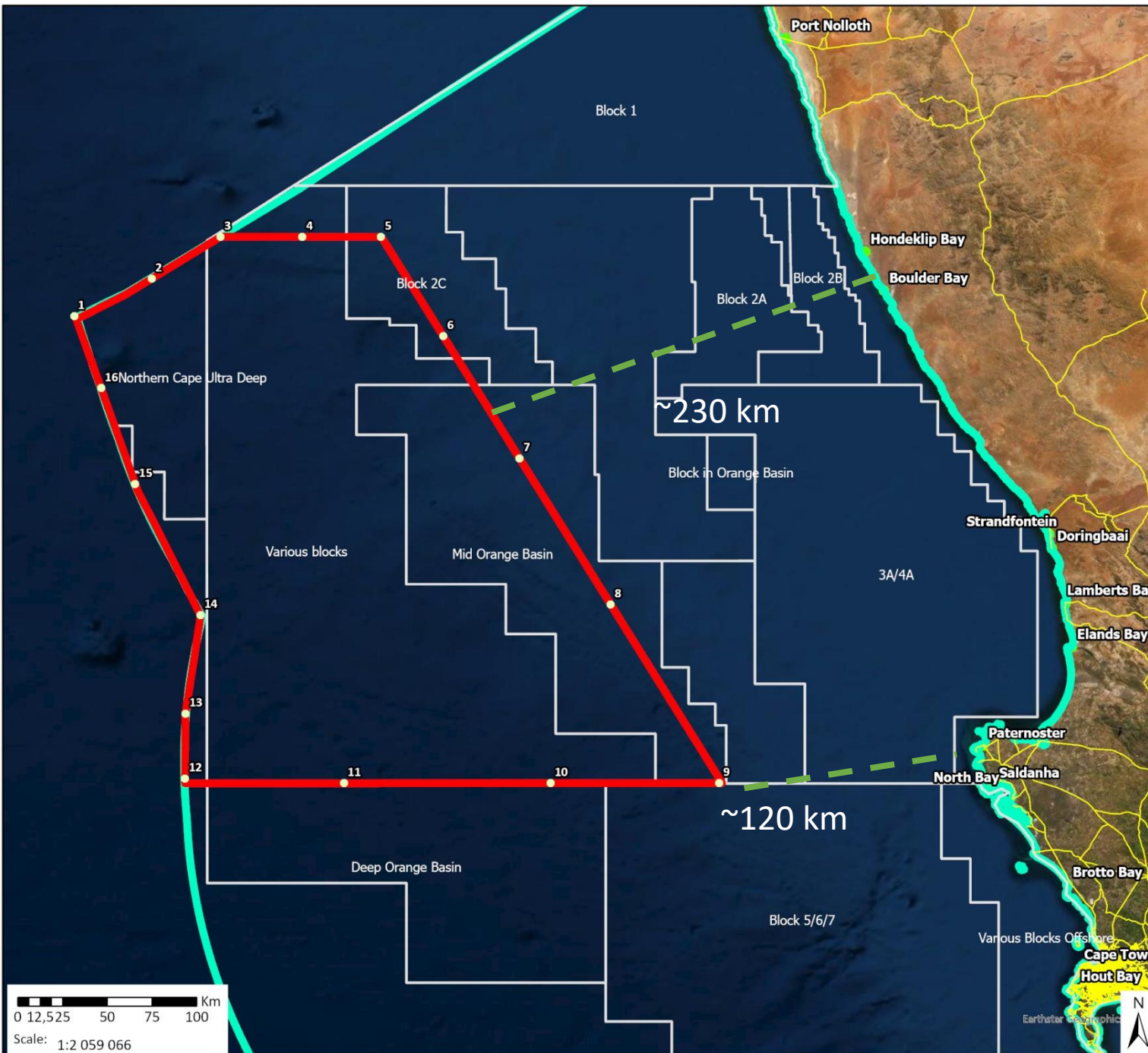
# Ground Rules

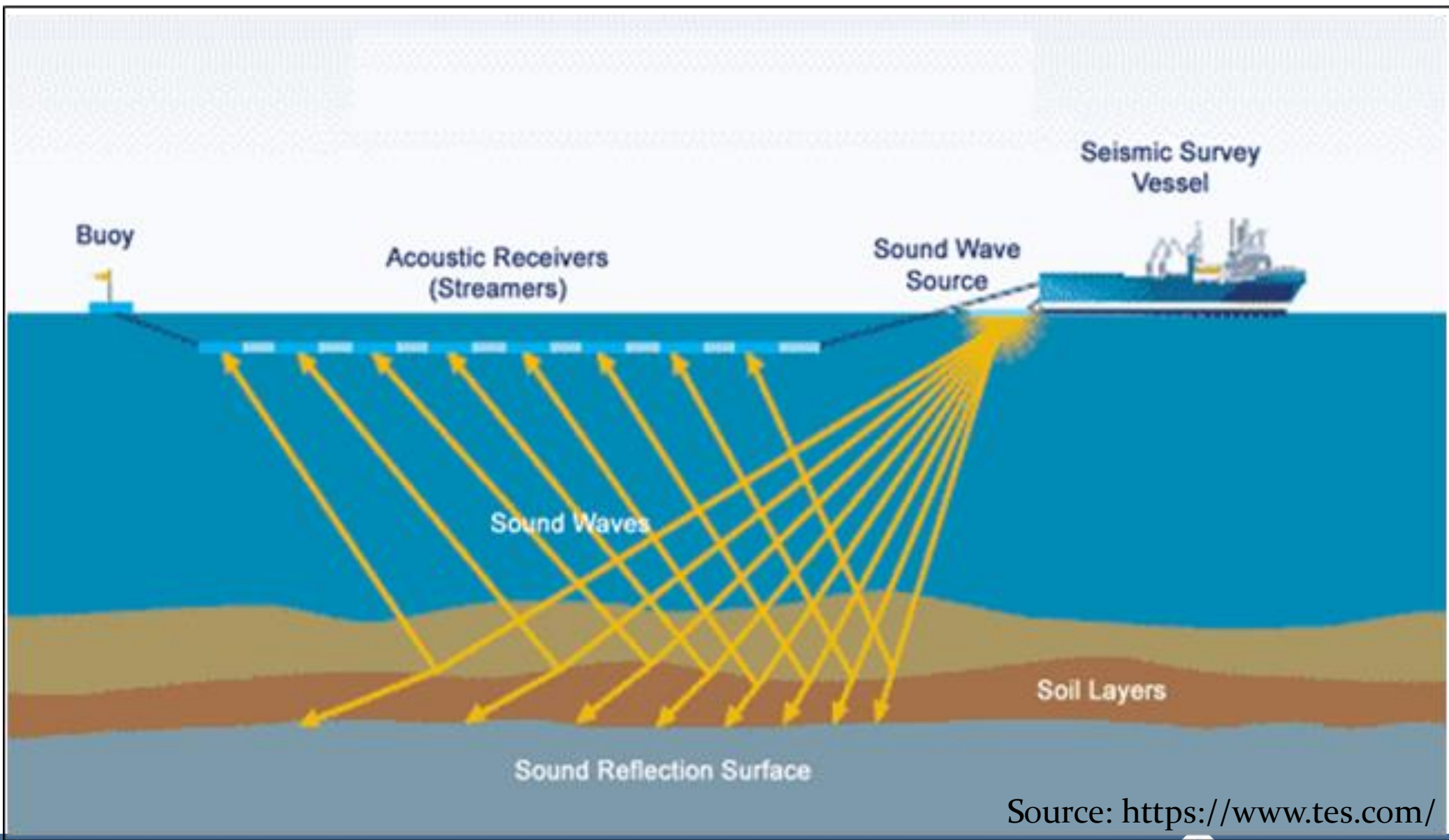
- Please be respectful of those around you
- Please do not interrupt other speakers
- Please keep questions to the end of the presentation
- Please first state your name before your comment or question
- Keep comments and questions to the point of the meeting
- The meeting will be recorded



# Project Description

- TGS Geophysical Company (UK) Limited proposes to undertake a 3D seismic survey off the West Coast of South Africa.
- The proposed project area is located between approximately 120 km offshore of St Helena Bay, extending north along the western coastline to approximately 230 km offshore of Hondeklip Bay over a number of petroleum license blocks.
- EIMS was appointed as EAP to apply for Environmental Authorization (EIA Regulations, 2014 NEMA).
- The 3D survey will take in the order of 70 days including downtime



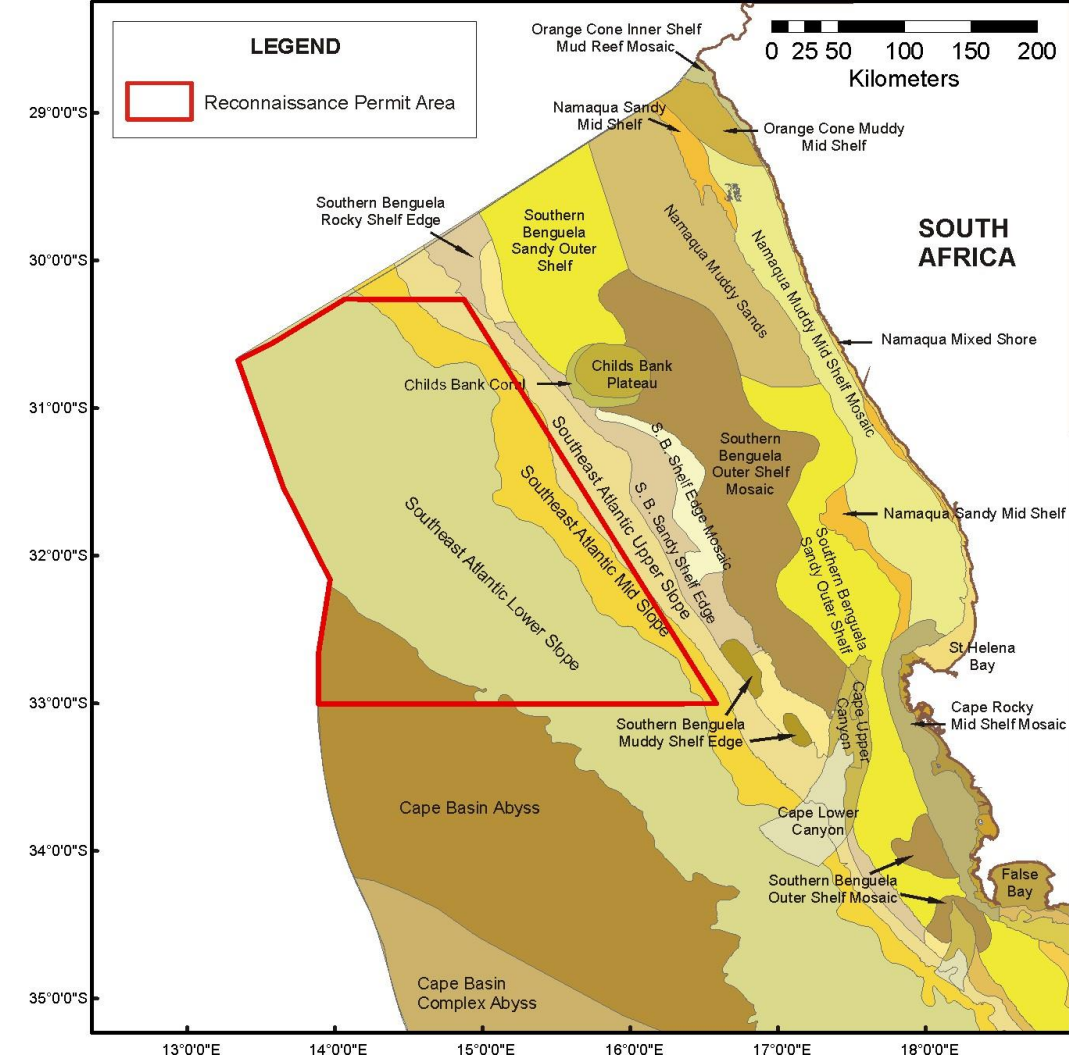
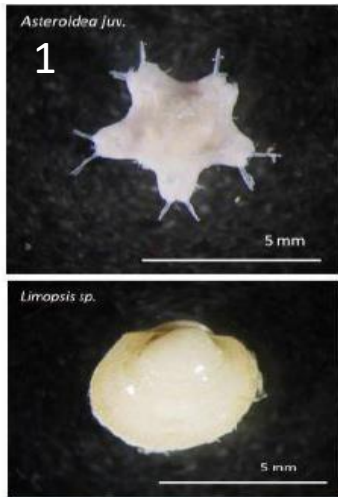


Source: <https://www.tes.com/>



# Marine Ecology – Demersal Communities

1. BENTHIC INVERTEBRATE MACROFAUNA
2. DEEP-WATER CORAL COMMUNITIES
3. DEMERSAL FISH SPECIES
4. SEAMOUNT COMMUNITIES

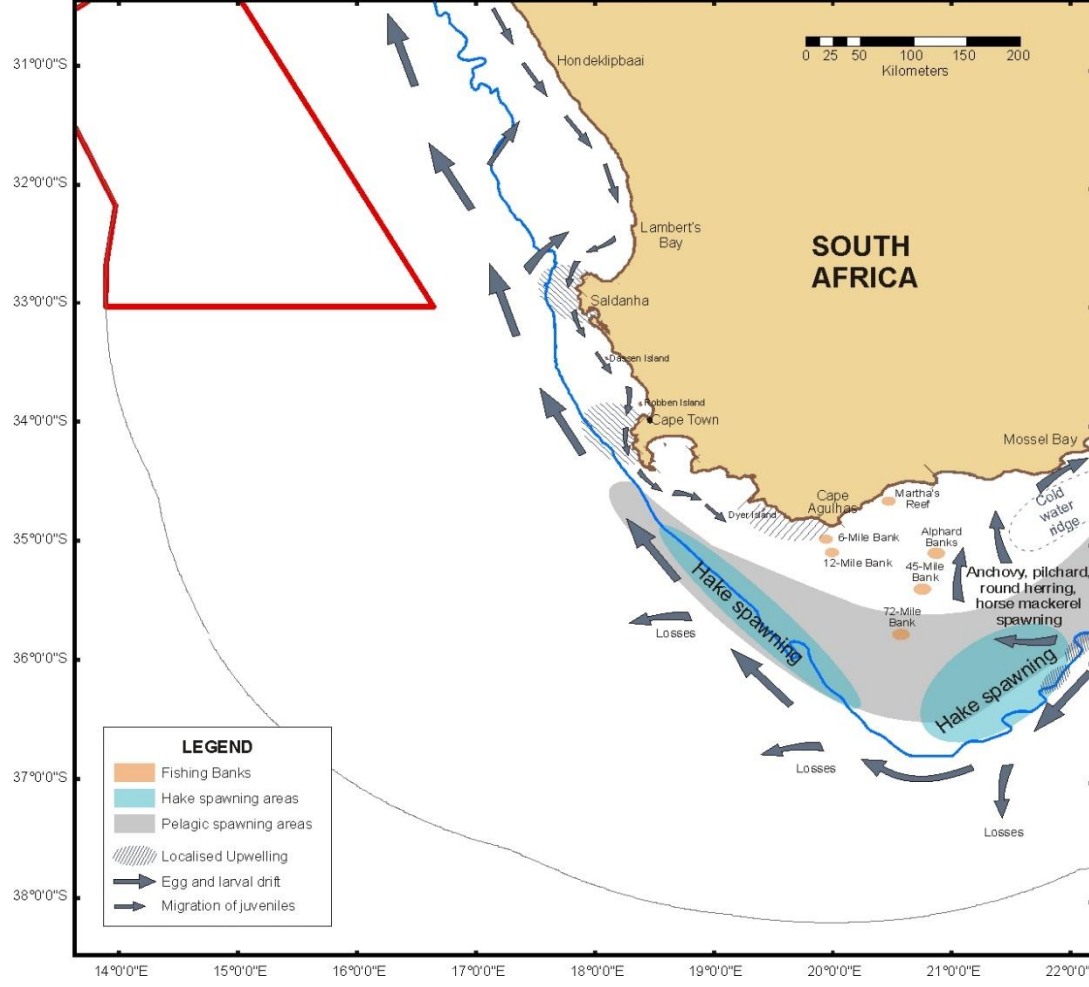


**Benthic ecosystem types along the West Coast**



# Marine Ecology – Pelagic Communities

1. PLANKTON
2. CEPHALOPODS
3. PELAGIC FISH
4. TURTLES
5. SEABIRDS
6. MARINE MAMMALS (WHALES AND SEALS)

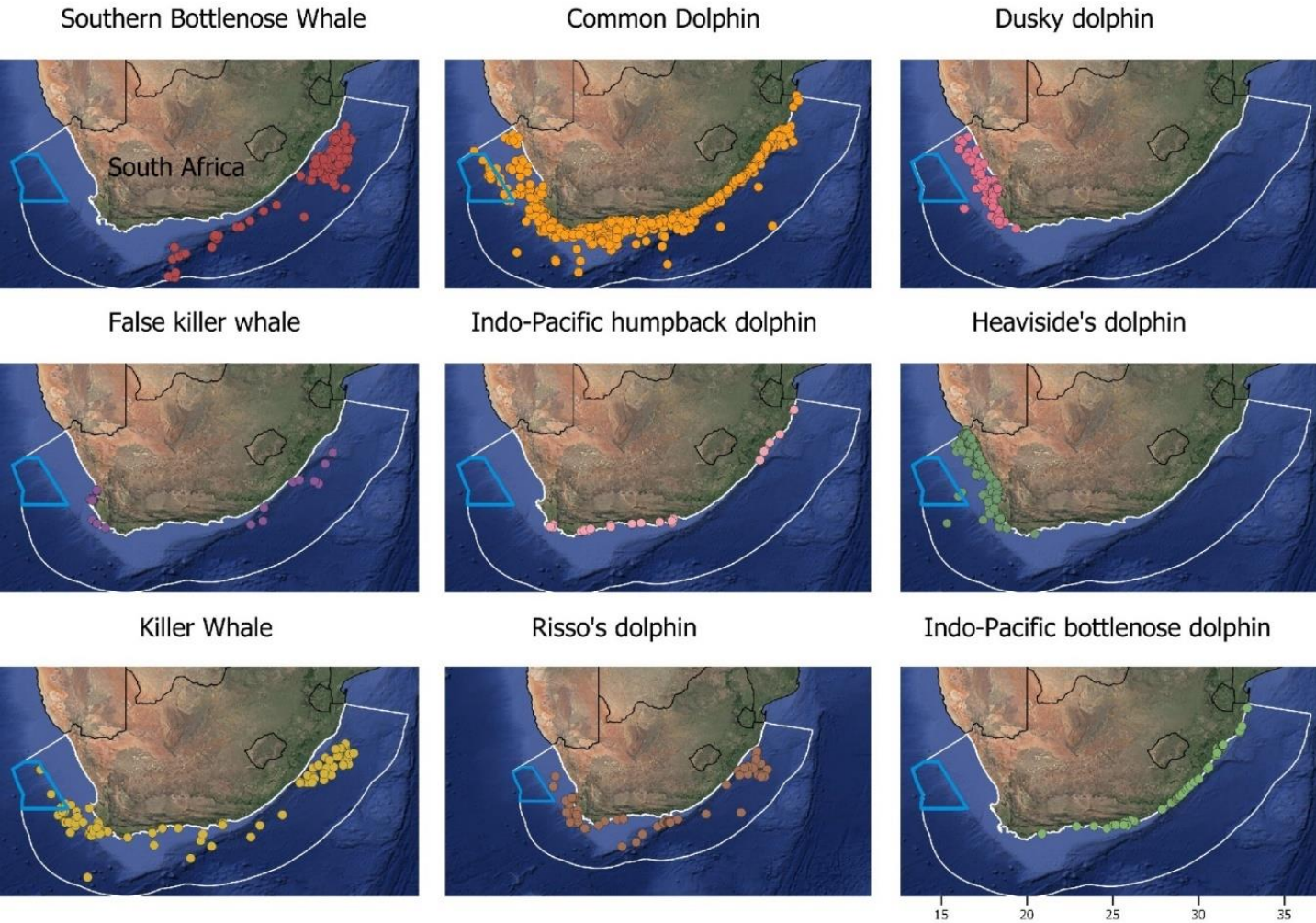


The survey area in relation to major spawning, recruitment and nursery areas in the southern Benguela region.

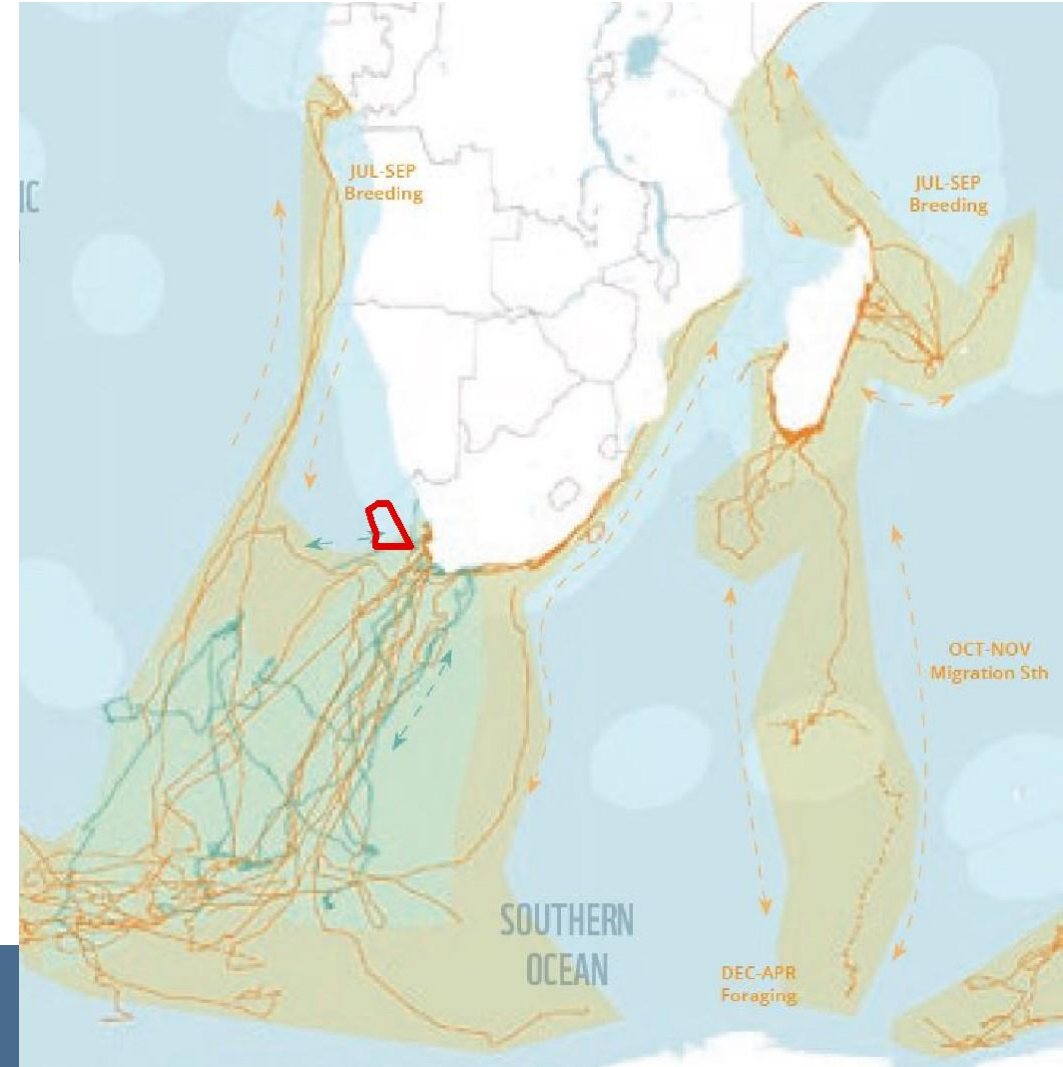




# Marine Ecology – Pelagic Communities

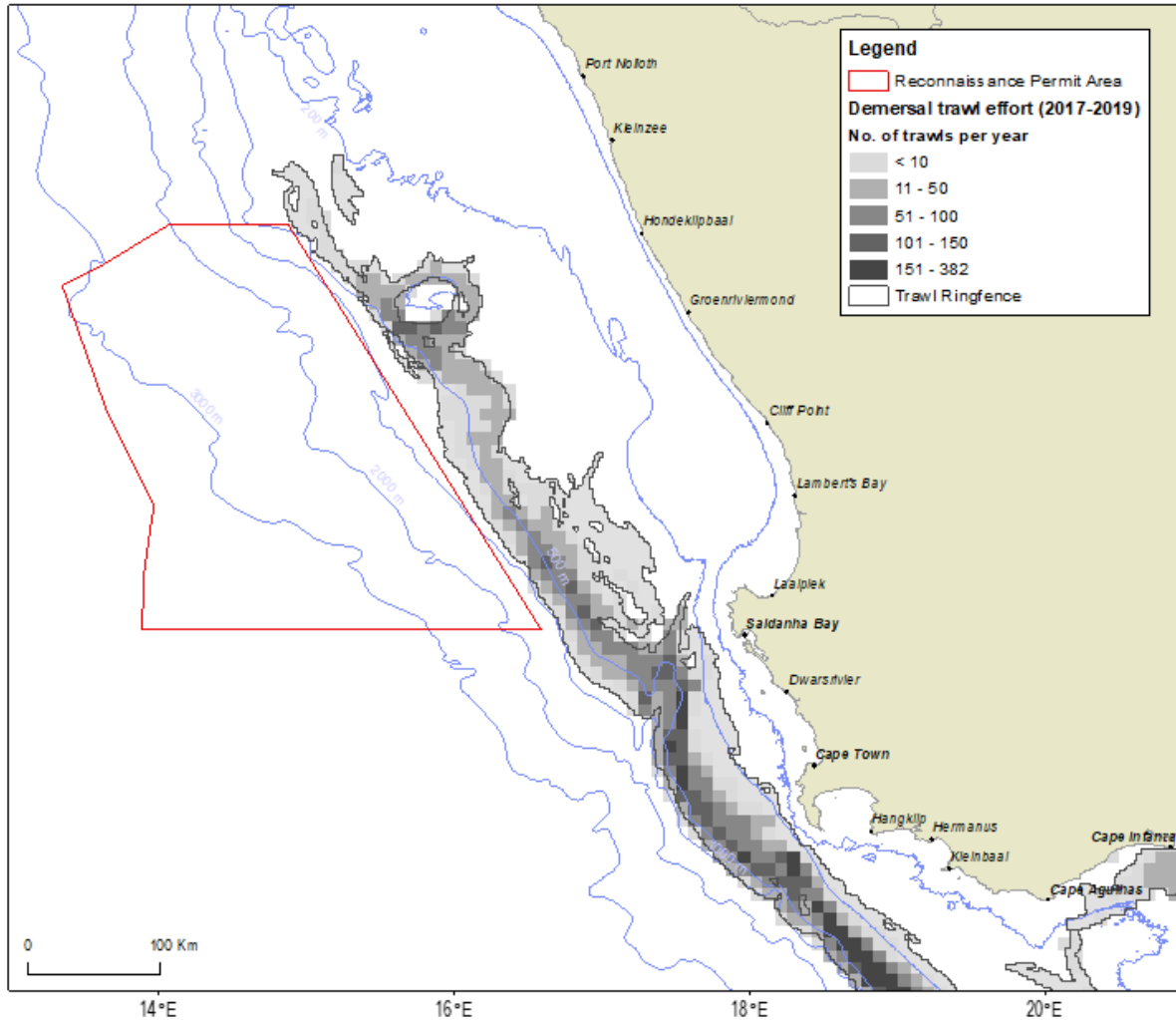


**Predicted distributions for nine odontocete species off the West Coast of South Africa**

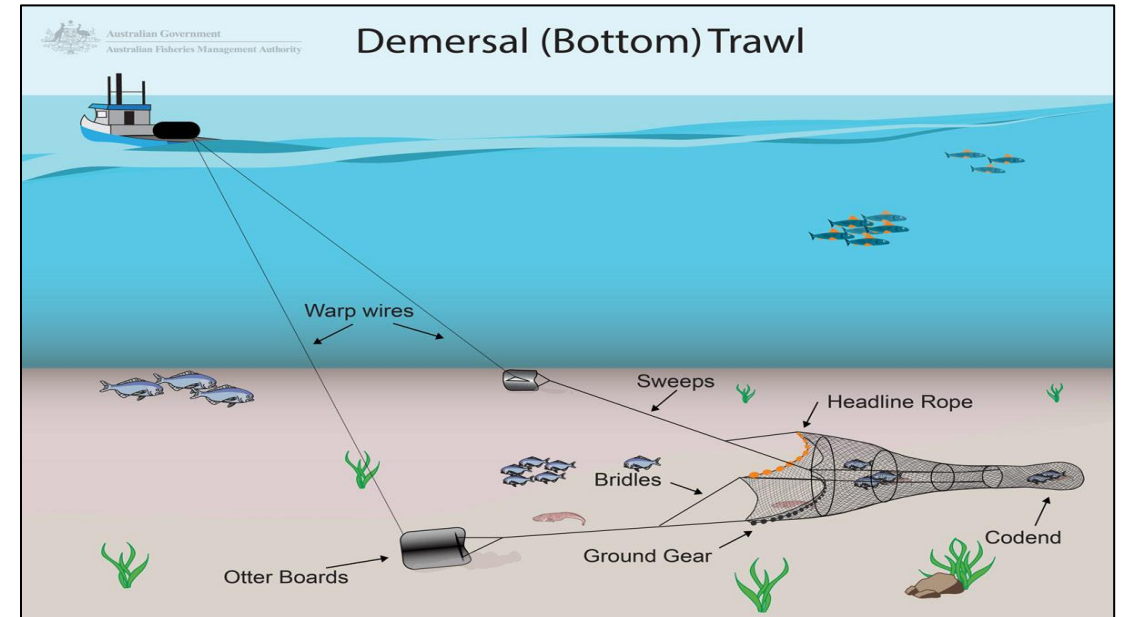


**Tracks of Humpback whales (orange) and Southern Right whales (green) between southern Africa and the Southern Ocean feeding grounds**

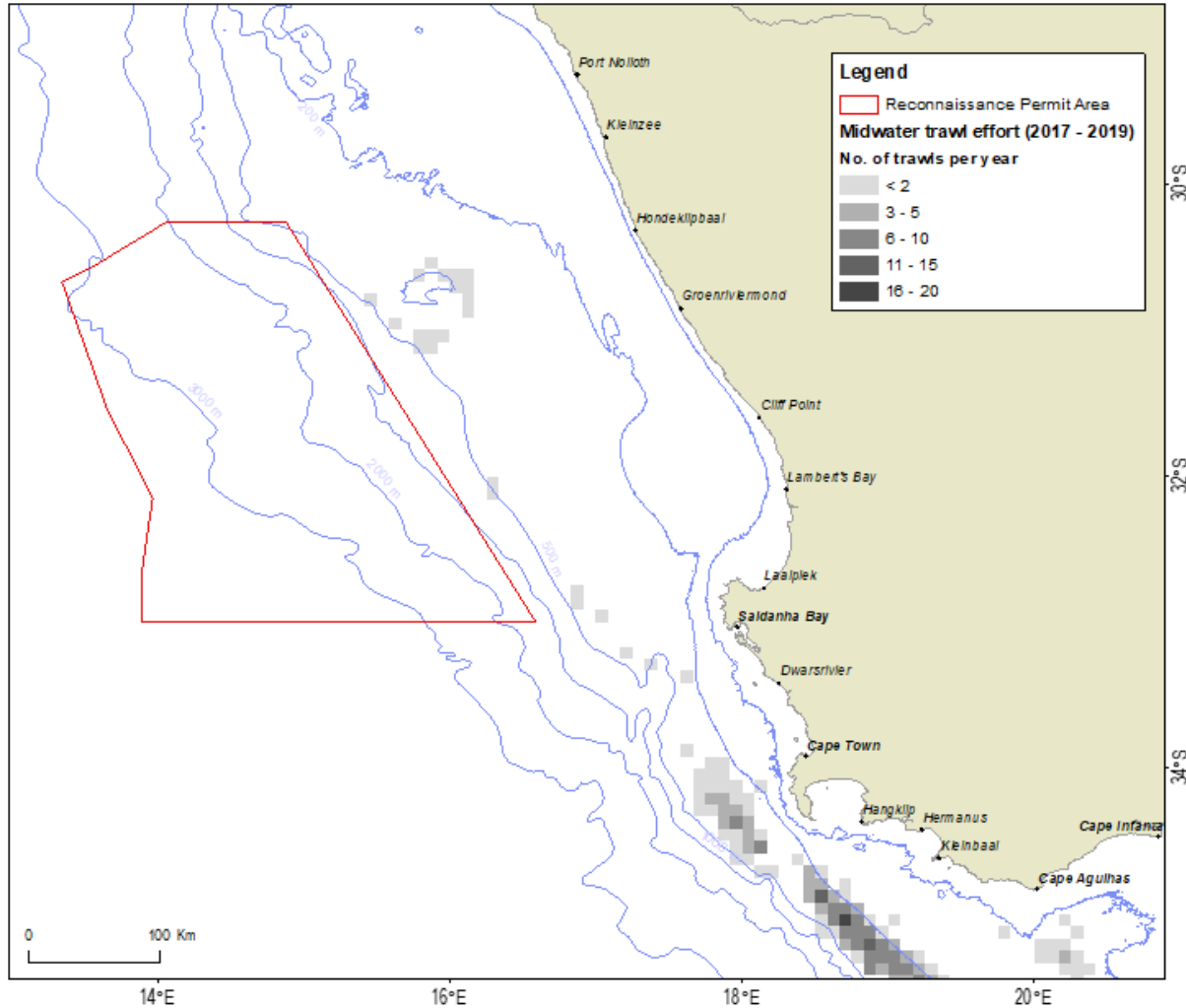
# Fisheries – Demersal Trawl



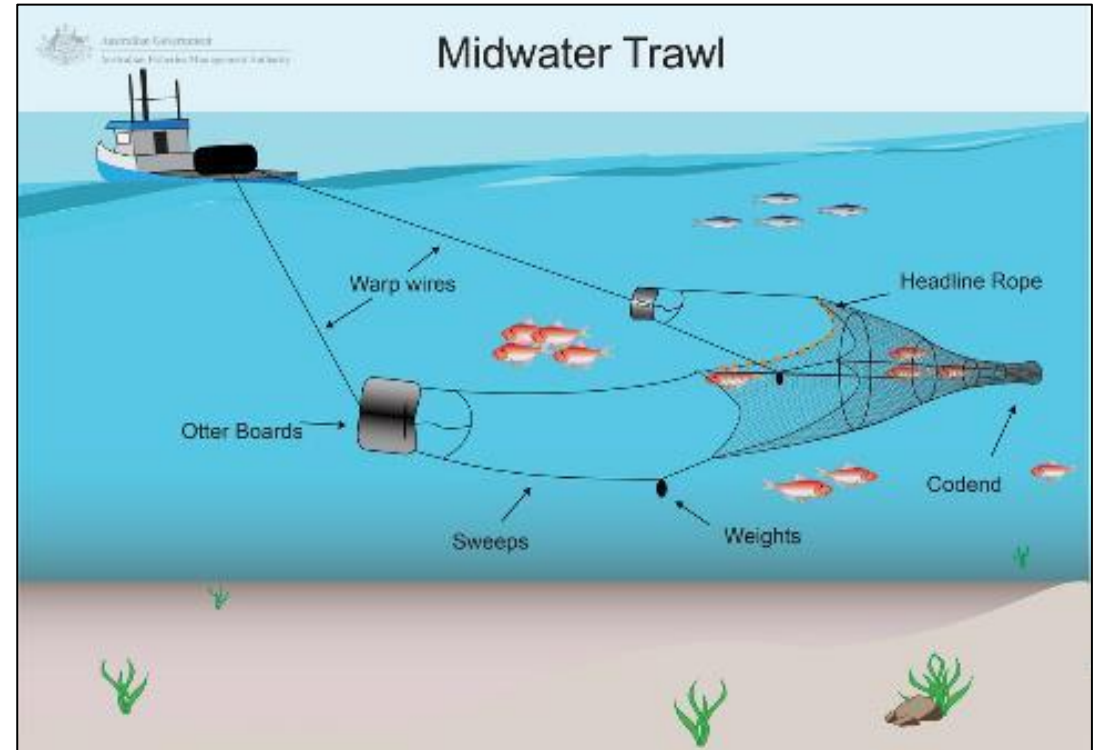
- Target species: cape hakes, monkfish, kingklip and snoek.
- No impact on demersal trawl expected due to distance from activity



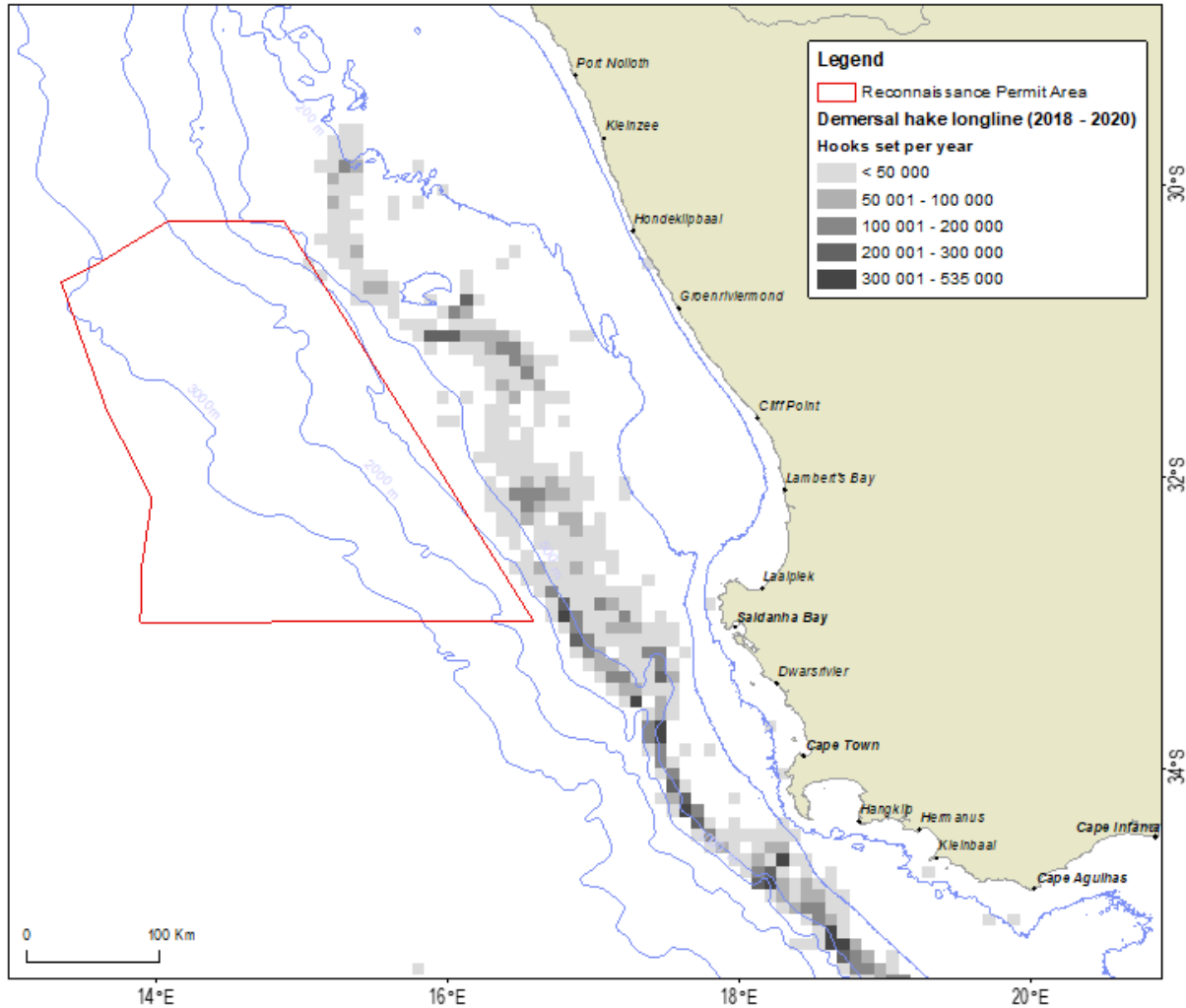
# Fisheries – Midwater Trawl



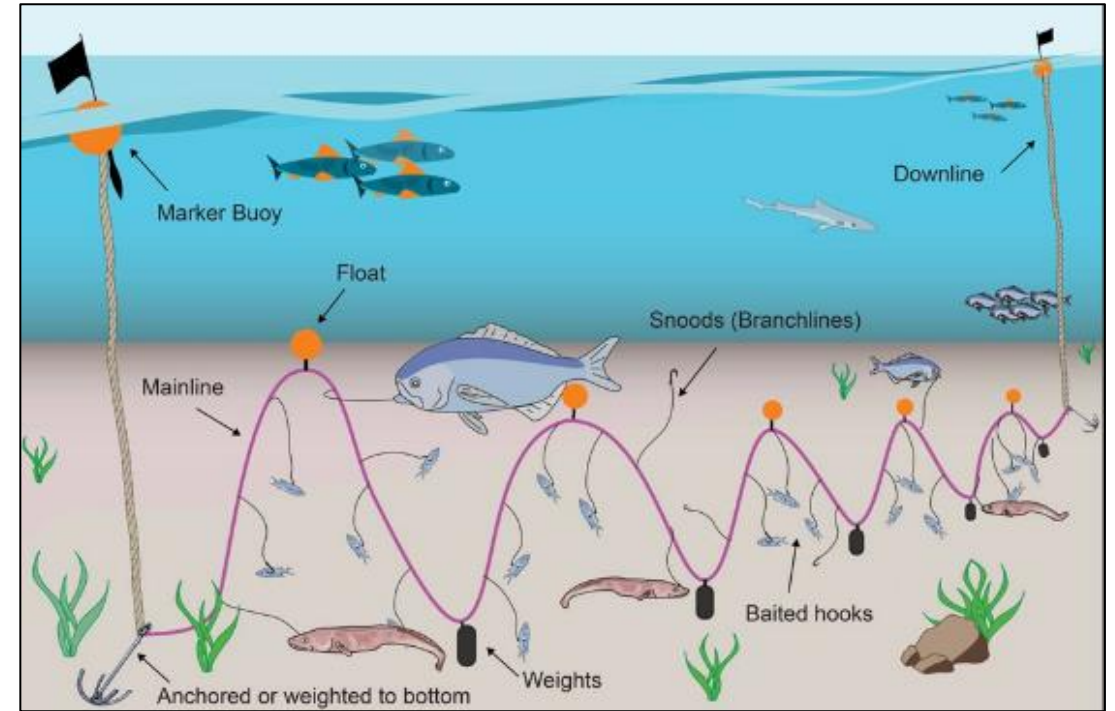
- Target species: cape horse mackerel
- No impact on midwater trawl expected due to distance from activity



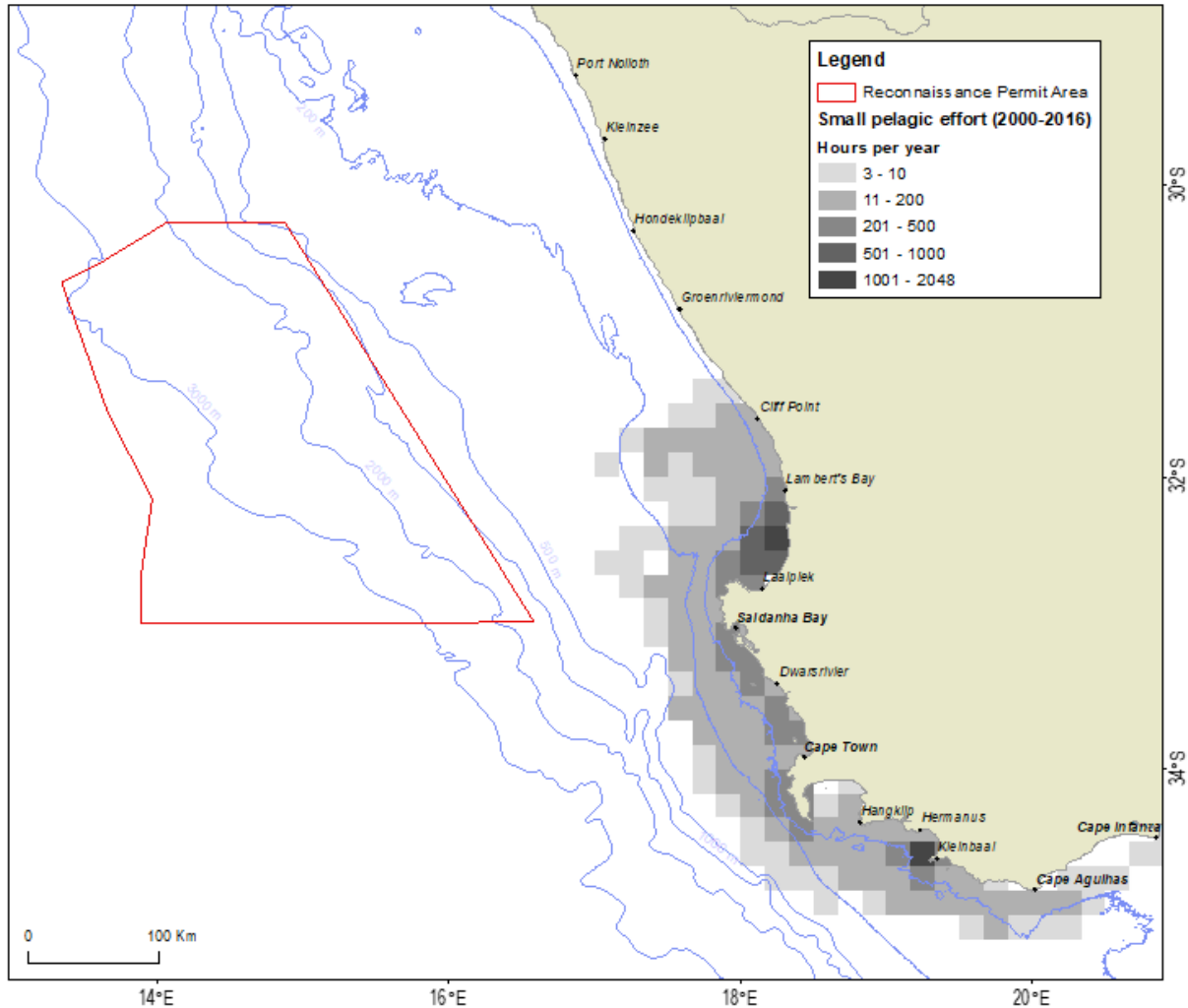
# Fisheries – Demersal Hake Longline



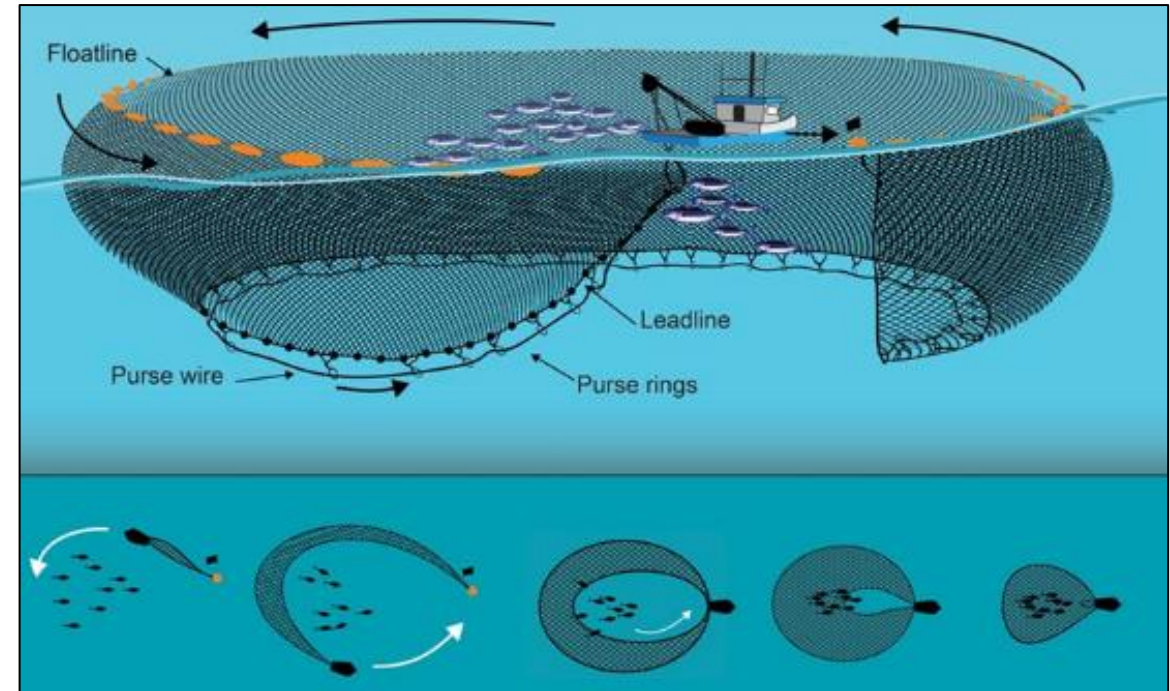
- Target species: cape hakes, kinglip (by-catch)
- No impact on demersal hake longline expected due to distance from activity



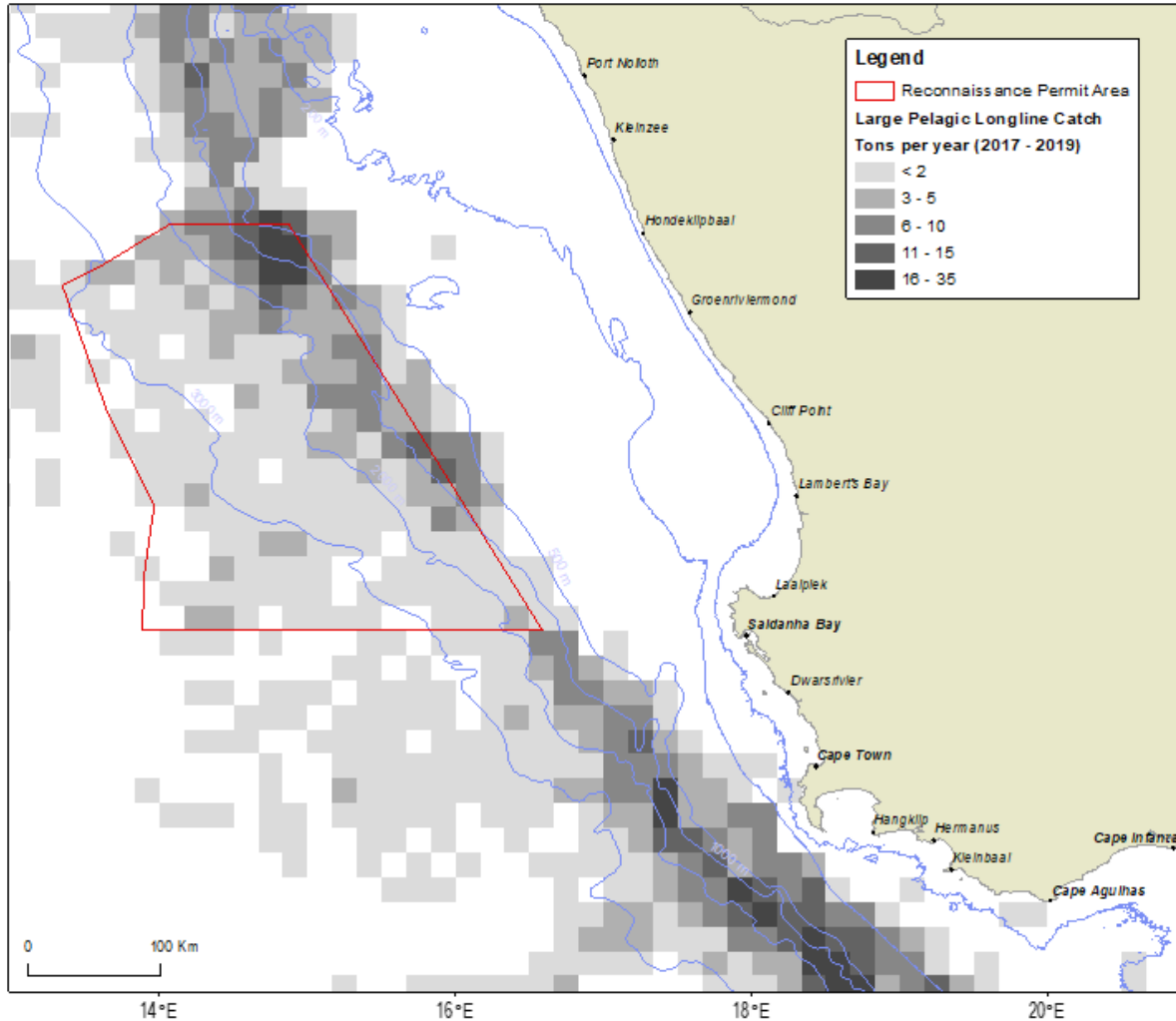
# Fisheries – Small Pelagic



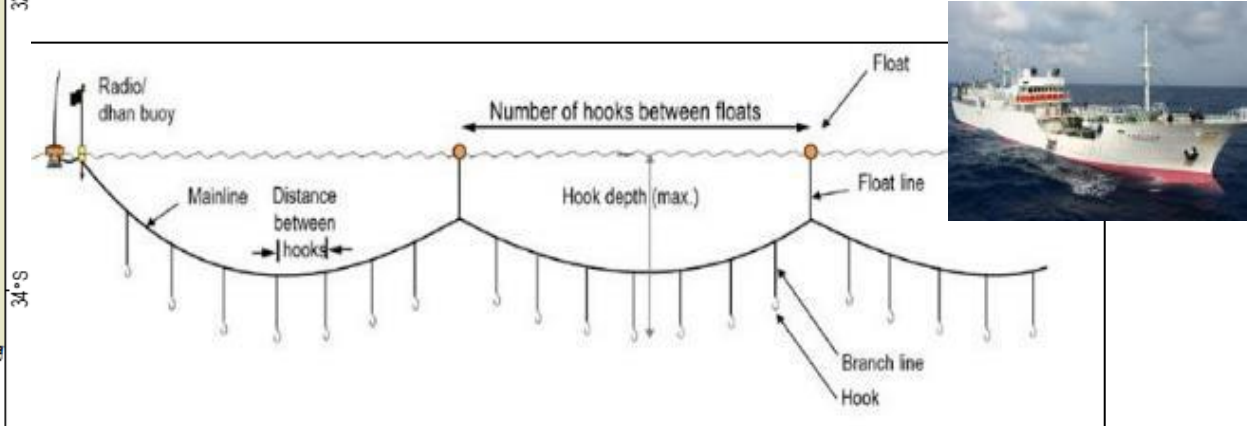
- Target species: pilchard, anchovy and red-eye round herring
- No impact on small pelagic expected due to distance from activity



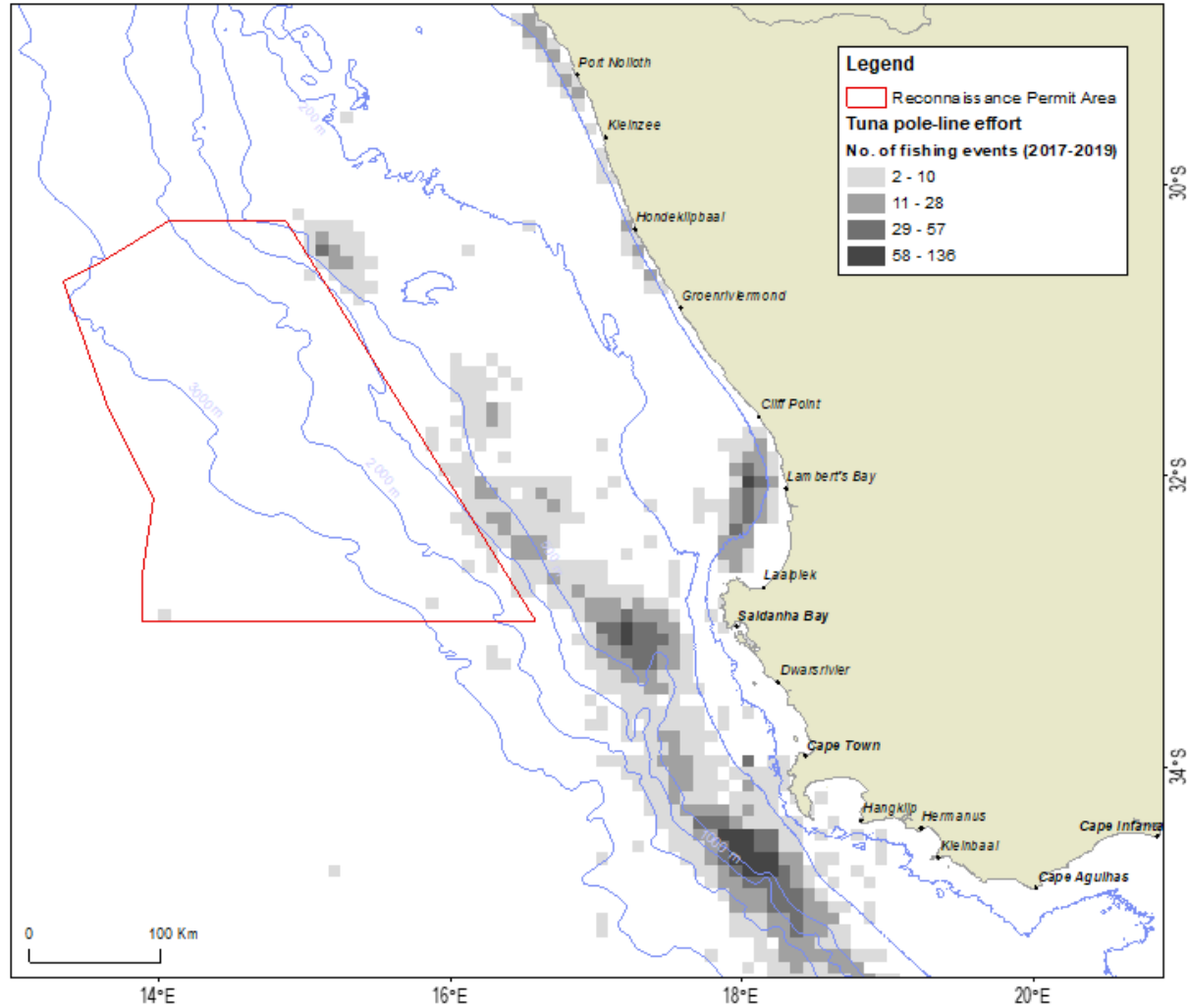
# Fisheries – Tuna Longline



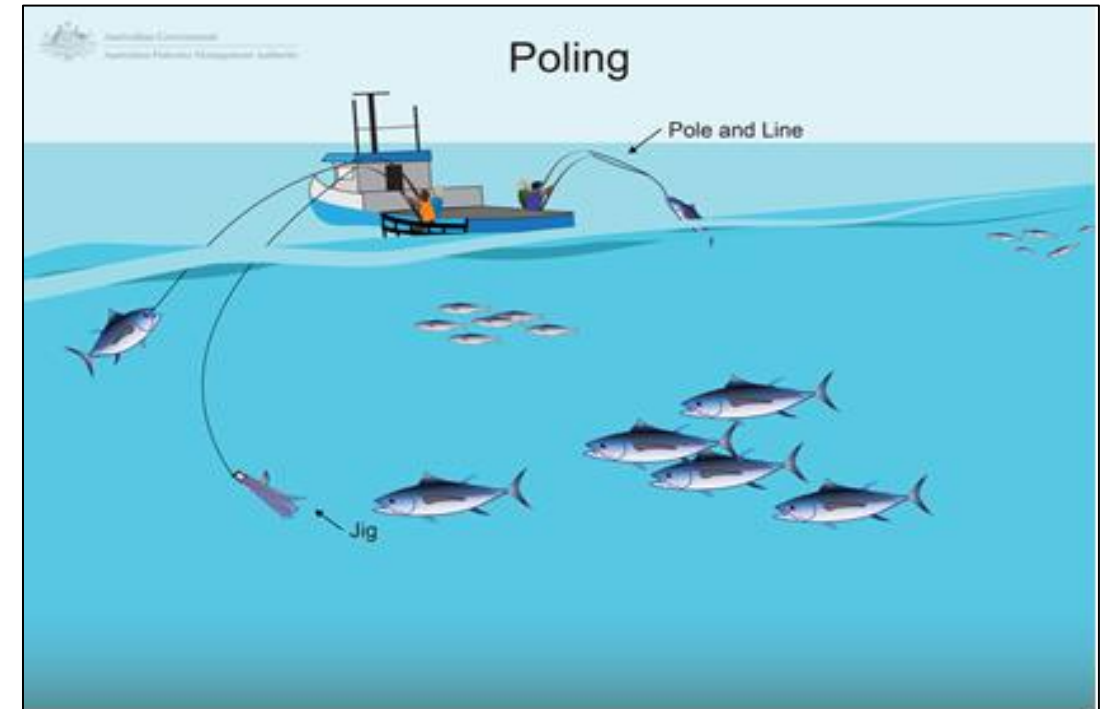
- Targeted species: albacore, bigeye tuna, yellowfin tuna and swordfish.
- The impact of increased noise generated during the survey could affect any fishing sector that operates within 3.5 km of the proposed seismic survey area
- Mitigation: Avoid operating during June and July, in order to avoid periods of peak fishing effort by the large pelagic longline sector.



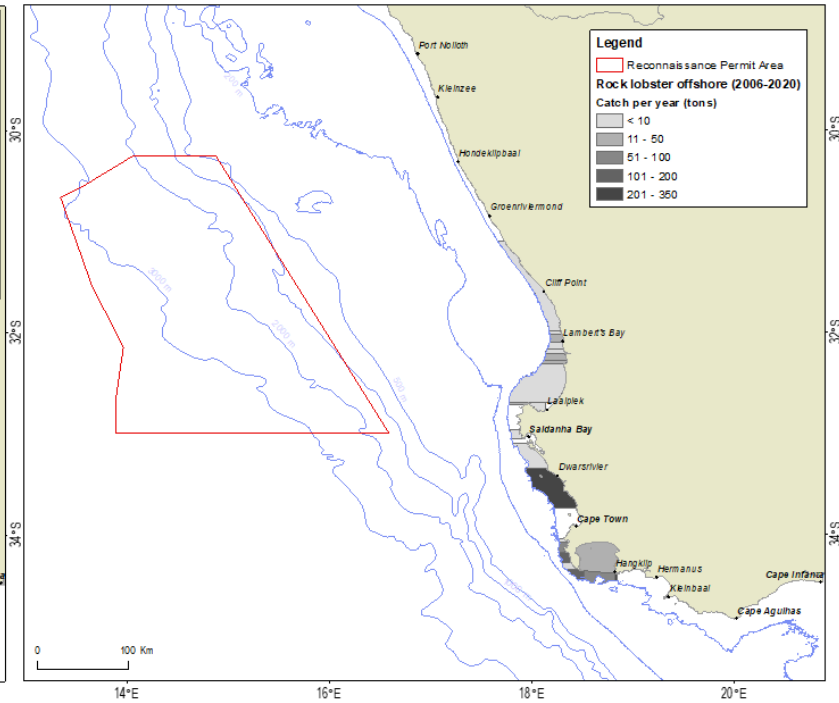
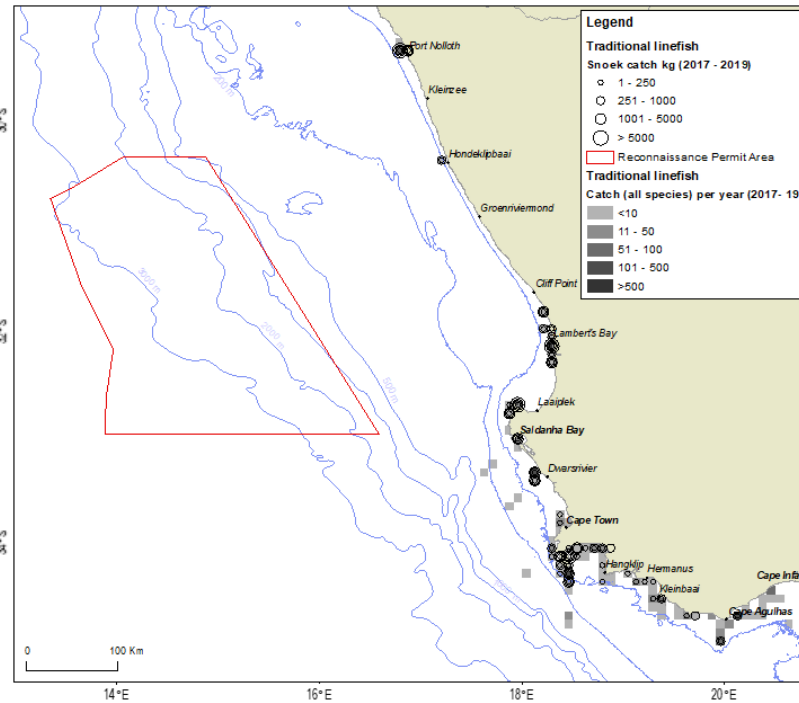
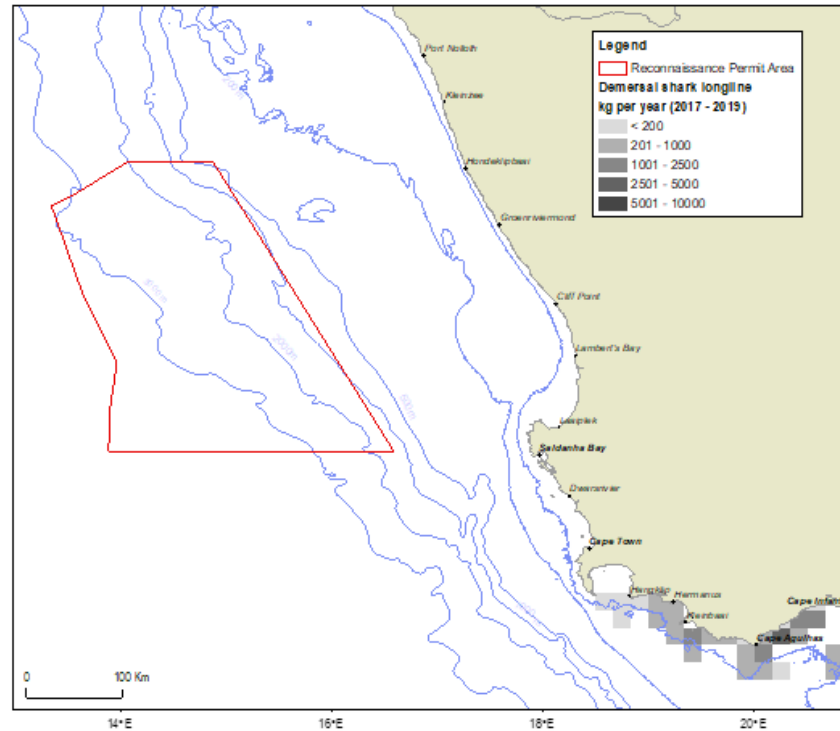
# Fisheries – Tuna Pole



- Target species: albacore (Nov to May), snoek (March to July)
- No impact on tuna pole expected due to distance from activity



# Fisheries – Demersal Shark Longline, Traditional Linefish and Rock Lobster



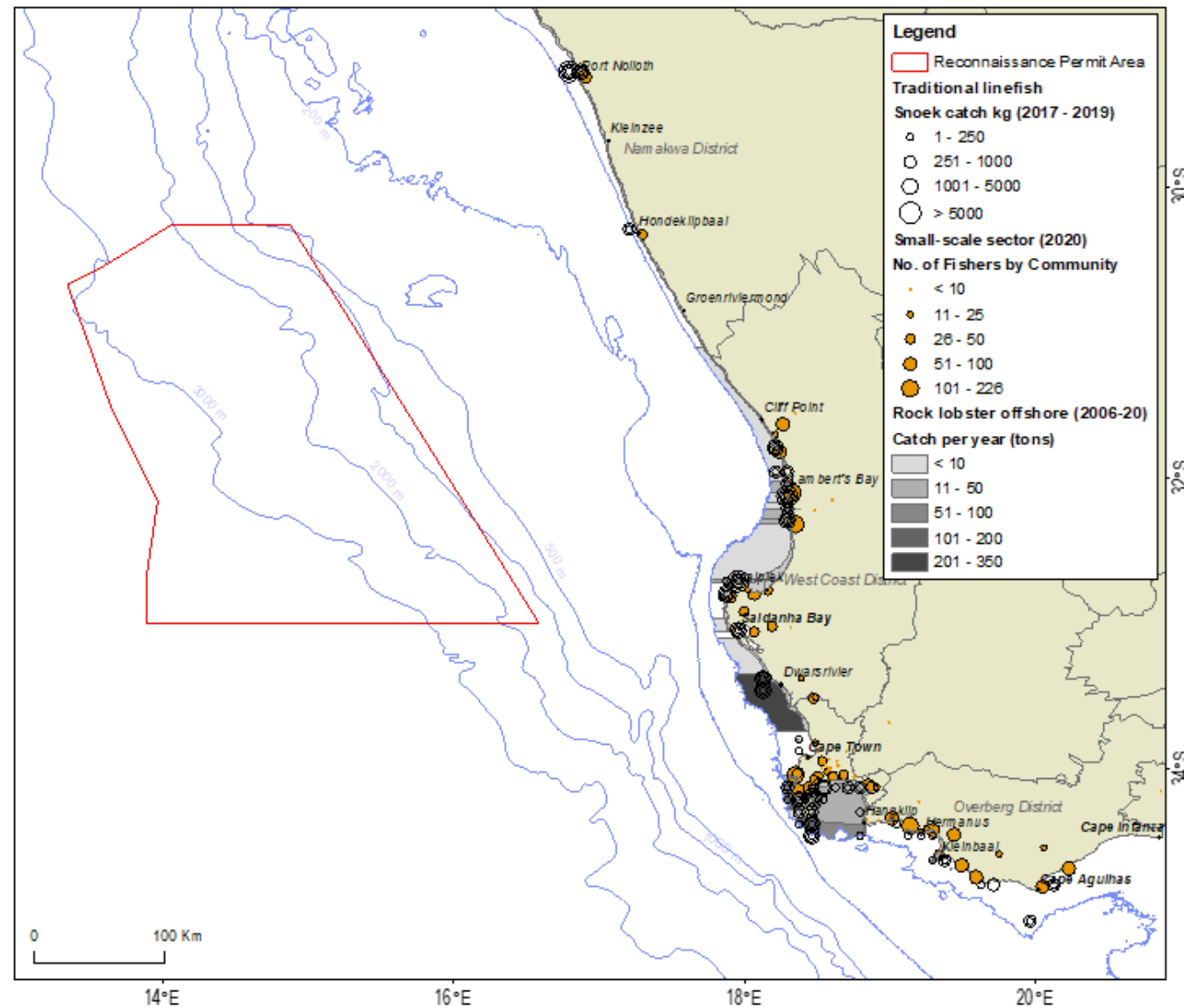
- No impacts expected for demersal shark longline, traditional linefish or west coast rock lobster – far from coastal shallow water





# Fisheries – Small Scale Fishing

- Target species: snoek, cape bream, yellowtail
- No impacts expected for SSF due to distance offshore: Small-scale fishermen along the Northern Cape and Western Cape coastlines are unlikely to range beyond 20 km from the coastline; thus, inshore of the proposed 3D survey area. Snoek-directed fishing effort is coastal, with vessels operating in waters shallower than 100m.
- There are records of fishing for tuna by the linefish sector up to a distance of 55 km off Saldanha Bay and Cape Canyon.



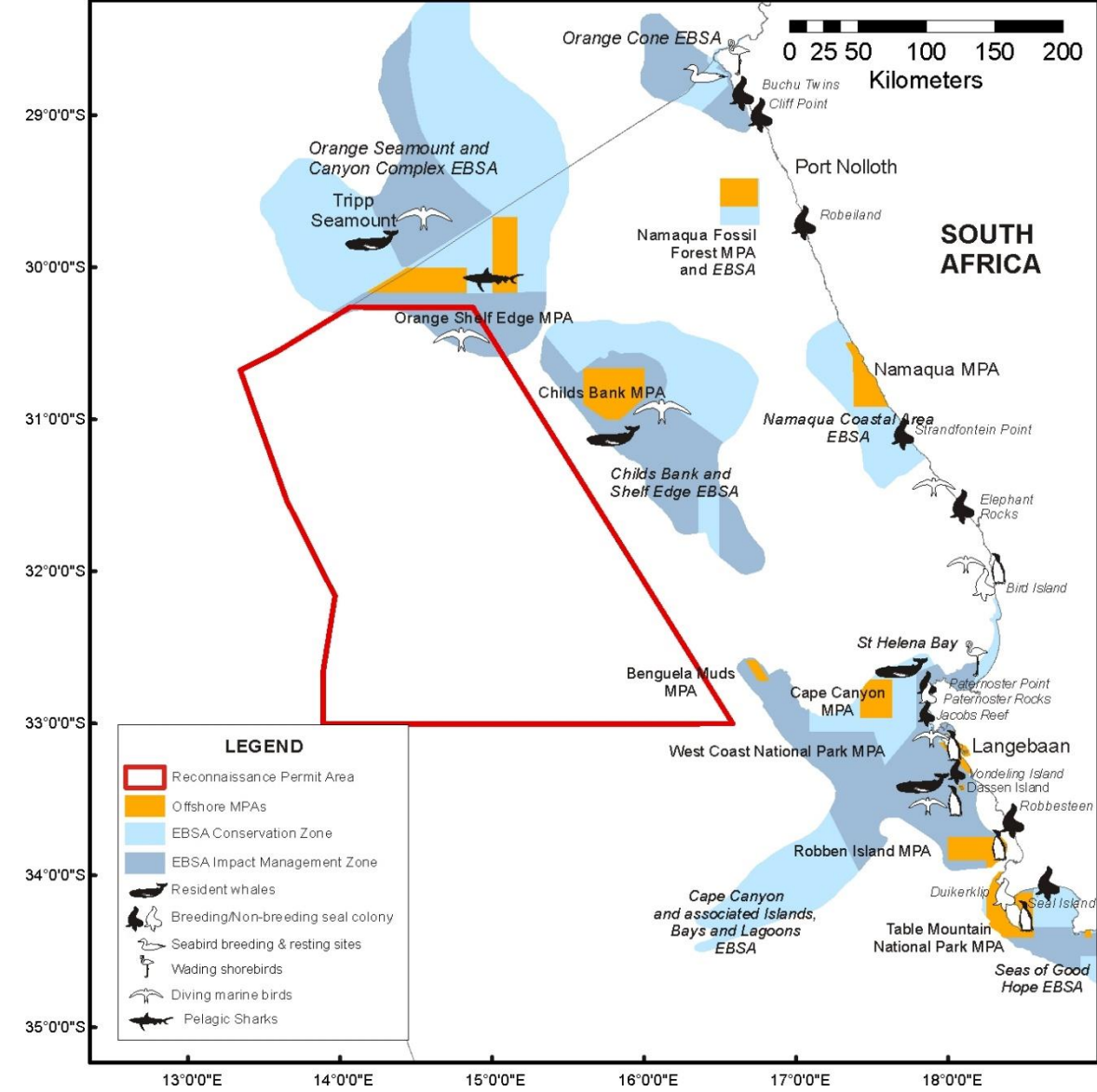
# Social Environment

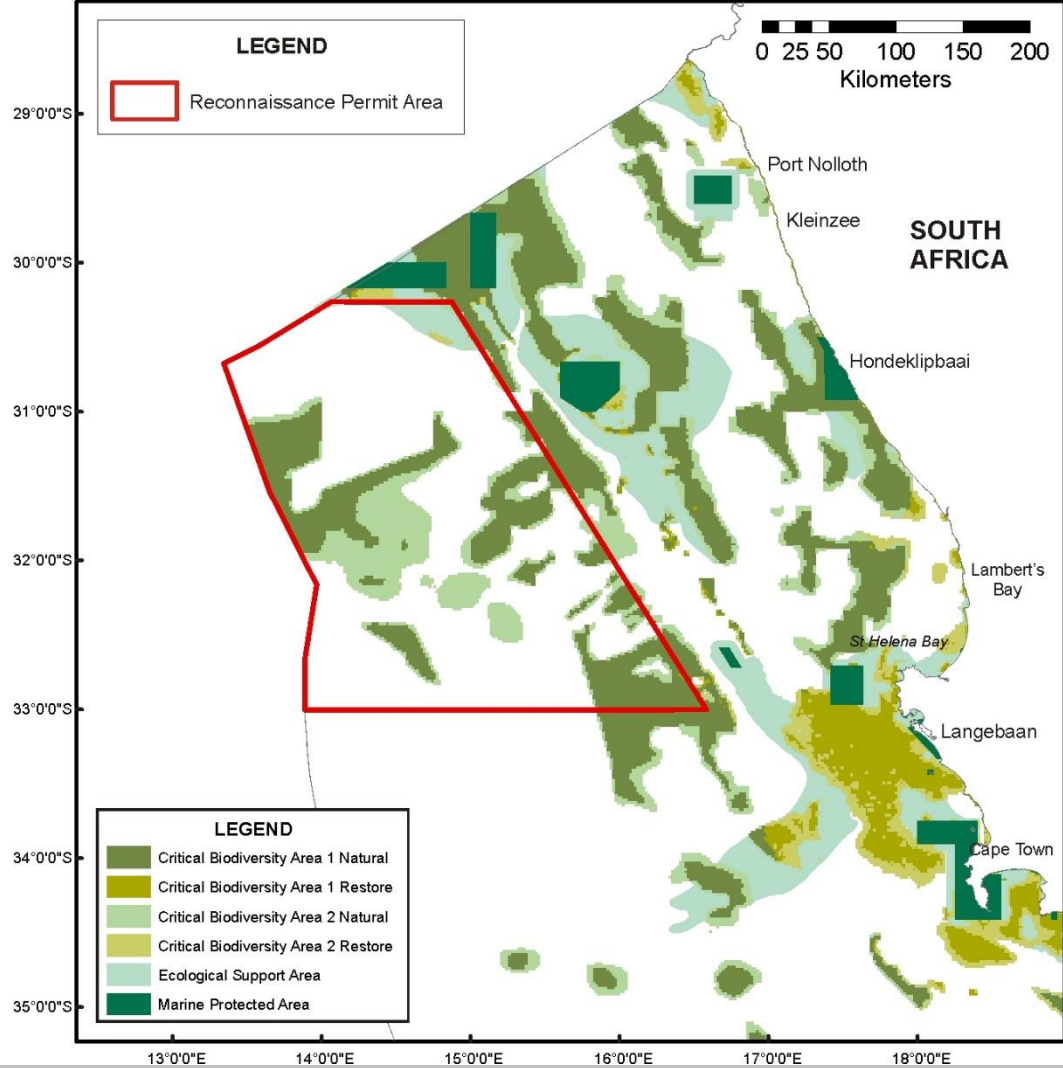
- Small-scale fishers are an integral part of the coastal communities.
- The fishing communities are uncertain about the impact that the seismic survey will have on their livelihoods.
- People's livelihoods are already impacted by external factors such as fishing quotas, climate change, commercial over-fishing, mining in the sea and the recent Covid pandemic.
- During the initial consultation process and as seen in the South African press it was clear that local communities will not welcome seismic surveys.
- Indigenous groups are also integral, specifically the Khoi and San people. Marine-related intangible cultural heritage and people's connection to the ocean has been highlighted.



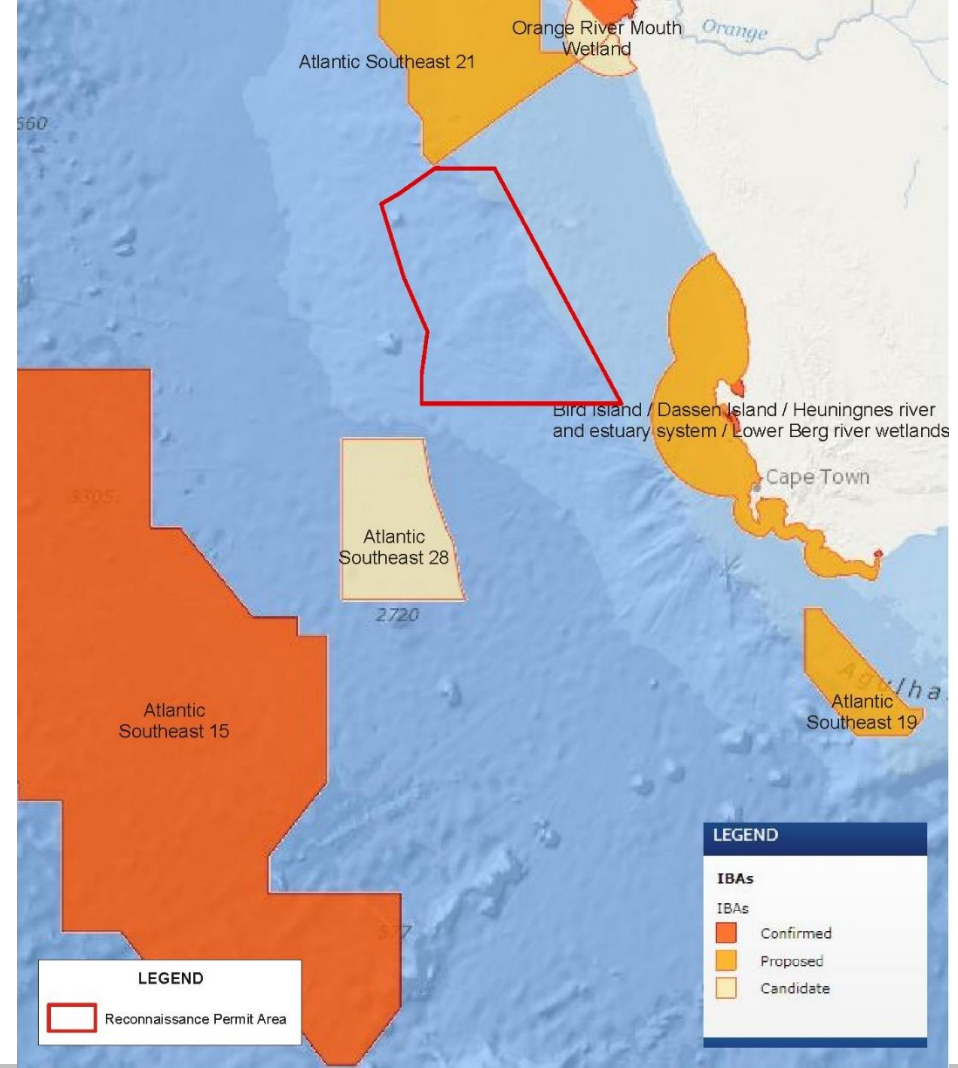
# Protected and Sensitive areas

**Project - environment interaction points on the West Coast, illustrating the location of seabird and seal colonies and resident whale populations, Marine Protected Areas, and Ecologically and Biologically Significant Areas (EBSAs)**





**National Coastal and Marine Critical Biodiversity Areas**



**Coastal and marine IBAs in South Africa and Namibia**



# Need and Desirability

- According to the 2019 IRP the availability of gas in the short to medium term is a risk as South Africa does not currently have gas resources
- Transition fuel
- Other uses for seismic data
- Opportunity to conduct independent research
  
- In making a decision, PASA/ DMRE will need to weigh up:
  - Current national strategic policies and the transition to net carbon zero by 2050
  - Need for a stable electricity supply and economic growth
  - Potential impacts and risks associated with the proposed project



# Identified Impacts

## MARINE ECOLOGY

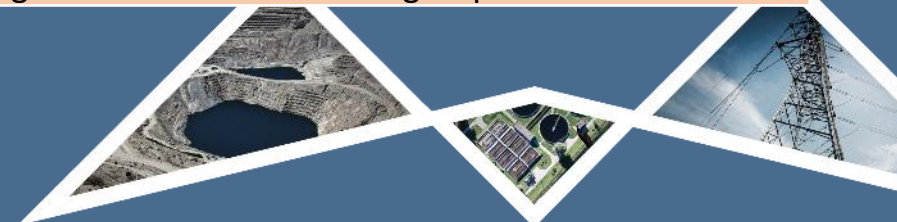
- Impacts of seismic noise on whales and dolphins
- Impacts of seismic noise on seals
- Impacts of seismic noise on turtles
- Impacts of seismic noise on diving seabirds
- Impacts of seismic noise to pelagic and demersal fish including impact on fish spawning and nursery areas
- Impacts of seismic noise to marine invertebrates
- Impacts of seismic noise to plankton and ichthyoplankton
- Disturbance and behavioural changes in seabirds, seals, turtles and cetaceans due to vessel noise
- Disturbance and behavioural changes in seabirds, seals, turtles and cetaceans due to noise of support aircraft
- Disturbance and behavioural changes in marine fauna due to vessel lighting
- Impacts to marine biodiversity through the introduction of non-native species in ballast water and on ship hulls
- Impacts of normal vessel discharges on marine fauna
- Impacts on turtles and cetaceans due to ship strikes, collision and entanglement with towed equipment
- Impacts on benthic and pelagic fauna due to accidental loss of equipment to the seabed or the water column
- Impacts of an operational spill or collision on marine fauna

## FISHERIES

- Impacts of exclusion from fishing ground on the large pelagic longline sector due to the safety zone around the survey vessel
- Impact of exclusion of the Tuna Pole-Line Sector from access to fishing grounds
- Impacts of increased ambient sound on the large pelagic longline sector
- Impact of underwater sound on the Tuna pole line sector
- Impacts of an operational spill on the large pelagic longline sector
- Impacts on pelagic longline sector of accidental loss of equipment to the water column

## HERITAGE AND SOCIAL

- Impacts on Cultural Heritage
- Perceived Impacts on livelihoods
- Impacts on sense and spirit of place
- Impacts on social licence to operate
- Community expectations
- Social unrest
- Uncertainty
- Concerns about cumulative impacts
- Further marginalization of vulnerable groups



# Key Mitigation Measures – Marine Ecology

- Plan seismic surveys to avoid sensitive areas and periods for some marine fauna (June – November considered no-go).
- Commencement of seismic acquisition in a new area must be undertaken during daylight hours as far as possible.
- Prohibit seismic source use outside of the area of operation.
- Although a seismic vessel and its gear may pass through a declared Marine Protected Area, seismic sources must not be operational during this transit.
- A 5 km buffer zone where no seismic source operation is permitted is recommended around all MPAs.



# Key Mitigation Measures – Marine Ecology

- Ensure the seismic vessel is fitted with PAM technology.
- Implement the use of PAM 24-hr a day when the seismic source is in operation.
- Define and enforce the use of the lowest practicable seismic source volume for production, and design arrays to maximise downward propagation, minimise horizontal propagation and minimise high frequencies in seismic source pulses.
- Ensure that ‘turtle-friendly’ tail buoys are used.
- Ensure that solid streamers rather than fluid-filled streamers are used.





# Key Mitigation Measures – Marine Ecology

- Continuous daylight observations for marine fauna by 2 qualified Marine Mammal Observers (MMOs) on board the seismic vessel.
- 24-hour acoustic monitoring for marine fauna by 2 qualified Passive Acoustic Monitoring (PAM) Operators on board the seismic vessel.
- Implement a dedicated MMO and PAM pre- acquisition watch of at least 60 minutes.
- Implement a “soft-start” procedure of a minimum of 20 minutes’ duration on initiation of the seismic source.
- Temporary shut down of seismic source if whales or dolphins are detected acoustically (by PAM operators) or sighted within a distance of 500 m of the seismic source.
- Seismic source may resume with a "soft-start" procedure once the MMO/PAM Operator confirms that the mitigation zone has been clear of diving seabirds, turtles, whales and dolphins for a period of at least 30 minutes.



# Key Mitigation Measures – Fisheries

- Surveys should be planned to take place between January and May.
- Prior to the commencement of survey activities, affected parties should be informed of the navigational co-ordinates of the proposed survey acquisition area, timing and duration of proposed activities and any implications relating to the safety zone that would be requested, as well as the movements of support vessels related to the project.
- At least three weeks prior to the commencement of survey activities key stakeholders should be consulted and informed of the proposed survey programme (unless otherwise agreed)
- An experienced FLO should be placed on board the seismic or support vessel.



# Key Mitigation Measures – Fisheries

- The lighting on the seismic and support vessels should be managed
- Notify any fishing vessels at a radar range of 12 nm from the seismic vessel via radio regarding the safety requirements around the seismic vessel.
- Implement a grievance mechanism in case of disruption to fishing or navigation
- Request, in writing, the SANHO Hydrographer to broadcast a navigational warning via Navtext and Cape Town radio for the duration of the seismic survey activity.
- Distribute a Notice to Mariners prior to the commencement of the seismic survey operations.



# Key Mitigation Measures - Heritage and Social

- Re-assess post-project the potential effects on the identified communities and their intangible cultural heritage.
- Based on the outcomes, provide resources and support for communities to develop and undertake safeguarding measures or plans to enhance the mitigation capacity of their intangible cultural heritage by fostering dialogue, mutual understanding and reconciliation between and within communities.
- TGS should develop a community engagement protocol that is based on the San Code of Research Ethics. This should be done in consultation with the affected communities. This should include a communication strategy and grievance mechanism.



# Key Mitigation Measures - Heritage and Social

- TGS should contribute to assisting with collaboration on independent research on how fish species on the West Coast such as snoek respond to seismic surveying.
- A representative from TGS should consult with the traditional leadership of the affected communities to establish what their understanding of meaningful consultation is and how communities should be consulted in future.
- The industry should conduct a strategic environmental assessment of the impact of the industry and embark on an awareness raising and education campaigns.



# Key Mitigation Measures - Acoustics

- Baseline noise measurements can provide useful information (prior to operations) when interpreting underwater noise predictions for the introduction of a new noise source.
- As such, it is recommended that underwater noise measurements be implemented that would include the deployment of underwater sound monitoring equipment to establish an actual baseline prior to the commencement of the survey and then operational levels of noise during the survey.



# BA Report Review

A hard copy of the report can be viewed at:

The Hout Bay Public Library (Melkhout Crescent, Hout Bay, Cape Town, Western Cape)

The Sea Point Public Library (Civic Centre, Cnr Three Anchor Bay and Main roads, Sea Point, Cape Town, Western Cape)

The Vredenburg Public Library (2 Academy Street,(close to West Coast College), Vredenburg, West Coast, Western Cape)

The Lamberts Bay Public Library (Church Street, Lamberts Bay, Western Cape)

Kamiesburg Local Municipality in Hondeklip Bay (Wag Way street)

A. J Bekeur Library (Robson St, Port Nolloth, Richtersveld, Northern Cape)

An electronic soft copy:

An electronic copy of the report can be downloaded from the EIMS website:  
<https://www.eims.co.za/public-participation/>

When:

Comments to be submitted until 25 November 2022



# Way Forward





# Questions

- **Environmental Impact Management Services (Pty) Ltd (EIMS)**

- Contact Person: Andisiwe Xuma
- P.O. Box 2083 Pinegowrie 2123
- Phone: 011 789 7170
- Fax: 086 571 9047
- E-mail: [tgs@eims.co.za](mailto:tgs@eims.co.za)
- Reference: 1520

