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Hapuka Fisheries Operation Plan

The Union of Comoros

Document type	Administrative paper ☐ Working paper ✔ Information paper ☐
Distribution	Public ☐ Restricted [1] ✔ Closed session document [2] ☐

Abstract

The Union of Comoros intends to engage in hapuka fishery in 2025 and decided to submit to the secretariat a Fisheries Operation Plan in accordance with CMM17 (2024).
~~However, we believe that hapuka fishery cannot be considered a new or exploratory type of fishery by a definition because:~~ It is worth mentioning that Hapuka Fishery:

A) ~~It~~ is listed as an established fishery in Annex 1 of CMM 17 (page 7).
B) The fishing activity is planned to be conducted within the SIOFA bottom fishing footprint (subareas 2, 3a, 3b and 4).
C) The Union of Comoros plans to engage in a fishing activity targeting hapuka by using an established method of dropline.
D) That last activity for hapuka fishery in SIOFA was conducted ~~in 2021 (~~less than 10 years ago~~).~~.
~~Therefore, according to SIOFA rules and regulations, we would like this document to be treated as a Bottom Fishing Impact assessment report for hapuka fishery~~ However, hapuka fishery is new for the Union of Comoros.

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[2] Documents available only to members invited to closed sessions.

Recommendations

It is recommended that the SC:

- **Notes** that a Fisheries Operation Plan for Hapuka Fishery has been provided by the Union of Comoros~~. However, according to SIOFA rules and regulations it should be treated as a BFIA.~~ and meets the standards of SIOFA in accordance with CMM 17
- **Notes** that the Union of Comoros is acting according to SIOFA rules and regulations
- **Makes** relevant recommendations to the MoP

CCP	The Union of Comoros
Area	2, 3a, and 3b and 4
Target Species	*Hapuka (Polyprion spp*, *P. oxygeneios* and *P. americanus)*
Proposed Methods of Fishing	Dropline
Proposed Maximum Catch/ Effort Limit	~~3000 tons~~ 500 tons / 270 days per year /14 days on one sea mountain per trip
Expected Period of Operation	2025-2027
Submission date	06/02/2025

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Contents:

1. Introduction

This document is the Fisheries Operation Plan (FOP), including data collection procedures, for a Dropline Fishery for *Polyprion spp*, *P. oxygeneios* and *P. americanus* or Hapuka its common name, to be undertaken as an adjunct to the ongoing Comoros lobster trap fishery. ~~It is worth mentioning that Hapuka fishery is considered as an established fishery by SIOFA (CMM 17 (2024) page 7).~~ This Fisheries Operation Plan recognizes the Commission is mandated to adopt a precautionary approach and an ecosystem-based approach to the management of the fisheries resource within the SIOFA Convention Area. The Union of Comoros recognizes this FOP must be conducted in a manner consistent with all relevant Conservation and Management Measures (CMMs) adopted by the SIOFA.

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.

To ensure the FOP is developed in a precautionary manner, the data collected will be made available to assess any potential impacts on the target species, associated or dependent species, and the marine ecosystem, and to evaluate any mitigating measures.

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 intended that this fishery will take place in association with the existing lobster fishery. The fishery will be conducted off the same vessel as the lobster fishery. Hapuka fishery will be conducted by using an established method of dropline previously used by other CCPs in the area. It is envisioned that combined trips fishing for lobster and *Polyprion spp*, *P. oxygeneios and P. americanus*. (on the same fishing grounds) will be undertaken. ~~There are currently no catch limits for Hapuka in the SIOFA area.~~ 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.

2. Operator Details, Proposed Activities in the Management Areas and Target Species

2.1 Authorized flagged vessel

The operator of the vessel will be Comores Anglers SARL incorporated under the laws of the Union of Comoros and based in Moroni. The current vessel details are provided below:

Vessel name	Rinascente 9
Registration Number	1600050
Vessel length:	45.70 meters
Breadth	8.50 meters
Depth	3.65 meters
Gross tonnage	498 tons

Port of registry	Moroni, Union of Comoros
Vessel owner/operator	Ebi Fishing Co., Ltd / Comores Anglers SARL
IMO Number	8947412
Radio Call Sign	D6HD3
Vessel Type	Fishing Vessel
Fishing Gear Type	a) Traps/Pots for lobster fishery b) Dropline for hapuka fishery
Power of Main Engine	870 KW
Material of Hull	Steel
Year Build	1998
Main Engine Maker	Hanshin Iron Works Co., Ltd.
Fishhold capacity	503,5 m3
Model of Engine	LH26RR
Place of build	Fong Kuo Shipbuilding, Taiwan
Equipment Used for Determining Position	VMS ; AIS

Table 1: Details of the vessel

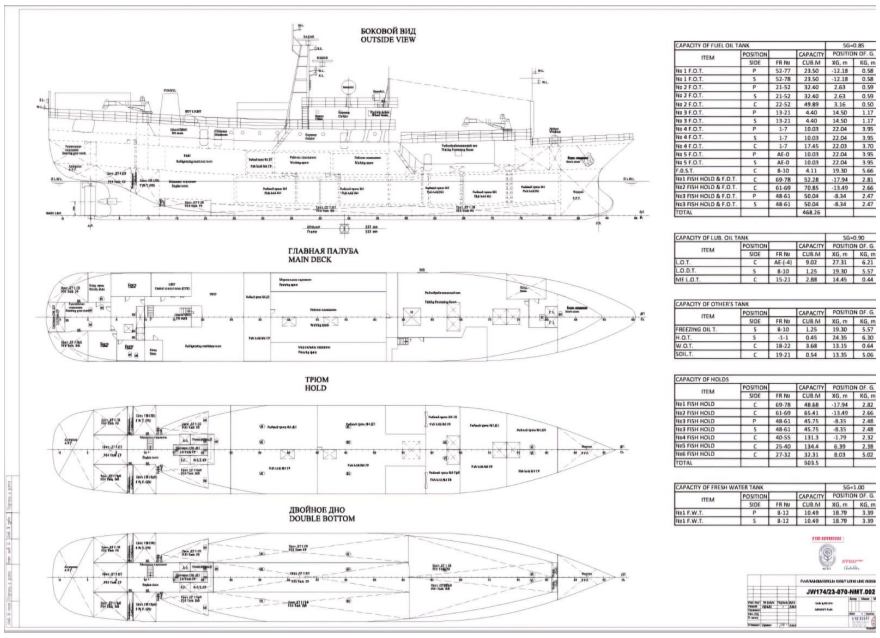

Figure 2: Capacity Plan of the f/v Rinascente

Figure 3: Right side view of the vessel

Figure 4: Name of the vessel and port of registry

Figure 5: Left side view of the vessel

Currently it is the only vessel under the flag of the Union of Comoros, operating in the international waters of the Indian Ocean.

2.2 Scientific Personnel

The scientific advisers for the Union of Comoros, has substantial experience in fisheries science and biology and works in several other regional fisheries management organizations (RFMOs) such as SPRFMO and CCAMLR.

2.3 Official Flag CCP Contact:

The primary contact for all flag state matters and official SIOFA correspondence:

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2.4 Licensing

The Ministry of Agriculture, Fisheries and Crafts of the Union of Comoros has the authority to issue fishing licenses and high seas permit, which, inter alia, enables the authorization of Comorian flagged fishing vessels to fish. Authorised vessels are required to comply with all Comorian laws and the regulations, and all SIOFA Conservation and Management Measures adopted by the Commission. The Union of Comoros have considerable powers to control, and regulate fishing activities, including the application of sanctions against a fishing company, master, crew, and the vessel if the SIOFA requirements of this FOP are not met.

2.5 Area of Interest

According to the historic number of fishing events conducted by Australia, China, the EU (Spain) and the Republic of Korea who were participating in hapuka fishery between 2000 and 2021 (SIOFA Fisheries Summary: hapuka (*Polyprion spp*,) hapuku wreckfish (*P. oxygeneios*), wreckfish (*P. americanus*) 2024, page 7) 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 extend in the eastern side, in subareas 4 (Figure 6)

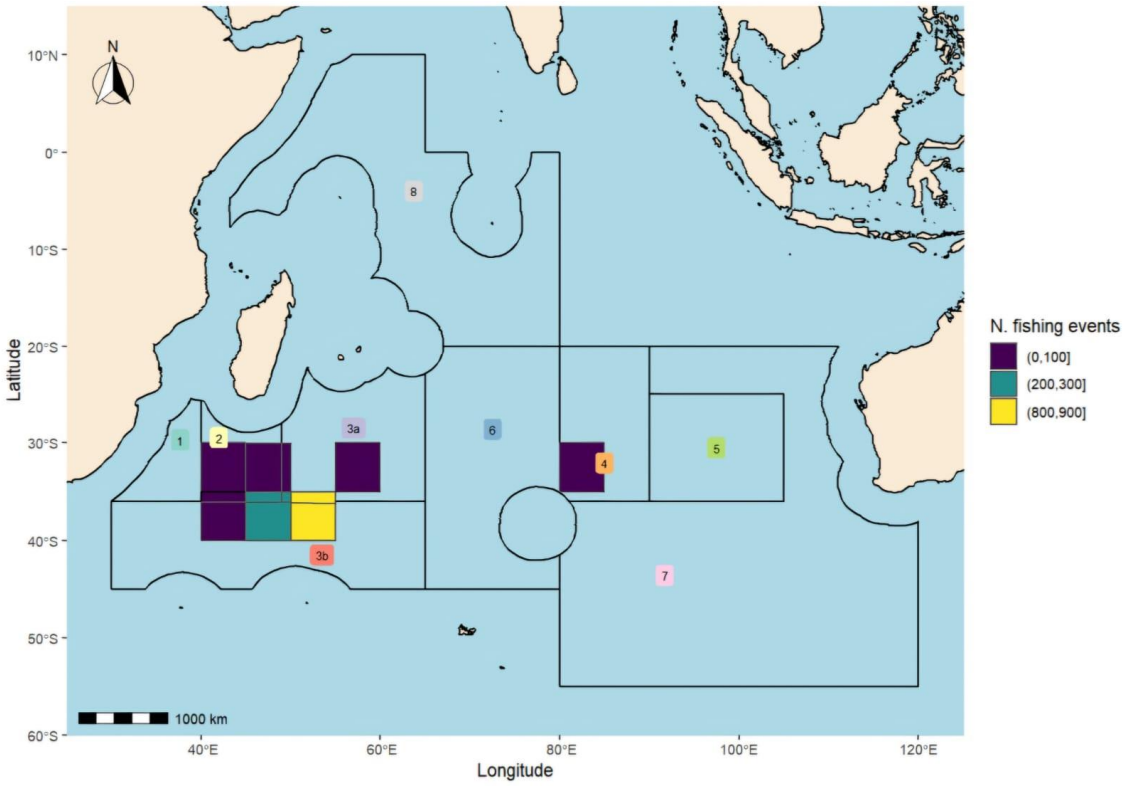


Figure 6: Area of interest

2.6 Target Species

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. In contrast juveniles are found in surface waters and are thought to be pelagic, perhaps schooling in association with drifting weed, and switching to a demersal habit when they are around 50 cm long. (Beentjes and Francis 1999, Wakefield et al. 2010). Hapuka rea sexual maturity at roughly 10-13 years age and 88 cm length, and can live to 60 years. They have an average adult length of 80-100 cm and 25 kg, but can grow up to 180 cm in length and 100 kg of weight (Wakefield et al. 2010). Hapuka are voracious generalist predators, feeding on a wide range of fish species including barracouta, pilchards and various demersal fish species, as well as invertebrates and crustaceans. Hapuka are in turn preyed upon sperm whales (Froes and Pauly 2022).

2.7 Non-Target Species.

It is anticipated that any species that prey on a lure will be susceptible to this gear. While this will exclude species of special interest such as marine turtles it will include other teleost and elasmobranch species. All elasmobranchs will be released, and some teleosts will be retained. Historic line fishing in the area suggests a relatively low bycatch rate.

3. Methods

3.1 The Marine Environment.

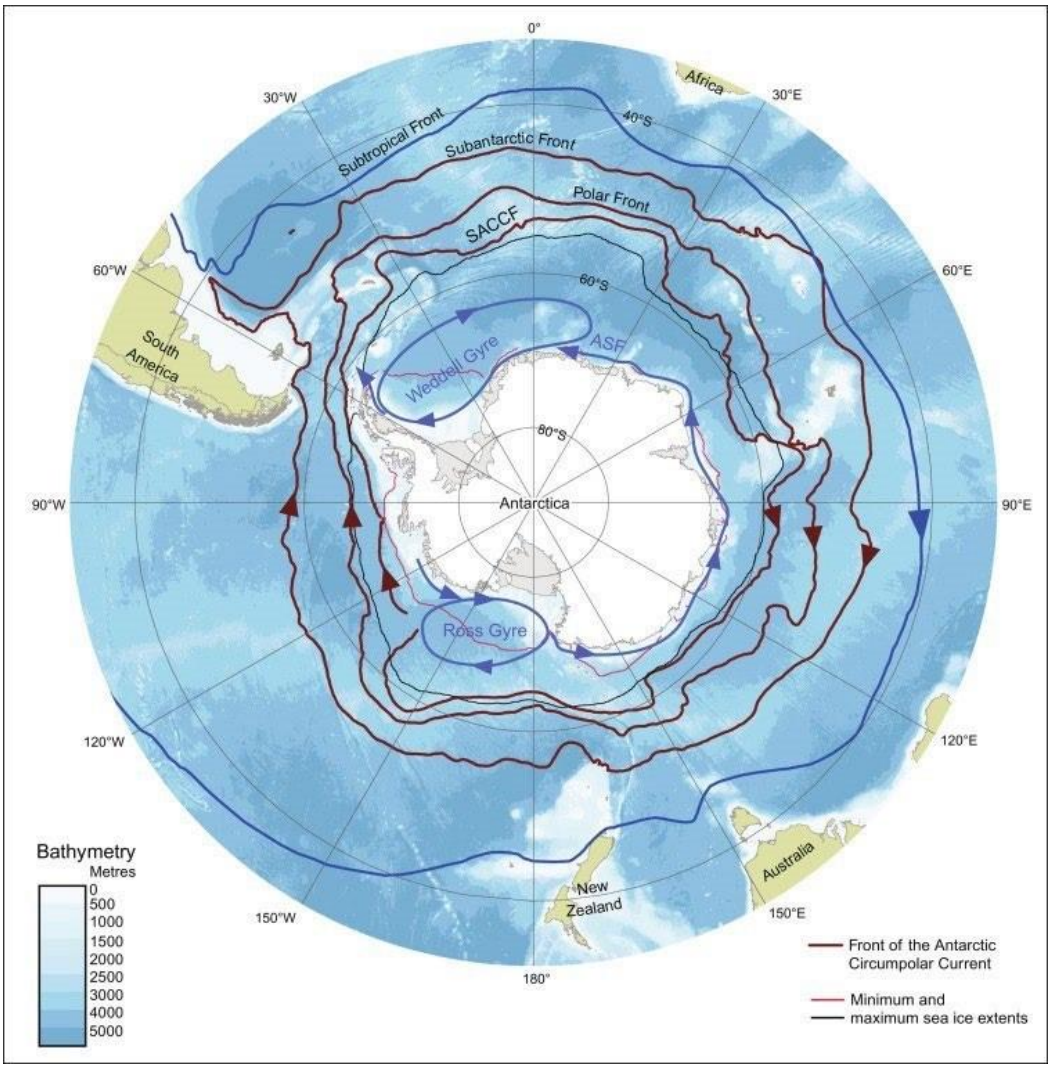


Figure 7: Map of currents: Sheppard, 2018

The Southwest Indian Ridge, due to its location, length and East/West orientation is subject to upwelling of nutrient-rich water from the Antarctic circumpolar current, driving the cold nutrient-rich waters north where a mixing of the Easterly sub-tropical current takes place. This flow travels largely parallel to and across the ridges and seamounts in the Seamount Chain, mixing the sub-tropical waters with the cold sub-Antarctic waters. The mixing extends from the sea surface to depths of 2000-4000 m and can be as wide as 400 km.

The cold flow is intensified by upwelling of deep water caused by the combined effects of the drag of surface winds of the Southeast Trades and the Earth's rotation. The upwelling brings abundant nutrients close to the surface, where the eddies are believed to be sufficiently strong to reverse the direction of the surface currents in this area where shallow undercurrents exist, that flow in a direction counter to that at the surface. These along with the shallow depth of the seamounts create accessible habitats for target species and densities high enough for potential commercial exploitation.

3.2 Operational Details.

The Union of Comoros will deploy an established method of dropline gear targeting *Polyprion spp, P. oxygeneios and P. americanus* in the vicinity of deepwater seamounts to a depth of 1,000 meters. 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[1] 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.

Lines will be set and hauled using the droplines which will use the same winch as that used during the potting fishery. 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.

The fish will be filleted and frozen on board and offal will be macerated before being dumped. No dumping of offal will be conducted while lines 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. Biological sampling will be undertaken by one or two Observers. Observers follow the specification of the Scientific Sampling Plan detailed in Appendix B.

To ensure the FOP is developed and implemented in a precautionary and gradual basis according to the best available science, the following data will be collected:

[1] Time depth recorders will be deployed to measure the sink rate of the droplines and the sink rates will be reported back to the SC.

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, sizeat-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 VMEs in the research zone, plot their locations and evaluate VME density.

Based on the historical fishing data received from Soviet scientists and Australian fishermen who used to operate in the area, the f/v Rinascente 9 is targeting ridges and seamounts in SIOFA subareas: 2, 3a, 3b, and 4 (Figure 6).

These areas are inside the SIOFA footprint area and fishing with dropline is allowed in these areas. Scientific observer will always be on board to monitor vessel's operation. It is expected that the f/v Rinascente 9 will conduct ~~five~~ six trips per year each lasting approximately ~~60~~ 45 days.

3.3 Fishing Gear Description.

Droplines are used to catch fish that live on or near the sea floor and are a simple method which requires little gear and few crew, making it well suited to smaller vessels.

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 (Australian Fisheries Management Authority, 2023)

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.

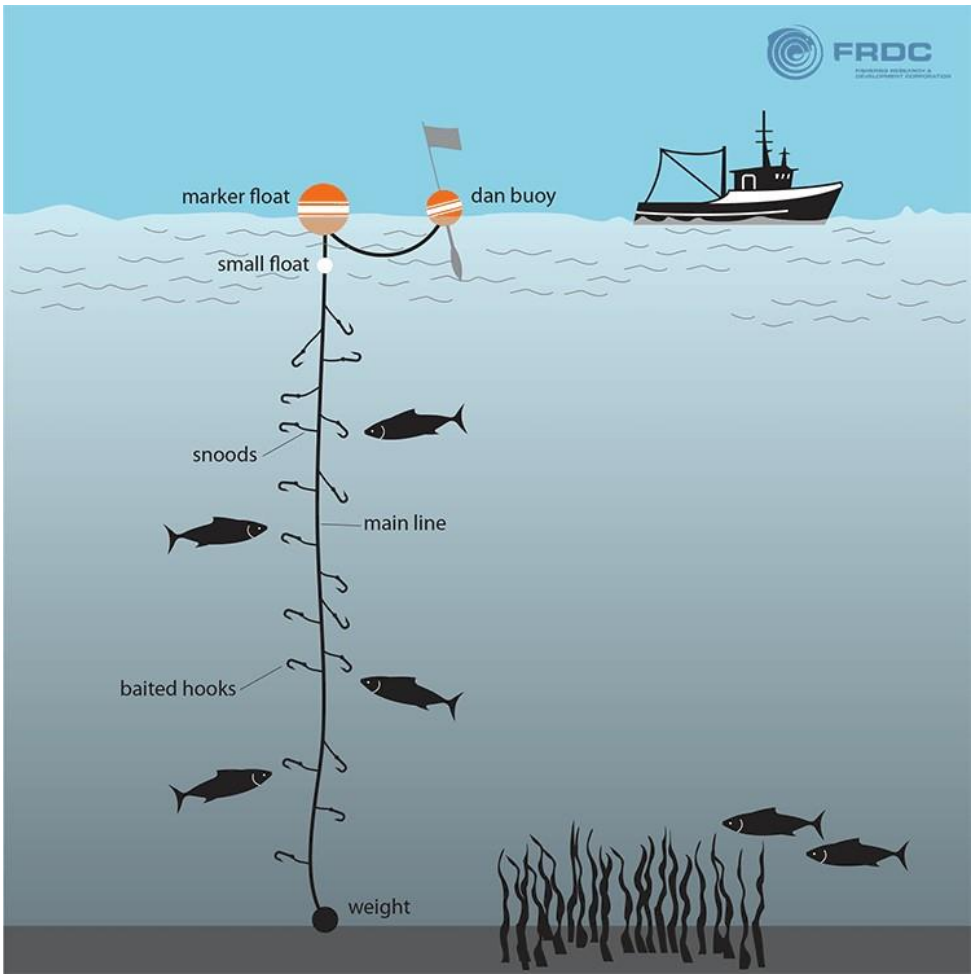


Figure 8: Dropline layout

4. Landing

The vessel will discharge all catch to an approved facility at an approved port following that State's requirements. The processing of catch will be done at the factory on board of the fishing vessel Rinascente 9 following HACCP standards. Intended markets for frozen hapuka fillets will be: the United States, Canada, Australia, Japan, South Korea, Hong Kong, Singapore and the United Arab Emirates.

5. Management Reference Points and Biomass Calculations and Catch/Effort Limits

~~There are currently no catch limits for hapuka in SIOFA area. In addition to that no~~ No stock assessment has been completed for hapuka in SIOFA area so far. Yearly hapuka catch in the SIOFA area as well as yearly hapuka catch by SIOFA subarea is described below (Figure 9)

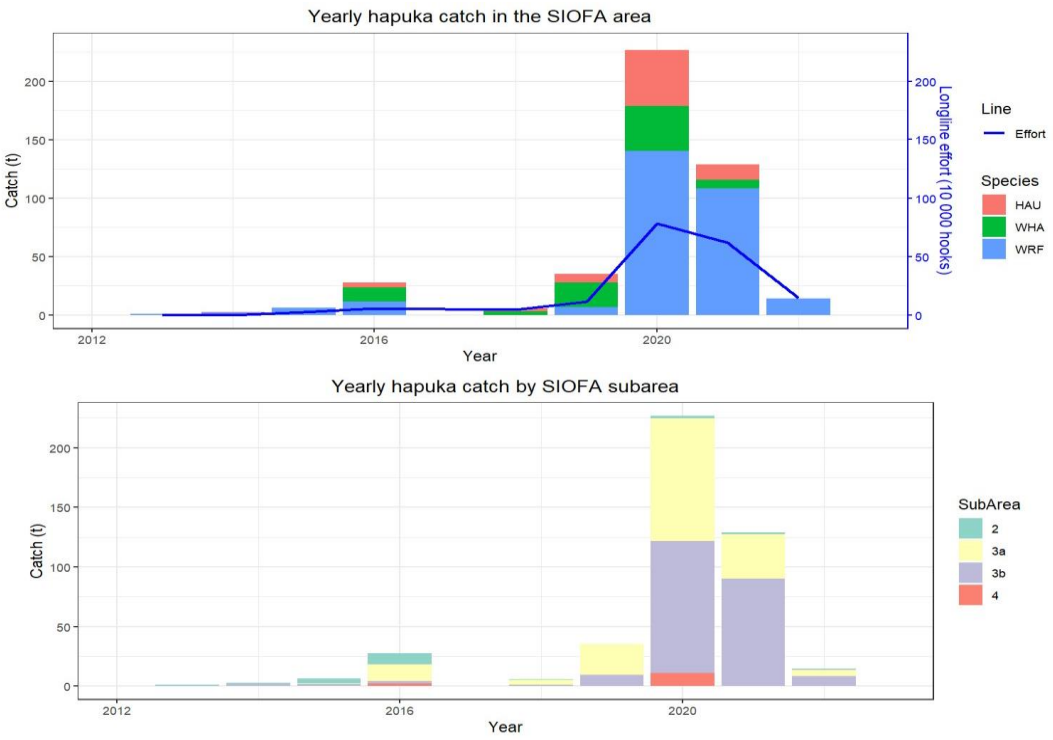


Figure 9: Yearly hapuka catch in SIOFA

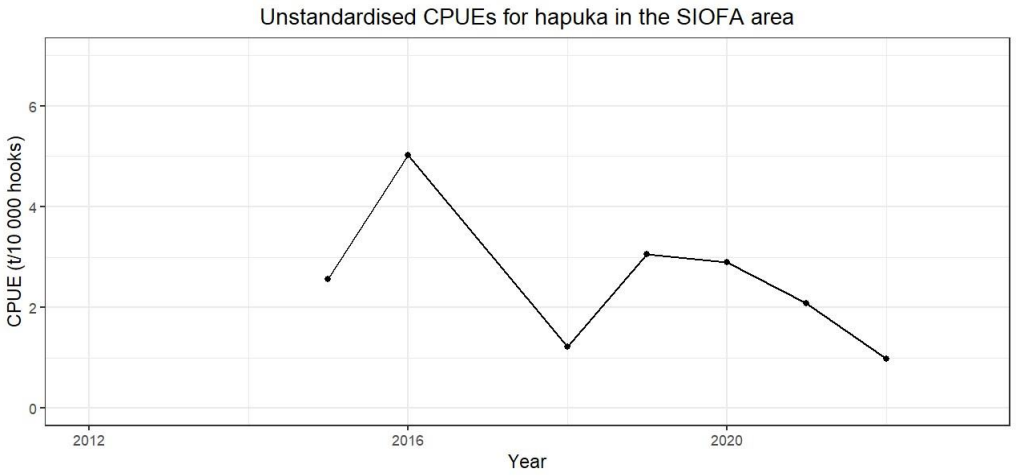


Figure 10: Unstandardised CPUEs for hapuka in the SIOFA area

Note that fishing effort and catches reported in this section are intended to represent total catch of hapuka, irrespective of whether each particular fishing event had been targeting these species or not. Consequently, CPUE represents the CPUE of all operations that caught hapuka even as bycatch, so if the share of operations actively targeting hapuka increases, then CPUE is likely to increase as well. Catches of hapuka significantly increased in 2020, and effort has also correspondingly increased. From 2020, both catches and effort have decreased substantially. The yearly catch composition was relatively variable, but wreckfish (WRF) was the most commonly caught species in the last years. Hapuka are caught in the western SIOFA Area, mainly Subareas 2, 3a and 3b. Recent years have seen higher levels of effort with higher catches, with unstandardised catches per units of effort (CPUEs) remaining relatively stable.

The proposed total allowable catch (TAC) for all areas fished requested under this FOP is ~~3000~~ 500 tons per calendar year of hapuka (*Polyprion spp*,) hapuku wreckfish (*P. oxygeneios*) and wreckfish (*P. americanus*) The TAC for New Zealand, an area that is smaller than the areas described here is 2,182 tons. Methods to assess the stock size and status include spawner per recruit analysis using age and length data, or close-kin mark-recapture genetic techniques. Target and limit reference points will be developed in future based on the outcomes of the research efforts associated with this fishery. As such we propose as our interim objective for this fishery to explore the fishery potential of Polyprion species to sustain a commercial fishing operation in the SIOFA convention area. To monitor our performance against this objective we propose to use an interim target reference point of 50%B_0 and an interim limit reference point of 30%B0 as our initial

reference points unless that data analysis undertaken as part of this exploratory fishery suggests alternative reference points may be more appropriate. As these will be challenging to estimate initially, we will used standardized CPUE analysis and a percent change in CPUE (change from $CPUE_{init}$ which we will equate with B_0) as our initial means to monitor changes in biomass, and as our data becomes more informative other metrics may be more appropriate. In the short-term this may mean spawner per recruit analysis, or close-kin mark-recapture genetic, followed by a medium-term more data rich assessment if the fishery continues and the data allow.

6. Planned trips in the Management Area(s)

The hapuka fishery is intended to take place on the same trips as the Union of Comoros trap fishery for lobster.

7. Monitoring of the Vessel and Fishing Activities

7.1 Vessel Monitoring and Control.

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.

7.2 Observer coverage.

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 ~~exceeds 2% of the weight of the target species,~~ 1 kg/line those fishing stations would be deleted from future fishing plans using the gear that landed the VME indicator taxa.

8. 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 logbook 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.

9. Vulnerable Marine Ecosystem Indicators

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.
By using the areas of interest as shown in Figure 6, 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

The approach will aid developing and collecting data to allow comprehensive VME assessments to be undertaken by the Union of Comoros.

If significant quantities of VME indicator taxa are found attached to the line~~, (more than 2% of the target species weight per day)~~ (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.

Further the Union of Comoros will use a camera system as part of the FOP and is designed to video record the hauling of the lines at the location of the hauling and at the setting location of the lines. Therefore, one camera will be installed on port and one on starboard. The recordings will then be observed by the observer to analyze the potential interactions with seabirds, mammals, or marine reptiles. The recordings will also be used to analyze and identify potential landings of VME or bycatch on the hooks of the lines, so that corrective measures can be taken for the next fishing trips. 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.

10. Risk Assesment

10.1 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. The table below can be more informatively updated after the first trip is complete and the data analysed.

Species	Spatial overlap	Catchability	Risk of mortality
Pelagic teleosts	High	High	Low if not retained
Suprabenthic teleosts	High	Medium	Species dependant low to high
Squid	Medium	High	Low
Mitigation			
Vessel required to carry release weights to release teleosts that suffer from barotrauma and which are not retained.			
Risk if released after mitigation			
Pelagic teleosts - low			
Suprabenthic teleosts - low			
Squid - low			

10.2 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.

Species	Spatial overlap	Catchability	Risk of mortality
Pelagic sharks	High	Low	Low
Benthic skarks	High	Low	Low
Mitigation			
All Comorian vessels are required to release elasmobranchs that are ~~inadvertantly~~inadvertently caught in the fishing gear. Given the shallow nature of the gear post-release survival is predicted to be high. The vessel will use nylon snoods (the use of wire traces are prohibited by the Union of Comoros) which are known to effectively exclude most elasmobranchs from the catch.			
Risk if released			
Pelagic sharks - low			
Benthic sharks - low			

10.3 Seabirds

The area where this fishery occurs is in the mid-latitudes and in lower latitudes than one would expect to regularly encounter most albatross species, but they are expected to be seen in the cooler months. Other seabirds could overlap with this fishery. Observers will note all the birds observed during setting and hauling operations of the fishery.

However, very few are expected to be seen around the vessel. In addition, offal is macerated before being dumped. No dumping of offal is conducted while lines 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. Moreover, the dropline is heavy and will sink fast and close to the vessel making low risk for captureat-setting, capture risk of birds on lures on the haul is low. The use of lures and not bait is also predicted to reduce the chance of seabird interactions. If birds are attracted to the vessel while fishing and are deemed to be at risk of capture additional mitigation options will be considered such as bird bafflers or short tori lines, and these are provided for in the vessel permitting conditions.

Species	Spatial overlap	Catchability	Risk of mortality
Albatross	Medium	Low	Low
Mitigation			
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 after mitigation			
Albatross - low			

10.4 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 ~~dolphins,~~ ~~or~~ 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.

Species	Spatial overlap	Catchability	Risk of mortality
Toothed or Baleen Whales	High	Low	Low
~~Dolphins~~	~~High~~	~~Low~~	~~Low~~
Turtles	Medium	Low	Low
Mitigation			
If pods of ~~dolphins or~~ toothed or baleen whales approach the vessel droplines will not be deployed, until they have moved out of sight of the vessel. Depredation events will be recorded and if persistent the vessel will remove the gear from the water and move to another seamount.			
Risk after mitigation			
Toothed or Baleen Whales - Low			
~~Dolphins - Low~~			
Turtles - Low			

10.5 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 2% of the target species weight per day~~ 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.

Species	Spatial overlap	Catchability	Risk of mortality
VME indocator taxa	Unknown	Low but damage under anchor high	Medium
Mitigation			
A very limited impact footprint, due to the small area of the gear that touches the bottom. Post trip review of encounter rates and camera footage and updating of high VME encounter areas. The VME indicator taxa threshold is ~~2% of the target species weight per day~~ 1 kg/line.			
Risk after mitigation			
VME indiocator species - Low			

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.

10.6 Proposal for the year

All relevant data will be submitted to SIOFA as required under the various CMMs and withing the dates required.

To ensure precautionary and appropriate management measures can be developed for this fishery, the Union of Comoros intends to collect the following biological information to help inform future management options:

Collection of morphometric information from *Polyprion spp, P. oxygeneios and P. americanus*:

- Total length.
- Whole weight.
- Gutted weight; and
- Processed state.

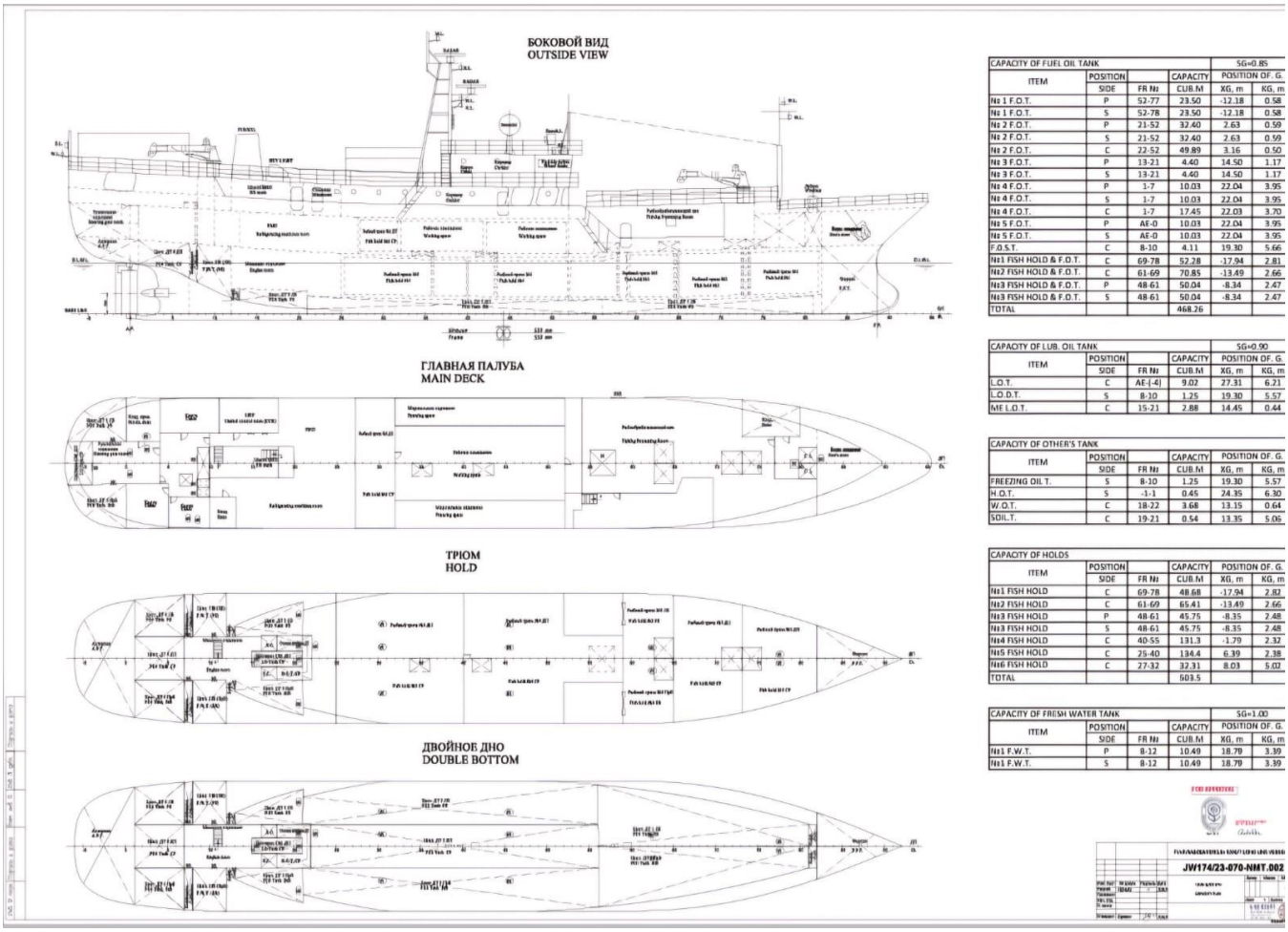
11. References

- SIOFA CMM 17 (2024) page 7
- SIOFA Fisheries Summary: hapuka (*Polyprion spp*,) hapuku wreckfish (*P. oxygeneios*), wreckfish (*P. americanus*) 2024, page 7
- Beentjes, M. P., and Francis, M. P., (1999) Movement of hapuku (*Polyprion oxygeneios*) determined from tagging studies, New Zealand Journal of Marine and Freshwater Research, 33: 1-12.
- Wakefield, C. B., Newman, S. J., and Molony, B. W. 2010. Age-based demography and reproduction of hapuku, *Polyprion oxygeneios*, from the south coast of Western Australia: implications for management. – ICES Journal of Marine Science, 67: 1164–1174.
- Froese, R. and D. Pauly. Editors (2022). FishBase. World Wide Web electronic publication. www.fishbase.org

Annex A - Vessel Details

Vessel name	Rinascente 9
Registration Number	1600050
Vessel length:	45.70 meters
Breadth	8.50 meters
Depth	3.65 meters
Gross tonnage	498 tons
Port of registry	Moroni, Union of Comoros
Vessel owner/operator	Ebi Fishing Co., Ltd / Comores Anglers SARL
IMO Number	8947412
Radio Call Sign	D6HD3
Vessel Type	Fishing Vessel
Fishing Gear Type	a) Traps/Pots for lobster fishery b) Dropline for hapuka fishery
Power of Main Engine	870 KW
Material of Hull	Steel
Year Build	1998
Main Engine Maker	Hanshin Iron Works Co., Ltd.
Fishhold capacity	503,5 m3
Model of Engine	LH26RR
Place of build	Fong Kuo Shipbuilding, Taiwan

Equipment Used for Determining Position	VMS ; AIS



Annex B - Observer tasks and Sampling Instructions

Database Page Trip Details	Cruise Report Section 1) Trip Summary and 2) Cruise Details and 4) Catch Details
• Vessel details • Trip Summary • Retained or landed catch (number and weight) per target species Note: these data should be entered directly into the access database using the smart pdf form.	Provide a brief outline of the work carried out, including any specific and/or additional tasks in the Trip Summary. Also include observer details (name and company). Cruise Details must include sail/dock dates and ports etc. Insert a table of the landed catch (total number and weights summed for the trip) under the Catch Details heading
Set and Haul	3) Fishing Operations

• Start position (latitude and longitude in decimal degrees) • Fishing at anchor or drifting. • If drifting, record the end position also. • End position (latitude and longitude in decimal degrees) • Type of gear (drop line) • Number of lines • Number of hooks per line • Number of fishers • Lure type • Start time (local time) • End time (local time) • Depth (m) • Total catch weight (kg) target and each bycatch species • Number of fish retained for each species. • Number of fish discarded (by species) Sampling 1. For each *Polyprion* specie landed record a. Total length (cm) b. Fish whole weight (kg) c. Sex d. Maturity state e. Processed state f. Processed weight (kg) g. Life status at capture h. Note: if the catch rates are too high record these details for every second fish. 2. At each seamount (on each trip) - collect 6 otoliths per 1cm size bin for both males and females. Once a size bin is full stop collecting otoliths from that size class. For each of these fish collect a genetic sample.	Under Fishing Operations, write a description of the fishing method, lost fishing gear, environmental observations and comment on any information that the database does not cover. Please cross check your positions with those recorded by the vessel. It is probable that you will record these from the vessels log, that's ok however if you detect any discrepancy in your personal observation, please keep a record in your notebook and record detail in your cruise report. You can add paragraphs to your Cruise Report as you need.

Make sure that all the information under 1 above are collected for each of these fish. 3. For all other retained fish record: a. Species b. Total length (cm) c. Fork length (cm) (if appropriate) d. Fish weight (kg) e. Life status at capture f. Note: if the catch rates are too high record these details for every second fish. 4. For discarded species: a. Species b. Length (if brought onboard) c. Life status at capture d. Life status at release 5. Note that for each set, all retained fish should be weighed (total catch weight) and count the number of fish as part of the set and haul information. All discards must be counted. a. Bycatch species of concern (Y/N) b. Species of concern species c. Species of concern number d. Environmental observations e. Gear information (including Lost lines) f. Problems	