



SIOFA | APSOI

Southern Indian Ocean Fisheries Agreement
Accord relatif aux Pêches dans le Sud de l'Océan Indien

The Union of Comoros

New and Exploratory Fishery (Hapuka)

Objectives

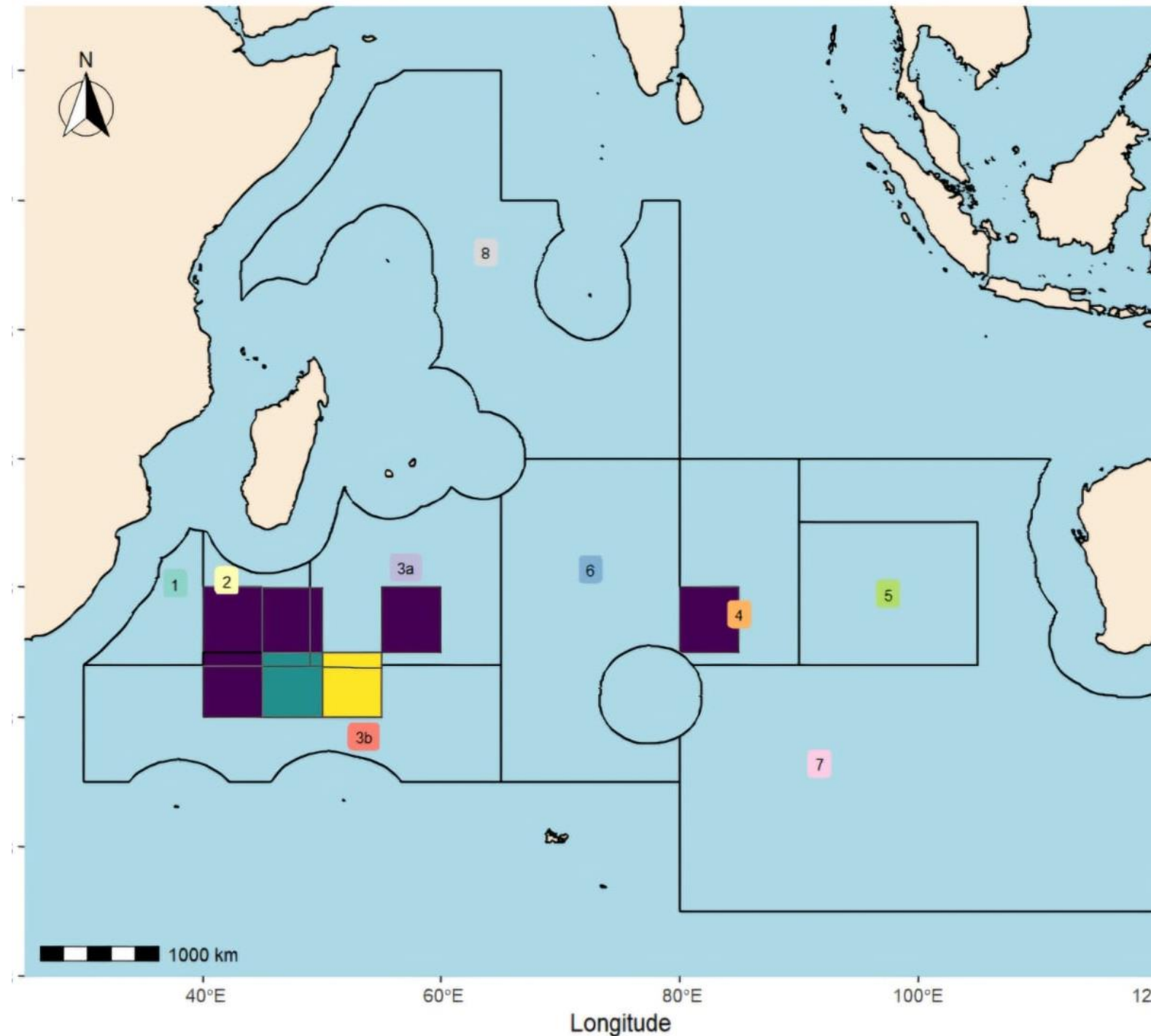
- The objective of the FOP (responsive to CMM 17) is to test the fishery potential of *Polyprion* spp, *P. oxygeneios* and *P. americanus*, to collect and provide the scientific data for evaluating the sustainable exploitation of the population(s) found on the fishing areas within the SIOFA convention area.
- This FOP will collect fishery data to:
 1. Determine the geographical range of the target species within the South Indian Ridge including the depth of catch, vertical stock distribution and relative stock density.
 2. Evaluate the biology of the target species including review of age and size composition, size-at-maturity and spawning season information, evaluation of DNA information to assess stock distribution, connectivity and possibly stock size and other relevant biological information to better understand these species.
 3. Assess the species and size composition of any bycatch.
 4. Document any potential Vulnerable Marine Ecosystems (VMEs) in the research zone, plot their locations and evaluate VME density.

It is expected that 6 trips will be made annually, each lasting for approximately 45 days. The proposed total allowable catch (TAC) for hapuka is 500 tons with a Total Allowable Effort of the proposed vessel fishing for 270 days per calendar year and a maximum of 14 days fishing per seamount per trip. The vessel will be equipped with no more than 10 droplines for this type of fishery. It is also worth mentioning the Union of Comoros is committed to respect measures recommended by the SC 10 in relation to the Benthic Protected Areas (BPAs) closed for bottom fishing.



Areas of Interests/ Target and Non-Target Species:

- The geographic area for this FOP fishery is targeting the western portion of the SIOFA area, mainly ridges and sea mountains in subareas 2, 3a, and 3b and to a much lesser extent in the eastern side, in subareas 4.
- The primary target species *Polyprion spp.*, *P. oxygeneios* and *P. americanus* are generally found in association with rocky substrates in depths of 200-800 meters.
- Non-Target Species (Bycatch) might include Elasmobranch species which will be released back to Ocean
- Some teleosts will be retained



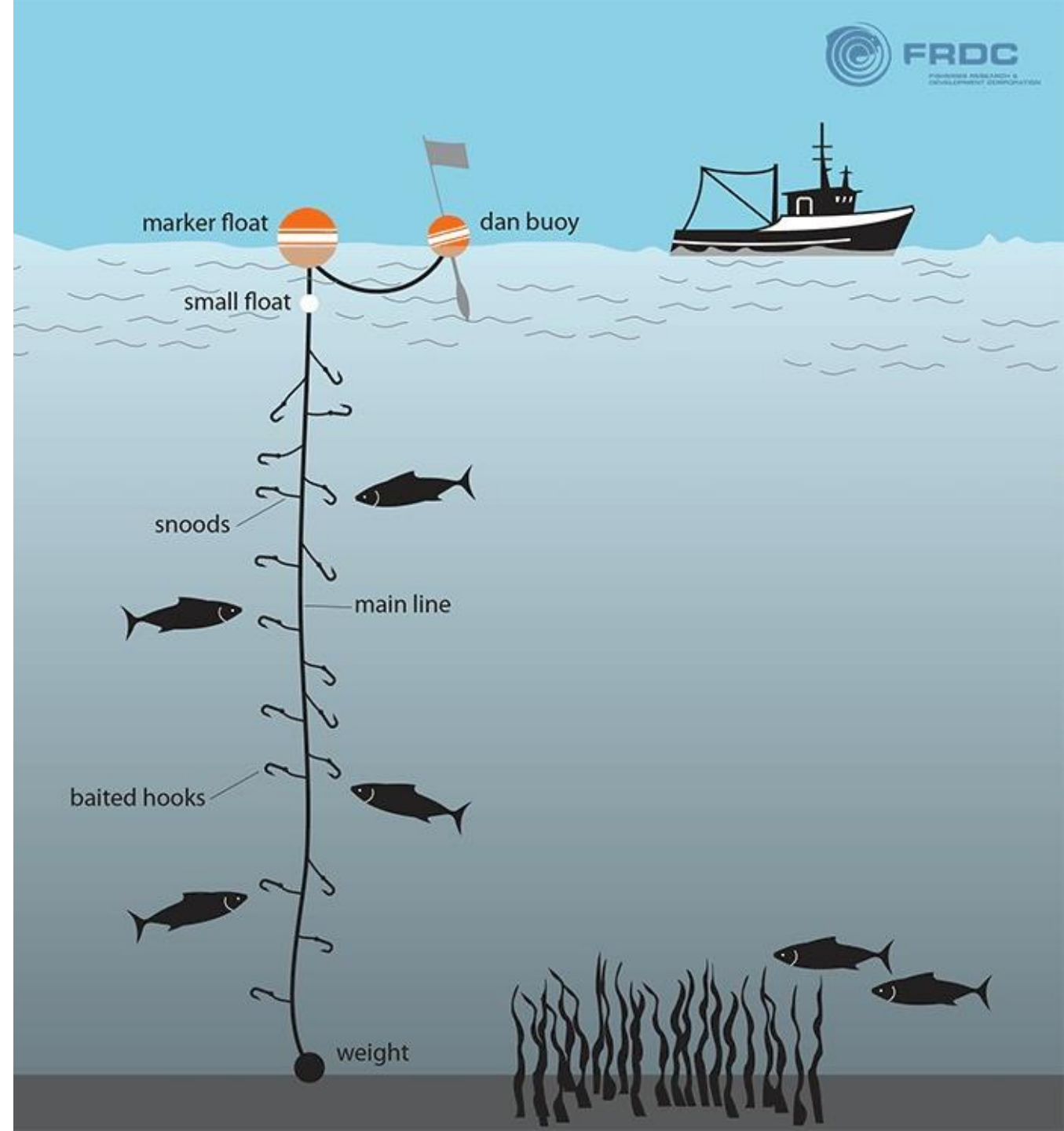
Operational Details

- The Union of Comoros intends to only allow the use of dropline fishing method. The approach should have minimal adverse impact on the benthic environment. It is anticipated that at least 80% of the teleost species harvested will be *Polyprion spp*, *P. oxygeneios* and *P. americanus*.
- Dropline is a considered to be very selective and have very low impact on the marine benthic ecosystem. All elasmobranchs will be required to be released immediately after they are hauled to the surface.
- The recording of lost gear is a priority for the Union of Comoros as it is an indicator of the vessel's imprint in the SIOFA Convention area. If any gear is lost, the Comorian flagged vessel will report the event in the daily logs during the fishing activities. The Union of Comoros believes that its choice of fishing gear and prior knowledge of the area and the experience of the crew should result in a minimal gear loss.
- Seabird interactions will be monitored by the observers. Deployment of the lines will be done at port and starboard of the vessel, the weight of the sinkers result in rapid sinking of the gear until the hooked lines are fully submerged with line tension applied at depth. This would minimize the potential impact with birds, and other fisheries of this type, tend to have low interaction rates with seabirds, mammals, and marine reptiles. Hooks with lures are being used further reducing the attractiveness to seabirds and marine turtles.
- Dropline lines hang vertically in the water and their sink rates are high resulting in low potential for interactions. The vessel will be prepared for interactions with seabirds, marine reptiles, and mammals during operations. It would be one of the observer's designated tasks to record any interactions, take pictures of the encountered species and decide whether lines may be hauled and/or set in that location. If more than one marine mammal or turtle encounter the vessel or gear and suffered any potential injury or harassment during a fishing day, the fishing operation would move to the next prescribed station outside a circle with a 5 nautical mile radius from the location of the encounter or move to the next scheduled seamount.
- The catch of the target and bycatch species will be weighed, and observers will undertake the required sampling. Cameras will be installed on the port and starboard side of the vessel to monitor the fishing activities. All bycatches will be sampled along with the target species and all elasmobranchs will be released as quickly as possible after being identified and length measured by the observers if possible.
- Discharging of waste will only take place at the end of a haul or while steaming and no biological material will be discarded for at least 30 minutes before the start of any set. Biological sampling will be undertaken by one or two Observers.
- The hapuka fishery is intended to take place on the same trips as the Union of Comoros trap fishery for lobster.



Fishing Gear Description

- Droplines use a main line with an anchor at one end and a float at the other. The weight of the anchor at the bottom of the dropline is 40 kgs. Each hook is individually connected to a short 30-50 cm monofilament or cord 'snood' which is then clipped to the mainline. Droplines can also use a branch line which joins onto the mainline near the bottom. When using this type of line, individual snoods are attached to the branch line instead of the mainline.
- The number of hooks on each line varies between operations from 20 to over 100. Droplines are normally left to 'soak' for around an hour before being hauled. The downline is hauled using hydraulic winches fixed to the deck of the boat. The number of lines a vessel sets each day depends on the vessel size and number of crew on board. It is envisaged that no more than 10 lines per day will be set. The depth which droplines are set varies depending on the target species but generally ranges from 250 to 1,000m, but it is not envisaged that the gear will be deployed below 850m.
- Droplines are very versatile and can also be set in shallower or deeper water by simply adding and removing additional rope to the downline.
- Dropline fishing causes very little damage to the sea floor and generally has limited level of bycatch. Like fishing with a rod and reel, fish are brought to the surface slowly and are often alive when they reach the boat, which greatly increases the likelihood of survivability for non-target species returned to the water.
- It is proposed to use up to 10 lines in the water at the same time, with each line containing maximum 100 hooks and fishing between 150 and 750m with a maximum depth of 1,000 meters.



Monitoring of the Vessel Includes

- The vessel and its operators will report to Comoros all vessel activities in the Management Areas to Comorian legal specifications and requirements. This will include, but is not limited to:
 - Notification of: Entry and Exit from SIOFA waters.
 - Adequate prior notice when planning a trip into the SIOFA Convention area.
 - Adequate prior notice of date and port of arrival after a trip in the SIOFA Convention area.
 - While at sea the vessel must report its location and current activity to Comoros through VMS.
 - While at sea, the Master will be responsible for the day-to-day operations of the vessel and ensuring compliance in accordance with Comorian law and SIOFA CMMs.
 - Vessel Monitoring System: the vessel must have on board a VMS system approved by the Union of Comoros.
- It is proposed that this fishery will be undertaken over three years 2025-2027 inclusive, with annual reporting and amendments following the advice of the SC and Commission.
- The Union of Comoros anticipates submitting annual Fisheries Operations Plans throughout this endeavor to the SIOFA SC at their annual meetings as well as an analysis of the previous year's catch and effort and report back on the results of biological data analysis.
- The Union of Comoros endeavors to undertake a VME and benthic footprint analysis of this fishery.



Observer Coverage



CapMarine

Capricorn Marine Environmental

- Biological sampling will be undertaken by two Observers, appointed by the Union of Comoros. Observer data collection includes:
 - Sampling and recording of catch (all species landed) on each line.
 - The catch of each species will be weighed. All lines will be sampled, measured, and recorded by the observers.
 - Retained catch will be counted and sampled for individual weight, total and fork length (where applicable).
 - Discards will be identified to a species level and counted.
 - Any fish not able to be identified will be photographed and sample of tissue (from retained species) will be taken for later identification.
- To the extent possible all *Polyprion spp*, *P. oxygeneios* and *P. americanus* will be sampled for length, weight, sex, and maturity. A subsample of fish selected through a random stratified sampling design will have their otoliths removed and retained for age estimation; and the collection of genetic samples will be undertaken.
- Data will be recorded daily and summarized at a trip level. These data will be captured in an access database and forwarded to the Union of Comoros for SIOFA reporting.
- VME bycatch, while is highly unlikely, will be recorded.
- If the total VME bycatch for a fishing day location 1 kg/line those fishing stations would be deleted from future fishing plans using the gear that landed the VME indicator taxa.

Data Collection Method

We believe that data collection can accommodate this dropline fishing operation including tracking and observations of bycatch on lines to record the catch, confirm the existence of VMEs, collect biological data and the collection and reporting of the required data sets necessary to evaluate future biomass assessments and geographical distribution of the target species.

During fishing activities, data will be collected daily in accordance with SIOFA CMMs using two daily logs as follows:

- Daily Effort, catch data and Production Logs will be collected to better understand and evaluate the target trends. The Daily Effort, Catch and Production will capture operational information on a set-by-set basis. Lost gear will also be recorded on a set-by-set basis. These logbooks will be submitted to the Union of Comoros at the end of each trip.
- Daily Environmental Log to Observers will record discards and waste management, SSI abundance and interactions and mitigation measures.

VME Indicator

- The Union of Comoros is very conscious of its obligation regarding any potential VMEs that might be encountered. While dropline fishing is relatively benign, encounters with VME indicator species can't be excluded and observers have been trained to report any indications of VME indicator species, volumes, weights, and frequency of occurrence.
- The f/v Rinascente 9 will be considering seamounts only shallower than 1,000m. The Union of Comoros recognizes that it is also where the majority of potential VMEs might be expected to occur. The observer(s) on board the flagged vessel will register and map out the interactions with VMEs. It is imperative that the observer(s) work closely with the vessel skipper to track dropline setting and hauling using the on-board sea bottom tracking technology.
- The Union of Comoros considers that the impact of this exploratory program will have minimal impact on the sea floor, as the likely total bottom contact on these areas will be sight, <1% of the total assessed target area and involves only the sinker/weight. However, the Union of Comoros will continue to take a precautionary approach where:
 - Restricting in relation to dropline the number of lines set at a time to 10 with maximum 100 hooks per line and, as far as possible keep line sets on low profile ground where the likelihood of encountering a VME e.g. coral outcrop, is reduced;
 - Where potential VME indicator species are encountered, the flagged vessel will follow the Union of Comoros VME protocol including collecting images, as well as requiring the vessel to leave the area and "move-on" in accordance with the relevant CMMs
 - If significant quantities of VME indicator taxa are found attached to the line (more than 1 kg/line), then the vessel will move on to the next fishing site. In the event VME areas are identified, the coordinates are recorded, and these areas will be removed from the fishable stations database.
 - The Union of Comoros is committed to respect measures recommended by the SC 10 in relation to the Benthic Protected Areas (BPAs) closed for bottom fishing

Risk Assessment

Teleost and cephalopod bycatch

It is estimated that some teleost bycatch will be caught in this gear including any teleosts that are attracted to lures. This may include both pelagic and suprabenthic species. Fish such as king fish (*Carangoides spp.*), snappers (Lutjanidae); *Mora moro*, *Hyperoglyphe antarctica* and terakihi (*Nemadactylus macropterus*) could be caught. It is also possible that some squid could be caught. Given the relatively shallow depths of the gear some of these fish could be released alive. However, until we evaluate the species composition of the first trip the species and their release condition is somewhat speculative.

Elasmobranch bycatch

Some elasmobranch bycatch is to be expected. Any elasmobranch that is attracted to a lure could be caught. Species that have been observed and caught in other gear in the area include broadnose sevengill sharks (NTC, *Notorynchus cepedianus*) and shortnose spurdog (DOP, *Squalus megalops*). However, the gear uses nylon streamers which most large elasmobranchs will bite off and not get caught, any elasmobranchs that are caught will be required to be cut off the line and not brought onboard. As the gear is set relatively shallow and the soak times are relatively short any individuals that are caught can be released and can be expected to survive. Elasmobranchs are required to be released from Comorian vessels.

Sea birds

Offal will be macerated before being dumped. No dumping of offal will be conducted while traps are being set or hauled. Discharging of waste will only take place at the end of a haul or while steaming and no biological material will be discarded for at least 30 minutes before the start of any set. The gear is set close to the vessel making it difficult for birds to access the gear at both set and haul. No bait will be used only lures.

Risk Assessment

- **Marine Mammals and Turtles**
- No marine turtles, dolphins or whales have been observed during the lobster fishery and no marine mammals were sighted. None of these species would be expected to take a lure, but unintended entanglement is a rare possibility.
- Depredation is a possibility from some cetaceans. Depredation events will be recorded by the observers, and these will be included in any reporting back to the Scientific Committee. In the event of persistent depredation, the vessel will remove the gear from the water and move to another seamount.
- Given the rare nature of encounters no physical mitigation is planned, however if pods of , toothed or baleen whales approach the vessel droplines will not be deployed from the water until they have moved out of sight of the vessel.

Risk Assessment

- [VME Impacts from Dropline Fishing](#)
- The main potential impact on VMEs of this operating of likely to come from damage caused by the anchor of the dropline or potential entanglement with branched invertebrates such as corals. Compared to other gear, such as trawl or the relatively low impact trap fishery (Brouwer et al. 2020) the potential impact from this gear is very small.
- Only the first hook on the droplines could have the potential to entangle and break fragile benthic invertebrates. The anchors, while heavy and could cause damage to anything they land on, have a very small footprint and the lines generally lie above the substrate. In order to further reduce the impact, the Union of Comoros is limiting the number of droplines to 10 to be set at a time and has a VME encounter threshold. The VME indicator taxa threshold is 1 kg/ line. If VME indicator taxa are found attached to the line in excess of the threshold, then the vessel will be required to move on to the next fishing site and will record the location as a potential VME area. We will deploy cameras on the droplines to quantify the benthic impact of the anchors.
- The Union of Comoros is committed to respect measures recommended by the SC 10 in relation to the Benthic Protected Areas (BPAs) closed for bottom fishing. Overall, the risk to elasmobranchs, seabirds, marine mammals, marine turtles and VMEs is relatively low when compared to other fishing methods. Some teleost bycatch is likely, but it is likely that that would be retained with few species being released.