SPRFMO
South Pacific Regional Fisheries Management Organisation

13th MEETING OF THE SCIENTIFIC COMMITTEE

8 to 13 September 2025, Wellington, New Zealand

SC13 - DW 01

Ecuador Fisheries Operation Plan for a new Toothfish fishery

Ecuador

SPRFMO
South Pacific Regional Fisheries Management Organisation

FISHERIES OPERATION PLAN

REPUBLIC OF ECUADOR

1. SUCCINT DESCRIPTION- ECUATORIAN PROPOSAL

Member/CNCP	Republic of Ecuador
Area	FAO Fishing Area 57,81,87 The proposed research area consists of the following coordinates: Corner coordinates of the research block: The area within this coordinate excluding the EEZ of New Zealand and Australia. 50S 083W 60S 083W 55S 150E 60S 150E 50S 121 E 55S 121 E
Target Species	Patagonian Toothfish (*Dissostichus eleginoides*) and Antarctic Toothfish (*D. mawsoni*)
Proposed Methods of fishing	The vessel FV Altar 45 of Trasmarina S.A. will be targeting the fishing of Patagonian Toothfish (D. eleginoides) and Antarctic Toothfish (D. mawsoni) using the autoline bottom or Spanish long line fishing method. The fishing method will be finally defined in the complete Fishing Operation Plan out of these 2 options: 1)Autoline Bottom longline system. Main Line: Mainline of 11,5 mm, 12 mm, 13,5 mm or 13,7 mm). Composition: Polypropilene with integrated Weight 50g/m. Average length per line: 8500 m Hook type: 9/0, 12/0 ó 14/0 Mustad type depending on Manufacturer. Number of hooks per line and space between hooks: Between 3000 and 10500 per line, spaced between 1,20 y 1,40 m. Snood length: between 50 to 60 cm. Weight type: cement or steel between 5 and 6 kg. Space between weight if used: between 40 and 50 m

	Sinking speed: > 4 m/s. Weight type: between 40 and 80 kg; 2 weights on each line end, and could be anchor or chain. Floats: 1 radio beacon with 3 or 4 floats on each end of the line. Identification radio buoys: 1 GPS radio buoy with light, one on each end of the line 2) Spanish longline fishing Line type: Mainline of bottom longline (16- or 18-mm rope) Fishing line: 5 to 6 mm. Line material: Polypropylene Average line length and deployment limits [magazine]: 15,000 m line (8 sections × 1,875 m) Hook type: Mustad 9/0, 10/0 or 12/0 depending on Manufacturer. Number of hooks per line and spacing: 3,500 to 5,000 hooks per line; spacing between hooks between 1,4 and 1,8 m. Weight material and mass: 6 kg cement or steel Weight spacing: 20 m to 40 m depending on bottom. Sinking speed: >3 m/s Type and number of anchors or weights: 40 or 60 kg anchors/weights; 2 anchors/weights at each end of the line Floats and spacing: 1 radio beacon with 3 or 4 floats at each end of the line (15,000 m line) Radio buoy identification: beacon with GPS positioning or similar
Proposed maximum catch limit	600 tonnes (in green weigh) per year.
Expected operation period	2026-2028
Submission date	30 may 2025

2. FISHING OPERATIONS PLAN:

The Republic of Ecuador submits this complete Fishing Operations Plan within the deadlines established in paragraph 5 of CMM13, which complies with all the information required in the template defined by the Scientific Committee

The company TRANSMARINA C. A, of Ecuadorian nationality with its fishing vessel Altar 45 has the interest to carry out exploratory fishing in the FAO 57,81,87 zone, whose objective is to contribute with the research for the Patagonian Toothfish (Dissostichus eleginoides) and Antarctic Toothfish (D. mawsoni) resources, the maximum catch limit will be 600 tons per year (in green weight), the catches will be carried out during the whole calendar year for three years of research campaign.

2.1 Description

A description of the exploratory fishery, including the area, target species, proposed fishing methods, proposed maximum catch limits and any distribution of that catch limit among areas or species.

Fishing Area

The proposed fishing area is the areas that have been partly explored in campaigns by New Zealand, Australia and the European Union, which are located in FAO Zone 57, 81, 87, in the following coordinates, excluding from this area the exclusive economic zone of New Zealand and Australia:50S 083W

60S 083W

55S 150E

60S 150E

50S 121 E

55S 121 E

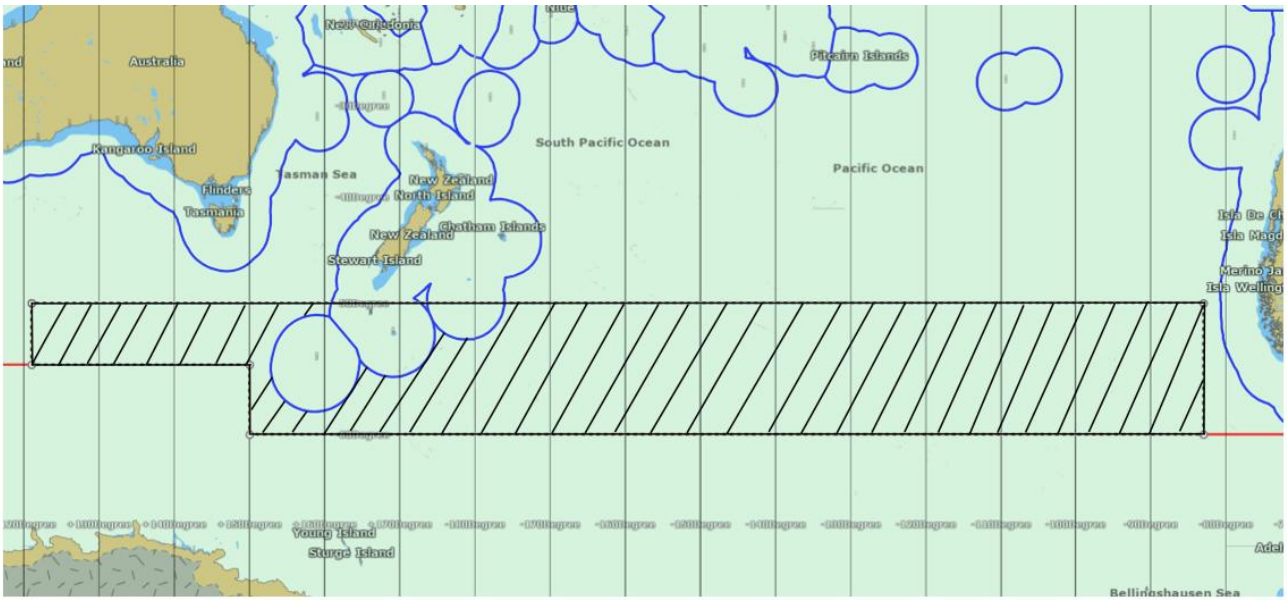

Figure 1: proposed fishing area including FAO areas 57, 81 and 87 excluding from the exploratory fishing campaign the exclusive economic zones of New Zealand and Australia, adjacent to the CCAMLR area.

The reasons for presenting this extensive is to carry out full-year campaigns to cover the area to address the biological behavior of a calendar year, the distribution between sexes during the year, behavior by period, feeding habits in the different annual seasons and the crossing of information with the data already reported from previous campaigns.

to carry out a comparative analysis of the different proposed gears, effectiveness of the gear, by catch, selectivity, among others.

Taking into account part (4b) of the CMM13 which indicates that a fishery will be considered exploratory for a particular gear or technique if it has not been fished with that gear or technique in previous years. Ecuador proposes the use of Spanish longline and autoline to allow its use in the union of the already explored areas and zone 87 to cover the annual campaign and the possible distribution of the target species Patagonian Toothfish (Dissostichus eleginoides) and Antarctic Toothfish (D. mawsoni).

The main objective of the exploratory fishery proposed by Ecuador is to contribute in a robust manner with information on the spatial distribution of Patagonian Toothfish (Dissostichus eleginoides) and Antarctic Toothfish (D. mawsoni), both in the extension of the proposed area and in depth, therefore, fishing is proposed at a depth of between 500 to 2500m, which is the known habitat in the different research campaigns in the SPFMRO and CCAMLR area.

It is difficult to estimate the catch because part of the campaign will take place in some areas that have already been explored. The proposed total area includes areas where no exploratory activities have been carried out; however, it is presumed that their habitat could be found in seamounts.

In this context, the following is proposed:

- Map area bathymetry through vessel soundings to document depths and seamounts.
- Document the spatial distribution, catch rate and abundance of the two hake species.
- Conduct biological characterization of the species with their life dynamics from spawning onwards
- Identify the accompanying fauna and their percentage of bycatch.
- When possible, carry out trawling with a continuous plankton recorder or with a plankton net to study eggs.
- Collect data on marine mammals, seabirds, sharks and rays.
- Collection of data on the two hake species: length, weight, sex, gonad stage.
- Collection of data on the accompanying fauna: length, weight, sex, gonad stage in a sample percentage.
- Tagging of one individual per MT or one tag per 50 kg if the fish is smaller than 50 kg.
- In accordance with CMM03, there will be two observers on board, which will guarantee the monitoring of more than 60% of the hauls.

Ship information

The fishing will be carried out with the FV Altar 45, an Ecuadorian flag vessel owned by TRANSMARINA C.A., a company with more than 20 years of experience in the fishing activity.

(iName of the fishing vessel flag of the vessel Previous names (if known) Registration number OMI number (if issued) External marks Port of registry	BP ALTAR 45 ECUATORIANA SUMIYOSHI MARU NO. 71 P-04-01111 8717128 MANTA
(ii) the nature of the fishing authorization granted by the flag State, specifying the date of issuance, time periods authorized for	IN PROCESS

fishing (start and end dates), area(s), sub-areas or fishing divisions, target species and equipment used;	
(iii) Previous flag (if any)	PANAMA
(iv) International radio call sign	HC6738
(v) Name of ship owner(s) Address of ship owner(s) Beneficial owner(s) if known	TRANSMARINA C.A VIA CIRCUNVALACION KM 9 ½ VIA MANTA MONTECRISTI, ECUADOR
Name of licensee Address of licensee (operator)	TRANSMARINA C.A VIA CIRCUNVALACION KM 9 ½ VIA MANTA MONTECRISTI, ECUADOR
(vii) Type of ship	FISHING VESSEL
(viii) Where was the ship built? When was the ship built?	JAPON 09/04/1988
(ix) Vessel length overall (m)	59.5 MTS
(x) 12 color photographs of 7 cm - 1 x starboard side of the ship - 1 x port side of the ship - 1 x stern view	
(xi) Details of the implementation of security requirements for all ALCs installed on board the vessel.	TRITON, SERIE 517314
(i) Operator Address Name operator	TRANSMARINA C.A VIA CIRCUNVALACION KM 9 ½ VIA MANTA MONTECRISTI, ECUADOR
(ii) Captain's name and nationality	TO BE DEFINED NAME AND NATIONALITY
(iii) Type of fishing method(s)	PALANGRE DE SUPERFICIE

(iv) Ship's draft (m)	3.10

2.2 Fishing equipment

Specification and full description of the types of fishing gear to be used, including any modifications made to the gear to mitigate the effects of the proposed fishery on non-target species and associated or dependent species or on the marine ecosystem in which the fishery is conducted.

Ecuador proposes using Spanish-style longline or autoline fishing gear. This will be decided before the campaign begins, which is why both types of fishing gear are included in this plan.

- **Spanish-style bottom longline**

Line type: 16 or 18 mm bottom longline mother line.

Line material: Polypropylene.

Average line length and extension limits: between 8,000 and 16,000 m.

Hook type: 9/0, 10/0, 12/0 Mustad type.

Number of hooks per line and spacing: between 5,000 and 10,000 hooks per line; spacing between hooks approx. 1.6 m.

Sinker length: approx. 1 m.

Weight material and mass: cement or steel weights between 5 and 6 kg.

Weight spacing: approx. 20 m.

Sinking speed: > 3 m/s.

Average duration of deployment: 1:30/1:40 hours.

Immersion period: between 12 and 48 hours.

Average duration of line turning: 8 hours.Profundidad de trabajo: >550 m.

Type and number of anchors or weights: 40 or 60 kg anchor; 2 anchors at each end of the line.

Floats and spacing: 1 radio beacon with 3 or 4 balloons at each end of the line.

Radio identification buoys: 1 at each end.

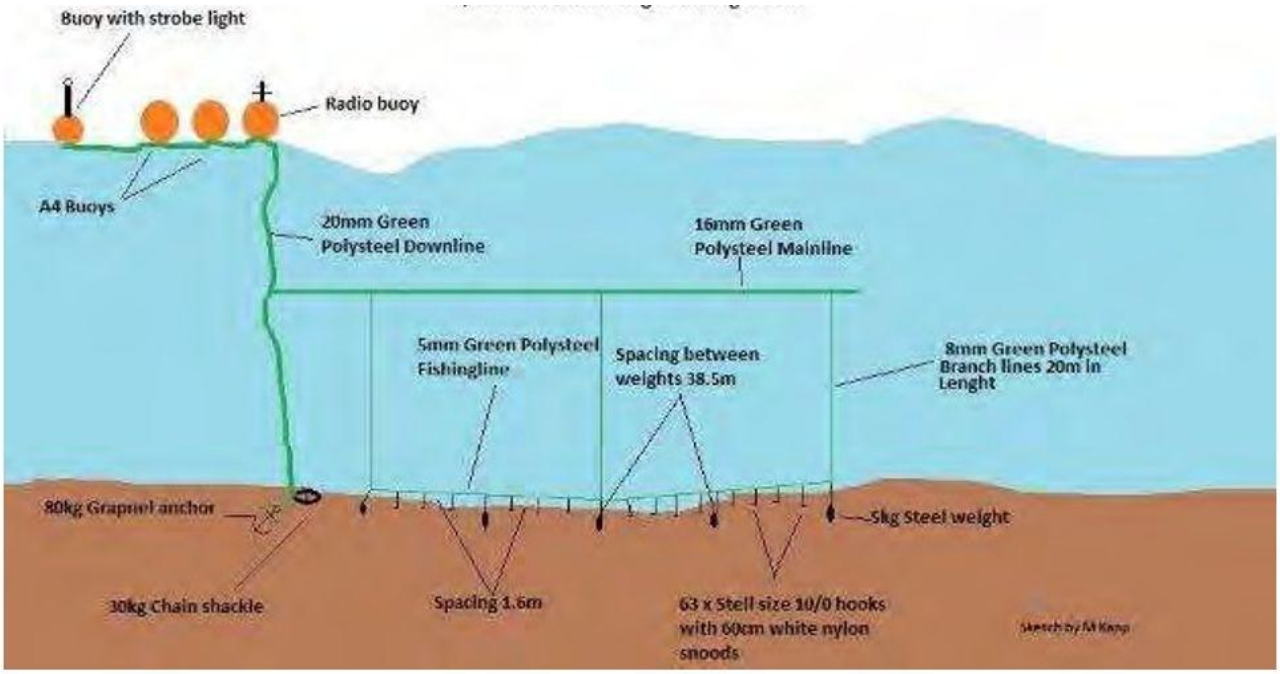

Figure 2 Diagram of a Spanish-style bottom longline

- **Automatic bottom longline (autoline)**

Line type (IWL): Bottom longline main line (main line 11.5 mm, 12 mm, 13.5 mm, or 13.7 mm).

Line material: Polypropylene

Integrated weight: 50 g/m.

Average line length and extension limits [magazine]: Line between 12,600 m and 14,700 m.

Hook type: 9/0, 12/0, or 14/0 Mustad type depending on each manufacturer.

Number of hooks per line and spacing: 10,500 hooks per line, spaced between 1.20 and 1.40 m.

Snood length: between 50 and 60 cm.

Weight material and mass: occasionally, cement or steel weights of between 5 and 6 kg may be used; if used, the distance between weights will be between 20 and 30 meters.

Sinking speed: > 4 m/s.

Average duration of deployment: approx. 1:30 h

Immersion period between 12 and 48 h.

Average duration of the line turn: between 6 and 8 hours depending on the working depth.

Working depth: >550 m

Type and number of anchors or weights: Anchors between 40 and 80 kg; 2 anchors at each end of the line, which may be anchors or chains.

Floats and spacing: 1 radio beacon with 3 or 4 balloons at each end of the lines.

Radio identification buoys: 1 at each end

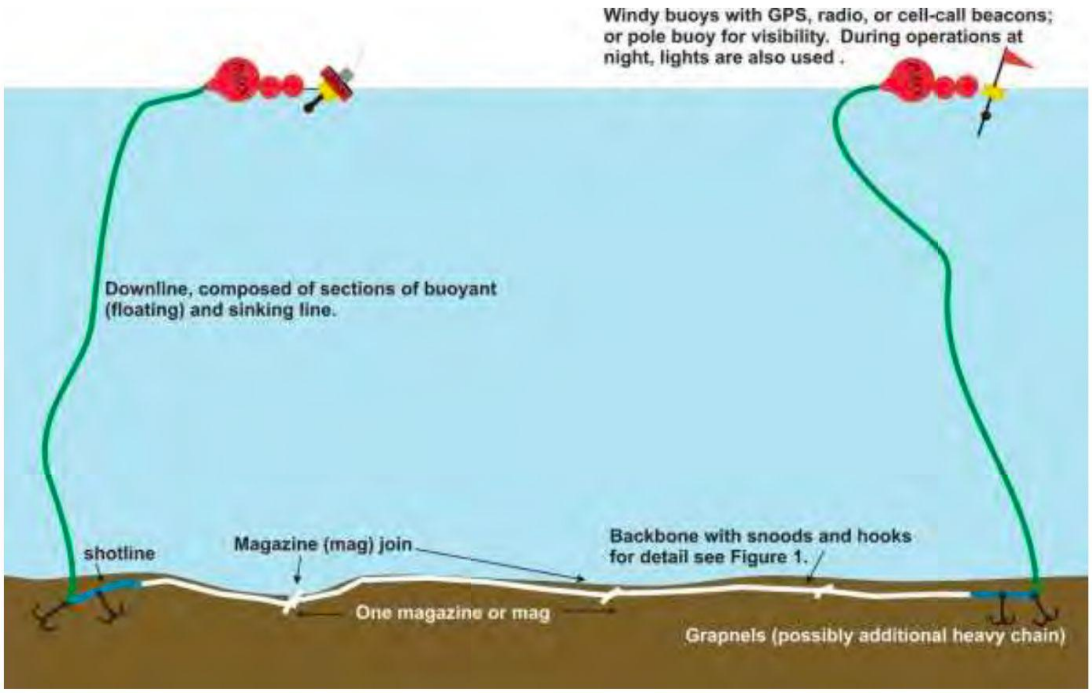

Figure 3 Diagram of automatic bottom longline

2.3 Time period

The time period covered by the Fishing Operation Plan (up to a maximum of three years).

The proposed time period for exploratory fishing to be carried out by Ecuador is one year for three seasons, beginning each February from 2025 to 2027.

2.4 Biological information

Any biological information on target species obtained from comprehensive research and/or study campaigns, such as distribution, abundance, demographic data, and information on population identity.

Biological characteristics, habitat, and distribution

These species have a wide geographical distribution in the southern hemisphere, associated in particular with cold Antarctic waters and the waters of the Southern Ocean (Miller 1993). It is considered to have a very broad circumpolar biogeography, generally extending to the eastern and western South Pacific (Arana et al. 1994, Murillo et al. 2008, Collins et al. 2010) and the southwest Atlantic (Miller 1993).

Hake, also known as deep-sea cod, belongs to the Nototheniidae family, genus Dissostichus, of which there are two species, Dissostichus eleginoides and Dissostichus mawsoni, both physically similar.

They are benthopelagic species whose distribution can fluctuate between depths of 100 and 2,500 meters (Arkhipkin and Laptikhovky 2010). They are mainly found in the deep shelf habitat of the continental slope and have also been reported in submarine canyons (Collins et al. 2010). They inhabit plateaus and seamounts. Some studies have concluded that the fish's ontogenetic cycle stimulates vertical migration and causes its behavior to be basically pelagic during the early growth phase and to become a permanently deep-sea demersal fish in the adult stage (CCAMLAR 1995, Arkhipkin et al 2003), which allows us to conclude that adult fish are found at greater depths.

Validated age estimates have confirmed that this species has a long lifespan of up to (>50 years) (Andrews et al 2011) is slow-growing and complex, and has long reproductive cycles with late maturity (10-17 years) (Boucher, 2018; Yated et al. 2018)

There are no biological data recorded throughout the proposed fishing area, however, the results of the exploratory fishing campaign carried out by the European Union, as recorded in document SC2022/SC10-DW08 in FAO area 57.4 with a TAC of 75 tonnes, were as follows:

A total of 1310 individuals were sampled by the scientific observers. The modal total length was 115cm for females and 95cm for males (5cm bins) (Figure 3.3). The majority of individuals were in reproductive Stage III (Developing), with some females in Stage V (Spent). There was little variability around the length-weight curve (r2 = 0.935).

A total of 271 sets of otoliths were collected, and 30 tissue samples for genetics. A total of 630 gonad weights were collected.

Conversion factor analysis was carried out on 70 fish from a range of lengths, spread across 12 lines. Mean conversion factor was 1.67.

Concluding that “There was little bycatch of fish and seabirds, and very few indicator species of VME were caught, which is low and may require further research.

Oceanographic data suggest some north-south sharing of the seafloor habitat. CTD data indicate that the area straddles the transition between the Subantarctic Front and the Polar Front, with observed north-south gradients in surface and seafloor water density. These gradients could partly explain the similar north-south patterns observed in fish bycatch.

George V Fracture Zone. Patagonian Toothfish Exploratory Fishery – 2021 Survey Report

The fishing areas represent an understudied region of the Southern Ocean. Catch/effort, tagging, and biological data collected during the next two fishing voyages will contribute to a better understanding of the population and management of Dissostichus eleginoides in the region, as well as benefit broader environmental management of adjacent SPRFMO and CCAMLR management convention areas (SC2022/SC10-DW08).

New Zealand has also conducted exploratory fishing campaigns in FAO Area 81 since 2016. The results of this year's survey are contained in document SC11-DW11, which contains the following conclusions:

“High catch rates of Antarctic toothfish were again recorded in Research Area L. Catch rates mirror those found in two assumed spawning areas in the northern regions of CCAMLR subareas 88.1 and 88.2 (Fenaughty 2006, Hanchet et al 2008).

The toothfish catch was entirely composed of Antarctic toothfish.

In contrast with previous years when Antarctic toothfish sex ratios have been consistently skewed with males dominating, sex ratios were almost even. Males were 59.9% of the total sample in 2022 but just over 50.6% in 2023.

Antarctic toothfish of both sexes were found to be generally in a pre- spawning/developing gonad stage with one male found in a ripe gonad state and three male fish in the spent condition. This is consistent with the hypothesised winter spawning.

Following this trip, the number of collected otolith pairs collected for aging from all SPRFMO exploratory toothfish trips totals 679. These will be aged as part of the CCAMLR stock assessment project.

806 Antarctic toothfish have been tagged since 2016 and seven previously tagged fish recovered after at least one season. One of these had come from the Ross Sea slope area and had been at liberty for 15 years

The Antarctic toothfish sampled are almost entirely adult fish which is consistent with this northern region being a spawning area for Antarctic toothfish. The length frequency sample from 2023 is broadly consistent with previous records (Figure 7).

There have been no seabird interactions due to fishing operations and only common and widely distributed seabird species have been recorded attending the vessel while fishing. There has been no marine mammal depredation of lines during fishing operations.

Benthic bycatch was much lower than CCAMLR thresholds for notification and SPRFMO encounter thresholds."

2.5 Non-target species and associated or dependent species

Details of non-target species and associated or dependent species and the marine ecosystem in which the fishery is conducted, the extent to which they are likely to be affected by the proposed fishing activity, and any measures that will be taken to mitigate those effects.

There is no exact information on non-target species and associated species throughout the proposed area, however, the information reported by the IFOP in the Chilean EEZ (Bernal et al., 2018) on incidental catches in the Patagonian toothfish fishery is taken as a reference for FAO zone 87.

nombre español	nombre en latín	2015	2016	2017
Bacalao	*Dissostichus eleginoides*	647	1.750	1.566
Antimora	*Las antimoras están alineadas*	0	11	0
Raya Volantín	*Zearaja chilensis*	15	1	2
Raya Espinoza	*Dipturus trachyderma*	4	5	0
Raya de Magallanes	*Raja magallanicus*	2	0	1
Pejerrata grande	*Macrourus holotrachys*	12	31	47
Granadero Patagónico	*Coelorhynchus vendado*	8	0	0
Granadero Chileno	*Coelorhynchus chilensis*	0	29	0
Rata Café	*Macrourus carinatus*	0	9	0
Other Species	*Other Species*	5	0	0
Total		693	1.836	1.615

The results show that around 95% of the catch corresponds to targeted fishing, however, within the composition of the catches are the spiny ray and the kite ray, even though the catch is low, the mitigation measures outlined in this plan will be taken.

No incidental capture of seabirds, which is believed to have been due to the use of sperm whales, was recorded, nor was there any capture of mammals.

In exploratory fishing campaigns carried out by the European Union in FAO area 57 in the 2021-2022 campaigns, bycatch was below triggering levels (CMM 14e-2023). Eight fish taxa have been reported; however, some species may have been misidentified. For example, Macrourus holotrachys was found in 2021, but a mix of M. holotrachys and Macrourus carinatus was found in 2022. Similarly, Muraenolepis spp was recorded in 2021, and Muraenolepis microps was recorded in 2022.

No incidental catch of marine mammals was reported; sea lion deaths associated with toothfish longline capture appear to be rare. No incidental catch of sharks or rays was reported in this area. Seabirds were observed during setting and hauling; during daytime setting, fewer than 30 birds were observed in a single event, so interaction is low. The birds observed have IUCN conservation statuses of least concern or vulnerable, including the Southern Royal Albatross and the Wandering Albatross.

The bycatch of non-target fish in the New Zealand exploratory fishery in FAO area 81 has generally been very low and similar to the results of the EU exploratory fishery. In 2023, 99.95% of the catch was Antarctic toothfish, with bluegill (9.1 kg or 0.03%), Macrourus holotrachys (7.3 kg or 0.02%) and stone crabs (0.3 kg or less or 0.01%) being the main species recorded (SC11-DW11_rev1. NZ (2023).

Mitigation measures

Non-target fish

As a mitigation measure, a catch limit of 1 ton will be applied in any haul that triggers the transfer rule; that is, if there is incidental catch of a single species of 1 ton in any haul, the fishing vessel must move to another location.

Chondrichthyans

Mitigation measures precautionary limits on incidental catch

Rays and skates: 5% of the target catch limit

Other species: 5% of the target catch limit

The same transfer rule will apply if there is incidental catch of a single species in 1 ton of any haul, the fishing vessel must be moved to another location.

Sharks and rays will be released alive when they are in suitable condition.

Seabirds

- Dumping of spoils will not be permitted during fishing operations; any necessary dumping will be carried out in waters deeper than 2,500 m.
- Integrated weight line will be used to sink the line quickly
- Minimize lighting.

Marine mammals

Considering that there are few mitigation measures to reduce the risk of interaction with marine mammals, crew should take reasonable measures to avoid the loss of gear or non-biodegradable items in order to reduce the risk of entanglement or ingestion.

2.6 Cumulative impact of all fishing activity

The anticipated cumulative impact of all fishing activity in the exploratory fishery area, if applicable.

Ecuador's proposed exploratory fishery would not result in a cumulative impact because the proposed area is a large zone where there has been no ongoing fishing for these species.

It is true that the European Union and New Zealand have carried out exploratory fishing in part of this area. This is not a permanent activity.

In developing exploratory fishing and evaluating data, it will be important to cross-reference information from previous research in overlapping areas to take mitigation measures, if applicable. Likewise, it is important to assess the likelihood that the Antarctic hake caught in the exploratory fishing campaign will be part of the population found in the CCAMLR Convention Area, taking into account that the proposed area is adjacent. In this context, it is worth considering the cumulative effects with CCAMLR fisheries.

2.7 Similar fisheries

Information from other fisheries in the region or from similar fisheries elsewhere that may assist in assessing the potential performance of the relevant exploratory fishery, to the extent that the Member or the CNCP can provide this information.

New Zealand, the European Union, and Australia have conducted exploratory fishing in part of the area proposed by Ecuador in recent years. In this regard, the research reports will be reviewed, and the information necessary for the analysis and assessment will be requested to mitigate risks to the sustainability of the target species and mitigate risks to bycatch

2.8 Overlapping fisheries

Information on any current or planned overlapping fisheries, including information on any fisheries that have operated in the same area using the same fishing gear in the past 10 years. This should detail any cooperation agreed upon with other SPRFMO members or CNCPs.

We are not aware of any overlapping fisheries in the proposed area during the timeframe requested by Ecuador. However, if any are known for the 2025-2027 period, appropriate measures will be taken and the information will be shared for an appropriate assessment.

2.9 Bottom fishing (if applicable)

If the proposed fishing activity is bottom fishing, as defined in CMM 03 (Bottom Fishing), the assessment of the impact of bottom fishing activities by vessels flying its flag, prepared in accordance with paragraph 21(a) of CMM 03 (Bottom Fishing).

According to (Pham et al., 2014; Clark et al., 2016) the impact with bottom longline fishing methods is usually low, depending largely on the degree of lateral movement of the longline when hauling. It is known from exploratory fishing carried out by New Zealand, the European Union and Australia that the fishing depth would be greater than 900 meters, therefore lateral movement is expected to be limited and therefore, the use of bottom longlines would cause a low impact.

The area proposed by Ecuador, although it includes areas already explored, also includes considerably larger unexplored areas, therefore, there is no information on Vulnerable Ecosystems. In this context, this fishing operation plan proposes an evaluation that complies with the bottom weight impact assessment standard of the SPRFMO.

The characterization of the VMEs will be taken according to the Annex of the FAO Bottom Fishing Guidelines.

Observers will record all benthic bycatch, using the CCAMLR EMC guide for hydrothermal vent fauna as a basis, identifying them to the lowest possible taxon, weighing them to the nearest 10g using motion-compensated scales, and using both identification guides.

- Classification guide for potentially vulnerable invertebrate taxa in the SPFRMO area
- CCAMLR VME Taxon Classification Guide

All necessary data will be collected to assess the presence of VMEs in order to identify their distribution in the fishing area proposed in this plan.

Environmental data (conductivity, temperature, and depth) will be collected for predictive modeling according to BFIAS recommendations.

As a mitigation measure, the vessel will record the position, depth, type, and quantity of fishing gear lost.

For joint reporting to SPRFMO and CCAMLR, FAO and CCAMLR species codes will be used.

2.10 Adjacent RFMO (or similar) fishery

Where the target species is also managed by an adjacent Regional Fisheries Management Organization or similar organization, a description of that neighboring fishery sufficient to enable the Scientific Committee to formulate its advice in accordance with paragraph 10 of CMM 13.

The target species of this fishery operation plan, Patagonian toothfish (D. eleginoides) and Antarctic cod (D. mawsoni), are also targeted by research fisheries in CCAMLR, using bottom longlines at depths of between 1200 and 1800 meters.

CONTRIBUTIONS TO THE CONSIDERATIONS OF THE SCIENTIFIC COMMITTEE

Paragraphs 9 and 10 of CMM13 require the Scientific Committee to consider all submitted Fishing Operation Plans, all information provided in accordance with the Data Collection Plan, and any other relevant information, and to make recommendations and advice to the Commission on each Fishing Operation Plan regarding various matters. To facilitate the work of the Scientific Committee, the proponent is requested to indicate which assessment or recommendation from the Scientific Committee they consider appropriate to address each of the Scientific Committee Considerations.

3.1 Fishery resource management strategies or plans

The SC has previously interpreted this as a clear objective for the fishery.

The submitted plan complies with the conservation measures of the SPFRMO and CCAMLR; however, the Scientific Committee may recommend any data collection parameters it deems appropriate for cross-referencing information among the various members that have already conducted exploratory fisheries in some of the areas proposed by Ecuador.

3.2 Reference points

This should include precautionary reference points such as those described in Annex II of the 1995 agreement. SC6 suggested (paragraph 236 of the SC6 report) that the assumptions underlying how biomass estimates are determined should be clearly described in the proposal.

The area proposed by Ecuador in this Fishery Operation Plan has not been fully addressed by any member of the organization; therefore, there are no indicative biomass data that would allow for the establishment of CPUE reference points. The proposed annual TAC has been based on the TACs proposed by New Zealand, the European Union, and Australia, plus consideration of a larger area that can be covered during a calendar year. In this context, it is believed that the proposed catch limit meets the precautionary criterion for an exploratory fishery.

3.3 An appropriate precautionary catch limit

SC5 suggested (paragraph 56 of the SC5 report) that a review of the literature on exploitation rates, stock assessment mechanisms, and precautionary measures used in other similar fisheries would help contextualize whether a potential catch limit was appropriate as a precautionary fishery.

The proposed catch limit takes into account information from the various fishing campaigns that would be exploited in the SPFRMO Convention Area and the proposed area and annual period. The lack of information on the total area proposed by Ecuador would prevent an appropriate precautionary catch limit from being accurately defined.

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

The 2019 SPRFMO Bottom Fishing Impact Assessment Standard (BFIAS) includes "Cumulative Impact" as one of the criteria for assessing risks to benthic habitats, biodiversity, and VMEs. It notes that the frequency of impact will influence risk, as repeated activities at a site are likely to pose a greater risk. This will depend on the level of fishing effort and should be considered in relation to the recovery of VMEs/taxa (Section 1.3.5 of the 2019 BFIAS).

Based on the information reviewed, there is no VME characterization in the proposed area. There is also no permanent fishery in the area that shows a cumulative impact. The exploratory fishery conducted in previous years has not shown any information demonstrating risk or impact. presence of taxa that allows inferring the existence of EMV, which have concluded in the need for further research, in that sense, The Exploratory Fishing Operation presented by Ecuador aims to gather information according to the guidelines established

by the SPFRMO and CCAMLR to provide information on the presence of this type of ecosystem for its proper management.

3.5 The impact of the proposed fishing on the marine ecosystem

SC6 (paragraph 228 of the SC6 report) suggested that a risk assessment could be prepared to better assess the likelihood and consequences of bycatch interactions and to evaluate the suitability of the prevention and mitigation measures proposed in the proposal.

For the analysis of impacts on the marine ecosystem, the results of exploratory fisheries from New Zealand, the European Union, and Australia, as well as information from the Exploratory Fishing Operation Plan submitted by Chile, which detail incidental catches of non-target and associated species, have been used as a basis. These results show that there is low bycatch. Mitigation measures for the species described in these results have been proposed in section 2.5 of this plan.

3.6 Sufficiency of available information and degree of certainty

This assessment is intended to determine whether sufficient information is available to determine the required level of precaution, as well as to assess the level of uncertainty in providing advice.

There is no reliable information for the entire research area proposed by Ecuador. Previous information from various exploratory fishing campaigns from previous years, which covers a small portion of the area proposed in this plan, has been used. The proposal has been developed in compliance with the requirements of CMM13.

3.7 Coherence with nature as an exploratory fishery

This is the extent to which the approach outlined in the Fisheries Operations Plan is likely to ensure that the exploratory fishery is conducted in a manner consistent with its exploratory nature.

SC5 suggested (paragraphs 59-60 of the SC5 report) a phased approach to the development of an exploratory fishery, including, for example:

Phase 1:

- *Wide area studies to understand the distribution, relative abundance and/or density estimates of features*
- *Collection of biological information (length information, sex ratio, maturity information, etc.)*
- *VME monitoring: potential use of cameras, identification of all benthic organisms, return to land of all unidentifiable, possible collection of bathymetric data*
- *Bycatch data collection: species identification, length data, otolith collection of major species*

Phase 2:

- *Design and implementation of depletion experiments in identified areas (e.g., for a sedentary species)*

Phase 3:

- *Work towards population differentiation and evaluation (including long-term performance estimates)*

However, he noted that the elements of each phase could occur simultaneously.

The research plan complies with the parameters established by the scientific committee regarding the suggested phases. These phases will be carried out simultaneously. A survey of the area will be conducted annually, covering the extensive proposed area to identify the spatial distribution and abundance of the target species and, if possible, estimate their biomass. Biological data will be collected on the target species and accompanying fauna. Monitoring will also be conducted to identify VMEs according to the FAO Bottom Fishing Guidelines, using the guides developed by SPFRMO and CCAMLR.

In the stock assessment phase, data collected from biological sampling from the annual campaign will be cross-referenced with available information from previous campaigns.

The plan's design is consistent with the intention of an exploratory fishery.

3.8 Consistency with the objective of the Convention

This is the extent to which the approach outlined in the Fisheries Operations Plan is likely to ensure that the exploratory fishery is conducted in a manner consistent with the objectives of Article 2 of the Fisheries Operations Plan.Convention (the Objective). This should address the following elements of the Objective:

- by applying the precautionary approach and
- An ecosystem approach to fisheries management,
- to ensure the long-term conservation and sustainable use of fishery resources and,
- In this way, the marine ecosystems in which these resources are found will be safeguarded.

The structure of the exploratory fishing proposal presented by Ecuador is consistent with the objectives of the Convention and the guidelines of the Scientific Committee.

3.9 Tips and recommendations for bottom fishing

SC7 noted (paragraph 342 of the SC7 Report) that CMM 13 requires that, if the proposed fishing activity is bottom fishing, an assessment of its potential impact be conducted. In the case of a Fisheries Plan of Operations proposing any bottom fishing activity, this section must include advice and recommendations in accordance with paragraph 21(b) of CMM 03 (Bottom Fishing), i.e., on whether the proposed bottom fishing would contribute to significant adverse impacts on deep-sea fish stocks for which a stock assessment has not been completed, bycatch species, and/or VMEs, and, if so, whether the proposed or additional mitigation measures would avoid such impacts.

The 2019 SPRFMO Bottom Fishing Impact Assessment Standard (BFIAS) provides a standard for a bottom fishing impact assessment in SPRFMO.

This Exploratory Fishing Operation Plan complies with the provisions of CMM13 on the evaluation of a possible impact on a bottom fishery and includes the collection of information for the identification of VMEs and mitigation measures in the event of finding VMEs within the exploratory fishing campaign, as well as the reporting of cross-information between the SPFMRO and CCAMLR according to the pre-established guidelines.

4. DATA COLLECTION PLAN

Paragraph 11 of CMM13 also requires the Scientific Committee to develop a Data Collection Plan for the exploratory fishery, which shall include research requirements, as appropriate. The Data Collection Plan shall identify and describe the data requirements and any operational research actions needed to obtain data from the exploratory fishery that will enable an assessment of the stock, the feasibility of establishing a fishery, and the impact of the fishing activity on non-target, associated, or dependent species, and on the marine ecosystem where the fishery is operated, and, as per paragraph 12, require, as appropriate. To assist the Scientific Committee in its work, the proponent is requested to indicate what it considers to be an appropriate assessment or recommendation by the Scientific Committee to address each of the Scientific Committee's Considerations with respect to the Data Collection Plan.

4.1 Required data

A description of the catch, effort, and related biological, ecological, and environmental data necessary to conduct the assessments described in paragraph 26 of CMM 13, i.e., to enable the Commission to make a decision to manage the fishery as an established fishery.

The data to be collected are regulated in Annexes 3 and 7 of CMM 02-2025.

The vessel must complete the following information for each set-in accordance with Annex 3 of CMM 02-2025.

a. Vessel flag;
b. Vessel name;
c. Vessel call sign;
d. Registration number of vessel;
e. UVI (Unique Vessel Identifier)/IMO number;
f. Set start date and time (UTC format);
g. Set end date and time (UTC format);
h. Set start position (1/100th degree resolution – decimal format), latitude and longitude;
i. Set end position (1/100th degree resolution – decimal format), latitude and longitude;
j. Intended target species (FAO species code);
k. Number of hooks;
l. Bottom depth at start of set;
m. Incidental captures of species of concern (marine mammals, seabirds, reptiles or other species of concern[6]) or benthic taxa (Yes/No/Unknown);
n. FAO species code and estimated live weight of catch retained on board for all species caught by the set including target, bycatch and species of concern;
o. FAO species code and estimation of the amount[7] of all living marine resources discarded by species to the extent practicable, including any marine mammals, seabirds, reptiles, species of concern, and benthic taxa.

Ecuador will ensure that the observer on board completes the data related to the sections of Annex 7 of CMM 02-2025: Section A: Vessel and observer data to be collected for each trip.

Section D: Catch and effort data to be collected for the bottom longline fishing activity.

Section F: Length frequency data to be collected

Section G: Biological sampling

Section H: Data to be collected on incidental catches of seabirds, mammals, reptiles (turtles) and other species of interest

Section I: Detection of fishing in association with vulnerable marine ecosystems when relevant to longline fishing; and

Section J: Data to be collected for all tag recovery

Annex 7 of CMM02 recognizes that observers may not be able to collect all of the data described on every voyage, and suggests that where specific priorities have not been specified for the voyage or program, the following generalized hierarchy of priorities should be applied:

a) Information on fishing operations

i. All information about the boat and the trailer/haul/effort

b) Notification of catches

i. Record the time and weight of the sampled catch against the total catch or effort (e.g., number of hooks) and the total number of each species caught

ii. Identification and counting of seabirds, mammals, turtles, sensitive benthic species and vulnerable species

iii. Record the number or weight of each species retained or discarded.

iv. Record cases of predation, where appropriate.

c) Biological sampling

i. Verify the presence of labels

ii. Size frequency data of the target species

iii. basic biological data (sex, maturity) of the target species

iv. Size-frequency data for major bycatch species

v. otoliths and stomach sample, for the target species

vi. Basic biological data of incidentally caught species

vii. Taking photos

4.2 Expiration dates

The dates by which this data must be provided to the Commission.

Annual information will be submitted to the Scientific Committee to report on each year's progress and receive guidance if necessary. The final analysis of research lost after fishing for the 2027 period will be submitted to the Scientific Committee in September 2028.

4.3 A plan to guide fishing efforts

A plan to direct fishing effort in the exploratory fishery to enable the acquisition of relevant data to assess the fishing potential and ecological relationships among harvested, non-target, and associated and dependent stocks, as well as the likelihood of adverse impacts.

The research plan has been developed to guide the data collection and plan description in section 2 and contribute to the future definition of sustainable fishing effort with a precautionary and ecosystem-based approach.

4.4 Other research data (where applicable)

Where appropriate, a plan for the acquisition of any other research data obtained by fishing vessels, including activities that may require the cooperation of scientific observers and the vessel, as required by the Scientific Committee to assess the fishing potential and ecological relationships between harvested, non-target, associated, and dependent stocks, and the likelihood of adverse impacts.

To achieve consistency in data collection, CCAMLR species codes will be used, allowing for the integration of vessel catch and effort information and observer biological data to share information with CCAMLR to contribute to the stock assessment of the fish (D. eleginoides), (D. mawsoni), and their associated species.

4.5 Time scales

An assessment of the timescales involved in determining the responses of harvested, dependent, and related populations to fishing activities.

SC5 (Paragraphs 59-60 of the SC5 Report) suggested that this could include a plan for how the information collected will lead to stock assessment and eventual management.

The survey, biomass estimation, and stock assessment phases will be conducted simultaneously. It is expected that by year 3, information will be available that would eventually allow biomass estimation, if the data are robust enough for such an estimate, or if the need for an expanded campaign is determined.

5. CHECKLIST AND EVALUATION RECOMMENDATIONS OF THE SCIENTIFIC COMMITTEE

This checklist must be completed by the Scientific Committee to ensure that all aspects of the Fisheries Operations Plan and Data Collection Plan have been assessed. To facilitate the Scientific Committee's deliberations, complete the "Justification" column with a brief justification of how your Fisheries Operations Plan and Data Collection Plan address the Scientific Committee's consideration. The Scientific Committee will complete the "Evaluation" column.

5.1 Fishing Operations Plan Checklist

Considerations of the fishing operations plan	Fundamental reason	Assessment
a) strategies or plans for managing fishery resources; [Note that SC has previously interpreted this to mean that there is a clear objective for the fishery.]	The objectives are found in section 2	
(b) reference points, including precautionary reference points described in Annex II to the 1995 Agreement;	No precautionary reference points have been defined due to the lack of information in the proposed area.	
c) an appropriate precautionary catch limit;	See section 3.3	
(d) the cumulative impacts of all fishing activity in the exploratory fishery area;	See section 3.4	
e) the impact of the proposed fishing on the marine ecosystem;	See section 3.5	
(f) the sufficiency of the information available to determine the level of precaution required and the degree of certainty with which the advice of the Scientific Committee is provided;	There is no information available for the entire proposed area, see section 3.6	
(g) the extent to which the approach outlined in the Plan of Fisheries Operations is likely to ensure that the exploratory fishery is conducted in a manner consistent with its nature as an exploratory fishery and with the objectives of Article 2 of the Convention; and[1]	The plan has been developed respecting the nature of exploratory fishing and based on the objectives of the Convention.	
(h) with respect to a Fishing Operations Plan proposing any bottom fishing activity, advice and recommendations in accordance with paragraph 20(b) of CMM 03-2020 (Bottom Fishing).[2]	The Fishing Operations Plan complies with the provisions of CMM 03-2025 bottom fishing.	

[1] 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 fisheries resources and, in doing so, to safeguard the marine ecosystems in which those resources are found.

2 The Scientific Committee will conduct a review of the proposed assessment and advise the Commission on:

5.2 5.3 Data Collection Plan Checklist

Considerations for the data collection plan	Fundamental reason	Assessment
a) a description of the catch, effort and related biological, ecological and environmental data necessary to conduct the assessments described in paragraph 24;	Data collection will be carried out according to CMM 02-25 Annexes 3 and 7, information necessary to carry out the stock assessment.	
b) the dates on which the data must be provided to the Commission;	Annual information will be submitted to the Scientific Committee for guidance and the final document in September 2028.	
(c) a plan for directing fishing effort in an exploratory fishery to enable the acquisition of data relevant to assessing the fishing potential and ecological relationships among harvested, non-target, and associated and dependent stocks, and the likelihood of adverse impact;	Sections 2 and 4.3 contain the plan to guide fishing effort.	
(d) where appropriate, a plan for the acquisition of any other research data obtained by fishing vessels, including activities that may require the cooperation of scientific observers and the vessel, as required by the Scientific Committee to assess the fishing potential and ecological relationships among harvested, non-target, associated and dependent stocks, and the likelihood of adverse impacts; and	The data collection plan is located in section 4	
e) an assessment of the timescales involved in determining the responses of harvested, dependent, and related populations to fishing activities. *[Note that SC has previously interpreted this as "when will the data be analyzed and made available?"]*	See section 4.5	

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