

14th MEETING OF THE SCIENTIFIC COMMITTEE

7 to 12 September 2026, Tórshavn, Faroe Islands

SC14 - DW 04

FOP Exploratory Trap Fishery in the SPRFMO Area

Cook Islands

SPRFMO Fisheries Operation Plan

Cook Islands Trap Fishery

SUCCINCT DESCRIPTION

Member/CNCP	Cook Islands
Area	Foundation Seamount Chain and Northern Seamounts
Target Species	South Pacific rock lobster (<i>Jasus caveorum</i>) and Golden Deepsea Crab (<i>Chaceon</i> sp.).
Proposed Methods of fishing	Traps
Proposed maximum catch limit	300t
Expected operation period	01 July 2027 to 30 June 2030
Submission date	July 2026

Executive Summary

In 2018, the Cook Islands began an exploratory trap fishing operation provided for by Conservation Management Measure (CMM) 14b-2018, which was subsequently superseded by CMM14b-2020, CMM 14b-2023 and CMM 14b-2024. This program aims to test fishing viability on seafloor structures located in the Foundation Seamount Chain (FSC), southeast of French Polynesia, primarily due south of Pitcairn Islands at latitude 30-34 degrees south. As well as the Northern Seamounts (NS) an area located between 21 and 27°S and 84 and 101°W. There are 66 seamounts that rise to fishable depths within these two areas. To date the Cook Islands has successfully completed eight trips with new and important biological information collected for lobster (*Jasus caveorum*) and crab (*Chaceon* sp.). The most recent trip (trip 8) focused primarily on crabs. These trips provided information on populations present as well as information on target stocks and marine ecosystems. Information collected during these first trips have guided revisions of the Cook Islands Fisheries Operations Plan (FOP), which has assessed the effectiveness of existing mitigation measures, to ensure that the bottom trap fishery is developed through a precautionary and gradual process, in accordance with the best available scientific information. To maximize the value of future data collection for the Cook Islands and its flagged vessel, the Cook Islands has screened the collected material and analysed all available data to ensure relevant adjustments are made to current exploratory methods, in accordance with the CMMs in force at the time.

The FOP draws on the findings of the formal sampling program outlined in the previous FOP submitted to the 11th regular session of the Commission (COMM 11), in particular refining current methods to conform to the Convention, CMM13-2024 and other relevant CMMs, proposes long term viability of the target species as well as mitigation measures to ensure the integrity of Vulnerable Marine Ecosystems (VMEs) is maintained within the fishing operation area.

The Cook Islands proposes to maintain the following agreed limits from CMM 14b 2024:

- The Total Allowable Effort (TAE) fishing day limit being 80 days per trip, or 60 days for the Kopernik Seamount.
- A global Total Allowable Catch (TAC) of 300 tonnes across exploratory areas outlined in Figure 1. The rationale for this has been to allow the Cook Islands flexibility in operations to survey grounds for suitable fishing while still remaining within an appropriate potential catch limit. Following the advice of the Scientific Committee 7, this document includes the intent of the TAC, TAE and the proposal for further analysis.
- CPUE limits of 4kg per trap on the Kopernik Seamount estimated through a weekly rolling average (but see below).
- Kopernik Seamount will remain closed to lobster fishing until MMR has evaluated the replenishment rate.
- Upon re-opening, catch on Kopernik Seamount will be subjected to a 20 ton trip limit (within not in addition to the global TAC) for *Jasus caveorum*.
- Temporal closure on *Jasus caveorum* target sets during the *their* spawning season (July to September).
- Spatial restrictions (i.e. prohibiting fishing in the Kopernik Valley below depths of 250m) to protect VMEs.
- Prohibition on setting and hauling more than five lines of 100 traps per day when targeting *Jasus caveorum*.
- Prohibition on setting and hauling more than five lines of 200 traps per day when targeting crabs (sets below 350m).

• FISHERIES OPERATION PLAN

2.1 Description

The area of operation is consistent with CMM 14b-2024. There are two primary areas of operation: the Foundation Seamount Chain and Northern Seamounts which are shown in Figure 1. The Foundation Seamount Chain is a rectangular area from 134°W– 100°W, to 31°S–40°S with an area of 3,164,420km². Fishing below 250m depth is prohibited within the Kopernik Valley, which is part of the Foundation Seamount Chain, due to the high interaction rates of VME indicator taxa in that area in previous years. The Northern Seamounts area is located east of Chile's, Easter Island region EEZ and lies within 21°00s, 101°00W; 21°57s, 101°00w; 23°55s, 94°13w; 25°06s, 92°50w; 27°00s, 92°50w; 27°00s, 84°00w; 21°00s, 84°00w. The Northern seamounts encompasses an area of 780,993km². The Total Allowable Catch (TAC) of 300t will cover both areas inclusive.

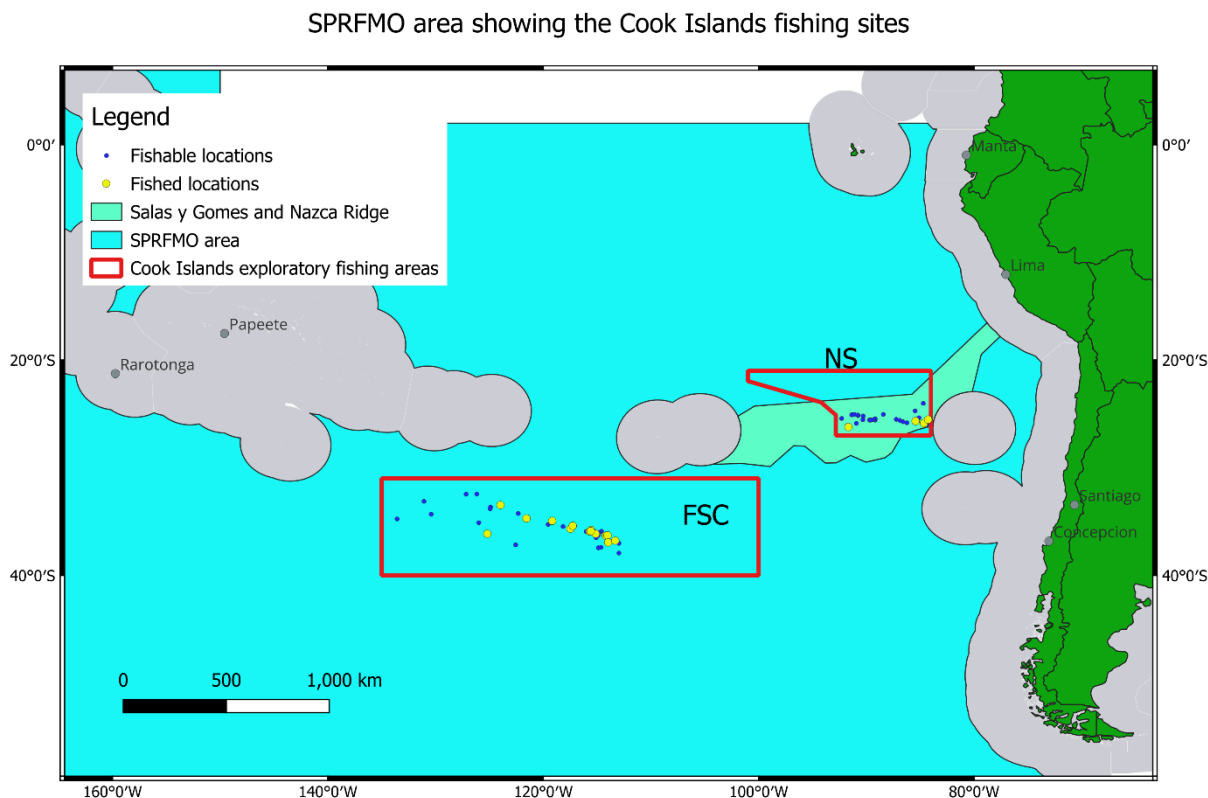


Figure 1: Area of proposed exploratory operations, FSC = Foundation Seamount Chain; NS = Northern Seamounts.

The Cook Islands has submitted successive Fisheries Operation Plans to the Scientific Committee and provided information on the development of this fishery annually. This information documents resource biomass estimation, consolidated findings to date of VMEs, with plotted locations of VMEs indicator species and a VMEs map are presented using a range of effective fishing areas and depth strata.

The initial 'Fisheries Operation Plan' (FOP1) for the Cook Islands (COMM6 INF 07) was approved at the 6th SPRFMO Commission meeting held in Lima, Peru in 2018, with the adoption of CMM 14b-2018 (superseded by CMM 14b-2020, CMM 14b-2023 and CMM 14b-2024).

To ensure the FOP continued to be developed on a precautionary and gradual basis according to the best available science, the data collected since operations commenced in 2018 has been provided to SPRFMO. These data are used to assess the potential impacts on the target species, associated or dependent species, and the marine ecosystem and to evaluate the effectiveness of the current CMM. In this regard, the Cook Islands continues to collect the necessary data to fulfil its obligations to follow the exploratory protocols as laid out by SPRFMO below:

- Determine the geographical range of the target species within the two areas identified, which includes depth range and relative stock density;
- Evaluate the biology of the target species including review of size composition, sex ratios, variation in DNA signatures and other relevant biological information to better understand these species;
- Document any potential Vulnerable Marine Ecosystems (VMEs) in the research zone, plot the locations of VME indicator species and produce a VME map for each seamount researched;
- Identify the composition and extent of potential VMEs using video to assist in the evaluation of potential VMEs and other seafloor structures to better understand the type of habitat and the density of the target and by catch species;
- Build a robust reporting plan while collecting all research data, and have it compiled for easy dissemination to the SPRFMO SC and the Cook Islands Ministry of Marine Resources (MMR) to better understand the biology of the target species, stock densities, population dynamics and species interactions across the research zone and the development of a sound biomass assessment in support of a management strategy for a future fishery.

As the operation is still under development and experimentation is required to find the most effective fishing methods, it is likely that some of the initial data collection procedures may need to be modified as the exploration unfolds. Any changes made will be done only after consultation with the scientific team at MMR, or if needed, direct consultation with the SPRFMO SC. The Cook Islands anticipates that the selectivity of the fishing gear and fishing methods used will result in less than 5% of bycatch to the total landings. A minimum of 10% of traps hauled per fishing set is sampled by the onboard observers.

The recording of lost gear and traps is a priority for the Cook Islands as it is an indicator of the vessel's imprint in the SPRFMO Convention area. Lost traps have potential negative impacts in the environment and lead to ghost fishing. If any gear is lost; the Cook Island flagged vessel will report the event in the daily logs during the fishing activities. Sections of the traps nylon mesh will be cut with and then sewn back together with cotton string, in the event that traps are lost and not found. The cotton string will eventually decompose, and the traps will then remain opened so ghost fishing is mitigated. The Cook Islands believes that its choice of gear, methods and prior knowledge of the type of area to be researched will result in a minimal imprint on the seafloor.

Analysis from the initial two trips showed that the soak time for the traps on the bottom varied but it became clear that shorter soak times produced higher catch rates (Brouwer et al., 2019). Soak times therefore were maintained at about 24 hours for the preceding two trips, with setting and retrieval of lines occurring within 24 hours, except for when weather and sea conditions did not permit.

The backbone line (ground line) used to attach the traps and float line used is buoyant polypropylene and, as such, the risk of entanglement and bottom damage is reduced. Floats for each longline string were appropriately marked to ensure easy identification. The methodology of setting was as follows:

- The first float and float line were deployed behind the vessel from the stern and paid out in full, the length of the float line being 1.5 times the maximum bottom depth in the area;
- The backbone line which the traps are attached is then similarly paid out, while the vessel steams slowly ahead;
- The remaining float line and float are paid out from the opposite end of the longline string;
- No anchors are used; the traps themselves are sufficiently heavy to keep the gear in place on the bottom. This limits anchor damage to the seabed and benthos; and
- The entire gear is “stretched” gently to minimize the risk of self-entanglement on the way to the bottom. The sink rate of these trap strings is observed to be less than 1 m/s, so a trap will take approximately 10 minutes to reach a depth of 500m.

Authorised flagged vessel

The vessel will be flagged to the Cook Islands and operated by a company subject to the laws of the Cook Islands. The current vessel details are provided in Appendix A.

The vessel and its operators will report to MMR all vessel activities in the Management Areas to MMR’s legal specifications and requirements. This will include, but is not limited to:

- Notification of: Entry and Exit from SPRFMO waters.
- Adequate prior notice when planning a trip into the SPRFMO Convention area.
- Adequate prior notice of date and port of arrival after a trip in the SPRFMO Convention area.
- While at sea the vessel must report its location and current activity to MMR through VMS and through mandated email reporting.
- While at sea, the Master will be responsible for the day-to-day operations of the vessel and ensuring compliance in accordance with Cook Islands law and SPRFMO CMMs.
- Vessel Monitoring System: the vessel must have a VMS system approved by MMR on board and will report simultaneously to both the MMR and SPRFMO as per the requirements of CMM 06-2023 for the option described in Paragraph 9.b, once the SPRFMO system is advised as operational. While at sea, in the event of VMS failure of automatic reporting, the procedure outlined in Annex 3 of the CMM 06-2023 shall apply.

Target Species

The primary target research species will be *J. caveorum*. While *J. caveorum* are the primary target group, *Projasus* sp. and *Chaceon* sp. are targeted deeper on seamounts. Very little is known about the biology of these species, however, the Cook Islands continues to collect biological information to determine, stock structure, maturity and spawning seasonality, as well as population densities.

Planned Trips in the Management Areas and Vessel Monitoring

The areas of interest consist of high seas seamounts and adjacent fishing grounds that cover a combined area of approximately 3.9 million km². The remote nature of the target research grounds in the central-south Pacific Ocean has been a barrier to fisheries development in the past. This schedule of fishing operations takes into consideration the balance between capital costs to get to the fishing areas and the important opportunity to

collect scientific information, while testing the commercial viability of the resource for sustaining ongoing exploitation.

This FOP includes a number of management options for the lobster and crab fisheries including the TAC, feature specific TAC, size limits, trap mesh size rules and closed seasons.

CMM 14b-2024 set a precautionary catch limit at 300t is as follows:

1. With the 300 t TAC applying to a combined catch per trip for lobster and crab in year two;
2. This TAC would apply annually for each fishing year (01 July 2027 to 31 June 2030);
3. In addition, specifically for Kopernik Seamount, the following shall apply:
 - a. Trip limit of 20t.
 - b. A catch rate limit reference point of 4 kg/trap hauled (which is equivalent to 40% of the baseline catch rate) will be set and if reached the seamount will be closed to lobster fishing for the remainder of that calendar year or longer as determined by the Cook Islands Ministry of Marine Resources.

For all other seamounts on which a resource base may be found a similar approach can be applied on a trip-by-trip basis that is:

1. Establish average CPUE (Kg/Trap hauled);
2. B_{LIM} of 40% of initial CPUE ($CPUE_{init}$).

In all areas we have imposed an effort limit of 100 pots per line when targeting lobsters and 200 pots per line when targeting *Chaceon* crabs (when fishing below 350m).

It is envisaged that these arrangements will be maintained under the current FOP.

Fishing under this exploratory program would follow a similar pattern to that of the last eight trips in 2019-2026. Including the scope for repeating experimental line setting to review the effective fishing area that is required for biomass estimation. The vessel will on each trip undertake the experimental line setting prior to systematically fishing the selected seamounts and trial fishing new seamounts if suitable depths are identified.

The Cook Islands endeavours to undertake a VME and benthic footprint analysis of this fishery.

The vessel and its operators will report to MMR all vessel activities in the Management Areas to MMR's national laws, specifications and requirements. This will include, but is not limited to:

- Notification of: Entry and Exit from SPRFMO waters;
- Adequate prior notice when planning a trip into SPRFMO Convention waters;
- Adequate prior notice of date and port of arrival after a trip in SPRFMO Convention waters;
- While at sea the vessel will report its location and current activity to MMR through VMS and through mandated email reporting;
- While at sea, the Master will be responsible for the day-to-day operations of the vessel and ensuring compliance in accordance with Cook Islands law and SPRFMO CMMs;
- Vessel Monitoring System: the vessel will have a VMS system approved by MMR on board and will report simultaneously to both the MMR and SPRFMO as per the requirements of CMM 06-2023 for the option described in Paragraph 9.b, once the SPRFMO system is advised as operational.

Official Flag-State Contact: Cook Islands Ministry of Marine Resources

The primary contact for all flag state matters and official SPRFMO correspondence:
Lualua Tua-Trood, Director, Ministry of Marine Resources, PO Box 85, Avarua, Cook Islands.
email: l.tua@mmr.gov.ck Ph: +68228721

Licensing

The Marine Resources Act 2005 provides MMR the authority to issue fishing licenses and high seas permit, which, inter alia, enables the authorization of Cook Islands flagged fishing vessels to fish. The Marine Resources Act 2005 also requires flagged vessels to comply with all Cook Islands laws and the regulations, and all SPRFMO Conservation and Management Measures adopted by the Commission. This includes Data Standards (CMM 02-2026), standards for the collection, reporting, verification, and exchange of data on the management of the Bottom Fishing (CMM 03-2025), minimization bycatch of Seabirds (CMM 09-2026), Exploratory Fisheries (CMM 13-2024) and the CMM established specifically for this exploratory potting and that of the trap fishery and Exploratory Trap Fishery (ETF) (CMM 14b-2024), or future CMM iterations, in the SPRFMO Convention area. Under the Marine Resources Act 2005, the Cook Islands has appropriate powers to control, and regulate fishing activities, including the application of sanctions against a fishing company, master, crew, and the vessel if the SPRFMO requirements of this FOP are not met. In line with the Marine Resource Act 2005, the flagged vessel operates under the terms of an Access agreement and a high seas authorisation license issued by MMR.

MMR has an established and approved data collection program and connected procedures. Use of a comprehensive data capture system and sampling methodology has been implemented under the guidance of an experienced scientific and fisheries management team.

This data collection can accommodate this exploratory dropline and jig 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.

2.2 Fishing gear

Since 2019 the Cook Islands has deployed traps set on longlines designed to catch deep-water crustaceans. The traps used are 150cm diameter at the base, 75cm high and 50cm diameter at the top. The entrance to these traps is 35cm in diameter and the trap is covered with netting of 5cm mesh. The backbone (ground line) and float line for each string of traps is made of 25mm polypropylene rope with each trap on each string spaced 25m apart. The traps have been constructed with “escape gaps” to allow for escapement of the small organism (Figure 2). When targeting *Jasus caveorum* or *Chaceon* sp. the escape gaps will remain open. Other trap designs may also be tested when exploratory fishing is commenced for the smaller *Projasus* sp., the escape gaps will be closed with a flap of netting. These traps were the trap types used on the four trips undertaken so far. Modifications were made with cotton breaker lines in case traps were lost to minimize ghost fishing effects. In addition, trials with small mesh on selected traps were undertaken to test selectivity (Figure 2), and to attempt to target *Projasus* sp.

A combination of trap sizes will be used. The vessel will use 10 pots of the original size to every string, and the remaining pots will be 150cm diameter at the base, 75cm high and 50cm diameter at the top. The entrance to the trap is 35cm in diameter and the trap is covered with netting of 5cm mesh. The backbone (ground line) and float line for each string of traps is made of 25mm polypropylene rope with each trap on each string spaced 25m apart. The traps have been constructed with “escape gaps” to allow for escape of the small organisms.

When targeting *Jasus* sp. or *Chaceon* sp. the escape gaps will remain open. Other trap designs may also be tested.

The Cook Islands intends to persist with this selective approach deploying traps only in survey areas where there is a likelihood of a high density of the target lobster or crab species. The approach has proven successful with all trips completed to date with low bycatch and a single lobster species caught *J. caveorum*, as well as crabs (*Chaceon* sp.). The catch rates for the different trap designs will be evaluated and correction factors applied to the alternative designs to ensure the continuity of the data series.



Figure 2: Standard Type & Configuration of traps used in the Cook Islands Exploratory Fishing Operations.

2.3 Time period

This exploratory fishery operations have been undertaken over five years (2019, 2020, 2022, 2023 and 2025), and additional trips may be included 2026 fishing year. It is envisaged that the fishing operations under this FOP will continue for another three years commencing in 01 July 2027 and continue up to 30 June 2030.

2.4 Biological information

To ensure precautionary and appropriate management measures are in place, the Cook Islands is collecting relevant biological information that will be informative for our understanding of the stock productivity including:

1. Collection of morphometric information from *Jasus caveorum* including:
 - b. Carapace length;
 - c. Tail width;
 - d. Whole weight; and
 - e. Tail weight.
2. Continue the collection of morphometric information from *Chaceon* sp. Including:
 - a. Carapace width;
 - b. Tail width;
 - c. Whole weight;
 - d. Processed weight; and
 - e. Half crab weight.
3. Tag lobsters in pre-molt condition to assess the growth rate and population size estimates;
4. Periodically collect still camera footage of the benthos or when evidence of very high CPUE, gear damage, anomalous substrate, or sensitive bycatch areas are observed on sets to assess the benthic environment;
5. Use small mesh nets on a sub-sample (5-10%) of the sample traps to collect biological information on smaller subset of the lobsters and crabs;
6. In areas where catch rates are very low the observer should attempt to collect biological samples from each trap;

Biological sampling will be undertaken by at least one and preferably two, where possible, observers, both appointed by MMR. Both observers follow the specification of the Scientific Sampling Plan which is detailed in Table 1. This included:

- Catch of each trap was sorted into target species and bycatch;
- The catch of the target species was weighed and summed over all traps in the longline set. A predetermined subset of traps (10%) were selected and sampled by the designated Independent Observers;
- Retained catch was counted and sampled for individual weight, carapace length, sex, maturity and spawning stage;
- Depending on the amount landed bycatch or a subsample of bycatch was sorted to the nearest taxon to estimate the total amount of bycatch by taxon per longline set, following the sampling plan;

- Data is recorded daily and summarized on a trip by trip basis. This data is captured in an access database format and forwarded to MMR, SPRFMO SC and used by the research team as needed; and
- With regard to VME bycatch, if the total bycatch for a fishing day location exceeded 5% of the weight of lobsters/crab, those fishing stations would be deleted from future fishing plans.

It is common practice for commercial fisheries to avoid areas and seasons with the likelihood of high proportions of lobsters with berry. The proportions of berried lobster are therefore closely monitored. MMR will continue to monitor the number of berried females and avoid seasons when females are carrying eggs, which is thought to go from June to October. In cases where berried females are landed, the vessel will retain them onboard in a tank with flowing water and then return them to the sea at the end of the set by lowering a trap filled with these individuals, with an opening mechanism that ensures they reach their habitat. A sample from for each seamount will be retained which will be added to the subset group of lobsters selected for sampling in order to analyse its condition, berry cycle and general characteristics. Further, the distribution and seasonality of the *Jasus* sp., *Projasus* sp. or *Chaceon* sp. abundance in the designated seamounts will become clearer as the fishery progresses.

Brouwer *et al.* (2019) and Brouwer *et al.* (2023) have done a thorough assessment of the biological data collected to date (including length analysis, sex ratios etc.) but additional analysis will be undertaken through the course of this FOP.

2.5 Non-target and associated or dependent species

Seabird interactions will be monitored by the observers. Deployment of the trap longline will be done directly off the stern of the vessel, the traps weight result with initial rapid sinking of the gear until the trap was fully submerged with line tension applied at depth. This would minimise potential impact with birds and mammals or other potential endangered, threatened and protected species. Bait jars will be filled with bait and tethered to the inside of the trap while the traps are being staggered and attached to the ground line just before they are deployed off the stern of the vessel.

Trap-seabird interactions are extremely rare. Nevertheless, the flagged vessel will be prepared for interactions with seabirds, reptiles or mammals during operations; although as reported in the observer reports no bird or marine mammals have been entangled in the gear during the four trips undertaken so far. CMM 09-2026 does not mention specific protocols for bottom trap fishing. It is one of the observer's designated tasks to record any interactions, take pictures of the encountered species and decide whether or not traps may be hauled and/or set in that location. Protocol also required that if more than one marine mammal or turtle came into contact with the vessel or gear and suffered any potential injury or harassment during a fishing day, the fishing operation on any seamount 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.

Traps retrieved from the hauling station located mid-ship on the starboard side where the catch of the target species was weighed and observers can undertake the required sampling. All bycatch from each set will be accumulated in a small, stackable, plastic deck container (tote) and weighed and counted at the end of the set. The observer station is located near the hauling station; this is to allow the observer easy access to catches from selected traps for sampling collection before the catch was moved to the factory.

All offal obtained from the process of tailing on board is to macerated before dumping. No dumping of offal is conducted while lines are being set or while lines are being hauled. Discharging of waste will only take place at the end of a haul or while steaming and no biological material was discarded for at least 30 minutes before the

start of any set or during any set. Discharging of waste is permitted from the opposite side of the vessel from the hauling position.

Based on the seamounts fished on the first eight trips, bycatch and non-target species catch was low (< 5%). While it is apparent that deeper sets will encounter crabs, it cannot be said conclusively that this pattern will be typical of the entire FSC. As noted in the initial analyses, small amounts of fish bycatch were caught in the traps comprising of trumpeter, rock cod, and terakihi. Because of low occurrence and the highly selective nature of the gear, impact projections and risk assessment are not possible for these species at this time. With regard to other bycatch, in particular mammals and turtles, the strategy followed is and will be consistent with the requirements of CMM 09-2017.

More information on bottom contact non-target interaction are provided below.

A risk assessment for all non-target species is provided below.

2.6 Cumulative impact of all fishing activity

Currently, there is only a single fishery operating in the area and the Cook Islands trap fishery is the only operator targeting crustaceans in the area, therefore all the cumulative impacts are currently under this FOP.

2.7 Similar fisheries

This fishery is relatively unique. While there are extensive trap fisheries for lobsters and crabs all over the world there are few that operate on high seas seamounts. The most similar fishery is probably an Atlantic Ocean fishery for Tristan rock lobster (*Jasus tristani*), that fishery is small in extent but operates on five isolated Atlantic islands and associated seamounts in a very contained area. The 2025/26 TAC for Tristan rock lobster at the Tristan da Cuna island group was 134.8t.

2.8 Overlapping fisheries

None

2.9 Bottom fishing (if applicable)

Not applicable as CMM 03-2025 does not apply to trap fisheries, but more information on bottom contact and VME interactions are provided below.

2.10 Adjacent RFMO (or similar) fishery

Not applicable

• INPUT INTO SCIENTIFIC COMMITTEE CONSIDERATIONS

Paragraphs 9 and 10 of CMM13 require the Scientific Committee to consider all Fisheries Operations Plans submitted, all information provided in accordance with a Data Collection Plan and any other relevant information, and to provide recommendations and advice to the Commission on each Fisheries Operation Plan on a number of matters. To assist the Scientific Committee in its work, the proponent is requested to indicate what they consider to be an appropriate assessment or recommendation from the Scientific Committee to address each of the Scientific Committee Considerations.

3.1 Management strategies or plans for fishery resources

Our interim objective for this fishery is to explore the fishery potential of *J. caveorum*, *Projasus* sp. and *Chaceon* sp. to sustain a commercial fishing operation in the Foundation Seamount Chain and the Northern Seamounts. More details on the specifics of the management approaches are provided below.

3.2 Reference points

Resource Biomass Calculations and Potential Management Reference Points

To monitor our performance against the objective we propose to use an interim target reference point of 40%B₀ and an interim limit reference point of 20%B₀ as our initial reference points unless 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 have used standardized CPUE analysis and a percent change in CPUE (change from CPUE_{init} which we will equate with B₀) as our initial means to monitor changes in biomass, and as our data becomes more informative other metrics may be more appropriate. CPUE_{init} was estimated at Kopernik Seamount as 10kg per trap. As a precautionary measure for the Kopernik Seamount we have set a Trigger Reference point at 4kg/trap at which time management action is triggered. CPUE_{init} is yet to be established for other seamounts or other species.

Preliminary estimates of biomass at Kopernik Seamount have been made and are presented in (Brouwer and Wichman, 2020 and Brouwer *et al.* 2023), along with weekly changes in biomass through the duration of the fishery. These results vary depending on the estimates of the effective fishing area used in the analysis, but unfished biomass is potentially around 1,400t (range 800-3,120t). This biomass has been impacted by the catch and the fishing response by the population has been strong with catch rates declining over the course of the fishery (Brouwer *et al.*, 2023). This has required the closure of Kopernik Seamount for the remainder of 2023 and 2024. The Cook Islands will evaluate the replenishment rates before resuming full fishing potential at Kopernik Seamount.

A simple harvest control rule and reference point that are intended to be precautionary will continue to be applied, until the biomass assessment analysis has been reviewed by the SC, and an alternative proposed. This harvest control rule uses CPUE as the default reference point to track relative biomass over time, it assumes the efficiency of a unit of fishing effort remains constant and does not fluctuate or improve over time. A key point is that since the exploratory fishery will occur on multiple seamounts of different sizes, each seamount will need to be monitored separately, but managed along similar principles.

A 40% CPUE limit reference point (CPUE_{max}*0.4) is suggested, and on Kopernik Seamount this would equate to a CPUE of 3.9Kg/trap lift. This is thought to be a reasonable precautionary approach to avoid overexploitation in

the absence of other information, if the CPUE is reflective of abundance. In the context of the trips conducted to date, the CPUE threshold reference point would apply only to Kopernik Seamount. As further suggested in the FOP, the value of 40% CPUE can be used as a control rule to lower annual harvest level in the upcoming year for a specific seamount if its CPUE for the current year is approaching a 40% CPUE reduction. In addition, a TAC and TAE will be applied to further regulate fishing activity in year two and three.

Ordinarily, B_{LIM} would be much lower, or about 20% of biomass, being the point at which recruitment impairment might occur. However, for seamount lobsters, recruitment has been seen to be variable (Cockcroft *et al.* 2020) and aiming for a lower level of depletion (i.e. higher biomass) may be a pertinent management objective. Therefore, until better information is forthcoming a limit reference point that approximates a stock depleted to 40% will be maintained.

It was previously suggested that a depletion experiment might be a useful approach to inform the stock assessment. While this has not been undertaken specifically, the concentrated fishing effort on Kopernik Seamount and the relatively obvious stock response could be examined through a depletion experiment. However, if the biomass estimation procedure (Brouwer *et al.* 2023) is accepted by the SC, a depletion experiment analysis may not be required or desirable. In addition, if the stock is allowed to replenish for a time before the vessel returns to fish the replenishment rates of the resource can also be estimated, which would be informative in future decision making.

3.3 An appropriate precautionary catch limit

The total allowable catch approved by SPFRMO in CMM 14b-2024 for the Cook Islands is 300 tonnes per fishing year, expiring on 30 September 2027. The Cook Islands' strategy for this new fishing exploratory program remains as per CMM14b-2024 with a TAC of 300 tons. *J. caveorum* will remain the primary target species above 350 m depths with fishing at deeper depths primarily targeting *Projasus* sp. and *Chaceon* sp.

Based on fisheries on other seamounts outside the FSC and NS, MMR expects that each of the target species exists within the proposed areas. This nevertheless remains an area of uncertainty as *Panularus* sp. have not been caught and the possibility of there being other commercially exploitable crustaceans still exists.

The Cook Islands proposes to maintain the following agreed limits from CMM 14b-2024:

- The Total Allowable Effort (TAE) fishing day limit being 80 days per trip, or 60 days for the Kopernik Seamount.
- A global Total Allowable Catch (TAC) of 300 tonnes across exploratory areas outlined in Figure 1. The rationale for this has been to allow the Cook Islands flexibility in operations to survey grounds for suitable fishing while still remaining within an appropriate potential catch limit. Following the advice of the Scientific Committee 7, this document includes the intent of the TAC, TAE and the proposal for further analysis.
- CPUE limits of 4kg per trap on the Kopernik Seamount estimated through a weekly rolling average (but see below).
- Kopernik Seamount will remain closed to lobster fishing until MMR has evaluated the replenishment rate.
- Upon re-opening, catch on Kopernik Seamount will be subjected to a 20 ton trip limit (within not in addition to the global TAC) for *Jasus caveorum*.
- Temporal closure on *Jasus caveorum* target sets during the *their* spawning season (July to September).
- Spatial restrictions (i.e. prohibiting fishing in the Kopernik Valley below depths of 250m) to protect VMEs.
- Prohibition on setting and hauling more than five lines of 100 traps per day when targeting *Jasus caveorum*.

Prohibition on setting and hauling more than five lines of 200 traps per day when targeting crabs (sets below 350m).

3.4 The cumulative impacts of all fishing activities in the area of the exploratory fishery

The Cook Islands is the only member engaged in trap fishing in this area and as such all impacts are a result of our fishery. These are being estimated through this FOP. A concurrent fishery for hapuka from the same vessel is being undertaken that fishery has minimal bottom contact, as the two fisheries progress the cumulative impacts will be reported to the SC.

3.5 The impact of the proposed fishing on the marine ecosystem

Risk Assessment

Teleost and cephalopod bycatch

Teleost bycatch is expected in this gear including any teleosts that are attracted to bait. This includes fish such as hapuka (*Polyprion oxygeneios*); trumpeter (*Latris lineata*); *Mora moro* and terakihi (*Nemadactylus macropterus*). Octopus also enter the traps and get caught from time to time. While the retention of teleosts is permitted, releases of unwanted species is possible. Given the relatively shallow depths of the gear some of these fish and octopus can be released alive.

Cook Islands Trap Fishery Risk Summary Table - Teleost and cephalopod bycatch

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

Elasmobranch bycatch

Some elasmobranch bycatch has been observed. Any elasmobranch that is attracted to bait and will enter a trap could be caught. Species that have been observed and caught in other gear in the area include blue sharks (*Prionace glauca*), dogfish and scyliorhinid catsharks. Elasmobranchs are required to be released from all Cook Island vessels, and the vessel is provided with safe release guidelines.

Cook Islands trap Fishery Risk Summary Table - Elasmobranchs

Species	Spatial overlap	Catchability	Risk of mortality
Pelagic sharks e.g. blue sharks	High	Low	Low
Benthic sharks e.g. dogfish and scyliorhinid catsharks	High	Low	Low
Mitigation			
All Cook Island vessels are required to release elasmobranchs that are inadvertently caught in the fishing gear. Given the shallow nature of the gear post-release survival is predicted to be high. Release guidelines provided to ensure survival.			
Risk if released			
Pelagic sharks - low			
Benthic sharks - low			

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 seen in the cooler months. Other seabirds like petrels and shearwaters overlap with this fishery. Observers have noted and recorded all the birds observed during setting and hauling operations of the related lobster fishery. Flesh footed shearwater have been observed, at times, sitting in the water behind the vessel as has one albatross. However, very few have been observed around the vessel. The observers have reported *“Apart from the shearwater feeding of small bait pieces washed off from the bait jars, no other bird interaction with the vessel or fishing gear was observed.”*

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. Overall birds tend not to get entangled in traps.

Cook Islands trap Fishery Risk Summary Table - Seabirds

Species	Spatial overlap	Catchability	Risk of mortality
Albatross	Medium	Low	Low
Cormorants	Low	Low	Low
Penguins	Low	Low	Low
Petrels, prions and shearwaters	Medium-high	Low	Low
Mitigation			

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.
Risk after mitigation
Albatross - low
Cormorants - low
Penguins - low
Petrels, prions and shearwaters - low

Marine mammals and turtles

No marine turtles have been observed in the associated lobster fishery and marine mammals are rarely sighted. However, some cetaceans have been reported by observers. Most of these have been too far away from the observer to identify but both Mysticeti and Odontoceti have been recorded in the area. No seals, sealions or elephant seals have been observed by the vessel. None of these species are capable of entering the traps, but unintended entanglement of baleen whales with the floatline is a rare possibility.

Given the rare nature of encounters no physical mitigation is planned, however, if pods of whales approach the vessel, traps will not be deployed until they have moved out of sight.

To avoid the inadvertent ingestion or entanglement of marine mammals or turtles Cook Island vessels are prohibited from discarding any plastic from the vessel.

Cook Islands trap Fishery Risk Summary Table - SSI

Species	Spatial overlap	Catchability	Risk of mortality
Whales	High	Low	Low
Dolphins	High	Low	Low
Seals, sealions and elephant seals	Medium	Low	Low
Turtles	Medium	Low	Low
Mitigation			
If pods of dolphins or whales approach the vessel will not deploy traps until they have moved out of sight of the vessel.			
Risk after mitigation			
Whales - Low			
Dolphins - Low			
Seals, sealions and elephant seals - Low			
Turtles - Low			

VME impacts from TRAP fishing

The main potential impact on VMEs of this fishery is likely to come from damage caused by the anchor or the floatline and from the traps landing on the seabed. Compared to other gear, such as trawl the potential impact from this gear is very small and VME encounters are not common (Brouwer *et al.* 2020).

The anchors and traps are heavy and could cause damage to anything they land on, but traps and anchors have a very small footprint and the lines float above the substrate. In order to further reduce the impact, the Cook Islands has a number of options in place. If VME indicator taxa are found attached to the traps 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 traps to quantify the benthic impact. In addition, known VME areas that have been identified have been closed. The Kopernik valley was identified through a CPUE analysis as having higher than average catch rates of VME indicator taxa and is now closed to trap fishing below 250m.

Analysis to date has shown that, overall, there is minimal impact on the seafloor, as the likely total bottom contact on these areas is estimated to be <1% of the total assessed target area. In addition, as far as possible the vessel is required to keep line sets on low profile ground where the likelihood of encountering a VME is reduced. If the vessel encounters VME indicator species in volumes of more than 1% of the total weight of the target species landed by line, they will move-on to the next fishing site.

Cook Islands trap Fishery Risk Summary Table - VME

Species	Spatial overlap	Catchability	Risk of mortality
VME indicator taxa	Unknown	Low but damage under anchor high	Medium
Mitigation			
Very limited impact footprint, due to the small area of the gear that touches the bottom. Closure of high VME encounter areas such as the Kopernik valley. Post trip review of encounter rates and camera footage and updating of high VME encounter areas. The VME indicator taxa threshold is 1% of the target species by line, if the threshold is reached the vessel is required to move on to the next site.			
Risk after mitigation			
VME indicator taxa - Low			

Overall, the risk to elasmobranchs, seabirds, marine mammals, marine turtles and VMEs is relatively low when compared to other fishing methods. Some teleost and octopus bycatch is expected but live release of these species is possible.

3.6 Sufficiency of information available and degree of certainty

Currently more data are required to assess levels of extraction. However, the cautious approach currently taken, splitting the TAC over extensive seamount areas; limiting the catch to each seamount; and CPUE limits; all mean that the progress of this fishery can continue in a precautionary manner. This also allows the Cook

Islands through the course of this FOP to respond to changes in the resource should we need to. Our willingness to voluntarily close areas for VMEs and seamounts when CPUE rates decline below the threshold is testament to the effectiveness of this approach.

3.7 Consistency with nature as an exploratory fishery

SC5 suggested a phased approach to the development of an exploratory fishery (Paragraph 59-60 of the SC5 Report). Currently we would see our fishery as having elements of phases 1 to 3. While we are still in the initial exploratory phase as we have not fished all seamounts and do not have enough consistent long-term data to develop biomass estimates we have made good strides in the biological data collection aspects of the plan.

We have expanded our data collection to include genetic studies to assess the degree of stock/population separation, and while we have assessed trends in the stock at Kopernik Seamount the assessment of the wider area is currently not being undertaken. Our next step is to evaluate the replenishment rates at Kopernik Seamount which will be a priority for the next phase of the plan, in addition we will continue to explore the crab fishery.

3.8 Consistency with Objective of the Convention

When giving consideration to Article 2 of the Convention, as outlined above, the cautions and responsive approach taken by the Cook Islands is precautionary given the data we currently have. The Cook Islands has responded to changes in the stock and VME encounter rates. We have in place closed seasons and currently the net mesh size results in a relatively selective fishery where small individuals are not retained.

The Cook Islands is considering an ecosystem approach to the management of this fishery by considering all aspects of the environment when conducting this fishery including bycatch and environmental impacts. In addition, the collection of video footage will, over time, allow us to consider the changes in predator prey relationships further contribution to the ecosystem approach to fisheries management.

All this work is giving the Cook Islands an understanding of the long-term sustainability potential of this fishery as well and the effectiveness of potential management measures. In doing so we believe that at this stage, the fishing activities operating under this FOP occur at a very low level of effort spread over an extensive area and as such would not cause serious adverse or irreparable damage to the marine ecosystems in which these resources occur.

3.9 Bottom Fishing advice and recommendations

The Cook Islands is very conscious of its obligation with regard to responding to any potential VMEs that might be encountered. While bottom trap fishing is relatively benign compared to other gears, encounters with VME indicator species is to be expected and observers have been trained to report any indications of VME indicator taxa, volumes, weights and frequency of occurrence (Brouwer *et al.*, 2020a) in accordance with the SPRFMO protocols, which are described in CMM 03-2025.

Observers carry and are familiar with the numerous guides available and the stringent reporting of the observers is testament to their rigor and familiarity in this regard and, as has been done on the already-completed trips, photograph all potential VME species fouled on traps, submit these for identification as needed, and retain samples as needed for identification.

MMR recognizes that it is also where the majority of potential VMEs might be expected to occur. According to CMM 03-2025 and bottom fishing impact assessments (BFIA), the observers 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 line setting using the on-board sea-bottom tracking technology, and importantly, to relate this to location of traps on the lines as they are set and hauled.

MMR 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. However, MMR will continue to take a precautionary approach where:

- Sets shall not occur on the Kopernik valley; 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.

The data collection of VME indicator taxa will aid developing and collecting data to allow comprehensive VME assessments to be undertaken by MMR. Camera mounted on a meshless trap frame will be used for data collection on the benthic environment and will build a thorough database allowing the assessment of BFIA for future use (e.g. Brouwer et al. 2020b).

If significant quantities of VME indicator are found in or attached to traps or by the camera study (more than 1% of the total lobster/crab weight per set), then the vessel will move on to the next fishing site¹. In the event VME areas are identified, the coordinates are recorded and these areas are removed from fishable stations database. Knowing the vessel will have the capability to deploy cameras to film bottom structure and benthos, the vessel will deploy these cameras per the camera study on a regular basis, especially where new areas are being fished and the data will be provided to MMR in the reports at the end of each trip.

The majority, if not all of the seamounts identified for this exploratory fishery, have not been commercially fished with traps in the modern era and, as such, very little is known about the potential for VMEs to occur on these seamounts. Nevertheless, if the vessel encounters VME indicator species volume of more than 1% of the total weight of the target species landed by line, they will move-on to the next fishing site, and will flag the location as a potential VME area, where traps with cameras will be dropped in order to assess the amount and type of VMEs that could be potentially found in that area.

Further underwater video cameras will be dropped periodically when evidence of very high CPUE, gear damage, anomalous substrate, or sensitive bycatch areas are observed. Cameras will be attached to net-free trap frame for observation of the substrate near the footprint of the gear (Figure 2).

• DATA COLLECTION PLAN

4.1 Data required

Data Collection Methods and Scientific Sampling Plan

MMR has an established and approved data collection programme and procedures. On the vessel we use a comprehensive data capture system and sampling methodology that has been implemented under the guidance of an experienced scientific and fisheries management team.

¹ The trigger for “moving on” will occur if the flagged vessel encounters a VME interaction of more than 10% of the total pots landed per line. They will move-on to the next fishing site, and will record the location as a potential VME area. In VME areas pots with cameras will be dropped in order to assess the abundance and type of VMEs that could be potentially found in that area.

This data collection is consistent with a robust exploratory trap fishing operation including tracking and observations of bycatch on traps to confirm the existence of VMEs, biological data collection of the target species and a data collection reporting system to compile data sets necessary to evaluate biomass assessments and geographical distribution of the target species using traps.

During fishing activities, data will be collected daily in accordance with CMM 02 2026 -as follows:

- A Daily Effort regarding Catch data and Production Log will be collected to better understand and research the target species. The Daily Effort, Catch and Production (SPRFMO Fishing Activity Report) will capture operational information on a set-by-set basis and will be described on this form. Lost gear is also recorded on a set-by-set basis or trap by trap basis. MMR requires these data to be captured in an elog which is submitted to MMR weekly.
- Observers will record discards and waste management, wildlife abundance and interactions and mitigation measures. Prior to each exploratory trap fishing trip, an assessment will be made to determine whether the area might be a VME.

The daily fishing logs and observer data collection will be based on the SPRFMO data templates (<https://www.sprfmo.int/fisheries/data-2/data-submission/>) for dropline and squid jig² fishing and will include all the minimum data fields required in CMM 02-2026 Annex 4, 7 and 9.

In addition, biological material including age, growth, morphometrics and reproductive information will be collected.

All data will be submitted to the Secretariat in accordance with the requirements outlined in SPRFMO (2023).

A Observer Tasks and Sampling Instructions

The sampling protocols below must be clear and understood in conjunction with the requirements for capturing data in the database titled SPRFMO_Lobster_V8_blank (Access file). If you are unsure what to capture under the field names, refer to the bottom left corner (of the database page) for the field description. Observers are provided with an access data base to enter the data but if that fails there is a backup form to be completed in excel forms that can be imported into the database post trip.

NOTE: NO DATA THAT IS NOT RECORDED BY THE OBSERVERS MAY BE ENTERED INTO SPRFMO DATABASE.

For reference, Observers must also read the Cook Islands Fisheries Operational Plan (SC8/DW-01)

The table below should provide a view of the sampling requirements that must be undertaken by the Observers:

² Minor modifications will be required to make these appropriate for fish.

Table 1: Observer data collection and Sampling Procedures

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: please use the line form to record this information on hard copies	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 port etc. Insert a table of the landed catch (total number and weights summed for the trip) under the Catch Details heading
Set and Haul	2) Fishing Operations
• Positional • Trap details (type, spacing, number, sampled) • Total catch per target species per trap • Bycatch species of concern (Y/N) • Environmental observations • Gear information (including Lost traps) • Problems	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. Relationship between catch composition (and catch rate) and depth at which a trap is set: We need the approximate depth of at least some of the traps that you sample. There are 3 depth soundings made per line (start, mid and end). Would it be possible to sample traps at these points, so that we will have the numbers / size / species comp. per trap as well as the depth for that trap? If you work it into your normal sampling schedule, you may be able to do this without increasing the total number of traps that you sample per line?
Trap Tally	3) Catch Details

Please receive this information from the vessel. The Cook Island observer should collect and capture these data; • Record weight per target/non-target species in kilo- grams per trap • Bycatch weight is recorded for all “other” bycatch species summed together per trap • Record whether the trap was Missing, Damaged or Not damaged	Approx. 1000 traps will be set per day on five lines of 200 traps per line, or only 100 traps per line when fishing smaller seamounts. Catch of each trap will be sorted (by the crew and Cook Island observer) into target species (<i>Jasus</i>, <i>Pro-Jasus</i> and <i>Chaceon</i>) and bycatch. Each of the target species will be weighed per species. All bycatch will be “lumped” together and weighed.
Sampling	4) Biological Data Summary
1. For each 10th trap (starting at number 1) measure the first 40 lobsters/crabs but if there are less than 40 in the trap, measure all of them; 2. Weigh the 40 lobsters/crabs (i.e. sample weight per species). You will have the total weight of all lobsters/crabs caught by the trap from the Trap Tally data; and also the weight of the subsample of 40 lobsters. Therefore, individual lobsters are NOT weighed during the size composition sampling; 3. Once you reach a minimum of 200 lobsters on a line (i.e. 5 traps of 40; or 20 traps of 10 lobsters, if this is all that was caught) then you can stop measuring on that line; 4. For lobsters (<i>Jasus</i> and <i>Projasus</i>) and crab (<i>Chaceon</i>) record;	The international observer (i.e. CapMarine Observer) is required to sample 10% of the traps per line i.e. sample every 10th trap that comes up, which equates to 20 traps per line of 200 traps. Please measure length to the nearest mm and total sample weights kg using a motion compensated scale. All traps hauled will also be recorded by the deck camera for by-catch and other potential issues to be assessed. Provide a brief description of any sub-sampling tasks undertaken during the cruise. List all the types of samples collected and the location where they are to be stored. Describe the design, sampling strategy and outcomes when using traps with smaller mesh size.

- Trap number;
- Species, Sample weight (per sp. per trap);
- Measure type, Lobster length = CL (mm); crab length = CW (mm);
- sex&berry stage=F1–F4, BF-Female with berry, FM–female mature, I–female immature, M–Male, NF–no female maturity defined;
- shell condition = 1-3;
- sex – automatically updated;
- berry – automatically updated;
- Retained Sample No = If samples are retained i.e. bagged and tagged, please record the serial number for the species on the database as well as on the label in the bag. This also includes blood or tissue samples taken;
- Please take photos of unknown species and label them with the Retained Sample No.

Note, orange highlight on the database means that you must re-check that you have captured the data correctly. Please also collect five samples of each lobster *Jasus* sp., *Projasus* sp. and *Chaceon* sp. crab per seamount, which will be bagged on a species by species basis and landed at the end of each voyage. The sample bags containing the crustaceans will be identified by the vessel name, common name and scientific name (if known) of the crustaceans, approximate weight of the total samples and details of a contact person. Additionally, any interesting species caught as bycatch and unable to be identified at sea by the observers will be bagged and preserved along with details mentioned above.

Collect genetic samples: 5 Jasus, 5 Projasus, 5 Chaceon please. Best is to break of a leg with some muscle tissue inside, and then cut it in half to make sure the ethanol gets through the shell to the tissue. Fill the tube to the top with the ethanol and store it in the freezer. Please fill the ethanol up from time to time – it gets sucked into the tissue and can also evaporate. Introducing small-mesh traps: • For now, the standard mesh size is retained and sampled in the same way as on trip 1, but it would be useful to introduce some small-mesh traps as well, to assess the relative abundance of smaller lobsters and crabs. • Sample a total of 5 small-mesh traps, which are fitted to the line, exactly in the same way as the normal traps. • Each time the line is hauled, the observer should sample these 5 traps, along with the standard mesh-traps. • For example, if the line consists of 100 traps, then the catches would be measured for 5 small-mesh traps and 5 standard mesh traps (10% sampling). If 200 traps, then measure the 5 small-mesh traps and 15 standard mesh traps. etc. In this way our normal sampling regime is maintained, while we add the test with small-mesh traps.	
Bycatch	5) Bycatch Data Summary
For every trap sampled i.e. every 10th trap record: • Species code for all the invertebrate (particularly VMEs) and vertebrate bycatch species in the trap; • Live Dead = alive, dead or unknown; • Location = inside the trap, outside the trap or on the line; • Retained (Y/N); • Condition = broken or whole, Number, Weight (kg); • Comment; • BioSample Number = bycatch serial number; Please retain unknown species for ashore identification. The serial number must correspond to the label in the sample bag.	Provide information about the bycatch sampling and include a summary of the state, location on the trap/line and condition of the species caught. Please report on any interactions with seabirds, turtles and marine mammals. Describe any bycatch mitigation devices used by the vessel and comment of their effectiveness. Insert table of all retained samples with reference to the Biological Sample number.
Length - Weight (conversion factors)	6) Biological Data Summary

Length-weight data for <i>Jasus caveorum</i>. You need to measure CL, Total length (TL), whole weight (WW) and tail weight (TW). Maybe just do a few per line. Tail weight should be from tails removed by the factory in the normal way, not cut off. In the end (after the trip) it would be good to have a nice broad size range covered (50 – 170 mm CL) and equal numbers of males and females (50–100 of each sex), if possible. 1. Measure a max of 200 individuals per retained species across the size distribution for the entire trip. 2. For each size class (<40mm, 40-49, 50-59, 60-69, 70-79, 80-89, 90-99, 100-109, 110-119, 120-130, >130 mm) measure a minimum of 5 males and 5 females and record; • Sex (M/F) • Measurement type (CL or CW) • Length (mm) after processing, Total Length (mm) • Whole weight (kg), Processed weight (kg) There may not be many species in the smaller and larger length categories but even 1 individual will be useful.	Provide a summary of conversion factors used by the vessel and your calculated values for the appropriate areas. Provide a description of how the conversion factors were calculated in the comments section. A length-weight regression equation can also be derived from these data.
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4.2 Due dates

As per CMM 02-2026, Members and CNCPs will provide by 30 June, their previous (January to December) year's data on fishing activities and the impacts of fishing described in sections 1b) - 1c) of CMM 02-2026. The Cook Islands will ensure that its data are submitted as per these dates.

4.3 A plan for directing fishing effort

Vessel Movement in the Management Areas and Control of Vessel

The vessel and its operators will report to MMR all vessel activities in the Management Areas to MMR's legal specifications and requirements. This will include, but is not limited to:

- Notification of: Entry and Exit from SPRFMO waters;
- Adequate prior notice when planning a trip into SPRFMO Convention waters;
- Adequate prior notice of date and port of arrival after a trip in SPRFMO Convention waters;
- While at sea the vessel will report its location and current activity to MMR through VMS and through mandated email reporting;
- While at sea, the Master will be responsible for the day-to-day operations of the vessel and ensuring compliance in accordance with Cook Islands law and SPRFMO CMMs;
- Vessel Monitoring System: the vessel will have a VMS system approved by MMR on board and will report simultaneously to both the MMR and SPRFMO as per the requirements of CMM 06-2023 for the option described in Paragraph 9.b, once the SPRFMO system is advised as operational.

Observers

The vessel will comply with all of the directives from MMR for 200% Observer coverage during all fishing operations described in this FOP and CMM 14b-2023.

The main duties of the observer are outlined in detail in Table 1 and are in accordance to CMM 14b-2023. The independent observer shall also be responsible for the data collection and capture on an already established scientific observer data base (MS Access).

4.4 Other research data (where appropriate)

Not applicable

4.5 Time scales

The data collected here will allow us to assess not only the biology of the target species but also catch and effort trends. By the end of the FOP we should have enough data available to elucidate some of these trends and use these data to estimate biomass and population trends from this fishery.

References

Brouwer, S. and Wichman, M. (2020). Estimating biomass of *Jasus caveorum* on Kopernik Seamount in the South Pacific Ocean from the Cook Island trap fishery. Technical Report . South Pacific Regional Fisheries Management Organisation 8th Meeting of the Scientific Committee.

Brouwer, S., Wichman, M., Groeneveld, J., Epstein, A., Japp, D., and Wragg, C. (2020a). Cook Islands exploratory lobster trap fishing in the SPRFMO - Trips 1-4. South Pacific Regional Fisheries Management Organisation 8th Meeting of the Scientific Committee.

Brouwer, S., Wichman, M., Maru, P., Groeneveld, J., Epstein, A., and Japp, D. (2019). Cook Islands exploratory lobster trap fishing in the SPRFMO - Trips 1 and 2. South Pacific Regional Fisheries Management Organisation 7th Meeting of the Scientific Committee.

Brouwer, S., Wichman, M., and Wragg, C. (2020b). Estimating encounter rates with vulnerable marine ecosystem indicator species at Kopernik Seamount in the South Pacific Ocean from the Cook Islands lobster trap fishery. Technical Report. South Pacific Regional Fisheries Management Organisation 8th Meeting of the Scientific Committee.

Brouwer, S., Nicholas, T-R., and Maru, P. 2023. Cook Islands exploratory lobster trap fishing in the SPRFMO - 2019-2023. South Pacific Regional Fisheries Management Organisation 11th Meeting of the Scientific Committee.

Devey, C. W., Hékinian, R., Ackermann, D., Binard, N., Francke, B., Hémond, C., Kapsimalis, V., Lorenc, S., Maia, M., Möller, H., et al. (1997). The Foundation Seamount Chain: a first survey and sampling. *Marine geology*, 137(3-4):191–200.

Maia, M., Dymont, J., Gente, P., and Jouannetaud, D. (1999). The Foundation hotspot–Pacific– Antarctic ridge interaction: complexities of the channelling model revealed. In *J. Conf. Abst.(EUG 10)*, volume 4, page 345.

Sheppard, C. (2018). *World Seas: An Environmental Evaluation: Volume I: Europe, The Americas and West Africa*. Academic Press.

Smith, W. H. and Sandwell, D. T. (1997). Global sea floor topography from satellite altimetry and ship depth soundings. *Science*, 277(5334):1956–1962.

Appendix A - Vessel Details - AKANUI

Participant:	COK (Cook Islands)
Vessel Flag:	COK (Cook Islands)
Vessel name:	AKANUI
Registration:	14398
Call Sign:	E5U4268
Lloyd's/IMO Number:	5417210
Previous Names:	Vardborg
Vessel Type:	06.9.0 Trap Setters – Trap Setters nei
Gross Tonnage:	274.00
Gross Register Tonnage:	274.00
Previous Flag:	FRO (Faroe Islands)
When Built:	1963
Where Built:	Faroe Islands
Length (m):	39.60
Length Type:	LOA
Moulded Depth (m):	3.66
Beam:	7.02
Power of Main Engine(s) (kW):	441.00
Hold Capacity (m ³):	55.00
Authorised Date (Start):	13-Apr-2023
Authorised Date (End):	31-Dec-2023
Flag Authorisation Start Date:	02-May-2022



• SCIENTIFIC COMMITTEE ASSESSMENT CHECKLIST AND RECOMMENDATIONS

This checklist is for the Scientific Committee to complete to ensure that all aspects of the Fisheries Operation Plan and the Data Collection Plan have been assessed. To assist the Scientific Committee with their deliberations, please pre-fill the Rationale column with a brief justification of how your Fisheries Operation Plan and Data Collection Plan address the Scientific Committee consideration. The Scientific Committee will complete the Assessment column.

5.1 Fisheries Operation Plan checklist

Fisheries Operation Plan Considerations	Rationale	Assessment
a) management strategies or plans for fishery resources; [Note that SC has previously interpreted this as to mean as having a clear objective for the fishery]	Our interim objective for this fishery is to explore the fishery potential of <i>J. caveorum</i> , <i>Projasus</i> sp. and <i>Chaceon</i> sp. to sustain a commercial fishing operation in the Foundation Seamount Chain and the Northern Seamounts.	Yes
b) reference points, including precautionary reference points as described in Annex II of the 1995 Agreement;	Interim target reference point of 40%B ₀ and an interim limit reference point of 20%B ₀ as our initial reference points unless data analysis undertaken as part of this exploratory fishery suggests alternative reference points may be more appropriate. As a precautionary measure for the Kopernik Seamount we have set a Trigger Reference point at 4kg/trap at which time management action is triggered.	Yes
c) an appropriate precautionary catch limit;	300t per fishing year With additional CPUE limits, trap number limits and a closed season.	Yes
d) the cumulative impacts of all fishing activity in the area of the exploratory fishery;	Risk assessment detail included	Yes
e) the impact of the proposed fishing on the marine ecosystem;	No impact on Species of Special Interest (SSI) and VMEs risk assessment and mitigation for both included in the FOP.	Yes
f) the sufficiency of information available to inform the level of precaution required and the degree of certainty with which the Scientific Committee's advice is provided;	Conservative target and limit reference points proposed as well as methods to assess the stock against these. The current data are not sufficient to evaluate the actual stock status but CPUE evaluation has allowed MMR to make management interventions to prevent further decline.	Yes

<i>g) the degree to which the approach outlined in the Fisheries Operation Plan is likely to ensure the exploratory fishery is developed consistently with its nature as an exploratory fishery, and consistently with the objectives of Article 2 of the Convention³; and</i>	Trip level seamount limits in place to ensure the fishery is truly exploratory in nature. This approach is sufficiently conservative, making it consistent with Article 2 of the convention. The monitoring of stock against reverence points will allow the Ministry of Marine Resources, Cook Islands, and SPRFMO to make decisions annually as to how this exploratory fishery is performing against the objectives and the requirements of Article 2 of the convention. In addition, the approach requires the release and protection of SSI as well as at risk species such as elasmobranchs that are required to be released.	Yes
<i>h) in respect of a Fisheries Operation Plan that proposes any bottom fishing activity, advice and recommendations in accordance with paragraph 20 (b) of CMM 03-2020 (Bottom Fishing)⁴.</i>	Risk assessment provided and some experience with this fishery shows low bycatch rates. The fishery has no SSI interactions and low VME impact. No additional mitigation is required at this stage.	Yes

5.2 Data Collection Plan checklist

Data Collection Plan considerations	Rationale	Assessment
<i>a) a description of the catch, effort and related biological, ecological and environmental data required to undertake the evaluations described in paragraph 24;</i>	We have based our elogs on the SPRFMO templates for rap fishing as the basis for collecting daily catch logs and observer data collection. We use collected catch data from each trap as well as record all effort data. Additional biological data are recorded from 10% of the traps.	Yes
<i>b) the dates by which the data must be provided to the Commission;</i>	Noted in the report that all data will be submitted as required based on the SPRFMO data templates (https://www.sprfmo.int/fisheries/data-2/data-submission/) and will include all the minimum data fields required in CMM 02-2026 Annex 4, 7 and 9.	Yes
<i>c) a plan for directing fishing effort in an exploratory fishery to allow for the acquisition of relevant data to evaluate the fishery potential and the ecological relationships among harvested, non-target and associated</i>	Collection of the catch and effort biological data as well as restricting the catch on seamounts to ensure that the fishery is spread around the area and not just focused in one place. This includes an annual and trip seamount limits. The data collection sheets are sufficiently detailed to collect all the data required by SPRFMO as well as	Yes

³ The objective of this Convention is, through the application of the precautionary approach and an ecosystem approach to fisheries management, to ensure the long-term conservation and sustainable use of fishery resources and, in so doing, to safeguard the marine ecosystems in which these resources occur.

⁴ The Scientific Committee shall undertake a review of the proposed assessment and provide advice to the Commission on:

- i. whether the proposed bottom fishing would contribute to having significant adverse impacts on deep sea fish stocks for which no stock assessment has been completed, bycatch species and/or VMEs and, if so,
- ii. whether any proposed or additional mitigation measures would prevent such impacts.

<i>and dependent populations and the likelihood of adverse impact;</i>	additional a data we require for a full biological assessment of the stock in future.	
<i>d) where appropriate, a plan for the acquisition of any other research data obtained by fishing vessels, including activities that may require the cooperative activities of scientific observers and the vessel, as may be required by the Scientific Committee to evaluate the fishery potential and the ecological relationships among harvested, non-target, associated and dependent populations and the likelihood of adverse impacts; and</i>	The vessel is required to carry two observers. The data collection is detailed in the FoP and the logsheets have been provided, as well as an initial assessment of the data to date.	Yes
<i>e) an evaluation of the time scales involved in determining the responses of harvested, dependent and related populations to fishing activities</i> [Note that SC has previously interpreted this as to mean “when will data be analysed and available”]	The analysis of catch and effort as well as biological material is ongoing beginning at the end of the second trip. The catch, effort and biological analyses are presented to the Scientific Committee annually beginning in 2019. Noting that as yet we have not detected a stock response from crabs.	Yes

5.3 Scientific Committee recommendations (SC to complete)

The SC discussed the [insert Member/CNCP] Fisheries Operational Plan and Data Collection plan and Agreed that the approach outlined in the Fisheries Operation Plan is likely to ensure that the exploratory fishery is developed consistently with its nature as an exploratory fishery, and consistently with the objectives of Article 2 of the Convention, with the following requested modifications (*to be added if necessary*):

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Or:

The SC discussed the [insert Member/CNCP] Fisheries Operational Plan and Data Collection plan and recommended that a small working group [led by xxx and composed of xxx] meet post SC and to provide additional advice on the proposal, noting that the work is likely to extend intersessionally and would be expected to result in a revised proposal being provided to the next meeting of the Scientific Committee. Aspects of the proposal which are currently deficient include

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Or:

The SC discussed the [insert Member/CNCP] Fisheries Operational Plan and Data Collection plan and agreed that the proposal was lacking critical information in several important areas and was not consistent with the SPRFMO objective. The SC noted that the Fisheries Operational Plan in its current form would require substantive modification to ensure that sufficient information would be available to enable the SC to evaluate the long-term potential and impacts, of the proposed exploratory fishery, and to ensure that the fishery resources would be developed on a precautionary and gradual basis as required by the CMM.