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### Cook Islands Annual Report

*Cook Islands*



**Ministry of Marine Resources**  
GOVERNMENT OF THE COOK ISLANDS

SOUTH PACIFIC REGIONAL FISHERIES MANAGEMENT ORGANISATION

**Cook Islands Annual Report in the SPRFMO Convention Area for 2020**

**September 2021**

**Prepared by Offshore Fisheries Division**

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# 1 Description of Fisheries

The Cook Islands has operated in the South Pacific Regional Fisheries Management Organisation (SPRFMO) Convention Area since 2018 under an exploratory fishery limited to an allocated area southeast of French Polynesia (Table 1).

Table 1: The coordinates of the two areas permitted for Cook Islands exploratory fishing also shown in Figure 1.

Exploratory area	Latitude	Longitude
Foundation	31'00 S	100'00 W
Sea mount chain	40'00 S	134'00 W
Northern seamounts	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The three year exploratory trap fishing commenced on the Foundation Seamount Chain in 2019 in line with CMM 14b-2018, superseded by CMM14b-2019. Only one Cook Islands vessel actively fished (Table 2), completing one trip in 2020 that occurred from March to May. Activities were carried out in line with the Fisheries Operations Plan (MMR, 2019) and relevant Conservation Management Measures (CMMs). The Northern Seamounts were not fished in 2020, as that area was only included in the CMM14b-2021.

Table 1. Fleet composition of Cook Island flagged vessels operating in the SPRFMO area for most recent 5 years.

Vessel GRT	2016	2017	2018	2019	2020
0-200	-	-	-	0	0
201-500	-	-	-	0	0
500+	-	-	-	1	1
<b>Total</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1</b>	<b>1</b>

The maximum harvest level is 300 tonnes of green weight for the combined species of *Jasus* spp., *Projasus* spp. and *Chaceon* spp.

During the first year of the exploratory program in 2019, the target species was *Jasus* sp., however in 2020 the target species was *Chaceon* sp. In this annual report, all activities are reported for 2020.

## 2 Catch, Effort and CPUE Summaries

As there is no historical data available for comparison, in-depth analysis of catch, effort and CPUE of the Cook Islands Exploratory fishing activities thus far (2019 and 2020) is contained in the working paper submitted to SC8, SC8-DW02 (Brouwer, et al., 2020b).

In 2020, a total 15.73t was landed, an 89% decrease from 2019 catch levels (Table 3). In 2020 the catch composition consisted of 15.36t of the main target species (97%), including 13.95t (88%) of *Chaceon sp.* and 1.46t (8%) of *J. caveorum*. In addition, a small amount of bycatch (0.37t -2%) was landed.

In 2020, *Chaceon sp.* consisted of 88% of the overall catch, in comparison to 2019 where it consisted of 5% of the total catch. *J. Caveorum* consisted of 94% of the total catch in 2019 and only 9% of the total catch in 2020.

The significant drop in overall catch can be attributed to the number of trips conducted, where in 2019 three trips were carried out by the vessel compared to only one in 2020. The increase and decrease in catch composition of *Chaceon sp.* and *J. Caveorum* in 2019 and 2020 can be attributed to the change in targeting. Additionally, in 2019 the vessel was mostly fishing on a single seamount where as in 2020; it conducted more activities on other seamounts.

In 2020 the Exploratory Potting Fishery (EPF) conducted fishing activities and set a total of 70 commercial lines and 15 scientific research lines. All sets were conducted on 6 of the 62 documented seamounts in the Foundation Seamount Chain.

**Table 2: Catch by species in tonnes for potting fishery.**

<b>Year</b>	<b><i>J. Caveorum</i> (t)</b>	<b><i>Chaceon sp.</i> (t)</b>	<b>Others (t)</b>	<b>Total</b>
<b>2016</b>	-	-	-	-
<b>2017</b>	-	-	-	-
<b>2018</b>	-	-	-	-
<b>2019</b>	145.21	7.7	1.11	154.02
<b>2020</b>	1.46	13.95	0.37	15.73
<b>Total</b>	<b>146.62</b>	<b>21.65</b>	<b>1.48</b>	<b>169.76</b>

In 2020 100% of *J. caveorum* were caught on Kopernik seamount, whilst 43 % of *Chaceon sp.* crab was caught on the Mendel, 28% on MM. 12% on Linne B and 10% on Humboldt seamount. Small amounts were also caught on Galilei and Kopernik seamount (Table 4). No *J. Caveorum* were caught on these seamounts as the depth of these seamounts was not considered suitable for lobster fishing.

Table 3. Overall catches on each seamount from trips4 in 2020.

Seamount	<i>J. Caveorum</i> (t)	<i>Chaceon sp.</i> (t)	Total catch	Traps Set
MM	0.00	3.84	3.84	2432
Mendel	0.00	6.03	6.03	2178
Kopernik	1.41	0.05	1.46	439
Linne b	0.00	1.68	1.68	580
Galilei	0.00	0.98	0.98	754
Humboldt	0.00	1.38	1.38	430

### 3 Fisheries Data Collection and Research Activities

#### 3.1 Data Collection system

Data collection programs are aimed at catch and effort reporting, monitoring operational activities, bycatch interactions, identification of any VMEs, biological data from target species, target species biomass estimation and distribution (MMR, 2019).

Operational data was collected in accordance with CMM 02-2017 (superseded by CMM 02-2020) using two daily logs:

- Daily Effort, Catch and Production (SPRFMO Fishing Activity Report) captured operational information on a string-by-string basis. Lost gear was also recorded on a trap by trap basis.
- Daily Environmental Log to record discards and waste management, wildlife abundance and interactions and mitigation measures. Prior to each exploratory pot fishing trip, an assessment was made to determine whether the area might be a Vulnerable Marine Ecosystem (VME). To date no area was identified.

#### 3.2 Scientific Analyses and Research Activities

In 2020 the Cook Islands undertook a number of analyses of the fishery operations that occurred in 2019 and 2020. The outcomes of these analyses are provided in three working papers submitted to SC8 in 2020 for discussions

The first paper *Cook Islands Exploratory Potting in the SPRFMO Area – Trips 1-4* (Brouwer, et al., 2020b) (SC8-DW02) provides a summary of activities across the four fishing trips (three in 2019 and one in 2020).

In the second paper *Cook Islands 2020 Kopernik Seamount lobster biomass estimation* (Brouwer & Wichman, 2020) (SC8-DW03), this analysis used a series of experimental trap lines to estimate the effective fishing area of a trap, then selected a fishing lines from a commercial exploratory operation on Kopernik Seamount that were set on “virgin ground” to estimate biomass from transects lines within a number of depth class over the course of the fishery.

The third paper *Cook Islands VME and benthic footprint from the Cook Islands Exploratory lobster and crab trap fishery in the SPRFMO Area* (Brouwer, et al., 2020a) (SC8-DW04) attempted to assess encounters with Vulnerable Marine Ecosystems (VMEs) situated on Kopernik Seamount. t.

## 4 Biological Sampling and Length/Age Composition of Catches

In 2020, achieved the minimum target of 10% sampling coverage was reached for traps of *J. caveorum* and *Chaceon sp.* sampled. (Brouwer, et al., 2020b).

All biological sampling was done on board the vessel. Observers sampled on average 10% of traps per li-ne for biological information such as length, batch weight per species, sex, maturity stage and shell condition for the target species *J. caveorum* and *Chaceon sp.* Bycatch was sampled for species, length, weight, condition (dead/alive/broken or whole) and location caught on the trap. (Brouwer, et al., 2020b).

## 5 Ecosystem Approach considerations

In line with CMM14b-2020, the following mitigation measures were applied by Cook Islands flagged vessels during operations:

- a) No dumping of offal while lines are being set or while lines are being hauled;
- b) any offal or discards shall be macerated by machine prior to discarding;
- c) discarding shall take place only at the end of a haul or while steaming; and no biological material shall be discarded for at least 30 minutes before the start of any set or during any set; and
- d) discarding may only take place from the opposite side of the vessel from the hauling position.

**Table 4: Summary of observed seabird sightings grouped by seamounts from Trips 1-4.**

SEAMOUNT	WANDERING ALBATROSS	BLACK-BROWED ALBATROSS	GREY PETREL	GIANT PETREL	BLACK PETREL	UNID BIRD
<b>Galilei</b>	1		6		1	
<b>Humboldt</b>	1		23			
<b>Linne B</b>			9	1	2	
<b>MM</b>	8		2		12	
<b>Mendel</b>	15	13	16		12	5
<b>Total</b>	<b>25</b>	<b>13</b>	<b>56</b>	<b>1</b>	<b>27</b>	<b>5</b>

There were a total of 127 seabird observations in 2020 (Table 5). The highest observations of seabirds occurred at Mendel. This was the seamount where the highest amount of catch was observed in 2020. Grey petrels were most commonly sighted (56), followed by black petrel (27) and wandering albatross (25). A small number of seabirds were identified as unknown (5).

During all trips there was no seabird or marine mammal interactions with gear and/or mortalities observed. All documented seabird or marine mammal observations were sightings at or near the fishing vessel.

## 5.1 VME Encounter and State Processes

During 2019 and 2020 there were very low encounter rates with an overall 88 individuals encountered on 66 traps from over 18,000 traps set on Kopernik Seamount. Further detailed discussions of estimating encounter rates of VME indicator species on Kopernik Seamount is contained in the Cook Islands working paper submitted to SC8 (Brouwer, et al., 2020).

Generally, trap fisheries are assumed to cause little physical damage to the benthic environment, largely due to their small size and the immobile nature of the fishing operation when compared to trawl gear. Nevertheless, delicate organisms present in the fishery could be affected when they come into contact with traps, and as such MMR may close fishing in certain areas from time to time if required.

## 5.2 Information relating to ALDFG

**Table 5. Number of pots set and reported as Abandoned, Lost, Discarded or Retrieved Fishing Gear (ALDFG) for trip 4 and percentage of pots lost.**

Trip	Number of pots set	Number of pots lost	% of lost pots
2019	21,325	315	1.5
2020	7,160	40	0.5

Of the 7,160 pots set in 2020, 40 were observed to have been lost during hauling accounting for 0.5% of overall gear classified as Abandoned, Lost, Discarded or Retrieved Fishing Gear (ALDFG) under CMM-17 (Table 6).

## 6 Observer Implementation Reports (refer CMM 02 and CMM 16).

The Cook Islands National Observer Programme trained one observer shortly after being authorized to fish in the SPRFMO Convention Area in 2018, and one other in March of 2019. Plans are being developed to increase this to a pool of five observers. The training framework is evolving over time as this is still a relatively new gear type for the Cook Islands, and experiences and examples are being taken from other similar fisheries. Training is tailored to capture data to meet CMM 14b-2020 requirements. The two observers completed sessions that covered the following:

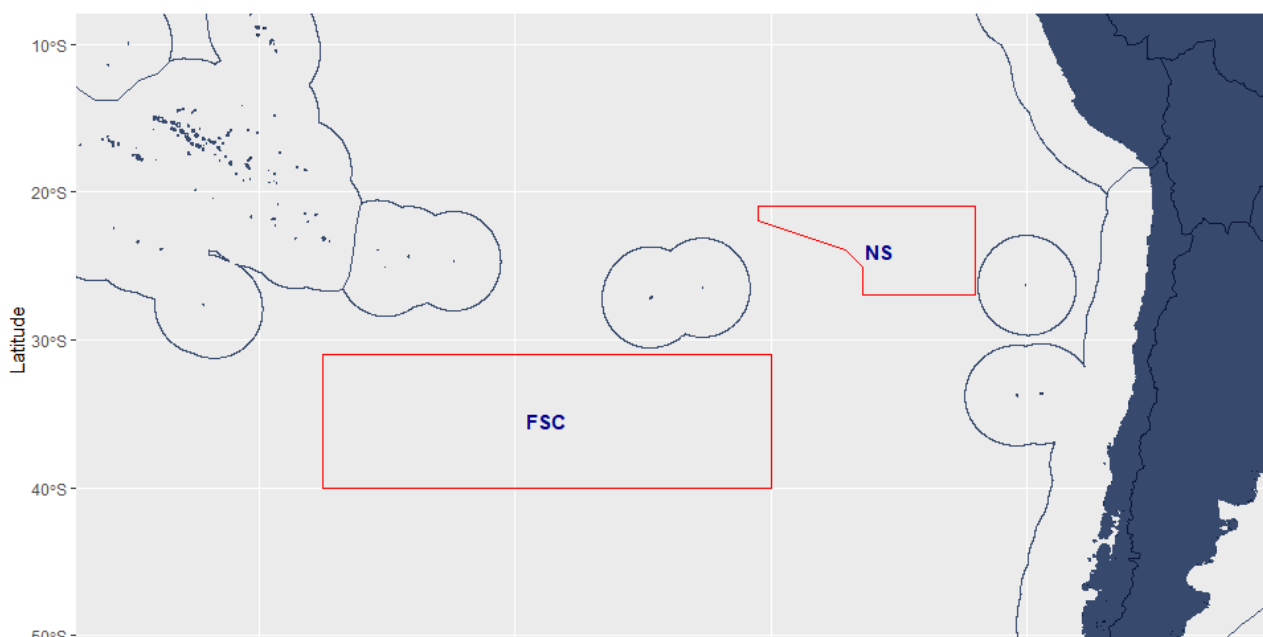
- Observer Programme Policy and code of conduct
- Health and safety
- Communication/key vessel person/MMR contact person
- Bottom Potting General Information Form
- Set and Haul Information
- Compliance Form
- Deep-Water Crustacean sampling
- Reconciliation form
- Journal writing
- VME encounter



- Trip Summary
- Cruise Details
- Fishing Operations
- Catch Details
- Biological Data Sampling
- Biological Data Summary

## 6.1 Programme Design and Coverage levels

The Cook Islands National Observer Programme (CINOP) was established in 2002, based in the Offshore Fisheries Division at the Ministry of Marine Resources. CINOP provides observer services to flagged vessels fishing in the South Pacific Regional Fishery Management Organisation-Convention Area (SPRFMO-CA) with the aims to achieve the coverage requirement of 100%. Observers collect a wide range of data to inform fisheries management decisions including both scientific and compliance related data. CINOP makes provisions to ensure that observers collect and report data as described in CMM 02-2020 (Data Standards). Additionally, observers achieved the target of observing 10% of pots hauled for marine mammal, seabirds and other SSIs. The logistics and course material for the training program has been put on hold since early 2020 due to Covid-19



**Figure 1: SPRFMO-CA and the Cook Islands exploratory fishing areas. FSC = Foundation Seamount Chain; NS = Northern Seamounts**

## 7 References

Brouwer, S. & Wichman, M., 2020. *Estimating biomass of *Jasus caveorum* on Kopernik Samount in the South Pacific Ocean from the Cook Islands exploratory trap fishery. SC8-DW03*, s.l.: South Pacific Regional Fisheries Management Organisation 8th Meeting of the Scientific Committee.

Brouwer, S., Wichman, M. & Wragg, C., 2020a. *Estimating encounter rates with vulnerable marine ecosystem indicator species at Kopernik Seamount in the South Pacific Ocean from the Cook Islands lobster trap fishery.*, s.l.: South Pacific Regional Fisheries Management Organisation 8th Meeting of the Scientific Committee.

Brouwer, S., Wichman M., Wragg, C., Epstein, A., Japp, D., 2020b. *Cooks Islands exploratory lobster trap fishing in the SPRFMO- Trips 1 to 4*, s.l.: South Pacific Regional Fisheries Management Organisation 8th Meeting of the Scientific Committee.

MMR, Ministry of Marine Resources, 2019. *Cook Islands revised Fisheries Operational Plan for an Exploratory Potting Fishery in the SPRFMO Area. SC7-DW01\_Rev1*, s.l.: South Pacific Regional Fisheries Management Organisation 7th Meeting of the Scientific Committee.