SPRFMO

South Pacific Regional Fisheries Management Organisation

14th Scientific Committee Meeting

Tórshavn, Faroe Islands

7 to 12 September 2026

Meeting Report

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SC14 Meeting Report
Executive Summary

The 14th Meeting of the Scientific Committee (SC14) was held in Tórshavn, Faroe Islands, from 7 to 12 September 2026. The Scientific Committee (SC) reviewed the status of fisheries resources and ecosystems in the SPRFMO Convention Area, considered the outcomes of its extensive 2026 intersessional programme, and developed scientific advice and recommendations for consideration by the Commission. Key areas of work included jack mackerel, jumbo flying squid, deepwater fisheries and vulnerable marine ecosystems (VMEs), marine ecosystems, exploratory fisheries, the Salas y Gómez and Nazca Ridges area, and the Scientific Committee's multi-annual work programme. A compilation of all recommendations of the SC to the Commission is available in Annex 1 of this report.

Jack mackerel

SC14 considered the results of the 2026 jack mackerel benchmark process, the annual stock assessment and the Management Strategy Evaluation (MSE). The 2026 assessment incorporated substantial revisions to data inputs and model configurations and resulted in changes in estimated stock scale and recent stock status compared with the assessment presented at SC13. Members expressed different views on the revised assessment. Chile raised concerns regarding the extent of the changes and sought further technical scrutiny and independent external review, while Australia, the Cook Islands, the European Union and the United States considered the benchmark scientifically defensible and the best available scientific basis for advice. The JMWG Chairperson noted that, notwithstanding the change in scale, the revised assessment retained a similar improving stock trend.

The SC also considered recent changes in the fishery and abundance indices. Total reported jack mackerel catch in 2025 was 1.42 million tonnes, 9.5% higher than in 2024. Catch during the first half of 2026 was substantially lower than during the equivalent period in 2025, while catches increased later in the year. The SC reviewed new information on CPUE, acoustic biomass, spatial distribution and size composition, including contrasting signals among abundance indices and evidence of changes in the spatial availability of jack mackerel.

Substantial progress was made on the jack mackerel MSE. Candidate management procedures (CMPs) were tested against a reference operating model and a structured set of robustness scenarios, incorporating alternative assumptions concerning recruitment, stock structure, movement, selectivity, abundance indices and annual TAC-change limits. SC14 recommended CMP29, CMP43 and CMP45 as a shortlist for the Commission to consider for implementation. Given the revised assessment, lower-than-expected catch and strong current and forecast El Niño conditions, the SC recommended a precautionary approach to setting catch levels for 2027.

If a management procedure is not used to determine the 2027 catch limit, most Members recommended abandoning application of the existing Annex K harvest control rule under the exceptional conditions and uncertainty affecting the fishery and adopting precautionary catch advice for 2027. Most of the SC supported a 2027 TAC at or below the range corresponding to status quo fishing mortality or up to 1.25 times that value, equivalent to approximately 964–1,152 kt. The SC also considered a two-year step-down option from the 2026 TAC, corresponding to a 2027 catch of 1,319 kt, while Chile presented catch advice of 1,424 kt from the application of CMP29 or CMP45 using the 2026 TAC as the basis. The report provides the associated risk table and jack mackerel advice for the Commission's consideration.

Deepwater fisheries and vulnerable marine ecosystems

SC14 continued its work on orange roughy stock structure, VME identification and modelling, bottom-fishing impacts and the management of VME encounters. The SC reviewed New Zealand's assessment of orange roughy stock structure, which synthesised evidence from fisheries, biological, genetic, and ecological studies. The SC noted that no single method provides definitive evidence and that the available literature remains inconclusive regarding whether the Westpac Bank and ORH7A management areas comprise a single straddling stock. The SC therefore recommended applying innovative techniques to samples collected from Westpac Bank and adjacent New Zealand EEZ areas during the same season to further assess stock structure

The SC reviewed the temporary closure arising from the 2024 VME encounter in the Central Lord Howe Rise. In considering whether the encounter area should be reopened, the SC assessed the potential for significant adverse impacts at different spatial scales and considered available modelling and direct observational evidence. It recommended that the Commission take a precautionary approach by maintaining the current temporary closure of the Encounter Area, with the decision to be reviewed if further relevant information becomes available.

The SC agreed that work should continue to validate existing spatial models of VME indicator taxa abundance and develop updated models using additional historical imagery and improved environmental predictor variables. These models are expected, where possible, to inform the 2027 update of the New Zealand and Australian Bottom Fishing Impact Assessment.

SC14 also recommended that the Commission endorse the methods and handling and release guidelines for chondrichthyans contained in SC14-DW08_rev1 and consider further work to reduce chondrichthyan bycatch in bottom fisheries, including through gear selectivity and modifications.

Jumbo flying squid

SC14 reviewed substantial progress in the development of a stock assessment framework for jumbo flying squid. Candidate assessment models were evaluated using a common set of input data and diagnostics, and the SC considered new information on catch, CPUE, population structure and environmental effects, as well as progress in the Assessment Simulation Task Team (ASTT).

Two assessment models passed the statistical diagnostic test and indicated relatively low stock risk, including a 67.8% probability of the stock being in the Kobe green quadrant. However, the SC did not accept these models for quantitative management advice, principally because of their limited predictive ability and limited incorporation of environmental effects. The SC agreed that future assessments should continue to use common input data, consider statistical diagnostics alongside biological plausibility and fishery history, and further investigate environmental effects, population structure and temporal and spatial complexity.

Recognising that an accepted stock assessment had not been reached and that El Niño 1+2 conditions were occurring and forecast to be extraordinary during 2026-2027, the SC agreed on the need for a precautionary approach to management of the jumbo flying squid fishery in 2027 but could not reach consensus on specific precautionary management recommendations. It considered a range of possible measures, including catch limits, reductions in fishing days, limits on active vessels and gross tonnage, closures and maintenance of the status quo, but did not reach consensus on a specific precautionary management recommendation. Many Members supported catch limits and reductions in effort and/or capacity, while some Members supported maintaining the *status quo*, noting precautionary measures already implemented by key participants in the fishery. Members' proposals and their scientific rationales are provided in the report for consideration by the Commission.

The SC recommended that the Commission endorse the updated Terms of Reference for the ASTT and extend the Task Team for another year. Further work will focus on reducing assessment uncertainty through methodological improvements and better availability, quality and consistency of data.

Ecosystems

The SC reviewed progress from the Workshop on Species Distribution Data Information Inventory. The work identified harmonised data, robust validation and reproducible workflows as common requirements for regional species distribution modelling and highlighted the fragmentation of relevant information among Members, institutions and disciplines as a principal constraint. The SC supported continued development of collaborative regional species distribution modelling, interoperable datasets, shared environmental information and climate-ready applications.

The SC also considered the first 2025–2026 Ecosystem Status Report, which provided a preliminary integrated assessment of environmental conditions across five regional domains in the eastern and southeastern Pacific. This work forms part of the SC's continuing development of ecosystem-based scientific information and its capacity to evaluate environmental and climate-related influences on SPRFMO resources.

Exploratory fisheries

The SC reviewed ongoing exploratory fisheries and new or continuing proposals under Conservation and Management Measure (CMM) 13-2024 (Exploratory Fisheries) and the applicable bottom-fishing requirements. It concluded that the proposals from the Cook Islands for exploratory trap fisheries for crabs and lobsters and an exploratory hapuka fishery in the Northern and Foundation Seamounts, and the European Union proposal for an exploratory demersal longline fishery for toothfish in the George V Fracture Zone, were scientifically acceptable under the relevant Convention provisions, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fishing), and the Bottom Fishing Impact Assessment Standard (BFIAS).

The SC further recommended that SPRFMO consider establishing a formal decision-making process for setting toothfish catch limits, allowing precautionary limits where information is limited and increases as additional information becomes available. It also recommended interpreting the 10-year limit for exploratory fisheries under CMM 13-2024 as 10 years in which fishing occurs and data are collected, which need not be consecutive.

Salas y Gómez and Nazca Ridges

SC14 completed a major stage of the Scientific Committee's work on the Salas y Gómez and Nazca Ridges (SGN) area, building on the scientific evaluation framework developed through the SGN Task Team (SGNTT). The SC evaluated available information on biodiversity, ecological importance, VMEs, fisheries interactions and scientific value and developed advice to support the Commission's consideration of conservation and management measures for the area.

The SC recommended restrictions on bottom-fishing activities within the assessed SGN area, including that SPRFMO not authorise bottom or midwater trawling and not authorise new bottom-contact fishing methods in the assessed area, subject to the provisions recorded in the report concerning existing exploratory fisheries. It also identified continuing scientific and monitoring requirements to assess fishing impacts and the effectiveness of future measures.

Recognising that additional collection and reporting of bycatch information would improve assessment of present and future fishing impacts, the SC recommended that the Commission task the SC to periodically evaluate monitoring information to assess the effectiveness of measures developed for the SGN area and inform future scientific advice. It also recommended that the Commission endorse the updated Terms of Reference for the SGNTT, enabling the Scientific Committee's work on the area to continue.

Scientific work programme, data and institutional matters

The SC reviewed the scientific datasets held by the Secretariat and continued work to identify the SC's data needs, data gaps and improvements to SPRFMO's scientific data infrastructure. It supported the parallel objectives of addressing immediate scientific data needs and developing an optimal dedicated scientific database with greater potential for automated processes and future analyses.

SC14 developed a new Multi-Annual Workplan for 2027–2029, aligning planned scientific activities and funding requirements more closely with the Organisation's financial cycle. The SC recommended that the Commission consider, amend as appropriate, and adopt the workplan and encourage Members to participate fully in SC activities. It also requested Commission guidance on the respective roles of the Data Working Group and Scientific Committee in relation to data standards.

The SC reviewed and revised the consolidated Guidelines for the Work of the SPRFMO Scientific Committee, bringing together the existing guidelines on the SC's work and structure, annual reports and submission of meeting papers. It recommended that the Commission adopt the consolidated Guidelines and remove the limit on the period of the mandates of SC Task Teams.

SC14 also considered ways to improve the organisation of the SC's work. It recommended that the Commission consider revising the timing of the annual SC meeting to increase the effective intersessional period, endorse three days of pre-SC preparatory sessions for SC15, and establish a recurring budget item for a professional rapporteur for future SC meetings. China confirmed its offer to host SC15 in Shanghai, while Ecuador expressed interest in potentially hosting SC16.

Overall

SC14 advanced several of SPRFMO's principal multi-year scientific workstreams and provided substantive advice for decisions at COMM15. In particular, the SC brought the jack mackerel MSE to the point of presenting the Commission with a shortlist of three candidate management procedures, while also providing precautionary catch advice for 2027; advanced the jumbo flying squid assessment framework while identifying the scientific work still required before quantitative management advice can be provided; recommended continued precautionary protection of the Central Lord Howe Rise VME Encounter Area; provided scientific advice on exploratory fisheries and future toothfish catch-limit setting; advanced ecosystem and data-related work; and completed a significant stage of the scientific evaluation of the Salas y Gómez and Nazca Ridges area.

The SC also established its scientific priorities for 2027–2029 and identified the intersessional work required to address remaining uncertainties. The recommendations and scientific advice contained in this report provide the basis for the Commission's consideration of conservation and management measures and the future scientific work programme at its 15th Annual Meeting.

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SC14 Meeting Report
List of Acronyms

The following list of acronyms and abbreviations is provided to facilitate understanding of this report for the 14th Meeting of the South Pacific Regional Fisheries Management Organisation (SPRFMO) Scientific Committee (SC14). Many of these terms are specific to fisheries science, ecosystem management, and regulatory processes within the SPRFMO Convention Area. The list is organised alphabetically and includes the full term for each abbreviation used throughout the document.

Acronym	Full form
ABNJ	Areas Beyond National Jurisdiction
ACAP	Agreement on the Conservation of Albatrosses and Petrels
ALDFG	Abandoned, Lost or Otherwise Discarded Fishing Gear
ANJ	Areas under National Jurisdiction
AR1	First-order Autoregressive Process
ASTT	Assessment Simulation Task Team
AUS	Australia
BBNJ	Biodiversity Beyond National Jurisdiction
BFIA	Bottom Fishery Impact Assessment
BFIAS	Bottom Fishery Impact Assessment Standard
Blim	Biomass Limit Reference Point
BMSY	Biomass at Maximum Sustainable Yield
BRP	Biological Reference Point
BTMA	Bottom Trawl Management Area
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CHL	Chile
CJM	Chilean Jack Mackerel (*Trachurus murphyi*)
CMM	Conservation and Management Measure
CMP	Candidate Management Procedure
CNCP	Cooperating Non-Contracting Party
COK	Cook Islands
CPPS	Comisión Permanente del Pacífico Sur (Permanent Commission for the South Pacific)
CPUE	Catch Per Unit Effort
CTD	Conductivity, Temperature and Depth

CTC	Compliance and Technical Committee
CWP	Coordinating Working Party on Fishery Statistics
DRI	Dispositivo de Registro de Imágenes (Image Recording Device)
DSCC	Deep Sea Conservation Coalition
DSF	Deep-sea Fisheries
DTIS	Deep-Towed Imaging System
DWG	Data Working Group
DWWG	Deepwater Working Group
EAFM	Ecosystem Approach to Fisheries Management
EAFM-IMT	Ecosystem Approach to Fisheries Management Implementation Monitoring Tool
E-BSP	Environment-dependent State-space Biomass Production Model
ECP	Exceptional Circumstances Protocol
EEZ	Exclusive Economic Zone
ELS	Electronic Logbook System
EM	Electronic Monitoring
EMS	Electronic Monitoring System(s)
ENSO	El Niño–Southern Oscillation
ESR	Ecosystem Status Report
EU	European Union
EWG	Ecosystems Working Group
FAO	Food and Agriculture Organization of the United Nations
FL	Fork Length
FMA	Fishery Management Area
FOP	Fisheries Operation Plan
FV	Fishing Vessel
GAM	Generalised Additive Model
GLM	Generalised Linear Model
GVFZ	George V Fracture Zone
HCR	Harvest Control Rule
HoD	Head of Delegation
HSFG	High Seas Fishing Group
HSI	Habitat Suitability Index
ICES	International Council for the Exploration of the Sea
IFOP	Instituto de Fomento Pesquero (Fisheries Development Institute, Chile)

IMARPE	Instituto del Mar del Perú (Marine Institute of Peru)
INLA	Integrated Nested Laplace Approximation
IRD	Image Recording Device
JJM	Joint Jack Mackerel Model
JM	Jack Mackerel
JMWG	Jack Mackerel Working Group
KOR	Republic of Korea
LOI	Leave-One-In
LOO	Leave-One-Out
ML	Mantle Length
MP	Management Procedure
MRAG	MRAG (fisheries consultancy)
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
NGO	Non-Governmental Organisation
NZ	New Zealand
OM	Operating Model
PA	Precautionary Approach
PER	Peru
PFA	Pelagic Freezer-trawler Association
PR2IWG	Second Performance Review Intersessional Working Group
PRODUCE	Ministerio de la Producción (Ministry of Production, Peru)
RFMO	Regional Fisheries Management Organisation
SAI	Significant Adverse Impact
SC	Scientific Committee
SCW	Scientific Committee Workshop
SDM	Species Distribution Model
SEAFO	South East Atlantic Fisheries Organisation
SGNTT	Salas y Gómez and Nazca Task Team
SIBE	Sistema de Bitácora Electrónica (Electronic Logbook System)
SIOFA	Southern Indian Ocean Fisheries Agreement
SPDE	Stochastic Partial Differential Equation
SPiCT	Stochastic Production Model in Continuous Time
SPRFMO	South Pacific Regional Fisheries Management Organisation

SQWG	Squid Working Group
SSB	Spawning Stock Biomass
SSF	Scientific Support Fund
SSHA	Sea Surface Height Anomaly
SST	Sea Surface Temperature
SSTA	Sea Surface Temperature Anomaly
TAC	Total Allowable Catch
ToR	Terms of Reference
TT	Task Team
VC	Voluntary Contribution
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System
WG	Working Group
WP	Working Paper

Report of the 14th Scientific Committee Meeting

Tórshavn, Faroe Islands, 7 to 12 September 2026

SC14-Report

1. Opening of the Meeting

a. Meeting Arrangements

1. Mr Ólavur Dalsgarð from the Ministry of Foreign Affairs and Fisheries, Faroe Islands, welcomed participants to Tórshavn and to the 14th meeting of the SPRFMO Scientific Committee (SC14), and expressed the Faroe Islands' honour to be hosting the meeting. He also thanked the Secretariat and local professional support services for their assistance.

2. The Executive Secretary (Mr James Brown) and the Scientific Committee Chairperson (Dr Ricardo Oliveros Ramos) thanked the Faroe Islands for its warm welcome and for hosting the Scientific Committee meeting.

3. The Executive Secretary detailed the meeting arrangements, the streaming service and the local facilities available to in-person delegates.

4. The Chairperson officially opened the meeting and proceedings.

5. The Executive Secretary informed the SC that Russia was unable to attend the meeting in person as it was not issued a visa by Denmark, the visa issuing authority for the Faroe Islands. He explained that as the host of the meeting, and in light of the specific circumstances, the Faroe Islands had made arrangements for Russia to be able to participate in the meeting virtually, but Russia had not taken up this offer.

6. Chile made an opening statement. Chile reaffirmed its firm commitment to the management of straddling fish stocks in the South Pacific, grounded in the best available scientific evidence and in strict adherence to the Convention. Chile highlighted the important technical work to be conducted at SC14, namely finalising the recommended candidate management procedure (CMP) for jack mackerel (*Trachurus murphyi*), consolidating progress on the stock assessment for jumbo flying squid (*Dosidicus gigas*), advancing the criteria for transitioning exploratory fisheries to established fisheries, validating vulnerable marine ecosystems (VMEs) protection indicators, and advancing work to support the protection of the Salas y Gómez and Nazca Ridges. Chile emphasised that multilateral scientific cooperation within a strictly technical forum such as the SC is indispensable for completing these objectives. Chile further emphasised that scientific cooperation must be safeguarded above geopolitical circumstances and that the non-participation of a Member actively fishing in the Convention Area compromises the robustness of the SC's scientific advice. Chile called for a practical solution to be found for this situation and invited the European Union to extend its good offices to this end. Chile's full statement is available in Annex 23a of this report.

7. The Faroe Islands expressed its deep regret regarding the situation pertaining to Russia's attendance and visas. It explained that Denmark is the visa issuing authority for travel to the Faroe Islands and that, while there were some restrictions on the issuance of visas to Russian nationals, the Faroe Islands had believed that participation in the SPRFMO SC would be a sufficiently satisfactory and justifiable reason for the Russian delegation to be issued with visas. However, the delegation's visa applications were not approved. In response, the Faroe Islands made every effort to secure visas for the Russian delegation, including providing letters of support and following up directly with the Danish authorities, but it was ultimately unsuccessful.

8. The European Union stated that although the Faroe Islands forms part of the Kingdom of Denmark, it is neither part of the European Union nor the Schengen Zone, and the responsibility for issuing visas to the Faroe Islands lies solely with the Faroe Islands as host of the meeting.

9. The Faroe Islands confirmed that the decisions regarding the visas of the Russian delegation were made by Denmark and that the European Union played no part in those decisions.

10. Ecuador expressed its disappointment at the lack of Spanish interpretation at the meeting, which may limit Spanish-speaking delegations' ability to participate fully in the meeting. Ecuador recognised that the Faroe Islands had tried to make arrangements for Spanish interpretation but had been unable to do so. Ecuador encouraged all Members to support the provision of voluntary funds to fund interpretation services and expressed its hope that such services would become a permanent budget item. If, in future, a host Member is unable to provide Spanish interpretation, Ecuador encouraged the Secretariat to notify Members, CNCPs, and associated organisations to invite them to provide voluntary interpretation support, if possible.

11. Ecuador also encouraged the SC to formulate advice and recommendations that ensure the sustainability of SPRFMO resources and are based on the best available scientific knowledge and the precautionary principle.

12. A compilation of all recommendations of the SC to the Commission is available in Annex 1 of this report. A list of participants is available in Annex 2 of this report.

13. Mr Alex Meyer was appointed as the independent rapporteur.

b. Adoption of the Agenda

14. The Chairperson presented the provisional agenda (SC14-Doc01) and opened the floor for any proposals for changes. The SC adopted the agenda without modification (Annex 3). The Chairperson presented the intended meeting schedule (SC14-Doc04_rev3, Annex 4).

c. Meeting Documents

15. The Executive Secretary explained the meeting documentation, location and access. The posted list of meeting documents (SC14-Doc03, Annex 5) and annotated agenda (SC14-Doc02) were made available and referred to throughout the meeting.

16. A number of documents were submitted late: SC14-Doc33, SC14-SQ07, SC14-Eco04, and SC14-Obs06. The SC agreed to accept these documents and include them in the discussions.

17. The Chairperson reminded SC participants of the importance of submitting papers by the designated deadlines to provide other delegations with sufficient time to read the papers and prepare for the meeting, while recognising that participants may sometimes have difficulties submitting papers on time.

2. Annual Reports Discussion

18. Annual reports were received from Australia, Belize, Chile, China, Cook Islands, Cuba, Curaçao, European Union, Faroe Islands, Korea, Liberia, New Zealand, Panama, Peru, Russian Federation, Chinese Taipei, United States of America and Vanuatu (SC14-Doc15 to SC14-Doc34). A working paper was created for questions and answers about the different annual reports (SC14-WP01, Annex 6).

Australia

19. Australia's annual report on 2025 fishing activities in the SPRFMO Convention Area is presented in SC14-Doc15. Two Australian-flagged vessels fished in the established fishery using demersal longline gears with 817,000 hooks deployed. Another Australian vessel fished in the exploratory fishery for toothfish using Auto Longline and a detailed report on this fishing is contained in Appendix B of the document. No Australian-flagged vessel fished using trawl gears. The total catch reported in logbooks was 135.6 t, comprising primarily yellowtail kingfish (*Seriola lalandi*), morwong (*Nemadactylus* spp.), blue-eye trevalla (*Hyperoglyphe antarctica*), ocean blue-eye trevalla (*Schedophilus velaini*) and other species. Australia achieved 15.9% observer coverage in 2025. Observers did not report any bycatch of seabirds, marine mammals, marine reptiles or other species of concern in non-trawl operations in the SPRFMO Area in 2025. Observers reported 111.3 kg of benthic bycatch from 28 separate fishing operations in 2025, comprising mainly gorgonian corals (19 kg), crinoids (14 kg), starfish (4 kg), and non-living 'benthos' (74 kg). The required annual data were submitted to the SPRFMO Secretariat in accordance with Australia's data confidentiality policies and the relevant Conservation and Management Measures (CMMs).

Belize

20. Belize's 2025 annual report is presented in SC14-Doc16. During the reporting period, Belize had no fishing-support vessels authorized to operate within the SPRFMO Convention Area and no vessels authorized to conduct direct fishing operations in the Convention Area. Consequently, no Belizean vessels operated within the SPRFMO Convention Area during 2025, and there were no fishing activities to report for the reporting period.

Chile

21. Chile's 2025 annual report for jack mackerel (*Trachurus murphyi*) is presented in SC14-Doc17. Since 2020, the fishing operations on Chilean jack mackerel have been conducted exclusively within the Chilean EEZ. During 2025, the industrial fleet targeting this resource comprised 41 fishing vessels using purse seines. Catches increased progressively during 2021–2025, reaching a maximum of 1,219,027 t in 2025. This trend is explained by increasing quotas allocated to Chile plus quota transfers from other SPRFMO Members. Since 2021, size-structured jack mackerel catches have ranged between 7 and 67 cm fork length (FL), with main modes fluctuating between 27 and 44 cm. In 2025, the size range included specimens between 17 and 58 cm in FL, with a marked mode of 32 cm in FL. Between 2021 and 2025, the jack mackerel catches ranged from age groups I to XII, with age group V consistently the main mode across all years. Despite some interannual variability, the overall age structure remained stable, with contributions from multiple cohorts in most seasons. As of January 2020, Image Recording Devices (DRI or EMS) have been implemented to monitor compliance with Bycatch Reduction Plans and fishery regulations across the entire industrial fleet. The mandatory use of Electronic Logbook Systems (SIBE) was also introduced in 2020 to report, on a set-by-set basis and in real time, total catches, bycatch and discards, and the spatial and operational characteristics of the fishing activity. To date, the implementation of these Electronic Monitoring Systems (IRD and ELS) in the industrial fleet has focused primarily on ensuring compliance with regulations related to discards and incidental catch of seabirds, marine mammals, sea turtles and chondrichthyans. Their potential as tools for scientific monitoring and the collection of fishery-dependent data is now also being explored, which is expected to complement human observer programs and support a more robust ecosystem-based fisheries management approach. In the jack mackerel fishery, observer data collected between 2015 and 2025 confirmed low levels of incidental mortality, with most cases including sea lions, seabirds and sea turtles being released alive using proper handling protocols. These outcomes reflect Chile's ongoing commitment to strengthen sustainable practices and ecosystem considerations in the management of jack mackerel.

22. Chile's 2025 annual report for jumbo squid (*Dosidicus gigas*) is presented in SC14-Doc18. Chile's jumbo squid fishery continues to operate under its domestic regulatory framework, which since 2020 has allowed directed fishing for jumbo squid exclusively using jigging gear or handline. Catches were taken within Chile's Exclusive Economic Zone (EEZ), with the fishery conducted primarily by the artisanal fleet, while the industrial fleet caught the species only as bycatch. During 2025, a global catch quota was set at 200,000 t, without allocation between the artisanal and industrial sectors. Fishing activity followed the same pattern as previous years, with catches concentrated during the first half of the year and a marked decline in the second half. The fishery also continued to develop mainly between the Coquimbo and Biobío regions, with no incidental catch of marine mammals, seabirds, or turtles recorded. Indicators for the artisanal fleet show relatively stable fishing effort over the recent period, while catch per unit effort (CPUE) has shown an overall declining trend compared with the early years of the series. Regarding size structure, the catch continued to be dominated by individuals above the reference size at sexual maturity, with a mode of approximately 70 cm mantle length (ML) in 2025. Fishery monitoring was carried out by the Chilean Fisheries Development Institute (IFOP) through biological and fishery monitoring programs, providing the background information necessary for assessment of the resource and technical advice.

China

23. China's 2025 annual report is presented in SC14-Doc19. In 2025, a total of 576 Chinese squid jigging vessels operated in the SPRFMO Convention Area, harvesting 484,700 t of jumbo flying squid. The number of active vessels fluctuated monthly, ranging from a low of 297 in August to a peak of 503 in December, with total fishing effort reaching 111,151 days and an average catch rate of 4.4 t per day. During the 2025–2026 and 2026–2027 fishing seasons, an observer program was implemented, deploying 14 observers. In 2025 alone, 14 observers served onboard, with 12 having completed their assignments and returned to port by July 2026, while the remaining two continued their work at sea. The returned observers monitored 1,960 fishing days and 47 transhipment activities and measured over 100,000 squid specimens.

Cook Islands

24. The Cook Islands' 2025 annual report is presented in SC14-Doc20. The Cook Islands vessel, due to a change in vessel and a required vessel refit, was only able to complete one trip in 2025. The vessel primarily targeted deep-sea golden crabs (*Chaceon* sp.) and hapuka (*Polyprion oxygeneios*), some sets targeting lobsters (*Jasus caveorum*) were also made. The vessel is fishing under both CMM 14d and CMM 14g, the operations are overseen by two observers onboard the vessel and the vessel is monitored using VMS.

25. The observers collect size frequency data as well as sex, maturity and shell state data from all *J. caveorum* and *Chaceon* sp. For *P. oxygeneios* the observers collect otoliths, length and sex information. In addition, genetic samples from *J. caveorum* and *P. oxygeneios* are being collected for the evaluation of stock structure and to assess links between its two different fishing areas as well as between seamounts. The Cook Islands has recently built its own fish ageing laboratory and, as part of its capacity development work, will be undertaking its own analysis in-house and not outsourcing the work. The observers also collect catch and effort information as well as monitor VME indicator taxa interactions. The Cook Islands also has protocols in place to minimising interactions with marine mammals, reptiles and seabirds.

26. In the Cook Islands' single trip, hapuka was the dominant species by both weight and number, comprising 97.2% of total retained weight (13,996.5 kg) and 91.7% of total fish retained (986 fish). Trumpeter (*Latris lineata*) was the second most abundant species by weight (171.5 kg; 1.2%), followed by spiny dogfish (*Squalus* sp.); 137.5 kg; 1.0%).

27. In the trap fishery crabs were the primary target and 21,381.63kg were landed. Catch and biological sampling of *Chaceon* crabs in 2025 indicated a stable population with no evidence of decline in size structure across the exploratory fishery to date. The majority of crabs landed were in the 12–14 cm carapace width range, with most individuals exceeding the estimated 50% maturity threshold of approximately 10 cm. Reproductive data suggests a winter spawning period, supported by both berry state and shell state observations, though a sampling gap from July to October, coinciding with the lobster fishery closure, limits the completeness of seasonal biological information.

28. Fishing effort was directed at crabs with only minor bycatch including prawns, gastropods, teleosts, and a small number of VME indicator taxa, predominantly octocorals.

29. Crab CPUE was low but consistent with previous trips and slightly elevated in Trip 8, likely reflecting the targeted nature of this trip's fishing strategy rather than a change in population abundance. Trap fullness data indicates that saturation was not a significant factor, and the overall consistency of CPUE across trips suggests that current fishing effort levels are not producing a detectable stock response.

Cuba

30. Cuba's 2025 annual report is presented in SC14-Doc21. There were no Cuban vessels fishing in the SPRFMO Convention Area in 2025 and there were therefore no fishing, research, or management data to report. Cuba reaffirmed its continued interest in SPRFMO-managed fisheries and indicated it may engage in fishing activities within the Convention Area in the future.

Curaçao

31. Curaçao's 2025 annual report is presented in SC14-Doc34. Curaçao currently has no vessels participating in the fisheries managed by SPRFMO. Therefore, Curaçao has no data or information to provide regarding Curaçao fisheries operating under SPRFMO jurisdiction in 2025 or 2026, nor information to provide regarding 1) catches, effort, and CPUE summaries; 2) fisheries data collection and research activities; 3) biological sampling and length/age composition of catches; 4) ecosystem approach considerations; and 5) observer implementation reports for fishing activities under SPRFMO jurisdiction.

European Union

32. The European Union's (EU) 2025 annual report is presented in SC14-Doc22. In 2025, three EU trawlers were active in the SPRFMO Convention Area, taking catches of jack mackerel (*Trachurus murphyi*) from June to December. Total catch in 2025 was 32,856 tonnes, of which 29,635 t were comprised of Chilean Jack Mackerel. Three scientific observers were deployed on two EU fishing vessels in the period from July to December 2025. Since 2015, a full self-sampling program has been initiated on all EU fishing vessels belonging to members of the Pelagic Freezer-trawler Association (PFA) and fishing in the SPRFMO Convention Area. In 2025, nine PFA trips were self-sampled. During the Jack Mackerel Benchmark Working Group (SCW14) it was decided to develop a protocol for inclusion of self-sampling data for the EU fleet for those quarters where no observer trips were carried out. The EU's revised sampling protocol provides that 4–5 individual fish for each length class represented in the catch should be collected per trip, per quarter, per fishing area with the aim to have even representation for all length classes recorded. For SC12, it was proposed to only use the self-sampling data from 2021 and onwards and only for quarters for which no observer data is present. For 2025, there are samples for two of the quarters when there were active fisheries in the Convention Area. It is therefore proposed to use the self-sampling data for the second quarter of 2025. Exploratory fishing for toothfish has continued to be undertaken by the Spanish FV *TRONIO* in 2025 in accordance with CMM 14e-2024. In this campaign, effort was split across two research blocks: Block A, where all previous fishing (2021–2023) had taken place, and Block B, a previously unexplored section of the research block. In 2025, the total allowable catch (TAC) of 129 t in Block A and the TAC of 33 t in Block B were nearly reached after approximately five weeks of fishing. The European Union has compiled a detailed survey report of the second year's exploratory fishing, together with an updated stock assessment integrating data from all campaigns between 2021 and 2025.

Faroe Islands

33. The Faroe Islands' 2025 annual report is presented in SC14-Doc23. The Faroe Islands had no vessels fishing in the SPRFMO Convention Area in 2025 and there were therefore no fishing, research, or management data to report. In 2025, the Faroe Islands transferred its quota of 15,853 t of *Trachurus murphyi* to Chile, subject to Chile's approval and without prejudice to future arrangements under CMM 01-2025. The Faroe Islands reiterated its continuing interest in SPRFMO fisheries and expressed the intention to provide full data and comply with relevant measures should Faroese-flagged vessels resume fishing activities in the future.

Korea

34. Korea's 2025 annual report is presented in SC14-Doc24. Following the resumption of Korean trawl operations in 2024 after a multi-year absence (2020–2023), one pelagic trawl vessel continued fishing operations in the Convention Area in 2025, targeting jack mackerel (*Trachurus murphyi*). The trawl fishery reported catch of 95 t of jack mackerel, 6 t of chub mackerel, and minor bycatch of other species. No Korean jigging vessel operated in the Convention Area in 2025. Korea's exploratory bottom longline fishing for toothfish, initiated in 2025 under CMM 14h-2025, took place during the year and was reported separately in a dedicated progress report. Korea continues to implement an electronic reporting system for fisheries data collection and maintains a scientific observer programme, accredited by the SPRFMO in 2022. The observer coverage for the trawl fishery was 100% in 2025.

Liberia

35. Liberia's annual report is presented in Document SC14-Doc33. Liberia had no active fishing vessels in the Convention Area in 2025 and, therefore, had no catch or effort data to provide to the SC. Liberia also did not carry out any research activities relevant to SPRFMO fisheries in 2025.

New Zealand

36. New Zealand's 2025 annual report is presented in SC14-Doc25. In 2025, New Zealand had eight vessels permitted to fish in the SPRFMO Convention Area, of which three actively fished. Active bottom fishing comprised one orange roughy trawl vessel that fished on the Westpac Bank, one exploratory toothfish fishery bottom longline vessel, and one other bottom longline vessel that fished on the West Norfolk Ridge. Total reported catches in 2025 were 181 t for orange roughy landings, 51 t for other species, and 6.1 t from the exploratory toothfish fishery. Orange roughy catches were taken entirely from Westpac Bank. Commercial bottom trawl effort consisted of 17 trawl tows by one vessel. Non-exploratory bottom longline fishing involved one vessel undertaking three trips to the West Norfolk Ridge and setting approximately 48,000 hooks, resulting in 50 t of catch. For the exploratory toothfish fishery, one vessel completed a single exploratory trip, deploying 50,600 hooks and catching 6.1 t in total, comprising 0.1 t Antarctic toothfish, 1.1 t Patagonian toothfish, and small quantities of other species. Trawl fisheries achieved 100% observer coverage. Bottom longline fisheries achieved 55% coverage, with 17 of 31 fishing days observed. Observers monitored both trawl trips and two bottom longline trips (including the exploratory trip). Protected species interactions were low during 2025. No interactions with marine mammals, reptiles, or other species of concern were reported. One black petrel (*Procellaria parkinsoni*) interaction was observed in the bottom longline fishery on the West Norfolk Ridge. It was released alive and was observed flying away after release. Observers reported that all required seabird mitigation measures were being followed during the trip.

Panama

37. Panama's 2025 annual report is presented in SC14-Doc26. For the 2025 reporting period, Panama reaffirmed its full compliance with all SPRFMO CMMs. As in previous years, no fishing activities targeting SPRFMO-regulated species were conducted within the Convention Area. Panama's participation was limited to authorized logistical operations, including transshipments, port landings, and provision of fuel and supplies, in accordance with applicable regulations. There were no catch or effort records, no data collection or research activities, and no biological sampling. No interactions with seabirds or other species of concern were reported. Panama did not participate in the observer programme.

Peru

38. Peru's 2025 annual report for the SPRFMO Convention Area is presented in SC14-Doc27. As of June 2026, there are 1,148 Peruvian vessels authorized and registered in the record of vessels authorized to fish within the SPRFMO Convention Area. From January 2025 to June 2026, a total of 4,939.85 t of *Trachurus murphyi* catch and 624.94 t of *Scomber japonicus* catch were reported. Regarding *Dosidicus gigas*, a total of 408.7 t were reported for 2025, but there were no reported catches during the first half of 2026. The research activities in the Convention Area, monitored by a Peruvian onboard observer program, provided reliable information on fishing effort, catch volumes, species composition of the catches, fishing areas, and distribution of the target species. No observations of top predator bycatch (seabirds, marine mammals, and sea turtles) were reported during the fishing activities from January 2025 to June 2026.

39. Peru's 2025 annual report for its Areas under National Jurisdiction (ANJ) is presented in SC14-Doc28. The Peruvian marine environment is characterized by its high productivity and variability. It is particularly exposed to the effects of the El Niño and La Niña climatic patterns in the Pacific Ocean. Between 2013 and the first part of 2018, these changing environmental conditions caused a more dispersed distribution, reduced availability, lower abundance indexes, and consequently lower catches of jack mackerel. This has been followed by an expanded distribution in denser concentrations farther offshore, much higher abundance indexes, increased availability to the industrial and artisanal purse seine fleet, and higher catches of jack mackerel (*Trachurus murphyi*) from the second half of 2018 to 2022. In 2023, a Coastal Niño event was registered along the Peruvian coast, which led to a concentration of jack mackerel south of the Peruvian coast, where it was more accessible. In 2024, the catches initially decreased due to an initial dispersion of jack mackerel schools, but when the environmental conditions cooled, jack mackerel concentrated again south of the coast. During 2025, oceanographic conditions were generally characterized by the seasonal cycle, near-normal sea surface temperature (SST) anomalies, and relatively stable salinity. From February 2026 onward, SST increased progressively, and warmer waters expanded shoreward, generating positive temperature anomalies of up to +2 °C. These anomalies intensified from May onward, primarily within 100 nm of the coast, accompanied by a marked shoreward displacement of the Subtropical Surface Waters. Between January 2025 and June 2026, the fishery targeted a wide range of sizes, with the highest proportions of juveniles in October 2025 (93%) and November 2025 (87%); during the first half of 2026, the highest proportion of juveniles in the fishery occurred in February (52%) and June (54%). Research surveys in 2025 and 2026 also found younger and smaller juveniles. In December 2025, Instituto del Mar del Perú (IMARPE) updated the available 2025 jack mackerel assessment for the Peruvian (far-north) stock with the JJM model using the configuration agreed during SC13. IMARPE recommended three scenarios: (i) corresponding to approximately 80% of the catch associated with the fishing mortality at maximum sustainable yield (TAC = 175,000 t, the precautionary scenario), (ii) corresponding to approximately 90% of the catch associated with the fishing mortality at maximum sustainable yield (TAC = 195,000 t), and (iii) corresponding to the catch associated with the fishing mortality at maximum sustainable yield (TAC = 216,000 t). Based on this advice, in December 2025, PRODUCE established a regulatory measure for the jack mackerel to be caught in Peruvian jurisdictional waters. For the large-scale or industrial fleet with a hold capacity greater than 32.6 m^3, the catch limit was set at 88,317 t. For the artisanal fishing vessels and purse seine vessels with a hold capacity of less than 32.6 m^3, the total limit was established at 86,683 t, of which 34,427 t was allocated for the January–April 2026 fishing period. Subsequently,

the catch limit for the artisanal fleet for the same period was modified to 91,000 t. For the May–August 2026 fishing period, an additional catch limit of 45,659 t was established, increasing the allocation for artisanal fishing vessels using gillnets and purse seine vessels with a hold capacity of less than 32.6 m³. IMARPE has conducted an updated assessment with JJM based on the most recent information and data available up to June 2026. The recent observations and assessments confirm the increasing trend in the biomass estimates observed from 2016. Nevertheless, the model projection for 2026 shows a decrease in its trend. Despite this, the Peruvian jack mackerel stock is in an overall healthy situation based on the reference points.

Russian Federation

40. The Russian Federation's annual report is presented in SC14-Doc29. Russia did not fish in the SPRFMO Convention Area in 2025 and it therefore had no fishing, research, or management data to report.

Chinese Taipei

41. Chinese Taipei's annual report is presented in SC14-Doc30. Chinese Taipei's squid jigging fleet has targeted jumbo flying squid, which is widely distributed throughout the eastern Pacific Ocean, since 2002. However, the fishery was temporarily suspended from 2022 to 2024. During the 2025 fishing season, a single squid jigging vessel operated in the SPRFMO Convention Area, landing a total catch of 267 t. The major fishing grounds were located between 15°–20°S and 74°–81°W. Observer coverage reached 82.7% of fishing days.

United States

42. The United States' annual report is presented in SC14-Doc31. The United States currently has no vessels participating in the fisheries managed by SPRFMO. Therefore, the United States has no data or information to provide regarding U.S. fisheries operating under SPRFMO jurisdiction in 2025 or 2026, nor information to provide regarding 1) catches, effort, and CPUE summaries; 2) fisheries data collection and research activities; 3) biological sampling and length/age composition of catches; 4) ecosystem approach considerations; and 5) observer implementation reports for fishing activities under SPRFMO jurisdiction. The United States has a continuing interest in the fisheries managed by SPRFMO and may have vessels that enter these fisheries in the future. If U.S.-flagged vessels enter SPRFMO-managed fisheries, the United States would provide the Commission with all relevant data and information and abide by all relevant measures adopted.

Vanuatu

43. Vanuatu's annual report is presented in SC14-Doc32. Vanuatu had no active fishing vessels in the Convention Area in 2025 and, therefore, had no catch or effort data to provide to the SC. Vanuatu also did not carry out any research activities relevant to SPRFMO fisheries in 2025.

3. Commission Guidance and Inter-Sessional Activities

a. Secretariat SC related activities

44. The Executive Secretary presented SC14-Doc07, which summarised the science-related activities the Secretariat engaged in intersessionally. The Executive Secretary also highlighted the appointment of the new SPRFMO Science Manager, Dr Jessica Fuller.

45. The SC thanked the Executive Secretary for the report and noted the document.

46. The SC also noted document SC14-Doc06, which collates the report summaries of intersessional web meetings of the SC and its working groups and task teams.

b. Update on data held by the Secretariat

47. The Secretariat presented a pre-recorded presentation by the Data Manager, Mr Bernard Vigga, of SC14-Doc11, an update on the datasets held at the Secretariat. The Secretariat receives and manages a range of standardised datasets under the CMMs. The Data Manager highlighted the datasets relevant to the work of the SC: namely the datasets for the Record of Vessels; annual catch and operational catch and effort; observer bycatch and length-frequency information; landings; transhipment notifications and declarations; port inspections; manual VMS position reports; VME encounter notifications; abandoned, lost or otherwise discarded fishing gear (ALDFG) events; and data for SC assessments such as age-length keys and jack mackerel survey data.

48. The SC noted the overview of the datasets held by the Secretariat.

49. The SC created a working paper with questions on, and suggested improvements to, the overview of the datasets (SC14-WP04).

c. Review of the Scientific Support Fund

50. The Executive Secretary presented SC14-Doc08_rev1, which outlined the outstanding 2026–2027 SC activities and the funds available in the Scientific Support Fund (SSF) and science-related Voluntary Contributions (VCs). The paper also invited the SC's input to the review of the SSF, including what works well, what could be improved, and how the SSF can best support planning the multiannual work of the SC.

51. The SC noted the funding currently available for SC activities and the review of the SSF as described in SC14-Doc08_rev1.

d. SC multi-annual workplan

52. The Chairperson presented the SC multi-annual workplan for 2026–2028 in SC14-Doc05.

53. The SC discussed planned activities and associated funding for the SC, its working groups, and its task teams for 2027–2029 under agenda item 12b.

e. Observer Programme accreditation process and progress

54. The SC noted the Executive Secretary's oral update regarding the accreditation process and progress. COMM14 accredited the observer programmes of three further Members: the Cook Islands, the Russian Federation, and Panama (in respect of transhipment). This year, accreditation assessments are being carried out by MRAG for the observer programmes of Ecuador and Panama (for scientific observation more broadly). The accreditation of the observer programmes of Australia, Chile, and New Zealand are up for renewal in 2029 and assessment for accreditation will commence in 2028. The full extent of observer programme accreditation can be found on the SPRFMO website under the CMM 16 webpage.

f. Review and Update on Data Standards

55. The SC reviewed CMM 02-2026 but did not have any comments or suggestions for potential amendments.

56. The SC **agreed** to continue to review CMM 02-2026 for potential amendments at SC15.

g. Cooperation with Other Organisations

57. The Executive Secretary reported that SPRFMO is continuing its cooperation with several organisations, highlighting a number of examples of particular relevance to the SC. SPRFMO has continued to collaborate with the Food and Agriculture Organization of the United Nations (FAO) on a range of Deep-sea Fisheries Project activities. With CCAMLR, the two Secretariats have held their annual cooperation meeting, and cooperation is ongoing in areas including data-sharing, tagging, and exploratory fisheries. The SPRFMO Secretariat has also been in communication with the *Comisión Permanente del Pacífico Sur* (Permanent Commission for the South Pacific; CPPS), and CPPS has identified regional governance developments, the El Niño effect on fisheries, and sustainable squid management as possible areas of cooperation. Regarding the Agreement on the Conservation of Albatrosses and Petrels (ACAP), the Commission has directed the Secretariat to work with ACAP and Members on further analysis of seabird bycatch data, and the Secretariat invited further direction from Members. SPRFMO has also successfully applied to join the FAO Coordinating Working Party on Fishery Statistics (CWP).

58. The FAO presented SC14-Obs01, which provided an overview of the Deep-sea Fisheries Project, a component project of the FAO's Common Oceans Programme, from 2022–present. Project activities of relevance to the SPRFMO SC include a review of the implementation of the Deep-sea Fisheries Guidelines; development of the E-learning Course "Strengthening deep-sea fisheries management in areas beyond national jurisdiction"; establishment of the Deep-sea Fisheries Technical Forum (DGroups community); various workshops and symposia, particularly a workshop on deepwater sharks and follow-up work, a workshop on cross-sectoral interactions with deep-sea fisheries, a workshop on developing guidance on the implementation of ecosystem approaches to fisheries management (EAFM) for deep-sea regional fisheries management organisations (RFMOs), and an online workshop on data and knowledge sharing in toothfish longline fisheries; support for conducting and improving data-limited stock assessments; and mapping of deep-sea fisheries in the ABNJ. Based on the successes of the Common Oceans Programme Phases I and II, FAO and its partners are assessing the possibility to develop a third phase of the Programme.

59. The FAO invited the SC to support ongoing engagement with the Deep-sea Fisheries Project, and in particular to:

a. Nominate experts to engage in an online consultation on SPRFMO-specific guidance to improve catch reporting of deepwater sharks;

b. Consider relevant sectors in the SPRFMO area which may interact with deep-sea fisheries and any data gaps which may need to be addressed in the context of the implementation of the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement);

c. Consider whether SPRFMO would benefit from defining how it is implementing EAFM, the precautionary approach and climate change implications, and the usefulness of the FAO ecosystem approach to fisheries implementation monitoring (EAFM-IMT) tool to facilitate reflections;

d. Consider proposed ways to improve data and knowledge sharing on toothfish longline fisheries with CCAMLR, SEAFO, SIOFA, and SPRFMO;

e. Consider nominating additional experts to engage in the work with ICES on the assessment of data-limited stocks.

60. Several Members expressed support for continued collaboration with the Deep-sea Fisheries Project and considered concrete activities for operationalising such collaboration in the SC Multi-Annual Workplan.

4. Commission Working Groups

a. Working Group on 2nd Performance Review Recommendations

61. The SC reviewed SC14-Doc13, which provided the outcomes of the Intersessional Working Group tasked with assigning and prioritising the recommendations derived from the second SPRFMO performance review (PR2IWG). The SC reviewed the 16 recommendations assigned to the SC and the comments from PR2IWG. The SC created a working paper with further comments on the recommendations, including milestones, notable work items in the SC multiannual workplan related to that recommendation, and estimated completion date (SC14-WP08, Annex 9).

b. Data Working Group

62. The Chairperson of the Data Working Group (DWG), Ms Karolina Molla Gazi, presented SC14-Doc14, which outlined the DWG's plans to consult the SC and its Working Groups, through a questionnaire, about the SC's data needs and potential data gaps. The DWG would advance work based on the results, the outputs of which could include a set of data submission templates, or revision and/or improvement of existing templates for jack mackerel and for squid, and potential development of a dedicated scientific database for certain data types.

63. The SC noted the importance of working to refine the current SPRFMO database with the parallel goals of 1) addressing immediate needs of the SC that could be resolved with comparative ease, and 2) establishing an optimal, dedicated scientific database, including automatable processes, that would facilitate further scientific analyses in the longer-term.

64. The SC encouraged Working Group Chairs and Members to complete the questionnaire from the DWG (SC14-WP11, Annex 10) for identifying the SC's data needs, potential data gaps, and potential improvements to the SPRFMO database, and return responses to the Secretariat by the agreed deadline of 9 October 2026.

65. The SC **requested** that the DWG consider the SC's data needs, potential data gaps, and potential improvements to the SPRFMO database based on Members' responses to the questionnaire when developing its workplan.

5. Jack Mackerel

a. Review of inter-sessional activities

66. The Chairperson of the Jack Mackerel Working Group (JMWG), Dr Jim Ianelli, outlined the primary jack mackerel inter-sessional activities, which included the 2026 assessment benchmark workshop (SCW16), the management strategy evaluation (MSE) workshop (SCW17), intersessional working-group and task-team meetings, and an independent desk review of the jack mackerel MSE. Working papers, assessment results and supporting analyses for SC14 are available through the jack mackerel wiki at sprfmo.github.io/SC14_JM.

67. The JMWG Chairperson drew attention to the following recommendations from the benchmark workshop (SC14-JM02, paragraphs 11–12 and 63), the MSE workshop (SC14-JM03, Recommendations and Conclusions and paragraphs 58–65) and intersessional work. The recommendations were to:

    a. use the agreed benchmark index set for the candidate base-model configuration, including the new Chilean and Peruvian CPUE series;

    b. replace the previous Peruvian acoustic-index treatments with the benchmark-agreed seasonal availability indices, noting that these indices were later excluded;

    c. retain the design-based Chile Acoustic North biomass treatment for assessment use;

d. apply the updated Far North length-composition bins from 10 cm fork length, with a 50 cm plus group; and

e. accept the benchmark-derived model set for MSE conditioning, with explicit documentation of recruitment autocorrelation and innovation variance.

68. These benchmark recommendations informed the model and data refinements used in the 2026 assessment and MSE conditioning. The final annual assessment configuration, including subsequent index choices, is described below.

69. The SC also noted the following priorities arising from intersessional activities and submitted papers:

a. evaluate the feasibility of a synoptic acoustic survey spanning northern to southern Chile to help distinguish abundance trends from spatial redistribution and changes in availability, if possible;

b. improve documentation of index coverage, increasing sampling, expansion methods and uncertainty, and resolve discrepancies in age–length-key sample-size reporting; and

c. present near-term sensitivities and diagnostics reflecting the 2026 acoustic and catch information.

b. Assessment data review and evaluation

70. SC14-JM02, the SCW16 JMWG benchmark meeting report, was taken as read. The report recorded SCW16's main decisions, agreed recommendations, unresolved technical issues and follow-up tasks required for the June MSE workshop and subsequent SC review. SCW16 focused on assessment inputs, abundance-index evaluation, biological data and assumptions, assessment-model simplification, operating-model conditioning, and priorities for the MSE work programme.

71. The JMWG Chairperson presented the catch history of jack mackerel (*Trachurus murphyi*) as described in SC14-JM01. Total reported jack mackerel catch in 2025 was 1,419,640 t, 9.5% higher than 2024. By the end of June 2026, cumulative catch was 434,203 t, 49.1% lower than at the same point in 2025 and 56.6% of the 2021–2025 January–June average. No Secretariat projection for total 2026 catch was provided because of data limitations. In 2025, Chilean Fleets 1 and 2 accounted for 85.9% of total catch, Peru/Ecuador coastal Fleet 3 for 12.0%, and offshore Fleet 4 for 2.1%. Catch timing has also shifted later: cumulative catch reached 70% of the 2025 annual total in August, the latest in the 2010–2025 series.

72. Chile presented SC14-JM10, which provided a standardisation of commercial CPUE from 1994 to 2026 for Chilean jack mackerel (*Trachurus murphyi*) in central-southern Chile using a hierarchical Bayesian spatio-temporal framework implemented through INLA. Models allowing spatial CPUE patterns to vary annually substantially outperformed a temporally constant spatial model. The standardised index was relatively high in the mid-2000s, reached a minimum around 2011, and recovered to predominantly above-average levels after 2019. Retrospective performance was stable (Mohn's ρ = 0.025). The framework demonstrates the importance of accounting for annual spatial redistribution and fishing operations when interpreting CPUE.

73. The SC noted the unusually high level of catch so far in the third quarter of 2026.

74. The SC noted that longer time was spent searching for aggregations of fish above the minimum legal catch size in the 2026 fishing season compared to previous years and that this increased search time should be taken into account when incorporating commercial data in the stock assessment.

75. Chile presented SC14-JM11, which provided the results of a hydroacoustic assessment of Chilean jack mackerel (*Trachurus murphyi*) in the northern zone of Chile. A hydroacoustic survey conducted over 33 transects and 35 midwater hauls estimated 3.262 billion jack mackerel and 642,244.1 t biomass. Fish ranged from 11–54 cm FL and showed a multimodal length distribution, with the primary mode at 23 cm. Jack mackerel occurred between Arica and Valparaíso, with the great majority of biomass concentrated within the first few nautical miles from shore.

76. Chile presented SC14-JM16, which provided the results of a study of the spatio-temporal dynamics of the Chilean jack mackerel (*Trachurus murphyi*) fishery off central-southern Chile during 2020–2026. The central-southern Chilean fishery changed substantially in spatial distribution, size structure and fishing performance. Fishing was relatively coastal through much of 2020–2023 but expanded northward and offshore during 2024–2025 as availability declined in traditional grounds. Early 2026 saw sharply reduced landings and catch rates and increased occurrence of juveniles. The results indicate a recent shift in Chilean jack mackerel spatio-temporal dynamics potentially associated with changes in availability and/or environmental variability, with implications for management and sustainable exploitation.

77. Chile presented SC14-JM19, which provided an update to alternative CPUE indices using electronic logbook data through the first semester of 2025. Chile compared spatio-temporal approaches using vessel hold capacity and year/month effects. Indices predicted using a regular spatial mesh were similar to those based on the year fixed effect; consequently, Chile recommended the year-effect index. Because of sample-size limitations, the series should be used from 2000 onwards.

78. Peru shared information from its jack mackerel fisheries so far in 2026. Peru informed the SC that catch and CPUE have seen large declines compared to 2025. Peru has two fleets, an industrial fleet and an artisanal fleet. The industrial fleet has had limited activity this year, while the artisanal fleet has moved closer to the coast. The jack mackerel fishing grounds are part of an upwelling ecosystem full of cold, nutrient-rich waters, but when El Niño occurs the upwelling almost stops and there is an intrusion of warm waters from the west and the north. This may have produced a strong change in the spatial distribution of jack mackerel. Moreover, the waters off Peru are still warm, while the waters off Chile are getting colder, which may be why there has not been a rebound in catch in Peruvian waters like there has been in Chile.

79. Chile presented SC14-JM13_rev1, which provided an evaluation of methodological improvements for the hydroacoustic assessment of Chilean jack mackerel (*Trachurus murphyi*) in northern and central-southern Chile. Chile evaluated improvements to acoustic survey sampling and spatial modelling using INLA-Stochastic Partial Differential Equation (SPDE) models and simulated survey designs. Spatial coverage strongly affected uncertainty. In northern Chile, the existing survey design provided an appropriate balance of coverage and precision, although a 16-transect design could be viable under operational constraints. In central-southern Chile, a 16-transect adaptive design concentrating additional effort offshore achieved uncertainty comparable to a more intensive design.

80. The SC expressed its appreciation to Chile for conducting this evaluation, noting its value for future work towards developing a Chile-wide understanding of the stock.

81. The SC noted that the results produced by the alternative modelling presented in SC14-JM13_rev1 seemed to correspond well to the results of the traditional hydroacoustic assessments for northern and central-southern Chile.

82. The SC noted that Chile's hydroacoustic survey follows a fixed survey design that does not account for environmental variability. The SC suggested that as future work, Chile could investigate the efficiency of the survey by using habitat mapping to account for changes in spatial distribution.

83. Chile presented paper SC14-JM14, which described a framework to standardise biomass indices for Chilean jack mackerel (*Trachurus murphyi*) from the northern (2006–2026) and central-southern (1997–2023) Chilean acoustic surveys using a common delta-Gamma spatio-temporal framework using sdmTMB. Prediction over fixed spatial domains reduced effects arising from changing survey coverage. Standardised indices reproduced the main long-term patterns of conventional indices but differed in annual biomass magnitude when survey coverage changed. The approach provided an alternative standardised relative-biomass series for consideration alongside the acoustic indices currently used in the SPRFMO assessment.

84. Chile's paper SC14-JM15 was taken as read. It provided the Chilean jack mackerel (*Trachurus murphyi*) CPUE index based on the fishing trip database and acoustic biomass estimates updated with data up to June 2026. The central-southern Chilean CPUE index fell sharply (60%) during March–June 2026, which Chile attributed to reduced availability associated with heatwaves and El Niño 2026; the fleet subsequently moved south in July and obtained high CPUE. Northern acoustic biomass also declined sharply (80%) in 2026. Alternative CPUE modelling produced broadly similar indices, but Chile recommended a precautionary approach because the CPUE index may overestimate recovery in central-southern Chile.

85. Chile's paper SC14-JM17 was taken as read. It provided the results of a study to investigate approaches for incorporating changes in fleet efficiency ("effort creep") into the Chilean CPUE index. Fisher survey responses were used to estimate perceived changes in efficiency and their timing. Adding the creep factor directly as a dummy variable caused multicollinearity and aliasing, while using creep-corrected CPUE as the GLM response produced a pattern similar to the uncorrected index. Chile proposed further work, potentially including an additional survey, to improve robustness.

86. Chile's paper SC14-JM18 was taken as read. It provided the results of a study using sdmTMB spatio-temporal models to reconstruct the historical northern-zone acoustic-density series despite changes in survey extent and sampling design. The preferred model included year, oxygen concentration, AR1 spatio-temporal covariance and anisotropy. Its acoustic-density trend was consistent with conventional density and total-biomass trends. Chile suggested that the acoustic-density index may be particularly informative where trawl-haul numbers are low or spatio-temporal length sampling is biased.

87. The EU's paper SC14-JM20 was taken as read. It described PFA fisheries in the SPRFMO Area during 2019–2026 and its vessel self-sampling programme, which records haul information, species composition, lengths, temperature and depth. Sampling provides information on the spatial/temporal evolution of fisheries and biological composition. No PFA fishing occurred in 2020; two PFA vessels operated in 2025 and three were present during the first half of 2026. For jack mackerel, the 2019–2026 programme covered 62 trips, 2,675 hauls, 175,563 t of catch and 184,645 individual length measurements.

88. The EU's paper SC14-JM21 was taken as read. It provided an update to the standardised offshore CPUE index originally developed at SC07 using haul-by-haul data from China, European Union, Korea, Vanuatu and Russia. The standardisation followed the procedure agreed at the 2018 benchmark. The final GAM includes year, vessel, month and El Niño effect, together with a smoothed latitude-longitude interaction. The standardised series begins in 2008, the first year for which haul-level data were available.

c. Jack mackerel assessment

89. The 2026 annual assessment (Model 1.06) used six abundance indices: the two Chilean acoustic series, Chilean CPUE, separate Peruvian artisanal and industrial CPUE, and offshore CPUE. The seasonal Peruvian acoustic availability indices examined during benchmark development were omitted from this annual configuration.

90. Sensitivity analyses for the 2026 base model (1.06) examined the influence of four recent abundance-index groups: Chilean CPUE, offshore CPUE, the two Peruvian CPUE series together, and the North Chile acoustic survey. Leave-one-out (LOO) runs strongly downweighted each group in turn, while leave-one-in (LOI) runs retained one group at its base weight and downweighted the other three. Downweighting was implemented by multiplying index errors by 100. Other data retained their base treatment.

91. The results showed substantial differences in estimated recent spawning biomass. The LOI runs retaining North Chile acoustics or Peruvian CPUE produced the highest estimates, while retaining Chilean CPUE produced the lowest. In the LOO runs, downweighting Chilean CPUE increased estimated 2026 spawning biomass by 93% relative to the base, whereas downweighting North Chile acoustics reduced it by 30% and produced a declining trajectory in recent years. Downweighting offshore or Peruvian CPUE produced smaller increases. The influence of Peruvian CPUE therefore depended on which other indices remained influential, demonstrating the importance of considering the contrasting signals jointly.

92. The SC noted the need to improve size- and age-composition sampling for acoustic surveys.

93. China and Chile expressed concern about the substantial changes in estimated stock scale and condition relative to SC13.

94. Chile expressed its disagreement with the 2026 stock status presented to SC14, noting that the substantial revision in stock scale and perceived trajectory warrants further technical scrutiny before being consolidated as an agreed benchmark. Specifically, after more than a decade in which successive assessments demonstrated a sustained rebuilding trajectory from the 2010–2012 historical depletion into a consolidated status within the green quadrant of the Kobe diagram, the candidate assessment abruptly shifts the terminal phase-plane coordinates into the yellow or red quadrants, depending on whether equilibrium versus dynamic biological reference points (BRPs) and historical selectivity averaging windows are applied. In Chile's view, this revised perception stems primarily from cumulative structural and input modifications introduced during the 2026 benchmark and post-benchmark process, during which substantial scientific efforts were concurrently dedicated to conditioning operating models for the MSE. Given the compressed timeframe and the intensity of work required across both processes, Chile considers that, consistent with international best assessment practices, a formal independent external peer review is essential to resolve outstanding methodological questions regarding input configurations, data weighting, and their collective influence on estimated stock status. Specifically, further technical evaluation should address at least: the treatment of Far North CPUE series, survey selectivity parameterization, and examining the trade-offs among goodness-of-fit, model parsimony, retrospective stability, and biological plausibility, particularly where subtle parameter shifts fundamentally alter perception relative to reference points. Consequently, Chile recommended retaining the stock status baseline reported by SC13 for 2026 while a comprehensive, independent scientific review is completed to provide full technical assurance to the Commission (see Chilean full statement in Annex 23b).

95. The JMWG Chairperson explained that the revised assessment retained a similar improving stock trend despite the change in scale, following extensive model development and testing through the benchmark and MSE workshop process.

96. The European Union and Australia recalled that earlier sensitivity analyses shown at SC13 had demonstrated considerable uncertainty in stock scale and considered the model improvements responsive to those findings.

97. Australia, the Cook Islands, the European Union and the United States considered the benchmark scientifically defensible and the best available science for advice, emphasising consistent application of sound scientific processes.

98. The Cook Islands was not opposed to an external review but opposed making such a review a condition for accepting the benchmark results.

99. Australia recognised that there were uncertainties in the stock assessment model, just as there were in the model presented to SC13. Many Members disagreed with Chile's suggestion that benchmark introduced new uncertainties in the model. Australia emphasised that the JMWG undertook extensive work through workshops and the benchmark process over the last 12 months, a number of decisions were made in that process in accordance with the normal rules and processes in SPRFMO, and these decisions were incorporated in the stock assessment model. Australia believed that the benchmark incorporates several improvements compared to the SC13 model and should be adopted and treated as the best scientific basis for management advice on the status of the stock.

100. The European Union added that periodic benchmark review is a routine, necessary feature of stock assessment in every major international fisheries body and that revising input data is itself standard scientific practice. The European Union further emphasised the importance that the scientific process must not be prejudged by a preferred outcome. The EU agreed that independent external review is valuable and should be a routine feature of the benchmark process, but there was ample opportunity to request an external review from May 2026 when the benchmark took place until the SC14 meeting, but no such request was made. The lack of an external review is not grounds for setting aside the results of the current assessment. The European Union's full statement is attached as Annex 23c.

101. Ecuador supported the assessment and agreed with advancing the management framework for jack mackerel during the next annual cycle, 2027. This entails provisionally maintaining the quantitative parameters and allocation key of CMM 01-2026 (TAC), pending the implementation of the MSE plan, which should provide the recommendation for 2028. Ecuador emphasised the need to consider the performance of the current year, 2026, which began with low catches; however, from the second half of the year onward, catches increased significantly. Ecuador's statement is available in Annex 23d.

102. China noted that the large differences in model estimates for 2025 and 2026 stemmed largely from changes in input data. China also noted that any update of indices may result in a large change in the stock assessment results. The Commission should consider such a possibility.

103. Members clarified that the sensitivity analyses demonstrated the impact of different indices and could be helpful to Commissioners to understand the advice.

104. Peru stated that the jack mackerel benchmark workshop and any stock assessment workshop are spaces where data are presented in a very transparent way, discussed, accepted or rejected for being included in the assessment.

d. Management Strategy Evaluation update

105. The JMWG Chairperson presented SC14-JM03, which provided the SCW17 JMWG MSE workshop report. SCW17 advanced the MSE programme toward a final set of operating models (OMs), candidate management procedures (CMPs), performance statistics, robustness scenarios and supporting documentation for SC14. Model 0.16 was treated as the primary reference for OM conditioning, with model 0.00 and the SC13-era configuration retained as robustness tests. The group agreed on a steepness of 0.65 for the base case, with 0.8 retained as a robustness case and recruitment-regime and El Niño–Southern Oscillation (ENSO) effects identified for robustness testing. Recruitment and index simulation were identified as important technical issues because of their influence on projections and CMP performance.

106. The SC thanked Wageningen University for hosting the workshop, the participants for their contributions, the external reviewers and invited experts for their advice, and the Pew Charitable Trusts (Pew) for its participation and assistance in facilitating the participation of independent MSE experts Blue Matter Science at the workshop.

107. The JMWG Chairperson presented SC14-JM07, which reported the progress on the jack mackerel MSE work. The MSE has progressed from a broad workshop design to a narrower comparison of CMPs against a reference OM and structured robustness OMs. The design incorporates interpretable empirical rules, correlated errors among five abundance indicators, dynamic reference points, explicit robustness testing, multiple performance measures and an exceptional-circumstances protocol. Post-SCW17 work refined the leading rule families and tested them against one- and two-stock hypotheses, recruitment stress, movement, selectivity and alternative TAC-change limits. Hockey-stick and power-ramp designs emerged as the principal families for SC14 consideration.

108. Further working comparisons prepared during SC14 examined recruitment-crash and recruitment-cycle scenarios, near-term catch and stock-status outcomes, and alternative annual TAC-change limits. One comparison focused on CMP29 (HS+20), CMP45 (HSsym) and CMP43 (HS−20). These were discussion sets for evaluating biological performance and catch trade-offs, with any selection to be recorded in the advice to the Commission.

109. The SC noted that the MSE provides a way to test catch rules against plausible stock dynamics and observation changes. Empirical rules still depend on survey and fishery indices, so their performance must be demonstrated across the relevant scenarios. Any recommendation on catch safeguards, a new independent assessment review or adoption of a management procedure requires explicit consideration by the SC and, where appropriate, the Commission.

110. SCW17 recommended focusing on simple, interpretable harvest control rules (HCRs) and ranking/selecting a concise set of distinct CMPs for SC consideration. Workshop trials used the agreed h1_0.16 for tuning and evaluated performance under h2_0.16, retaining the SC13 configuration as a robustness test. The workshop called for recruitment autocorrelation and correlated index deviations to be represented, with ENSO and regime effects examined through robustness testing. It strongly recommended calculating dynamic B_{MSY} from within-draw MCMC estimates of B_{MSY}/B_0 and dynamic B_0 and using SSB/dynamic B_{MSY} in Kobe-plot and reference-point summaries. CMP comparisons should cover safety, yield and catch stability over short- and long-term periods, with six headline performance metrics and supporting diagnostics. Banking and borrowing should be evaluated as a sensitivity for the final CMP set.

111. The SC discussed presenting a narrower set of CMPs to the Commission. Discussions centred on selecting/ranking a few top performing CMPs from the 8 CMPs using a scorecard approach. This scorecard and summary of results could form the basis of a decision-guide for the Commission to help select and adopting an MP.

112. The SC discussed how an adopted management procedure (MP) would respond if one of its indices became unavailable. The SC noted that this could constitute an exceptional circumstance, as in other RFMOs. A procedure using the remaining indices could be evaluated through simulation and reviewed against the agreed performance criteria before any revision to the adopted MP.

113. Chile pointed out that, for its stakeholders, it would be important to maintain a certain degree of stability or low variability in catches between years. In that regard, Chile suggested that it would be useful to see not only long-term performance statistics but also short-term ones.

114. Australia emphasised that the SC's task is to provide the Commission with a set of CMPs that could be implemented in the long term. Therefore, Australia highlighted the importance of considering CMPs from a long-term perspective and cautioned against allowing short-term metrics to influence the SC's advice. Australia suggested that, if the Commission wished to ensure low variability in catches between years, one approach would be to introduce a meta-rule to that end.

115. The SC began development of an exceptional circumstances protocol (ECP) for implementation alongside an adopted MP (Annex 11). Potential triggers included survey, fishery, environmental or distributional observations outside the conditions represented in the MSE. The SC agreed to develop the detailed protocol further as CMP selection advances.

116. The SC noted that:

a. the MSE approaches in SC14-JM07 provide valid combinations of the available information for application in the tested HCRs;

b. the MSE work evaluates annual TAC-change variants informed by polling of Commission members;

c. the CMPs use five abundance indices, with fishery-dependent CPUE series and the fishery-independent North Chile acoustic series providing complementary information from different parts of the stock's range;

d. northern and southern indicators should continue to be tracked separately, alongside the combined CMP indicator, through the annual assessment process;

e. evaluation of potential exceptional circumstances should become part of the SC's annual activities; and

f. the independent desk review (SC14-JM04) and the response (SC14-JM09) provided an adequate basis for progressing the MSE work.

117. The jack mackerel MSE workshop report noted that the updated 500-iteration banking-and-borrowing runs retain explicit transaction tracking. The banking-and-borrowing simulations also removed annual TAC-change limits, so a matched comparison retaining the same limits is needed to quantify the additional effects of banking and borrowing.

118. Chile presented SC14-JM12_rev1, which summarised the results of the MSE for the South Pacific jack mackerel fishery, developed in Chile (2025–2026) under the FIPA2024-27 project. The study evaluated MPs under low-, medium- and high-recruitment OMs using both shortcut and full MSE approaches. A simplified assessment model reduced parameters by 89% and convergence time by 94% while maintaining >90% correlation with the original JJM. Ten MPs based on four HCRs were evaluated. MP4 and MP8 performed best in the medium and long term, with MP4 providing the strongest balance between biological conservation and fleet stability. MP1 and MP3 were among the poorest overall performers, while constant-catch MP10 performed well under historical productivity but was unsustainable under low productivity.

119. The SC appreciated this work and noted that it contributed to the specification and evaluation of HCRs during SCW17.

e. Advice to the Commission on jack mackerel

120. Many Members considered that the stock assessment reflected the agreements and outcomes of the recent benchmark and that the revised stock assessment after the benchmark represents the best available science. The SC noted that, while the stock assessment has substantially decreased the estimates of absolute abundance compared to previous assessments, the relative trends in biomass remain similar (Figure 1). Further, the SC noted that TAC utilisation for 2026 is projected to be far lower than previous years and there is currently a large El Niño event impacting the eastern Pacific Ocean.

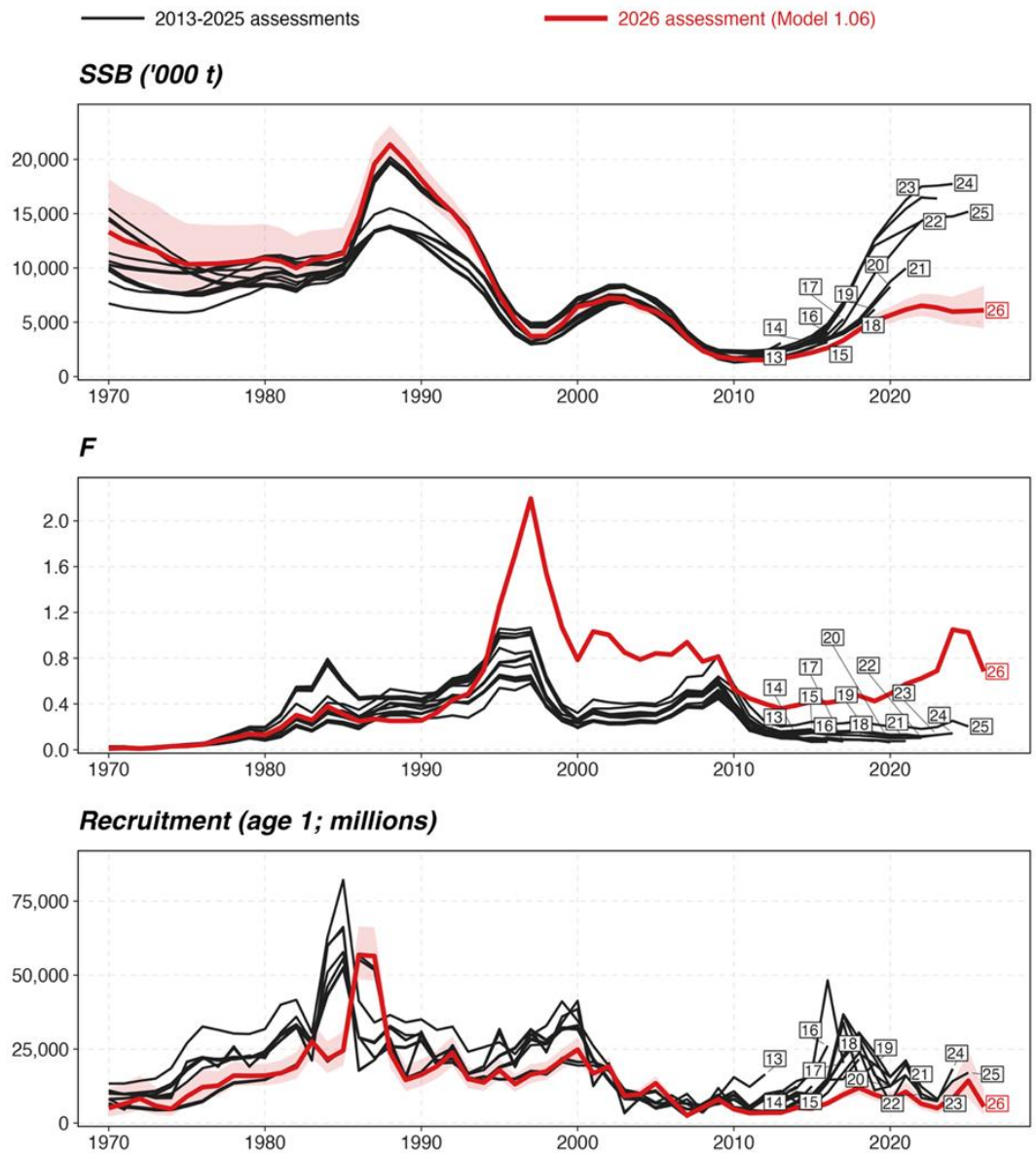


Figure 1. Comparison of successive single-stock assessments of spawning stock biomass (SSB), fishing mortality (F) and recruitment. Changes between the 2021 and 2022 assessments reflect the 2022 benchmark; changes between the 2025 and 2026 assessments reflect the 2026 benchmark.

121. Given the revised assessment, lower than expected catch and strong current and forecasted El Niño, the SC **recommended:**

> a precautionary approach to setting catch levels for 2027. The SC **recommended** a shortlist of CMPs (CMP29, CMP43, CMP45) for the Commission to consider for implementation. Should the Commission adopt one of these CMPs, it may be appropriate to use that MP to set the 2027 catch limit.

122. In the case that an MP is not used to set the 2027 catch limit, most Members of the SC **recommended** that the Commission:

> a. acknowledge the exceptional conditions and uncertainty impacting the present status of the jack mackerel fishery and abandon the application of the Annex K harvest control rule, which would have a very low probability achieving the management objective of B being above B_{MSY} in the short term and the medium term (2032).
>
> b. acknowledge that, to meet the management objective for jack mackerel in the medium term (2032) and long term (2036), fishing needs to be restricted to the fishing mortality similar to that of 2026.
>
> c. adopt precautionary catch advice for 2027.

123. Most of the SC **recommended** that the Commission:

> set the 2027 TAC at or below an acceptable range spanning status quo fishing mortality or up to 1.25 times that value. This gives 964–1,152 kt.

124. Vanuatu recognized that these values represented a very large change from the 2026 TAC and requested that a two-year step-down approach from the TAC for 2026 to status quo fishing be analysed and included in the risk table. This gave a value of 1,319 kt. These values are based on support from risk table below (as shown in past years; note that for the scenarios with specified catch in the first projection year, the fishing mortality that gives that catch is used for subsequent years).

Multiplier of F_{2026}	B_{2028}	P(B_{2028} > B_{MSY}) %	B_{2032}	P(B_{2032} > B_{MSY}) %	B_{2036}	P(B_{2036} > B_{MSY}) %	Catch 2027 (kt)	Catch 2028 (kt)
0	7,884	77	11,695	97	14,110	98	-	-
0.75	6,503	39	7,253	57	7,391	58	760	857
1	6,188	30	6,561	44	6,603	46	964	1,026
1.25	5,910	23	5,999	33	5,975	34	1,152	1,169
FMSY	5,774	17	5,740	26	5,688	28	1,247	1,236
TAC26 *.85	5,508	15	5,237	19	5,139	19	1,424	1,362
Step-down	5,937	24	6,498	43	6,577	45	1,319	925

125. Chile noted that implementing CMP29 or CMP45 on the basis of the 2026 TAC would result in a catch limit recommendation for 2027 of 1,424 kt.

126. The summary jack mackerel advice sheet is included as Annex 12. The jack mackerel technical annex will be uploaded to the SC14 meeting page as Annex 13 when it becomes available.

6. Deepwater

a. Review of inter-sessional activities

127. The Chairperson of the Deepwater Working Group (DWWG), Mr Trent Timmiss, reported that there had been three online sessions of the DWWG and a dedicated toothfish workshop in preparation for SC14. The reports from these meetings were presented to the SC and are covered under the relevant parts of agenda items 6 and 9.

b. Deepwater assessments (Orange roughy, stock structure, ecological risk, data)

128. The SC noted SC14-DW15, which New Zealand presented to the DWWG. The paper outlined New Zealand's work on orange roughy stock structure. The Scientific Committee Multi-Annual Plan 2026–2028 (COMM14-Report, Annex 4a) identified a priority task to investigate the stock structure of orange roughy on Westpac Bank and within the adjacent New Zealand EEZ (COMM14-Report, Annex 4a, item 2.2.3). To date, only one peer-reviewed study, Smith et al. (2002), has specifically examined stock structure in the eastern Tasman Sea, evaluating orange roughy stock structure using five complementary approaches: life-history characteristics, population length-frequency analysis, otolith shape analysis, genetic markers, and comparisons of spawning locations. To place these into a broader context, New Zealand undertook a comprehensive review of the available literature, including studies published since 2002, that have investigated orange roughy stock structure using a range of methodologies and analytical techniques. New Zealand synthesised evidence from fisheries, biological, genetic, chemical, and ecological studies to evaluate current knowledge of stock structure in orange roughy and provided a description of the orange roughy fisheries in the eastern Tasman Sea to support interpretation of the available stock identification evidence.

129. The SC noted that:

a. no single method is likely to provide definitive evidence of orange roughy stock structure.

b. despite the application of a range of techniques to investigate orange roughy stock structure, there remains no consensus regarding the level of connectivity among populations.

c. the review of all available literature on orange roughy population structure was inconclusive in regard to whether the stock structure in the Westpac Bank and ORH7A management areas comprise a single biological straddling stock owing to their close geographic proximity.

130. The SC **recommended:**

> that innovative techniques be used to analyse orange roughy samples collected from Westpac Bank and adjacent areas of the New Zealand EEZ during the same season, in order to assess the stock structure within these areas.

c. Benthic bycatch ID and catchability

131. There were no papers or discussions under this agenda item.

d. Encounters with VMEs

132. The SC noted SC14-Obs04, which Greenpeace presented to the DWWG. The paper reported on Greenpeace's 2025 expedition to the Central Lord Howe Rise and described the drop-tow camera systems and the imagery equipment used to collect direct observational data from the seafloor. Direct observational data collected during the Greenpeace Seamount Expedition in 2025 from three transect dives were analysed using a standardised protocol to identify VMEs from imagery. The Baco et al. (2023) protocol was applied to operationalise the five FAO Deep-sea VME criteria. Greenpeace noted that according to the FAO Guidelines, only a single criterion needs to be met for an area to be designated as a VME and that the results confirm that the study area meets multiple FAO VME criteria, specifically Criterion 3 (fragility), Criterion 4 (life-history traits) and Criterion 5 (structural complexity), confirming the presence of VMEs within the 2024 bottom fishing encounter area within the Central Lord Howe Bottom Trawl Management Area.

133. The SC noted SC14-DW16, which New Zealand presented to the DWWG. The paper provided an update of SC13-DW09, which contained New Zealand's review of a VME encounter that occurred in 2024 on a New Zealand-flagged vessel that was bottom trawling in the Central Lord Howe Rise Fishery Management Area. New Zealand emphasised the limitations of relying on individual images and the need for broader spatial sampling before using imagery to support area closures. It noted that some individual corals and sponges might exceed an approximate 100-year age benchmark, but their rarity and site-level uniqueness remained debatable. New Zealand concluded that the combined evidence supported the presence of several VME indicator taxa but did not provide a definitive conclusion that a VME was present. It pointed out that the analysis presented in SC13-DW09 showed that habitat suitability modelling indicated moderate to high suitability for deep-water coral habitat, while abundance modelling predicted medium to low coral abundance and did not establish VME presence.

134. The SC noted that as required by the SPRFMO Convention Article 3, para. 2(a) the SC must apply the precautionary approach when considering the encounter review.

135. The SC noted that direct footage of the encounter area has been collected, and that the analysis undertaken demonstrated the presence of VME indicator taxa in the encounter area.

136. The SC noted that this supports the finding in SC13-DW09 that suggested the potential presence of a VME.

137. The SC noted that analysis of the available data (including SC13-DW09, SC14-DW16, Commission papers and SC14-Obs04) is not conclusive as to the occurrence of, or the degree of likelihood of, a VME in the encounter area, noting:

    a. that the Scientific Committee Multi-Annual Workplan is tasked with developing a standard to identify a VME eligible to be listed in Annex 9 of CMM 03-2025 (including the relevant scale at which VMEs should be considered) (COMM14-Report, Annex 4a, item 2.4.4).

    b. that for the purposes of providing advice on management actions following a VME Encounter, CMM 03-2025, para. 33(d)(i) requires the Scientific Committee to determine if a VME is known or is likely to occur within the encounter area.

138. The SC noted that, consistent with the application of a precautionary approach given uncertainty of VME presence, SC13-DW09 and SC14-DW16 considered the potential for significant adverse impacts on any VMEs that might be present, if the encounter area was reopened, in line with CMM 03-2025 para. 33(d)(ii).

139. The SC noted that the analysis in SC13-DW09 relating to significant adverse impacts, which was supported by alignment between the abundance and habitat suitability modelling outputs and direct observations collected by Greenpeace (SC14-Obs04), remains the best available scientific information for considering whether reopening the encounter area will expose potential VMEs to significant adverse impacts.

140. The SC noted that reopening the area is unlikely to result in significant adverse impacts at the scale of the Fishery Management Area (FMA), Bottom Trawl Management Area (BTMA) or the 5 nm Buffer Area surrounding the encounter area but could lead to additional impacts at the scale of the encounter area or the UTF polygon.

141. The SC noted that in developing management advice, New Zealand considered the low fishing effort since 2008 within the encounter area, the assumption that similar fishing patterns continue in the future, the concentration of historical impacts within the encounter area, and the risk of displacing that fishing effort to other areas which may not have been previously subject to benthic impacts if the area remains closed.

142. The SC **recommended** that the Commission:

a. agree to take a precautionary approach by maintaining the current temporary closure of the Encounter Area; and

b. note that this decision should be reviewed by the SC if further relevant information is received.

143. Greenpeace stated its view that expedition findings from Central Lord Howe and the Northwest Challenger confirm that VMEs are known or are likely to occur at all undersea features surveyed and recommended that all surveyed seamounts should be listed on Annex 9 as they meet one or more of the internationally agreed FAO criteria to identify VMEs, as required under CMM 03-2025. Greenpeace also suggested that its findings could be used as case studies for advancing the SC's work to develop a standard to identify a VME eligible to be listed in Annex 9 of CMM 03-2025 under workplan item 2.4.4 (COMM14-Report, Annex 4a).

144. The DSCC emphasised the importance of the encounter area scale under the encounter review standard and the importance of applying the precautionary approach, mandated by the Convention and the standard. The DSCC emphasised that the direct and indirect evidence strongly suggested the presence of VMEs and likely continued trawling in the area indicated a significant risk of significant adverse impacts if the area was reopened. The DSCC also considered that the Greenpeace image analysis of Lord Howe and Northwest Challenger undertaken provides adequate information and meets the FAO Deepwater Guidelines criteria to recognise these areas as VMEs and add them to Annex 9 of CMM 03-2025.

145. New Zealand re-iterated the statement made by the High Seas Fishing Group (HSFG) to the DWWG where HSFG expressed its disappointment that the SC had been unable to recommend reopening the encounter area, noting that the encounter event was from a trawl at the edge of an established trawl lane that had been fished for many years without impact, and expressed particular concern that the recommendation to keep the area closed is because of concern about impacts at the scale of the encounter area (one trawl track), even though there is agreement on no impact at the level of BTMA, FMA or even to the buffer area.

e. CMM 03 request regarding encounters with VMEs

146. The SC noted SC14-DW12, which New Zealand presented to the DWWG. The paper outlined progress on improving particle dispersal modelling for validation of the South Pacific VME Bioregionalisation that was previously presented at SC13 (SC13-DW10). The improved dispersal model has been updated from a relatively coarse-resolution (10 km x 10 km grid) global ocean reanalysis product to a finer resolution (5 km x 5 km). This higher resolution model was then used to investigate the impact of realistic biological behaviour, in particular vertical swimming, on particle dispersal through a number of dispersal scenarios. Preliminary results indicated that the connectivity matrices for the different dispersal scenarios generally indicated higher levels of self-connectivity than connectivity among different bioregions. The biologically realistic larval behaviours incorporated into the dispersal modelling have a significant impact on dispersal patterns and connectivity, with greater dispersal for particles advected near the surface for extended periods. The next phase of work will include developing a higher

resolution model for part of the Louisville Seamount Chain and examining dispersal patterns in more detail, with a particular emphasis on particle transport from different parts of the same bioregion and evaluating a broader range of pelagic larval durations while incorporating biological constraints on survival, such as depth thresholds. Together, these refinements will improve the biological realism of the dispersal modelling and ensure that its outputs are more relevant to VME indicator taxa.

147. The SC noted that the particle tracking approach developed to contribute to validation of the South Pacific VME bioregionalisation has been improved by incorporating a higher-resolution regional model and the impact of biological behaviour.

148. The SC noted that the approach presented can resolve baroclinic instabilities and the resulting mesoscale eddy field.

149. The SC noted that the approach incorporates several biologically realistic scenarios of VME indicator taxa larval behaviours, such as vertical swimming and depth of dispersal, which have been shown to substantially influence larval dispersal pathways and connectivity patterns.

150. The SC **agreed** that, while results are still preliminary, incorporating behaviour and finer-scale processes has improved upon the modelling previously used as one of several approaches to validate the bioregionalisation of VME indicator taxa.

151. The SC **agreed** that the particle tracking model should be progressed to include a higher resolution ocean model for part of the Louisville Seamount Chain to resolve fine-scale dispersal patterns within Bioregions 6 and 7 in this region.

152. The SC **agreed** that the dispersal patterns should be examined in more detail, with a particular emphasis on particle transport from disparate and fragmented areas, within the same bioregion.

153. The SC **agreed** that the analysis should evaluate a broader range of pelagic larval durations, while incorporating biological realism in constraints on survival, and that a broader literature review be conducted to identify the larval behaviour scenarios that best reflect the ecology of VME indicator taxa in the South Pacific.

154. The SC noted SC14-DW17, which New Zealand presented to the DWWG. The paper provided an update on progress made towards validation of existing spatial models of VME indicator taxa abundance, and the development of updated models through the addition of abundance data from unprocessed historical video imagery and a review of available environmental predictor variables for modelling. This work is reflected in item 2.5.2 of the SC Multi-Annual Plan 2026–2028 (COMM14-Report, Annex 4a): "For VME taxa potentially at risk of SAI, improve and validate abundance models, using independent data". Nine additional Deep-Towed Imaging System (DTIS) stations were selected from locations expected to provide the greatest benefit to the predictive power of the abundance models. A multiple-lines-of-evidence approach was agreed upon for validating and evaluating the existing models, and for updating and improving the abundance models. While it was not possible to complete these tasks prior to SC14, agreements were reached in meetings of the Fisheries New Zealand South Pacific Working Group (SPACWG) on the prioritisation of available seafloor imagery sample data required for analysis and models, the potential replacement of critical predictor variables with updated versions, and details of methods to be applied for validation.

155. The SC noted that additional imagery data is currently being analysed for further development and validation of abundance models for VME indicator taxa.

156. Greenpeace pointed out that all of the footage from its expeditions is still available to all Members, including New Zealand. Greenpeace also noted that the direct observations from these expeditions have highlighted the limitations with the current VME indicator taxa modelling as there were multiple examples at each site where the VME indicator taxa modelling did not identify species that were directly observed. Greenpeace encouraged the SC to incorporate these findings to improve and validate the VME indicator taxa modelling.

157. The SC **agreed** that while it was not possible to complete these tasks prior to SC14, work should proceed towards validation of existing spatial models of VME indicator taxa abundance, and the development of updated models through the addition of abundance data from unprocessed historical video imagery and incorporation of updated environmental predictor variables where they are available for modelling.

158. The SC **agreed t**hat following the validation of the new abundance models, they should, if time allows, replace the transformed habitat suitability models for VME indicator taxa in the relevant components in the New Zealand and Australian BFIA 2027 update, including assessments of SAIs and protection levels of VME indicator taxa afforded by current spatial management measures.

f. Bottom Fishery Impact Assessment

159. The SC noted that a revised BFIA was due to be presented to SC15 (COMM14-Report, Annex 4a, item 2.5.4) and that this would incorporate the results of updated VME indicator taxa abundance modelling.

g. CMM 03 request regarding marine mammals, seabirds, reptiles and other species of concern

160. The SC noted SC14-DW08, which Australia presented to the DWWG. The paper described Australia's shark handling and release protocol for SPRFMO bottom fisheries. The protocol addresses crew safety, trawl and longline handling practices, in-water and onboard release procedures, post-release survival, fishing-related injuries, bycatch reduction, and commonly encountered sharks, skates, rays, and chimeras. FAO requested that the FAO species codes be included in the report's species table and offered coordination support through the Deep Sea Fisheries Project. The DWWG supported this and recommended endorsement of its handling guidelines and considering further bycatch-reduction work; Australia will issue a revised version with the requested additions of the FAO codes.

161. In response to the request from the DWWG, Australia submitted a revised paper (SC14-DW08_rev1) to the SC with FAO codes added to the table of chondrichthyan species in SPRFMO bottom fisheries (Annex 14).

162. The SC **recommended** that the Commission:

a. endorse the methods, handling and release guidelines in SC14-DW08_rev1 (Annex 14); and

b. consider further work on reducing chondrichthyan bycatch in bottom fishing in the SPRFMO Convention Area, including gear selectivity and modifications.

163. The SC noted that the annual reports from Australia and New Zealand indicated there were no interactions reported with species of concern.

164. SC14-Doc10 was taken as read. The paper summarised the bycatch of marine mammals, seabirds, reptiles and species of concern reported across the SPRFMO fisheries through to 2025. In 2025, bycatch of two porbeagle sharks (*Lamna nasus*) was reported in the trawl fishery, with no reported bycatch in other fisheries. Recorded totals reflect observer coverage and reporting practice as much as underlying interaction rates and should not be read as an index of relative fishery impact.

165. The SC noted the bycatch of marine mammals, seabirds, reptiles and species of concern reported across the SPRFMO fisheries through to 2025, as described in SC14-Doc10.

h. CMM 03 request regarding ongoing appropriateness

166. There were no papers or discussions on this agenda item.

i. Advice to the Commission on Deepwater

167. The SC **recommended**:

> that innovative techniques be used to analyse orange roughy samples collected from Westpac Bank and adjacent areas of the New Zealand EEZ during the same season, in order to assess the stock structure within these areas.

168. The SC **recommended** that the Commission:

> a. agree to take a precautionary approach by maintaining the current temporary closure of the Encounter Area; and
>
> b. note that this decision should be reviewed by the SC if further relevant information is received.
>
> c. endorse the methods, handling and release guidelines in SC14-DW08_rev1 (Annex 14); and
>
> d. consider further work on reducing chondrichthyan bycatch in bottom fishing in the SPRFMO Convention Area, including gear selectivity and modifications.

7. Squid

a. Review of inter-sessional activities

169. The Chairperson of the Squid Working Group (SQWG), Dr Gang Li, reported that the SQWG had held one workshop and a pre-SC14 preparatory session, focusing on the stock assessment and simulated assessment of jumbo flying squid (*Dosidicus gigas*) in the SPRFMO Convention Area.

170. The SQWG Chairperson presented SC14-SQ02, which provided the report of the SPRFMO SC Third Squid Workshop (SCW18). SCW18 advanced the development of a common scientific framework for the assessment of jumbo flying squid (*Dosidicus gigas*) in the SPRFMO Convention Area. It reviewed the available data and assessment inputs for the squid stock assessment. SCW18 distinguished two potential pathways through which environmental variability could be reflected in the assessment: 1) through CPUE standardisation, 2) integration within the assessment model or examination through complementary analyses. SCW18 also reviewed candidate production-model approaches presented by China (E-BSP) and Chile (SPiCT) and agreed to establish a common stock assessment framework for the next phase of model testing. In addition, it identified seven principal decision axes for the comparative assessment, which provided the basis for constructing the model-testing framework. SCW18 also developed a model-configuration table and agreed that candidate configurations should be evaluated using a common set of diagnostics. Moreover, it developed the model-testing framework and identified the reference configuration, targeted sensitivity analyses, structural alternatives, exploratory cases and any runs assigned for completion.

171. The SC thanked China for hosting the meeting and the SCW18 participants for their contributions.

172. The SC **endorsed** the holding of a dedicated data workshop during the 2026–2027 inter-sessional period, ideally during the first semester of 2027, in coordination with the Ecosystem Working Group, for the primary objective of reviewing CPUE standardisation methods, with particular emphasis on spatio-temporal models incorporating environmental effects and considering relevant environmental indices and ecological interactions.

173. The SC encouraged Members to provide the fishery and operational data required to support the proposed data workshop.

174. The SC noted the progress made in developing the operating model (squidSim) and the updated simulated assessment workplan and timeline for the 2026–2027 inter-sessional period, including model convergence, residual patterns, consistency between fitted and observed indices, retrospective behaviour, retrospective analysis, and comparison between prior and posterior parameter distributions.

175. The SC encouraged all Members, particularly those participating in the jumbo flying squid fishery, to contribute actively to the scientific work of the SQWG and to participate in the workshops proposed for the 2026–2027 inter-sessional period.

176. The SQWG Chairperson reported that at the pre-SC preparatory session, the SQWG reviewed the available data and assessment inputs for the squid stock assessment, including the catch database, abundance indices, and outstanding data issues, and used a common assessment framework to examine alternative model structures and key assumptions. The SQWG then reviewed the two principal modelling approaches developed by China and Chile, while agreeing that it was premature to identify a single preferred model, and that the alternative models should instead be considered as an additional source of uncertainty. The SQWG also endorsed new diagnostic criteria developed by Members. In addition, the SQWG discussed data availability and data provision procedures and considered the suitability of the assessment approaches for providing management advice, particularly given the short-lived nature of squid and the difficulty of conducting effective in-season assessments and management.

b. Assessment Simulation Task Team

177. The SQWG Chairperson reported that SCW18 reviewed the simulation plan and the biological and fishery hypotheses to be represented in squidSim, including various population scenarios and alternative fishery structures. It also reviewed the scenarios representing uncertainty in data collection and availability, distinguishing a perfect-information case from scenarios approximating current and potential future data availability. SCW18 also noted the progress made in developing squidSim and updated the ASTT workplan and timeline for the 2026–2027 inter-sessional period.

178. The SC Chairperson reminded the SC of the background to the establishment of the Assessment Simulation Task Team (ASTT) and outlined the ASTT's role, workplan and expected outputs. The ASTT's core mandate is to test the robustness of potential assessment models to uncertainty in population structure, squid life history and data availability. This mandate combines an immediate assessment-test product with a longer-term operating model for MSE. Work on these two aspects is to be advanced in parallel, and it represents both a model-evaluation task and the bridge towards squid MSE. To date, the ASTT has advanced design and parameterisation of the simulation framework, while the main cross-model simulation experiment is still outstanding. The ASTT is expected to report its main results at SC15.

179. The European Union suggested that it would be important to develop a standalone long-term plan for the MSE work with intermediate steps, such as joint meetings with managers and stakeholder participation, and the timeframes for these steps. The European Union pointed out that SPRFMO has learned many lessons from the jack mackerel MSE work and that these should be incorporated into the jumbo flying squid MSE work.

180. Chile pointed out the need to focus, at this stage, on the development of the simulation model, given the complicated biological characteristics of jumbo flying squid, and suggested that stakeholder engagement should be considered at a later stage.

c. Assessment data review and evaluation

181. China presented SC14-SQ03, which provided the results of a study on the impacts of ENSO (divided into the El Niño, ENSO-neutral and La Niña events) on the jumbo flying squid (*Dosidicus gigas*) habitats off Peru. China assessed the relationship between the habitat pattern of *D. gigas* and ENSO from 1950 to 2015 using a habitat suitability index (HSI) modelling approach including two crucial environmental variables: sea surface temperature (SST) and sea surface height anomaly (SSHA). On the basis of cross-

correlation analysis, it showed that both SST anomaly (SSTA) and SSHA were significantly positively related to the ENSO index. Moreover, a significantly negative association was found between the HSI values and the ENSO index. Due to El Niño events, SST in waters off Peru became warmer and sea level rose, resulting in contracted areas of suitable SST and SSHA; consequently, suitable habitats for *D. gigas* dramatically decreased. In contrast, during the ENSO-neutral and La Niña years, the extent of suitable SST and SSHA increased due to the colder water and lower sea level, and suitable habitats for *D. gigas* expanded. Moreover, the latitudinal gravity centre of HSI (LATG_HSI) was significantly positively associated with the ENSO index. Relative to the ENSO-neutral and La Niña years, a southward movement of the monthly preferred SST isotherm for *D. gigas* during the El Niño years could explain the occurrence of more suitable habitats in southern waters off Peru. These findings suggested that the ENSO event played an important role in regulating environmental conditions off Peru and further affected the spatio-temporal distribution of *D. gigas* habitats.

182. Chile noted that, as the study focused on the September–December period and high seas off Peru, it is likely to be focused on larger squid. Chile suggested that as future work, China should consider accounting for squid size and the potential time lag for environmental effects to manifest for larger-sized squid.

183. Chile's paper SC14-SQ05 was taken as read. The paper provided the preliminary fishery and biological information for the Chilean jumbo squid fishery for the period January–July 2026, including landing records from the artisanal and industrial fleets, as well as length-frequency structures of the catch sampled by *Instituto de Fomento Pesquero* (IFOP) scientific observers. Total landings amounted to 104,476 t, a value higher than that recorded for the same period in 2024 (91,313 t). A total of 104,174 t were landed by the artisanal fleet as the target species, while 302 t were landed by the industrial fleet as bycatch. Compared with the same period in 2025, a recovery was observed in the records from the central-southern area (36–37°S), an area that historically accounts for the largest proportion of landings; however, these values are still not comparable with historical records. Lengths ranged from 40 to 105 cm ML, with the largest values recorded in April and May in the artisanal fleet. CPUE showed a trend similar to that observed in the previous year. Artisanal CPUE reached minimum values during the first weeks, while both fleets showed a trend towards stable values after the analysis period.

184. The Executive Secretary presented the catch history of jumbo flying squid (*Dosidicus gigas*), as described in SC14-SQ01. The SC reviewed the document and requested a number of revisions. Peru provided additional information and clarified that the catch data for other countries that Peru had authorised to fish in those waters, such as Japan, were not double counted in the data reported by Peru. The Executive Secretary prepared a revised paper incorporating the requested changes and new data (SC14-SQ01_rev1).

185. Chile caught 105,911 t of jumbo flying squid within the Chilean EEZ in 2025, compared with 139,145 t in 2024, a decrease of 23.9%. Of the 2025 total, 105,250 t (99.4%) was taken by jigging gear and 661 t (0.6%) by other gears. As in previous years, the Chilean series is compiled on an all-gear basis. For China, 576 jigging vessels operated in the SPRFMO Convention Area in 2025, against 528 jigging vessels in 2024, an increase of 9.1%. Reported catch was 484,700 t, compared with 273,900 t in 2024, an increase of 77.0%. Total effort was 111,151 fishing days, against 114,475 fishing days in 2024, a decrease of 2.9%, giving a catch rate of 4.4 t per vessel per day compared with 2.4 t per vessel per day in 2024, an increase of 83.3%. For Chinese Taipei, one vessel recorded 267 t over 58 fishing days in 2025, with activity in October, November and December, the first such jigging since 2021. Observer coverage reached 82.7% of fishing days. From the European Union, a single record of 181 t on the high seas was submitted for 2025. Korea recorded no jigging activity in 2025. Korea submitted a single record of 1 t taken by midwater trawl gear in 2025.

186. The SC requested that future iterations of the paper include observer coverage information and also an annual catch plot that separates out bycatch of squid taken from other fisheries.

187. The SC welcomed the offer from Chinese Taipei to provide updated historical data for 2007–2010 and the offer from Ecuador to share additional historical data.

d. Jumbo Flying Squid assessment

188. China presented SC14-SQ04, which provided an assessment of jumbo flying squid (*Dosidicus gigas*) in the Southeast Pacific Ocean using an environment-dependent state-space biomass dynamics model (E-BSP). To account for regional variation in fishing operations, this assessment combined CPUE series from the Peruvian and Chilean fleets with a gamma-distribution standardised CPUE series from the Chinese squid-jigging fleet to construct relative abundance indices for *Dosidicus gigas*. Six environment-dependent scenarios were implemented within a Bayesian state-space surplus production model. All scenarios were evaluated using CPUE residual diagnostics and retrospective analysis, with no evidence of residual autocorrelation or a systematic retrospective pattern. The results indicated that, from 2012 through 2025, the Southeast Pacific stock was neither overfished nor subject to overfishing.

189. Chile presented SC14-SQ06, which provided the results of the updated stock assessment of jumbo flying squid (*Dosidicus gigas*) in FAO Area 87 using Stochastic Production Model in Continuous Time (SPiCT). The 2025 stock assessment estimated a depleted stock status produced by a strong decrease in whole catch and main CPUE indices in 2024. Chile updated the assessment by incorporating data up to 2025 and conducting additional sensitivity analyses. A total of five CPUE abundance indices were used in the SPiCT model: an updated Chilean CPUE index, an updated Chinese CPUE index, Korea and Chinese Taipei nominal CPUEs updated based on their national reports, and the Peruvian CPUE until 2024 obtained from *Instituto del Mar del Perú* (IMARPE) reports as no 2025 CPUE was available. The whole catch in 2025 was 1,296,000 t, which was 2.1 times the 2024 whole catch. Peruvian, Chinese and Chilean catches in 2025 were 3.8, 1.8, and 0.8 times the catches in 2024, respectively. The Chinese CPUE index level recovered in 2025, while the Chilean CPUE index remained at a similar level to 2024. The different model scenarios estimated a similar general decreasing biomass trend until 2024 with a quick recovery in 2025, driven by the strong recovery of catches and the CPUE index in 2025. Therefore, stock location in the Kobe plot moved from the red area in the 2024 stock assessment to the green area in the current stock assessment. In all cases the current stock status had large uncertainty (95% confidence interval). The maximum sustainable yield (MSY) estimated by the different cases ranged from 1,026,000 t to 1,306,000 t. Several alternative harvesting control rules produced TACs that ranged from 950,000 t to 1,306,000 t. Further analyses are needed on abundance indices, phenotypic effects, and environmental effects on productivity variability.

190. The SC noted that the candidate stock assessment models are not currently able to run projections that account for environmental uncertainty, but that work is ongoing to test various models that may be able to explicitly include environmental variables and run such projections. The SC reaffirmed the importance of continuing such work.

191. The European Union noted that the E-BSP model seemed exceedingly stable compared to the SPiCT and suggested that this was likely due to the different model configurations, particularly the prior constraints in the environment-dependent state-space biomass dynamics model. The European Union pointed out the importance of clearly communicating the differences between the two model settings to ensure a meaningful comparison of their results.

192. Chile highlighted the importance of continuing to study variability in the population dynamics of jumbo flying squid associated with its short-lived nature.

193. The SC created a working paper documenting agreed diagnostics for the evaluation of jumbo flying squid stock assessment models (Annex 15).

194. The SC **agreed** to apply the diagnostics in this working paper (Annex 15) when evaluating jumbo flying squid stock assessment models.

e. *Management Strategy Evaluation planning*

195. The SC Chairperson recalled that in past meetings, the SC has noted that even if it is successful in conducting a stock assessment of jumbo flying squid, there is no guarantee that the model would be able to produce management advice that would be suitable for this fishery. This is why the SC has also discussed the development of an MSE framework, which could test how the SC could develop a framework for providing management advice to the Commission, while also being robust to all the uncertainties associated with this species.

196. China highlighted the importance of developing an OM that can account for the unique characteristics of jumbo flying squid, such as the species' tendency to die shortly after reaching maturity, and its short-lived nature.

197. The SC **agreed** that it would be valuable to seek the support of external experts for the jumbo flying squid MSE, noting the significant contributions made by external experts in the jack mackerel MSE.

198. Pew informed the SC about an available Pew project opportunity, with funding, for independent expertise for the development of common and open-source tools for RFMOs and countries to undertake MSE for squid species. Pew is funding independent experts at Blue Matter Science to develop a suite of MSE tools that could be suitable for squids in the OpenMSE package in R and is inviting RFMOs and countries to collaborate with Blue Matter to build a useful tool that can meet general and/or RFMO- or country-specific needs. Funding has been set aside for 2026 to September 2028 and could be used for up to two squid MSE case studies. Pew invited SPRFMO to consider this opportunity and offered to give a presentation at a future SC meeting on how such work could fit in with the existing SPRFMO SC and SQWG processes.

199. The SC welcomed the offer from Pew.

200. Several Members expressed their intention to share their expertise and assistance in developing the jumbo flying squid MSE work.

201. The SC noted the need to map out the different steps of a jumbo flying squid MSE and incorporate them in a workplan, noting that it involves a significant amount of work and various tasks that need to be carried out in sequence or in parallel.

202. The SC also noted the importance of stakeholder engagement based on experiences from the jack mackerel MSE.

203. Ecuador emphasised that the jumbo flying squid MSE work should result in precautionary recommendations and scientific advice.

204. The SC created a working paper outlining the roadmap and key considerations for jumbo flying squid MSE work (SC14-WP13, Annex 16).

f. *Development of precautionary recommendations and review of relevant CMMs*

205. The SC considered the development of precautionary recommendations as part of its discussions on advice to the Commission on squid under agenda item 7g below.

g. *Advice to the Commission on Squid*

206. The SC **agreed:**

- that a common catch dataset should be maintained by the Secretariat and continuously updated as the basis for all jumbo flying squid stock assessment models.
- that both the original catch data submitted by Members and the reconstructed catch series used for assessment purposes should be retained until improved information becomes available.

207. The SC **recommended** that the Commission:

> a. request Members that participate, or have participated, in the jumbo flying squid fishery to provide any missing historical catch information, and
>
> b. task the Secretariat with seeking additional historical catch information from Japan to complete and validate the dataset.

208. The SC **agreed:**

- to maintain, within the SQWG, a common inventory of available CPUE abundance indices, including their spatial and temporal coverage and resolution, effort units, standardisation methods and known limitations, and report progress to SC15.
- to develop a template for the technical information to be communicated in a standardised way along with the CPUE indices.

209. The SC **recommended** that the Commission:

> request Members to provide standardised CPUE abundance indices, where available, together with the relevant technical information.

210. The SC further **agreed:**

- to research and, where possible, develop a joint CPUE index for the High Seas fishery, particularly using information from China, Korea and Chinese Taipei.
- that the available CPUE indices should undergo a dedicated review, by the SQWG, covering the underlying data, model assumptions, prediction procedures and resulting indices.

211. The SC noted that additional information relevant to the jumbo flying squid stock assessment may be available from Members.

212. The SC **recommended** that the Commission:

> request Members to provide the Secretariat with metadata describing such available information.

213. The SC noted that only two stock assessment models passed the diagnostic test, indicating that the stock is at relatively low risk, with a 67.8% probability of being in the Kobe green quadrant, an 8.8% probability of being in the Kobe red quadrant, and a 23.3% probability of being in the Kobe orange quadrant. However, these stock assessment models were not accepted by the SC due to their limited predictive ability arising from a limited inclusion of environmental effects in the model, and they cannot be used to provide quantitative advice.

214. The SC **agreed** to continue using a common set of input data to compare candidate stock assessment models.

215. The SC further **agreed** that statistical diagnostics should be interpreted together with biological plausibility, the history of the fishery and the assumptions underlying each model and noted that satisfactory statistical diagnostics alone would not be sufficient to determine model acceptance (see SC14-WP12).

216. The SC **agreed** that future assessment work should explore models capable of explaining the population dynamics throughout the time series and investigate how uncertainty is affected by the temporal resolution of the models.

217. The SC further **agreed** that, should additional data become available for assessment purposes, more complex models should be explored where appropriate to better represent population structure and/or spatial complexity.

218. The SC acknowledged that significant progress has been made in the stock assessment process, both in data sharing and modelling.

219. The SC recognised that the best-performing stock assessment models currently do not have the capacity to incorporate environmental effects in the population dynamics. However, the SC further recognised that current best-performing models incorporate environmental effects through catchability, but not directly through productivity. El Niño conditions may affect productivity and phenotypic composition, adding uncertainty to future stock dynamics.

220. The SC noted that all assessment models currently considered for jumbo flying squid are subject to substantial uncertainty. The SC therefore agreed that further efforts should focus on reducing this uncertainty through both methodological improvements to the assessment models and improvements in the availability, quality and consistency of the data used to inform them.

221. The SC recognised that an accepted stock assessment was not reached and that El Niño 1+2 conditions are currently occurring and are predicted to be extraordinary during 2026–2027. The SC agreed on the need to apply a precautionary approach to the management of the jumbo flying squid fishery in 2027 but could not reach consensus on specific precautionary management recommendations. Members therefore provided proposals for precautionary measures, together with their respective scientific rationale, for consideration by the Commission.

222. The SC discussed options for precautionary management advice for jumbo flying squid. These included the status quo, catch limits, reductions in fishing days, limits on the number of active fishing vessels and total gross tonnage, and fishing closures. Following several rounds of in-depth consultations, the SC was unable to reach consensus on specific recommendations for precautionary management measures.

223. Many Members supported recommending catch limits and reductions in fishing effort and/or capacity as precautionary management measures for consideration by the Commission, particularly in light of the anticipated strong El Niño event in 2027. At the same time, these Members opposed a recommendation to maintain the status quo, emphasising that this option does not constitute a precautionary management approach.

224. Some Members, however, supported retaining the status quo. They noted that key participants in the squid fishery had already implemented a set of precautionary management measures, including catch limits and closure measures. On this basis, they advocated retaining the status quo as a valid alternative option. Furthermore, those Members stressed that Members with relatively few registered vessels and limited actual fishing days should not be subject to a catch limit or further reductions in fishing effort.

225. During the discussions, the SC examined different management options and requested Members to submit duly substantiated proposals. Ecuador submitted two proposals for precautionary measures to be applied in 2027, one for a precautionary catch limit and the other for precautionary regulation of fishing effort. However, as there were no substantive comments on the proposals, the SC did not provide recommendations or advice on them. Ecuador therefore requested that its proposals and accompanying statements be included as an annex to the SC report (Annex 23e).

226. China made a statement regarding precautionary management advice for jumbo flying squid. The full statement is attached as Annex 23f.

227. Chinese Taipei expressed its disappointment that neither of the options proposed for precautionary management took into consideration the limited impact of small-scale fleets, noting that the low level of fishing effort by small-scale fleets in recent years is unlikely to have a significant impact on squid resources, even under the forecast El Niño event. Chinese Taipei emphasised the importance of the SC considering the level of impact associated with different fleet sizes when developing management advice.

228. The SC **recommended** that the Commission:

a. endorse the updated Terms of Reference for the ASTT (Annex 17).

b. extend the ASTT for another year.

8. Ecosystems

a. Review of inter-sessional activities

229. The Chairperson of the Ecosystem Working Group (EWG), Mr Sebastián Vásquez, reported that the EWG held the first Ecosystems Workshop (SCW19), focused on species distribution modelling and environmental data harmonisation for ecosystem and climate applications in the South Pacific Ocean, and a pre-SC14 preparatory session. The SCW19 report was presented under section 8c below.

230. Peru presented SC14-Eco03, which provided an updated analysis of the habitat conditions of jack mackerel (*Trachurus murphyi*) and chub mackerel (*Scomber japonicus*) in the Peru Current during 2024–2026, with emphasis on observations between 2023 and 2026. Thermal conditions over recent years have favoured increased jack mackerel availability, except during 2026 under the developing El Niño. Adult jack mackerel catches have occurred especially in the southern zone, including during the warm year in 2023. Chub mackerel has likewise tended towards predominantly southern distribution in recent years. The observations since the first workshop in 2011 indicate a changing habitat that conditions the distribution and concentration of jack mackerel, chub mackerel and other species in the Peruvian sea. The 2024–2026 observations reinforce that the jack mackerel and chub mackerel habitat in the Peru Current is highly dynamic. Recent years show a marked southern tendency, with distributions linked to fronts and specific combinations of temperature, salinity, chlorophyll and sea-level structure.

231. Peru presented SC14-Eco02, which provided an update of its analysis on changes in the habitat of jack mackerel (*Trachurus murphyi*) and chub mackerel (*Scomber japonicus*), with emphasis on observations between 2023 and 2026, in addition to aspects of the abundance of *Vinciguerria lucetia*. Due to El Niño, a negative trend has been observed in the biomass of jack mackerel. However, catches in the analysed period (1983–2026) show, in general, better fishing yields in the years when biomass has been higher. The highest abundance of jack mackerel, through geostatistical methods since 2024, was estimated during March 2024 with 215,000 t. El Niño events are usually favourable for mackerel, but this year mackerel catches and their abundance have been minimal. However, catches in the period studied (1983–2026) show, in general, better yields in the years when the biomass has been higher. The highest abundance of chub mackerel, through geostatistical methods, since 2024, was estimated during March 2024, with 80,000 t. The results obtained from the fish size analysis of 886,287 jack mackerel individuals sampled between 2011 and 2025 reveal a fishery structured on well-differentiated cohorts, with a relatively clear modal progression throughout the study period. This episodic recruitment pattern, whereby one annual class dominates the fishery for several consecutive years before being replaced by a new one, is a recognised feature of Southeast Pacific jack mackerel biology and has been documented in continuous monitoring by the industrial fleet. Since 2021, the expansion of the range of caught sizes reflects the overlap of several jack mackerel cohorts. 2024 and 2025 presented the highest modes of the entire series (48 cm and 50 cm) and percentages of juveniles below 0.1%, indicating a fishery operating on the 2022 cohort. However, the detection in 2025 of a new cohort with a 38 cm mode suggests a transition in the composition of catches in the next two to three years, which warrants continuous fisheries monitoring.

b. Special Issue of the Habitat Monitoring Symposium

232. The EWG provided an update on development of the special issue arising from the Habitat Monitoring Symposium and the work of the editorial group. The special issue originated from the former habitat monitoring working group and a symposium held in Concepción, Chile, in 2023. It brought together 19 contributions exploring how marine species and fisheries can be monitored, modelled and managed in dynamic and changing ocean environments. To date, three articles have been published, three articles have been accepted, and 13 articles are under review.

233. The SC expressed its appreciation for the extensive work done on the special issue and looked forward to seeing the full list of papers generated by this work at SC15.

c. Report on the Workshop on Species Distribution Data Information Inventory

234. The EWG Chairperson presented SC14-Eco01, the SCW19 meeting report. SCW19 focused on two complementary components: advancing the development and application of species distribution models (SDMs) for habitat characterisation, ecosystem monitoring, and the generation of spatio-temporal abundance indices; and advancing the harmonisation of biological, fisheries, environmental, and metadata standards to establish a coordinated SDM framework supporting climate-ready ecosystem applications across the SPRFMO Convention Area. SCW19 reviewed available resources, reviewed relevant case studies and experience, and advanced work to build interoperability, prepare climate-ready applications, and foster regional collaboration. SCW19 moved from identifying information sources to defining how they can be used collaboratively. Based on its review of various case studies, SCW19 noted that the case studies converged on the following common needs: harmonised data, robust validation and reproducible workflows. SCW19 noted that the SC already possesses much of the scientific expertise, information and technical capacity needed for developing collaborative regional SDMs and that the principal limitation is the fragmentation of information across Members, institutions and disciplines. SCW19 identified a regional SDM framework, interoperable data, shared environmental data, common workflows, and climate-ready applications as priority collaborative applications.

235. The SC thanked China for hosting the meeting and the participants for their contributions.

236. The SC noted the value of this work, and several Members expressed their intention to contribute to advancing it further.

237. Australia noted that the Western and Central Pacific Fisheries Commission (WCPFC) is advancing related work and suggested that SPRFMO explore opportunities for information-sharing and collaboration and the WCPFC-SPRFMO Memorandum of Understanding.

d. Report on ecosystem status profile

238. The EWG Chairperson presented SC14-Eco04 (Annex 18), the 2025–2026 Ecosystem Status Report (ESR). The ESR provided a preliminary integrated assessment of environmental conditions across the eastern and southeastern Pacific, based on five regional domains spanning the Equatorial High Seas, Northern Humboldt, Northern Chile, Central-Southern Chile, and the Oceanic Southeast Pacific. The reporting period covered September 2025 to August 2026, with longer historical records used to place recent conditions in context. The indicators showed that the 2025–2026 ecosystem state was characterised by a rapidly developing large-scale warm event superimposed on strong regional heterogeneity. Temperature and sea level provided the clearest and most spatially coherent expression of the developing El Niño, whereas coastal upwelling, chlorophyll-a, marine heatwaves, and subsurface conditions exhibited more region-specific responses. These findings highlight the importance of evaluating ecosystem conditions through multiple complementary indicators rather than assuming a uniform response to basin-scale climate forcing. Importantly, August 2026 represents the developmental phase rather than the culmination of the current El Niño event and there is a very high probability of El Niño persisting through the remainder of 2026 and early 2027, with strong-to-very-strong conditions expected during late 2026. Consequently, environmental and ecosystem responses may continue to develop beyond the present ESR reporting period. Continued monitoring will be particularly important for assessing subsequent changes in upper-ocean temperature and sea level, coastal upwelling, oxygen conditions, marine heatwaves, and primary productivity.

239. The SC thanked the EWG and its Chairperson for advancing this comprehensive work and noted that several Members expressed their intention to contribute additional information and indicators to further complement and expand the ESR in future iterations. New Zealand recommended finding the right balance to ensure usability for managers, avoiding setting an excessive number of indicators.

240. The DSCC encouraged the SC to consider regularly updating the ESR and making a public version of it available on the SPRFMO website.

e. Advice to the Commission on Ecosystems topics

241. The SC noted:

a. The development of the first Ecosystem Status Report (ESR) for the Southeast Pacific, covering the SPRFMO Convention Area and adjacent EEZs, providing a basis for progressively developing a broader assessment of ecosystem conditions and variability.

b. The need to strengthen collaboration between the EWG and other SC Working Groups and Task Teams to ensure that ecosystem-related work addresses the broader range of species, fisheries and ecosystems considered by the Scientific Committee.

c. The outcomes and recommendations of the First Ecosystems Workshop on Species Distribution Modelling and Environmental Data Harmonisation (SCW19), including the development of a regional SDM framework, harmonisation and interoperability of biological, fisheries and environmental information, common analytical workflows, and progressive regional SDM applications.

d. The progress made in the use of acoustic information from scientific surveys and fishing vessels to characterise jack mackerel distribution and relative abundance, while recognising that integration of information across areas remains an important regional challenge.

e. The need to translate the priority jack mackerel connectivity topics previously identified—genetics, tagging, early life stages and reproduction—into practical and achievable sampling activities before progressing towards larger-scale implementation.

242. The SC **agreed**:

a. To continue the Ecosystem Status Report (ESR) as a recurring EWG product and progressively expand its scope through additional biological, fisheries and ecosystem indicators, with contributions from Members and relevant Scientific Committee Working Groups.

b. To strengthen collaboration with other Scientific Committee Working Groups by identifying ecosystem-related information needs and opportunities for jointly developing indicators, analyses and research activities.

c. To incorporate the outcomes and implementation roadmap of SCW19 into the EWG section of the SC Multi-Annual Workplan for 2027–2029 (Annex 7), including progressive regional SDM applications initially focused on priority species such as jack mackerel and jumbo flying squid, supported by harmonised datasets, common workflows and environmental information.

d. To convene a second technical Workshop on Species Distribution Modelling (SDM) in 2027, focusing on the implementation and evaluation of regional SDM applications using harmonised datasets and workflows, including applications under climate change scenarios.

e. To advance the harmonisation, interoperability and discoverability of ecosystem-related datasets and metadata in collaboration with the Data Working Group and the Secretariat, building on the SDM TT inventory and developing practical mechanisms for accessing and using Member-provided information.

f. To progress work towards the regional integration of acoustic information for jack mackerel, including existing scientific survey information and acoustic data collected from fishing vessels, and to explore methodological approaches for their combined use.

g. To progress jack mackerel connectivity research through a stepwise approach, initially defining practical sampling and technical requirements and identifying opportunities to use existing national surveys, monitoring programmes and fishing operations as a basis for subsequent small-scale implementation.

h. To explore the development and application of ecosystem indicators and metrics that could support the progressive implementation of ecosystem-based fisheries management within SPRFMO, in collaboration with relevant SC Working Groups and, where appropriate, external scientific and technical partners.

i. To adopt the updated EWG section of the SC Multi-Annual Workplan for 2027–2029 (Annex 7), providing a progressive and achievable pathway for advancing these ecosystem-related activities within the Scientific Committee.

243. The SC **endorsed** the updated EWG section of the SC Multi-Annual Workplan for 2027–2029 (Annex 7) and **agreed** to support its implementation in collaboration with Members and relevant SC Working Groups.

244. The SC **recommended** that the Commission:

> authorise the use of relevant data held by SPRFMO for ecosystem-related scientific analyses, including the development and evaluation of regional species distribution models (SDMs), subject to applicable data access, confidentiality and attribution requirements.

245. The SC **endorsed** the organisation of a second technical Workshop on Species Distribution Modelling in 2027 and encouraged Members and delegations, as well as relevant external organisations, to explore opportunities to provide financial or in-kind support for its implementation.

246. The SC **agreed** to allocate available funds to support a technical activity on jack mackerel connectivity (Item 4.5 of the SC Multi-Annual Workplan for 2017–2029 in Annex 7), aimed at defining practical sampling requirements and implementation options for progressing research on genetics, tagging, early life stages and reproduction.

9. Exploratory Fisheries

a. Exploratory Fishery updates (AUS, COK, EU, KOR, NZ)

247. The SC noted SC14-DW09, which Australia presented to the DWWG. The paper provided an update on its 2025 exploratory toothfish fishery for the Macquarie Ridge Continuation Research Block. The Australian FV *ANTARCTIC DISCOVERY* conducted the second year of exploratory fishing under CMM 14f-2024 in the Macquarie Ridge Continuation Research Block (MR-CRB) from 15–18 July 2025. Seven lines of approximately 5,000 hooks each were set. A total of 2.5 t of Patagonian toothfish (*Dissostichus eleginoides*) were caught, and no Antarctic toothfish (*Dissostichus mawsoni*) were caught. Ten Patagonian toothfish were tagged and released (four tags per tonne). Otolith and length frequency data were collected. No tagged fish were caught. No other catch was discarded or released. The major other species caught were hake and grenadiers. There was 0.4 kg of vulnerable marine ecosystems (VME) indicator taxa caught. There were no interactions with marine mammals, marine reptiles, seabirds or other species of concern.

248. The SC noted SC14-DW10, which the European Union presented to the DWWG. The paper provided an update on its exploratory fishing. In 2025, the European Union conducted the second year of its 3-year exploratory fishing campaign for Patagonian toothfish (*Dissostichus eleginoides*) in the George V Fracture Zone (GVFZ; CMM 14e-2024). Fishing was conducted aboard the Spanish longliner FV *TRONIO* using Spanish-style bottom-set static longlines from 9 October–13 November 2025. The GVFZ was split into two research blocks, A and B, where Research Block A has now had five years of exploratory fishing and Research Block B two years of exploratory fishing. Two observers collected standard information on catch and effort, length, and maturity of toothfish as well as non-target bycatch, made seabird and marine mammal interaction observations, collected seabed video capturing species and habitat data, deployed a CTD, and continued tagging at a rate of 5 fish/tonne. A total of 128.8 t of toothfish was taken from Block A and 32.8 t from Block B, from 56 and 16 longline sets respectively, achieving the TAC in both blocks. Non-target bycatch was low and dominated by *Macrourus* spp. (1,405 kg) and

Antimora rostrata (417 kg), with no elasmobranchs or other species of concern recorded and no seabird mortalities observed. There were very low catches of VME indicator taxa, totalling 2.44 kg across all groups. Seabed video indicated low densities of VME indicator taxa as found in previous years, but there are indications that benthic habitats may be different in Block A compared to Block B. A total of 649 fish were tagged in Block A and 171 in Block B, with tagging overlap of 71.5% and 79.3%, respectively. Nine fish previously tagged within the GVFZ were recaptured, together with one fish that had moved between seamounts while at liberty. Four additional recaptures were fish originally tagged in the Macquarie Ridge fishery between 2010 and 2022, providing potentially valuable information on regional connectivity. In terms of stock structure, CPUE and length-frequency data indicate uniformity in abundance and size structure between blocks A and B. The European Union will continue collecting catch, effort and biological data, tagging, undertaking otolith ageing and genetic work, and deploying a benthic camera and CTD. These combined data will contribute to development of biomass estimation and potential for a sustainable toothfish fishery and understanding of broader regional connectivity.

249. The SC noted SC14-DW11, which the European Union presented to the DWWG. The paper provided the results of a stock assessment of Patagonian toothfish based on the first fishing campaigns (2021–2023), and the first two years (2024–2025) of the second campaign of exploratory fishing at GVFZ. The TAC of 129 t and 33 t set for Research Block A and Research Block B under CMM14e-2024 was reached in the 2025 fishing campaign. This is approximately 1% of the estimated biomass. However, there is still a great deal of variability around the biomass estimate. Moreover, there appears to be a strong influence of varying tag recoveries. In terms of the spatial discrimination of the stock in the GVFZ, it is unclear how stocks in Block A and Block B are connected and future fishing in both areas may find fish mixing between areas indicated by mixing of tag recoveries. Connectivity to the wider region may also be greater than previously thought, as indicated by two recaptures in the GVFZ that were originally released on the Macquarie Ridge as recently as 2022. Better understanding of immigration/emigration rates will enable better interpretation of estimated biomass. Examination of other stock characteristics between 2021–2025 also indicates that some caution should be given to setting the TAC in the future. CPUE varies widely between years, and size-frequency analysis showed variation in the shape of the length-frequency curve as well as variation in modal size classes fished. This may be due to natural variability between years or some spatial structuring at this time of year and further research would be required to elucidate interannual patterns of CPUE and stock structure.

250. SC14-DW11 also contained preliminary TAC advice, which the European Union derived by applying the CCAMLR Tag-recapture Chapman estimates (CCAMLR SC-XXXV, Annex 5) and decision tree rules to Research Block A where sufficient tags have been recovered. Based on those decision rules, an appropriate annual TAC for Block A would be based on the biomass estimate x 0.04 (4%) exploitation rate. However, recognising in the GVFZ that 1) there has been a limited number of fishing years, 2) new areas are now being explored, 3) the observed variability in CPUE and length-frequency distributions, and 4) questions around immigration/emigration of fish in the GVFZ, a biomass x 0.03 (3%) exploitation rate of the lowest CI (7,269.7 t) of the mean biomass estimate (12,149 t) might be considered a more precautionary approach. This suggests a provisional annual TAC in Block A for 2027–2029 of 218 t per year. Due to lack of tag recoveries in Block B, the EU used an alternative method to estimate biomass by using a seabed area-proportional scaling of the TAC of Block A. This is not dissimilar to the CCAMLR CPUE-by-seabed area analogy method. This resulted in a TAC of 188 t per year. The European Union will conduct a closer examination of CPUE and estimated biomass after the final year of exploratory fishing is completed (November 2026).

251. The SC noted SC14-DW13, which New Zealand presented to the DWWG. The paper described its 2025 exploratory bottom-longline work under the first year of a three-year programme. Thirty-one toothfish were retained (30 Patagonian (*Dissostichus eleginoides*) and one Antarctic (*Dissostichus mawsoni*), including 13 fish from NZSWRB1 averaging 10.9 kg and 18 larger fish from Research Block A averaging 46.6 kg. All retained fish were biologically sampled, and five toothfish (four Patagonian and one Antarctic) were successfully double-tagged and released, with no recaptures recorded. Bycatch comprised 844 non-target individuals, dominated by blue antimora and basketwork eel. Most were

discarded dead, although numerous specimens were retained for research by Earth Sciences New Zealand, Museum of New Zealand Te Papa Tongarewa, and Auckland Museum. VME indicator taxa material totalled only 0.41 kg and no encounter thresholds were reached. There were no seabird captures or gear interactions and no marine mammals or turtles observed. New Zealand recommended continuing the programme in 2026–2027, including further tagging, biological sampling, bathymetric mapping, environmental observations and monitoring of bycatch, VME indicators and protected species, while balancing the scientific value against substantial operating costs.

252. Korea presented document SC14-DW18, which describes its exploratory bottom-longline fishing in the Convention Area in 2025 and 2026 under CMM 14h-2025. The FV *Greenstar* completed 42 sets comprising 162,180 hooks from 14 May–22 June 2025, and the FV *Sunstar*, replacing FV *Greenstar*, completed seven sets comprising 25,560 hooks from 11–16 February 2026. The retained toothfish catch was 19,067.2 kg in 2025 and 40,749 kg in 2026. The 2025 catch comprised Antarctic toothfish (*Dissostichus mawsoni*) and a smaller quantity of Patagonian toothfish (*D. eleginoides*), while only Antarctic toothfish was recorded in 2026. Toothfish catch was concentrated in Research Block N, while the other blocks sampled produced little or no catch. Because the 2026 operation was shorter and covered only Research Blocks L and N, the relatively high catch rate that year should not be interpreted as evidence of an increase in stock abundance or as representative of the whole block. In 2025, 65 toothfish were successfully tagged and released, comprising of 56 Antarctic toothfish and nine Patagonian toothfish, and two previously tagged toothfish were recaptured. In 2026, 125 Antarctic toothfish were successfully tagged and released, the tagging rate was 3.07 fish per tonne, tag overlap was 87%, and no tagged toothfish were recaptured. Biological measurements were available for 71 Antarctic toothfish and six Patagonian toothfish sampled in 2025, and for 140 Antarctic toothfish sampled in 2026. Otoliths and tissue samples were collected for subsequent age and stock-structure analyses. Non-target species and VME indicator taxa were recorded during both seasons.

253. The European Union noted that the reported catch of 40,749 kg in Research Block N in 2026 exceeded the TAC of 40,000 kg for a research block. Korea explained that this was due to operational issues and that it would take steps to prevent recurrence going forward.

254. The DSCC noted the information in SC14-DW18 related to interactions with VME indicator taxa and asked if Korea had examined the potential presence of VMEs in the areas in which it is fishing. Korea responded that it has not yet undertaken any spatial analyses of the presence of VMEs and may consider conducting such analyses in the future as it accumulates more information.

255. The SC noted SC14-DW19, which the Cook Islands presented to the DWWG. The paper described a Cook Islands 2025 fishing trip targeting hapuka (*Polyprion oxygeneios*) in a dropline and jig fishery and golden deep-sea crabs (*Chaceon* sp.) in a trap fishery. This is the eighth trip under the Cook Islands exploratory fishery programme, but the first under CMM 14g-2024 using dropline and jigging. In the hapuka fishery, hapuka dominated the catch, comprising 97.2% of total retained weight (13,996.5 kg) and 91.7% of total fish numbers (986 fish), which was within the FOP trip and seamount limits of 15 t. Dropline sets (n = 25) produced the highest CPUE at 37.44 fish/set and 536.56 kg/set, dropline-B sets (n = 3) achieved 16.33 fish/set and 193 kg/set, and a single jig set caught one hapuka (3.6 kg). No VME interactions were recorded in the dropline or jig fishery. A total of 954 hapuka were biologically sampled, with length, weight, maturity, sex, otolith, genetic tissue, and stomach content data collected. Genetic samples were obtained from 101 fish. Stomach contents were analysed for 238 fish, with fish and cephalopods as the dominant prey items. In the trap fishery, catch and biological sampling of Chaceon crabs during Trip 8 indicates a stable population with no evidence of decline in size structure across the exploratory fishery to date. The majority of crabs landed were in the 12–14 cm carapace width range, with most exceeding the estimated 50% maturity threshold of approximately 10 cm. Reproductive data suggest a winter spawning period, supported by both berry state and shell state observations, though a sampling gap from July to October, coinciding with the lobster fishery closure, limits the completeness of seasonal biological information. Fishing effort was directed at crabs with only minor bycatch, including a small number of VME indicator taxa, predominantly octocorals. Crab CPUE was low but consistent with previous trips and slightly elevated in Trip 8, likely reflecting the trip's

targeted fishing strategy rather than a change in population abundance. Trap fullness data indicate that saturation was not a significant factor, and the overall consistency of CPUE across trips suggests that current fishing effort levels are not producing a detectable stock response.

256. The SPRFMO Science Manager presented SC14-DW01, which provided an overview of SPRFMO exploratory fisheries based on information compiled under CMM 13-2024 (Exploratory Fisheries). Six exploratory fisheries are currently authorised: toothfish fisheries of Australia, the European Union, Republic of Korea and New Zealand; and the Cook Islands trap fishery for lobster and crab, and dropline and jig fishery for hapuka. All six authorising CMMs expire between 30 September 2027 and the 16th Commission meeting in 2028. The European Union reported that the TACs of 129 t and 33 t for its two research blocks were reached; Korea reported 19.07 t, Australia 2.54 t, New Zealand 1.02 t, and the Cook Islands 14.0 t of hapuka and 21.4 t of crab and lobster. Catch in 2025 was at the limit in the European Union fishery and below the limit for others. Korea and the Cook Islands both fished in 2026. Those catches fall outside the 2021–2025 reporting period. The overview also included a mapping of the data specified in each approved Data Collection Plan, and the data the Secretariat holds against it.

257. The Cook Islands requested a minor correction to the paper, and the Secretariat was instructed to correct this in the paper to be submitted to COMM15.

258. The SC noted that a number of cells in the table of annual reported toothfish catch in exploratory fisheries were marked with a '–'. The SC requested that in future versions of the paper, the Secretariat clarify whether that means there was no fishing/catch recorded or that the data were not submitted.

b. New exploratory fishery proposals (AUS, COK, EU)

259. The SC noted SC14-DW02, a proposal that Australia presented to the DWWG for exploratory toothfish fishing on the Macquarie Ridge during 2027–2029. Fishing in 2025 consisted of one mid-July trip with two observers (100% observed sets), ~35,000 hooks deployed, ~2.5 t Patagonian toothfish caught, 10 fish tagged (~4 tags/t), ~1.5 t bycatch dominated by hake and grenadiers, and ~0.5 kg of VME indicator sponges recorded. The 2027–2029 plan proposes continuation at the same Macquarie Continuation research block targeting Patagonian toothfish across seamounts (600–2,500 m depth), using automatic longline gear up to 5,000 hooks with updated line spacing, a total catch cap of 40 t, retention of the 2023 risk assessment noting seabirds as highest risk but proposing proven mitigations, chondrichthyans released alive, and data collection comprising at least one observer, electronic monitoring, tagging at ≥3 fish/t with 60% overlap, and regular reporting to SPRFMO SC.

260. The SC noted the Australian proposal and its Fisheries Operation Plan for an exploratory demersal longline fishery for toothfish in the Macquarie Ridge Continuation Research Block.

261. The SC recognised the cautious, exploratory nature of the proposal.

262. The SC recognised the scientific benefits of the proposed data collection, especially for understanding the connectivity of toothfish species with surrounding areas and to establish population estimates of toothfish in the area and approved the Data Collection Plan included in the proposal.

263. The SC **advised** the Commission:

> that Australia's proposal for exploratory toothfish fishing on the Macquarie Ridge during 2027–2029 is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).

264. The SC noted SC14-DW04_rev1, a proposal that the Cook Islands presented to the DWWG to continue an exploratory fishery with traps to test crab and lobster potential and collect scientific data in the Northern and Foundation Seamount target 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 has guided revisions of the Cook Islands Fisheries Operation 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 maximise 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.

265. The SC noted the Cook Islands proposal and its FOP for an exploratory trap fishery for crabs and lobsters in the Northern and Foundation Seamounts.

266. The SC recognised the cautious, exploratory nature of the proposal.

267. The SC recognised the scientific benefits of the proposed data collection, especially for testing the crab and lobster fishery potential and collecting scientific data associated with the fishery and approved the Data Collection Plan included in the proposal.

268. The SC noted that in accordance with paragraph 28 of CMM 13-2024, once an exploratory fishery has been fished for 10 years pursuant to the CMM, any further fishing in that fishery shall be managed as part of an established fishery. The SC noted that if the Cook Islands exploratory trap fishery for crabs and lobsters were authorised for another three years, the authorisation period would exceed 10 years, but the SC also noted that the Cook Islands has not conducted fishing in this fishery in every year that fishing was authorised and that total fishing years would not exceed 10 years. The SC **agreed** that, in its interpretation, "fished for 10 years" in paragraph 28 of CMM 13-2024 refers to the total number of years in which fishing actually occurred, not the total number of years in which fishing was authorised.

269. The SC **advised** the Commission that:

> the Cook Islands proposal for an exploratory trap fishery for crabs and lobsters in the Northern and Foundation Seamounts is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).

270. The Cook Islands presented SC14-DW03, a proposal to extend its exploratory fishing for hapuka for three years (from July 2027 to June 2030). This fishery is conducted as an adjunct to the Cook Islands' existing exploratory lobster trap fishery, and the inaugural hapuka trip results indicate that hapuka dominated the catch by weight and number while bycatch was minimal. The FOP applies a precautionary, ecosystem-based, and staged approach consistent with SPRFMO CMMs. Fishing will proceed under a proposed total allowable catch of 500 t of *P. oxygeneios*, plus a 100 t allowance for retained teleost and cephalopod bycatch, with catch spread across seamounts via annual (25 t) and trip (15 t) limits to ensure that the fishery is truly exploratory. The FOP is designed to generate scientific data supporting future SPRFMO management measures, including the target species' geographic range, depth distribution, and stock density; its biology (age, size, maturity, spawning, and genetic stock structure); the composition of associated bycatch; and the location of any VMEs encountered. Combined lobster-hapuka trips will also test the economic viability of concurrent boutique fisheries.

271. The SC noted the Cook Islands proposal and its FOP for an exploratory hapuka fishery in the Northern and Foundation Seamounts.

272. The SC recognised the cautious, exploratory nature of the proposal.

273. The SC recognised the scientific benefits of the proposed data collection, especially for hapuka fishery potential and collecting scientific data associated with the fishery and approved the Data Collection Plan included in the proposal.

274. The SC **advised** the Commission that:

> the Cook Islands proposal for an exploratory Hapuka fishery in the Northern and Foundation Seamounts is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).

275. The European Union presented SC14-DW05_rev1, a proposal for a third exploratory fishing programme for toothfish for the SPRFMO Convention Area, specifically GVFZ, covering 2027–2029. The programme is intended to further explore the presence and distribution of toothfish in the Convention Area; collect and provide information and data contributing towards the sustainable management of potential toothfish stocks in specific, data-poor zones; assess the potential for a future sustainable toothfish fishery in specific zones; provide occurrence information on species of concern; better understand patterns of seabirds and marine mammals and their potential for interactions with fishing vessels; evaluate the potential impacts of longlines on non-target associated or dependent species, and VMEs; and undertake toothfish tagging activities for future studies on the migration of toothfish and a preliminary stock assessment. The operational plan requests roughly 60–80 fishing days per year between 1 May and 15 November with likely offload/refuel in Hobart, and sets limited to 5,000 hooks or less with 3 nm spacing between sets and no repeated lines within a calendar year. The proposed fishing area, GVFZ, is divided into two Research Blocks (A and B) and based on preliminary stock assessments, a TAC of 218 t has been requested for Research Block A and a TAC of 188 t for Research Block B.

276. The SC noted the EU proposal and its FOP for an exploratory demersal longline fishery for toothfish in the George V Fracture Zone.

277. The SC recognised the cautious, exploratory nature of the proposal.

278. The SC recognised the scientific benefits of the proposed data collection, especially for understanding the connectivity of Patagonian toothfish with surrounding areas and to establish population estimates of toothfish in the area and approved the Data Collection Plan included in the proposal.

279. The SC **advised** the Commission that:

> the European Union's proposal for an exploratory demersal longline fishery for toothfish in the George V Fracture Zone is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).

c. Transition to Established Fisheries

280. The DWWG Chairperson provided an update on the toothfish exploratory workshop held on 5 September. The workshop noted the development of toothfish exploratory fisheries since 2016 and that no individual area had currently been fished for more than six years. It was noted there were currently four exploratory fisheries for toothfish in SPRFMO being conducted by Australia, the European Union, Korea and New Zealand. The workshop also considered a range of issues common to all exploratory fisheries such as data collection, observer coverage, biological data collection, tagging and catch limit setting.

281. The SC discussed the interpretation of the 10-year limit on exploratory fisheries outlined in CMM 13-2024 and **recommended** to the Commission:

> that this be interpreted as 10 years where fishing occurs and data are collected, which do not necessarily have to be consecutive.

282. Based on the outcomes of the Toothfish workshop, the SC:

a. Noted that no changes are required to data collection in CMM 02-2026 or CMM 03-2025.

b. **Recommended** all boats be required to complete catch and effort data for toothfish fisheries on the CCAMLR C2 forms.

c. **Recommended** that two scientific observers be appointed in accordance with CMM 16-2025[1].

d. **Recommended** that SPRFMO should require scientific observers be from CCAMLR accredited programmes.

e. **Agreed** to consider whether some data currently collected by observers could be collected through e-monitoring in the future.

f. **Recommended** that SPRFMO should require toothfish otoliths be collected from each shot, ensuring the full range of the length distribution of the catch is sampled.

g. **Recommended** that age estimation from toothfish otoliths be conducted with the relevant CCAMLR aging protocol.

h. **Recommended** that SPRFMO should adopt the CCAMLR toothfish tagging protocols and implement them in CMMs for either exploratory or established toothfish fisheries.

i. Noted that CCAMLR has produced videos on best practice tagging procedures that could be a valuable resource to assist tagging.

j. **Recommended** that tagging rates in exploratory fisheries for Patagonian toothfish fisheries should be five fish per tonne and that three fish per tonne is appropriate for established fisheries and recommends that tagging three fish per tonne for Antarctic toothfish exploratory and established fisheries is appropriate.

k. **Recommended** that SPRFMO require a minimum tagging overlap of 60% for toothfish and encourage higher tagging overlap statistics where this is possible

l. Noted that current seabird mitigation measures are appropriate, but these could be reviewed if interactions occur.

m. **Recommended** to the Commission:

> that SPRFMO should consider adopting a formal decision-making process for setting toothfish catch limits. This system should allow precautionary catch limits where information is low and increase catch limits as more information is available.

n. **Recommended** that if SPRFMO adopts a framework similar to that employed by CCAMLR, decisions will need to be made on the following:

   i. Choose seabed area depth range/s (600–1,800 m, 600–2,000 m and 600–2,500 m)
   ii. Choose which CPUE metric/s (kg per km of fishing line or kg per hook) should be used and how to handle hook clusters
   iii. Evaluate the application of either the CCAMLR or SIOFA trend analysis decision rules
   iv. Consider formalising catch limits and/or management measures for bycatch species

[1] Includes observers employed through accredited third-party providers

o. **Recommended** that if SPRFMO adopts a framework similar to that employed by CCAMLR;
   i. The latest GEBCO grid data be used for calculating seabed areas
   ii. The Ross Sea and Macquarie Island fisheries be used as reference areas for Antarctic and Patagonian toothfish respectively
   iii. There is no need to apply a 5 km buffer to the area currently

p. **Recommended** that for assessments using the Chapman mark recapture method, adopt and utilise the methods set out in SC14-DW11.

d. Advice to the Commission on Exploratory Fisheries

283. The SC **advised** the Commission:

a. that Australia's proposal for exploratory toothfish fishing on the Macquarie Ridge during 2027–2029 is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).
b. the Cook Islands proposal for an exploratory trap fishery for crabs and lobsters in the Northern and Foundation Seamounts is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).
c. the Cook Islands proposal for an exploratory Hapuka fishery in the Northern and Foundation Seamounts is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).
d. the EU's proposal for an exploratory demersal longline fishery for toothfish in the George V Fracture Zone is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).

284. The SC **recommended** to the Commission:

285. that the 10-year limit on exploratory fisheries outlined in CMM 13-2024 should be interpreted as 10 years where fishing occurs and data are collected, which do not necessarily have to be consecutive.

286. that SPRFMO should consider adopting a formal decision-making process for setting toothfish catch limits. This system should allow precautionary catch limits where information is low and increase catch limits as more information is available.

10. Climate Change

e. Review of inter-sessional activities

287. There were no papers or discussion under this agenda item.

288. The SC Chairperson encouraged Members to submit papers for this standing agenda item at SC15.

f. Advice to the Commission on Climate Change

289. The SC considered future work priorities related to climate change when reviewing the SC Multi-Annual Workplan for 2017–2029 (Annex 7).

11. Research in the Salas y Gomez and Nazca Ridges Area

a. Review of inter-sessional activities

290. The Coordinator of the Salas y Gómez and Nazca Task Team (SGNTT), Mr Jordi Tablada, reported that the SGNTT held one task team meeting and one pre-SC14 preparatory session. Inter-sessional activities were focused on compiling and evaluating the scientific information relevant to the SGN area, pursuant to CMM 17-2024. The evaluation organised available scientific information according to the agreed evaluation criteria, reviewed fishing activity and associated data, evaluated potential impacts, and developed recommendations for consideration by the SC.

291. A summary of the SGNTT's discussions during the pre-SC preparatory session, as well as the breakout sessions on the margins of SC14, is provided in SC14-WP15 (Annex 19).

b. Updates of the SGN Task Team

292. The SGNTT Chairperson presented SC14-SGN01_rev1, which provided the SGNTT's draft evaluation of available information for the Salas y Gómez and Nazca Ridges (SGN) area. Overall, the weight of evidence indicates that the SGN system is a globally significant seamount province that combines exceptional biodiversity, high endemism, VMEs, remarkable geomorphological diversity, substantial scientific value, and relatively high ecological integrity. While uncertainties remain for some mobile pelagic species and unsurveyed portions of the ridge system, the scientific evidence consistently identifies the area as one of the most distinctive and ecologically important marine regions within the South Pacific. Current fishing activity within the area is relatively limited compared to the wider southeastern Pacific, with most effort concentrated along the eastern portion of Nazca Ridge. Jumbo flying squid is the dominant contemporary fishery, while tuna and swordfish fisheries contribute comparatively small proportions of their overall catches from within the broader area. Historical bottom-contact fisheries have occurred on some seamounts and provide evidence of the long-term ecological consequences that can result from disturbance of vulnerable deep-sea habitats.

293. The SC thanked the SGNTT and its Coordinator for their efforts to prepare the draft evaluation.

294. The SC reviewed and finalised the evaluation of available information for the SGN area (SC14-WP03_rev1, Annex 20).

295. The SC **adopted** objectives for the SGN area (SC14-WP14, Annex 21).

296. When discussing SC14-WP14 (Annex 21), the SC noted that "endangered, near threatened, or vulnerable species" referred to species listed as such in the IUCN Red List of Threatened Species.

297. Regarding objective 4 of SC14-WP14, Chile expressed its preference for the wording 'important habitats' rather than 'critical habitats', explaining that Evaluation Criteria 6 (Area is of Special Significance for Threatened or Important Species or Ecosystem Properties) refers to 'special importance for life history stages', and pointing out the need to ensure coherence between the objectives and these criteria. The Cook Islands and Peru pointed out that 'critical habitat' has a specific meaning that they wished to capture in the objectives. In the spirit of flexibility, Chile agreed to accept the wording 'critical habitats.'

c. Advice to the Commission on the Salas y Gómez and Nazca area

298. The SC discussed advice and recommendations to the Commission based on the evaluation of available information for the SGN area (SC14-WP03_rev1, Annex 20) and the proposed objectives for evaluating proposals for possible measures in the area (SC14-WP14, Annex 21).

299. The SC noted that the SGNTT has provided a compilation and review of available relevant scientific information and data about the SGN area, as requested by the Commission in Decision 17-2024.

300. The SC noted that the SGNTT has completed an assessment of the compiled available relevant scientific information and data against the SC's 2025 Evaluation Criteria as a basis for assessing possible measures for the SGN area.

301. The SC **agreed** that the SGNTT highlighted the critical importance of strengthening scientific data collection (including bycatch) within the SGN area and noted the SGNTT's encouragement to review whether current data reporting formats and collection standards are fully optimised in scale, resolution, and quality to support a robust, ecosystem approach to fishing assessments.

302. The SC **agreed** that the compilation and review of available relevant scientific information and data presented by the SGNTT provide a sound basis for the SC to formulate advice to the Commission, as requested by the Commission in Decision 17-2024.

303. The SC **agreed** that the results of the SGNTT assessment of information against the Evaluation Criteria indicate that overall, the Evaluation Criteria for the SGN area have been met, and said assessment provides a sound, evidence-based basis for consideration of proposed measures.

304. The SC encouraged Members and CNCPs to continue strengthening scientific data collection, observer coverage and/or electronic monitoring, bycatch reporting, habitat mapping, ecosystem monitoring, and research within and adjacent to the assessed area.

305. Given the multiple criteria met regarding benthic habitats within the SGN area, including occurrence of VMEs, their vulnerability to disturbance, and their ecological importance (evaluation criteria 1.a, 1.b, 2.a, 2.b, 3.1, 3.b, 4.a, 5.a, 7.b), and given that bottom trawling and midwater trawling targeting bentho-pelagic species (e.g., alfonsino) are not currently permitted within the SGN area, the SC **recommended** that:

> SPRFMO not authorise bottom and midwater trawling (as defined in para 2.a and para 2.b of CMM 03-2025, respectively) to fish in the SGN area until measures for the area are established.

306. Given that other bottom-contact fishing activities (e.g., bottom longlining, potting) could present a risk of disturbance to those benthic habitats, and noting that the level of risk to benthic habitats from bottom longline and trap fisheries is yet to be fully evaluated in the SGN area, the SC **recommended** that:

> SPRFMO not authorise other new bottom-contact fishing methods to fish in the SGN area, with the exception of existing Cook Islands exploratory fisheries (CMM 14b-2024 and CMM 14g-2024), including any possible renewals of these Cook Islands exploratory fisheries or their possible progression to established fisheries.

307. The SC **agreed** to extend the SGNTT for an additional year, in order to undertake the tasks outlined in the SC Multi-Annual Workplan for 2027–2029 (Annex 7).

308. The SC **recommended** that the Commission:

> consider at its next meeting and endorse the SC's recommendations for the SGN area.

309. Given that additional data collection and reporting of bycatch information within the SGN area could improve the assessment of current and future fishing impacts in the area, the SC **recommended** that the Commission:

> task the SC to periodically evaluate the monitoring information to assess the effectiveness of any measures developed for the SGN area and to inform future scientific advice to the Commission.

310. The SC recommended that the Commission:

> endorse the updated Terms of Reference for the SGNTT (Annex 22).

311. Pew and Oceana expressed their support for the recommendations put forward by the SGNTT to protect the unique ecosystems present in the assessed area. They expressed their belief that there are precautionary grounds for including restrictions on pelagic fishing within these recommendations but acknowledged that further work is required to reach consensus on this. Pew and Oceana also supported the extension of the SGNTT to allow for the continuation of these discussions. In addition, they noted that the continuation of this work represents an important opportunity for SPRFMO to demonstrate leadership in the application of the precautionary approach and the fulfilment of its obligation to safeguard marine ecosystems, as well as an opportunity to contribute to the targets and goals of the Kunming-Montreal Global Biodiversity Framework.

312. Oceana wished to highlight two issues that it believed should be reflected in the SGNTT's work moving forward. First, there is a need for measures that address the area's role as a migratory corridor and nursery area for numerous pelagic species, including both endangered species and commercial fish stocks. Second, Members should take steps to identify and address data gaps mentioned in the report and brought up during the SGNTT discussions, in particular with regard to bycatch. Improving such data is essential and observer coverage of fishing activities within SGN can be too low to ensure adequate data quality and comparability to inform appropriate measures.

313. The DSCC and Greenpeace thanked the SGNTT and the SGNTT Chairperson for their work on this important area and expressed their support for the adoption and implementation of measures based on the best available science.

12. Other Matters

a. Crosscutting issues (as necessary)

314. The SC Chairperson presented SC14-Doc12, the consolidated Guidelines for the Work of the SPRFMO SC (Annex 8). The Guidelines consolidate three existing SC guidance documents into a single reference document for the SC: Guidelines for the Work and Structure of the Scientific Committee (2024); Scientific Committee Guidelines for Annual Reports (2019); and Scientific Committee Protocol for Papers to be Submitted to the SC (2019).

315. The SC reviewed and revised the consolidated Guidelines for the Work of the SPRFMO SC (SC14-WP09, Annex 8), elaborating the role of the Science Manager and clarifying the process for the engagement of invited experts and meeting organisation.

316. The SC **recommended** that the Commission:

a. adopt the consolidated Guidelines for the Work of the SPRFMO SC in SC14-WP09 (Annex 8), which will supersede the Guidelines for the Work and Structure of the Scientific Committee (2024); Scientific Committee Guidelines for Annual Reports (2019); and Scientific Committee Protocol for Papers to be Submitted to the SC (2019), and

b. remove the limit on the period of the mandates of the SC's Task Teams.

b. Planned activities and funding

317. The Executive Secretary informed the SC that he has been communicating with Members to seek feedback on the structure of the SC Multi-Annual Workplan, explaining that the Secretariat and the SC Chairperson have been working to refine the workplan structure based on the performance review recommendation to make it multi-annual.

318. The Executive Secretary further explained that one of the changes to the workplan has been to realign the year to the financial year to enable the SC to make clear recommendations about its funding needs to the Commission. He explained that the funding sought each financial year from the Organisation's budget was the total cost of planned activities minus unspent appropriations accrued from the previous year and voluntary contributions.

319. The SC reviewed its list of tasks, considered improvements to the workplan format, and developed a SC Multi-Annual Workplan for 2027–2029 (SC14-WP05, Annex 7) to be presented to the forthcoming Commission.

320. When reviewing the jack mackerel sections of the SC Multi-Annual Workplan, the SC considered several items related to jack mackerel assessment and MSE.

321. The SC **agreed** to develop Terms of Reference for major jack mackerel-related items in advance of COMM15 to assist the Commission in prioritising activities.

322. The SC **requested** that the Commission:

> consider the prioritisation and appropriate timelines for items related to jack mackerel assessment and MSE in the SC Multi-Annual Workplan.

323. Ecuador and China both expressed their interest in hosting the squid workshop under workplan item 3.1.2 of the workplan. The SC thanked both Members for their interest and **agreed** to communicate intersessionally to determine the recommended workshop venue.

324. Chile offered the use of its NZ$24,000 voluntary contribution (originally for jack mackerel as reported in SC14-Doc08_rev1) for the ecosystems workshop under workplan item 4.1.2. The SC thanked Chile for the offer.

325. The SC **agreed** to remove two workplan items on reviewing and updating data standards and providing input to the Secretariat in developing improved data management infrastructure (Items 5.1.1 and 5.1.3 in the SC Multi-Annual Workplan adopted at COMM 14; COMM14-Report, Annex 4a), noting that these tasks are conducted by the DWG, which is now no longer part of the SC.

326. The SC **requested** that the Commission:

> provide guidance on the division of roles and responsibilities between the DWG and the SC in relation to data standards.

327. The SC **agreed**:

a. to task the leads for each proposed project in the workplan to provide a detailed terms of reference for each project prior to the SC, and at a reasonable time before the close of the SC meeting for those projects developed within the SC meeting.

b. to task the Secretariat to develop a template for project terms of reference in consultation with the SC Chairperson.

328. The SC **recommended** that the Commission:

> a. consider, amend as appropriate, and adopt the SC Multi-Annual Workplan for 2027–2029 (Annex 7), and
>
> b. encourage Members to fully participate in the activities of the SC.

329. The European Union suggested that, in advance of future SC meetings, it would be useful to have an indication of any potential workshops that the SC is considering holding so that Members are better able to potentially make an offer, during the SC meeting, to host them.

330. Greenpeace offered comments on several aspects of the VME-related items in the workplan. Greenpeace noted SRFMO has failed to implement VME protection measures within its bottom fishing footprint for the last three consecutive years, and the SC has made no progress on populating CMM 03-2025 Annex 9, yet VME encounters continue to occur within the Convention Area. Greenpeace pointed out that its independent research has found VME taxa in areas where they had not been predicted. Greenpeace supported workplan item Code 2.4.4 on the development of a VME identification standard and encouraged Members to work with Greenpeace and use the Northwest Challenger direct observation data and the Baco et al. (2023), framework as a case study to develop and test a standard to be presented to the SC in 2027. Greenpeace noted that the Greenpeace direct observational data are available and could support workplan item 2.5.2 on improving and validating abundance models for VME taxa potentially at risk of SAI using independent data and encouraged New Zealand to take up this offer made at SC13. Greenpeace noted that at SC13 (SC13 Report, paras 159–162), New Zealand agreed to conduct an independent analysis on Greenpeace observational data related to the 2024 New Zealand VME encounter, but that New Zealand has not implemented the task set out in item 2.6.3 of the 2026–2028 SC Multi-Annual Workplan agreed at COMM14 (COMM14-Report, Annex 4a), which has since been removed from the current version of the workplan.

331. The DSCC associated itself with the Greenpeace statement on workplan item 2.4.4 and urged Members to use the Greenpeace research as a case study to develop standards and populate Annex 9 of CMM 03-2025.

332. The DSCC and Greenpeace considered that aspects of the work programme could be extended to look at deep-sea fisheries interactions and benthic impacts across the full SPRFMO Convention Area. They encouraged a wider group of Members to engage in this work, especially given the applicability to other fisheries.

333. The DSCC welcomed the SC's further work on the stock structure of orange roughy as this is crucial for the development of sustainable catch limits and in protecting the only remaining spawning aggregation found in recent surveys at Westpac Bank in the Southwest Challenger fisheries.

334. The DSCC and Greenpeace welcomed the SC's engagement, under item 6.5.4, with the BBNJ process and considered it important to the SC's work. The DSCC informed the SC that it has reported to previous SPRFMO meetings, including COMM13, with suggestions on making SPRFMO BBNJ-ready.

c. Appointment of officers

335. The SC Chairperson announced the open Chairperson roles that needed to be filled, namely, the DWWG, the EWG, and the JMWG.

336. Mr Trent Timmiss agreed to continue to serve as Chairperson of the DWWG. The SC thanked Mr Timmiss for his commitment.

337. Mr Sebastián Vásquez agreed to continue to serve as Chairperson of the EWG. The SC thanked Mr Vásquez for his commitment.

338. The SC noted that Dr Jim Ianelli's term as interim Chairperson of the JMWG has concluded. The SC thanked Dr Ianelli for his longstanding contributions and dedicated leadership to the SC and the JMWG.

339. There were no nominations to fill the vacated JMWG Chairperson position. The SC requested that Contracting Parties provide potential nominations and that the Commission consider the nominations and appoint a new JMWG Chairperson at COMM15.

d. Next meeting venue and timing

340. The SC noted that there is currently a gap of around 5–6 months between the annual meetings of the SC and the Commission and that during the period between the two meetings, the SC is not able to progress any new work, which is often work of an urgent or critical nature, as new work requires the approval of the Commission.

341. The SC attempted to identify a date for the next SC meeting that could be closer to the Commission meeting but was unable to find a date that accommodated all Members' needs, due to the schedule of other RFMO meetings or domestic commitments. Some Members expressed a preference for later in September. Some other Members expressed a preference for November. It was suggested that if the meeting were in November, the document submission deadline for the Commission should be shortened to give Members time to prepare proposals and other documents based on the SC outcomes. For the same reason, it was suggested that the SC and the Commission meeting should be at least 90 days apart. One Member indicated that it would be difficult to change the current timing.

342. The SC noted that most Members considered early November could be a workable option, pending avoiding clashes with other international commitments and taking into account Members' domestic processes.

343. The SC requested the Secretariat to prepare a paper documenting the dates of other international commitments that could potentially clash with the SPRFMO SC, as well as other Member constraints on changing the SC meeting date, to facilitate the Commission's discussions.

344. The SC **recommended** that the Commission:

a. note the potential need to reduce the duration of the period between the SC and the Commission, so as to increase the SC's effective intersessional period, and

b. consider revising the timing of the annual SC meeting.

345. The SC noted that, due to the heavy technical workload of the SC and its working groups and task teams this year, it was necessary to hold some breakout sessions concurrently with the SC plenary. The SC noted the difficulties that this poses for Members, especially those with smaller delegations, and noted that this should be avoided in the future.

346. The SC noted the value of the pre-SC preparatory sessions for advancing the SC's technical work and facilitating fruitful discussions at the SC. The SC **agreed** that, depending on the SC's technical workload and tasks, in some years, the SC should hold three days of pre-SC preparatory sessions instead of the conventional two days, provided it is possible to find a timing that accommodates Members' needs.

347. The SC **recommended** that the Commission:

endorse the holding of three days of pre-SC preparatory sessions for SC15 and potentially in other years as well, depending on the SC's technical workload and tasks and the ability to find a timing that accommodates Members' needs.

348. The SC thanked China and Vanuatu for their voluntary contributions for hiring a professional rapporteur for SC14, noted that this reduced the burden on Members during the meeting and improved the efficiency of the report drafting and adoption process, and **recommended** that the Commission:

adopt a recurring budget item for hiring a professional rapporteur for future meetings of the SC.

349. China confirmed its offer to host the 15th SC meeting in Shanghai in September 2027 or at a later date if the Commission so decides. The SC thanked China for its generous offer.

350. Ecuador expressed its interest in possibly hosting the 16th SC meeting in 2028, subject to confirmation at COMM15. The SC thanked Ecuador for its interest.

e. Other business

351. Chile made a statement regarding the compatibility of conservation measures in straddling jack mackerel fisheries and minimum size and its implementation in SPRFMO. Chile's statement is attached as Annex 23g.

352. The European Union pointed out that, considering that a juvenile is defined as an individual that has not reached sexual maturity, in the jack mackerel assessment model, maturity-at-age for age-1 jack mackerel is 50% and for age-2 it is 100%, and almost all fleets have varying proportions of age-1 individuals throughout the years.

353. The SC agreed that it could discuss how to incorporate any relevant research on this matter in its workplan at SC15.

f. Advice to the Commission on cross cutting issues

354. The SC **recommended** that the Commission:

consider, amend as appropriate, and adopt the SC Multi-Annual Workplan for 2027–2029 (Annex 7).

355. The SC **recommended** that the Commission:

a. adopt the consolidated Guidelines for the Work of the SPRFMO SC in SC14-WP09 (Annex 8).

b. remove the limit on the period of the mandates of the SC's Task Teams.

356. The SC **recommended** that the Commission:

a. note the potential need to reduce the duration of the period between the SC and the Commission, so as to increase the SC's effective intersessional period.

b. consider revising the timing of the annual SC meeting.

357. The SC **recommended** that the Commission:

a. endorse the holding of three days of pre-SC preparatory sessions for SC15 and potentially in other years as well, depending on the SC's technical workload and tasks and the ability to find a timing that accommodates Members' needs.

b. encourage Members to fully participate in the activities of the SC.

358. The SC noted that the hiring of a professional rapporteur for SC14 reduced the burden on Members during the meeting and improved the efficiency of the report drafting and adoption process, and **recommended** that the Commission:

adopt a recurring budget item for hiring a professional rapporteur for future meetings of the SC.

13. Report Adoption and Meeting Closure

359. The report of the 14th SPRFMO SC meeting was adopted on 12 September at 20:04 hrs., local time.

360. The meeting was closed at 20:06 hrs.

SC14 Meeting Report
Annex 1: Collated SC Recommendations, Advice, and Requests

(Items that the SC "noted" or "agreed" are in the main body of the report and not repeated here)

Jack Mackerel

- (Para 121) Given the revised assessment, lower than expected catch and strong current and forecasted El Niño, the SC **recommended** a precautionary approach to setting catch levels for 2027. The SC **recommended** a shortlist of CMPs (CMP29, CMP43, CMP45) for the Commission to consider for implementation. Should the Commission adopt one of these CMPs, it may be appropriate to use that MP to set the 2027 catch limit.
- (Para 122) In the case that an MP is not used to set the 2027 catch limit, most Members of the SC **recommended** that the Commission:
    - acknowledge the exceptional conditions and uncertainty impacting the present status of the jack mackerel fishery and abandon the application of the Annex K harvest control role, which would have a very low probability achieving the management objective of B being above B_{MSY} in the short term and medium term (2032).
    - acknowledge that, to meet the management objective for jack mackerel in the medium term (2032) and long term (2036), fishing needs to be restricted to the fishing mortality similar to that of 2026.
    - adopt precautionary catch advice for 2027.
- (Para 123) Most of the SC **recommended** that the Commission set the 2027 TAC at or below an acceptable range spanning status quo fishing mortality or up to 1.25 times that value. This gives 964–1,152 kt.

Deepwater

- (Para 130) The SC **recommended** that innovative techniques be used to analyse orange roughy samples collected from Westpac Bank and adjacent areas of the New Zealand EEZ during the same season, in order to assess the stock structure within these areas.
- (Para 142) The SC **recommended** that the Commission:
    - agree to take a precautionary approach by maintaining the current temporary closure of the Encounter Area; and
    - note that this decision should be reviewed by the SC if further relevant information is received.
- (Para 162) The SC **recommended** that the Commission:
    - endorse the methods, handling, and release guidelines in SC14-DW08_rev1 (Annex 14); and
    - consider further work on reducing chondricthyan bycatch in bottom fishing in the SPRFMO Convention Area, including gear selectivity and modifications.

Squid

- (Para 207) The SC **recommended** that the Commission:
  - request Members that participate, or have participated, in the jumbo flying squid fishery to provide any missing historical catch information, and
  - task the Secretariat with seeking additional historical catch information from Japan to complete and validate the dataset.
- (Para 209) The SC **recommended** that the Commission request Members to provide standardized CPUE abundance indices, where available, together with the relevant technical information.
- (Para 212) The SC **recommended** that the Commission request Members to provide the Secretariat with metadata describing such available information.
- (Para 228) The SC **recommended** that the Commission:
  - endorse the updated Terms of Reference for the ASTT (Annex 17); and
  - extend the ASTT for another year.

Ecosystems

- (Para 244) The SC **recommended** that the Commission:
  - authorise the use of relevant data held by SPRFMO for ecosystem-related scientific analyses, including the development and evaluation of regional species distribution models (SDMs), subject to applicable data access, confidentiality and attribution requirements.

Exploratory Fisheries

- (Para 263) The SC **advised** the Commission that Australia's proposal for exploratory toothfish fishing on the Macquarie Ridge during 2027–2029 is acceptable in terms of Conventions Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries), and the Bottom Fishing Impact Assessment Standard (BFIAS).
- (Para 269) The SC **advised** the Commission that the Cook Islands proposal for an exploratory trap fishery for crabs and lobsters in the Northern and Foundation Seamounts is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).
- (Para 274) The SC **advised** the Commission that the Cook Islands proposal for an exploratory Hapuka fishery in the Northern and Foundation Seamounts is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CM 03-2025 (Bottom Fisheries), and the Bottom Fishing Impact Assessment Standard (BFIAS).
- (Para 279) The SC **advised** the Commission that the EU's proposal for an exploratory demersal longline fishery for toothfish in the George V Fracture Zone is acceptable in terms of Convention Articles 2 and 22, CMM 13-2024 (Exploratory Fisheries), CMM 03-2025 (Bottom Fisheries) and the Bottom Fishing Impact Assessment Standard (BFIAS).
- (Para 281) The SC discussed the interpretation of the 10-year limit on exploratory fisheries outlined in CMM 13-2024 and **recommended** to the Commission that this be interpreted as 10 years where fishing occurs and data are collected, which do not necessarily have to be consecutive.
- (Para 282) Based on the outcomes of the Toothfish workshop, the SC:

- **Recommended** to the Commission:
  - that SPRFMO should consider adopting a formal decision-making process for setting toothfish catch limits. This system should allow precautionary catch limits where information is low and increase catch limits as more information is available.

Climate change

- None.

Salas y Gómez and Nazca Ridge Area

- (Para 305) Given the multiple criteria met regarding benthic habitats within the SGN area, including occurrence of vulnerable marine ecosystems, their vulnerability to disturbance, and their ecological importance (criteria 1.a, 1.b, 2.a, 2.b, 3.1, 3.b, 4.a, 5.a, 7.b), and given that bottom trawling and midwater trawling targeting bentho-pelagic species (e.g., alfonsino) are not currently permitted within the SGN area, the SC **recommended** that:
  - SPRFMO not authorise bottom and midwater trawling (as defined in para 2.a and para 2.b of CMM 03-2025, respectively) to fish in the SGN area until measures for the area are established.
- (Para 306) Given that other bottom-contact fishing activities (e.g., bottom longlining, potting) could present a risk of disturbance to those benthic habitats, and noting that the level of risk to benthic habitats from bottom longline and trap fisheries is yet to be fully evaluated in the SGN area, the SC **recommended** that:
  - SPRFMO not authorise other new bottom-contact fishing methods to fish in the SGN area, with the exception of existing Cook Islands exploratory fisheries (CMM 14b-2024 and CMM 14g-2024), including any possible renewals of these Cook Islands exploratory fisheries or their possible progression to established fisheries.
- (Para 308) The SC **recommended** that the Commission consider at its next meeting and endorse the SC's recommendations for the SGN area.
- (Para 309) Given that additional data collection and reporting of bycatch information within the SGN area could improve the assessment of current and future fishing impacts in the area, the SC **recommended** that the Commission task the SC to periodically evaluate the monitoring information to assess the effectiveness of any measures developed for the SGN area and to inform future scientific advice to the Commission.
- (Para 310) The SC **recommended** that the Commission endorse the updated Terms of Reference for the SGNTT (Annex 22).

Other matters

- (Para 316) The SC **recommended** the Commission:
    - adopt the Consolidated Guidelines for the Work of the SPRFMO SC in SC14-WP09 (Annex 8), which will supersede the Guidelines for the Work and Structure of the Scientific Committee (2024); Scientific Committee Guidelines for Annual Reports (2019); and Scientific Committee Protocol for Papers to be submitted to the SC (2019).
    - remove the limit on the period of the mandates of the SC's Task Teams.
- (Para 322) The SC **requested** that the Commission consider the prioritisation and appropriate timelines for items related to jack mackerel assessment and MSE in the SC Multi-Annual Workplan.
- (Para 326) The SC **requested** that the Commission provide guidance on the division of roles and responsibilities between the DWG and the SC in relation to data standards.
- (Para 328) The SC **recommended** that the Commission:
    - consider, amend as appropriate, and adopt the SC Multi-Annual Workplan for 2027–2029 (Annex 7).
    - encourage Members to fully participate in the activities of the SC.
- (Para 344) The SC **recommended** that the Commission:
    - note the potential need to reduce the duration of the period between the SC and the Commission, so as to increase the SC's effective intersessional period.
    - consider revising the timing of the annual SC meeting.
- (Para 347) The SC **recommended** that the Commission endorse the holding of three days of pre-SC preparatory sessions for SC15 and potentially in other years as well, depending on the SC's technical workload and tasks and the ability to find a timing that accommodates Members' needs.
- (Para 348) The SC thanked China and Vanuatu for their voluntary contributions for hiring a professional rapporteur for SC14, noted that this reduced the burden on Members during the meeting and improved the efficiency of the report drafting and adoption process, and **recommended** that the Commission adopt a recurring budget item for hiring a professional rapporteur for future meetings of the SC.

SC14 Meeting Report
Annex 2: SC14 List of Participants

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SC14 Meeting Report
Annex 3: SC14 Meeting Agenda

1) OPENING OF THE MEETING
a) Meeting arrangements
b) Adoption of Agenda
c) Meeting Documents

2) ANNUAL REPORTS DISCUSSION

3) COMMISSION GUIDANCE AND INTER-SESSIONAL ACTIVITIES
a) Secretariat SC related activities
b) Update on data held by the Secretariat
c) Review of the Scientific Support Fund
d) SC multi-annual workplan
e) Observer Programme accreditation process and progress
f) Review and update of data standards (CMM 02-2026)
g) Cooperation with other Organisations

4) COMMISSION WORKING GROUPS
a) Working Group on 2nd Performance Review
b) Data Working Group

5) JACK MACKEREL
a) Review of inter-sessional activities
b) Assessment data review and evaluation
c) Jack Mackerel assessment
d) Management Strategy Evaluation
e) Advice to the Commission on jack mackerel

6) DEEPWATER
a) Review of inter-sessional activities
b) Deepwater assessments (Orange roughy, stock structure, ecological risk, data)
c) Benthic bycatch ID and catchability
d) Encounters with VMEs
e) CMM 03 request regarding encounters with VMEs
f) Bottom Fishery Impact Assessment
g) CMM 03 request regarding marine mammals, seabirds, reptiles and other species of concern
h) CMM 03 request regarding ongoing appropriateness
i) Advice to the Commission on Deepwater

7) SQUID
   a) Review of inter-sessional activities
   b) Assessment Simulation Task Team
   c) Assessment data review and evaluation
   d) Jumbo Flying Squid assessment
   e) Management Strategy Evaluation planning
   f) Development of precautionary recommendations and review of relevant CMMs
   g) Advice to the Commission on Squid

8) ECOSYSTEMS
   a) Review of inter-sessional activities
   b) Special Issue of the Habitat Monitoring Symposium
   c) Report on the Workshop on Species Distribution Data Information Inventory
   d) Report on Ecosystem status profile
   e) Advice to the Commission on Ecosystems topics

9) EXPLORATORY FISHERIES
   a) Exploratory Fishery updates (AUS, COK, EU, KOR, NZ)
   b) New exploratory fishery proposals (AUS, COK, EU)
   c) Transition to Established Fisheries
   d) Advice to the Commission on Exploratory Fisheries

10) CLIMATE CHANGE
   a) Review of inter-sessional activities
   b) Advice to the Commission on Climate Change

11) RESEARCH IN THE NAZCA AND SALAS Y GOMEZ RIDGES AREA
   a) Review of inter-sessional activities
   b) Updates of the SGN Task Team
   c) Advice to the Commission on the Salas y Gomez and Nazca area

12) OTHER MATTERS
   a) Crosscutting issues (as necessary)
   b) Planned activities and funding
   c) Appointment of officers
   d) Next meeting venue and timing
   e) Other business
   f) Advice to the Commission on cross cutting issues

13) REPORT ADOPTION AND MEETING CLOSURE

SC14 Meeting Report
Annex 4: SC14 Meeting Schedule and Programme

This document presents the final schedule for the 14th Meeting of the SPRFMO Scientific Committee (SC14), to be held from 7 to 12 September 2026, together with the schedule of pre-SC sessions on 5 and 6 September 2026.

The document includes an overview of the sessions scheduled throughout the week, the proposed allocation of agenda items to each session, and the schedule for the pre-SC activities. The schedule is indicative and may be adjusted by the SC Chairperson during the meeting, as necessary, to accommodate the progress of discussions and facilitate the work of the Committee.

Schedule for the week 7-12 September

	Session 1 09:00 – 10:30	30-minute Coffee Break	Session 2 11:00 – 12:30	1.0-hour Lunch	Session 3 13:30 – 15:30	30-minute Coffee Break	Session 4 16:00 – 17:30
Monday 7 Sep 26	Opening Ceremony		Deepwater WG		Scientific Committee (13:30-14:30)		Exploratory fisheries (15:00-16:30)
Tuesday 8 Sep 26	Squid WG		Jack Mackerel WG		Jack Mackerel MSE		Scientific Committee
Wednesday 9 Sep 26	Squid WG		Scientific Committee		Report Drafting		Report Drafting
Thursday 10 Sep 26	Jack Mackerel WG		Deepwater WG		Scientific Committee		Scientific Committee
Friday 11 Sep 26	Salas y Gomez and Nazca		Squid WG		Ecosystem WG		Climate Change Scientific Committee
Saturday 12 Sep 26	Scientific Committee		Report Drafting		Report Adoption		Report Adoption

Details of agenda items discussed per session (week 7-12 September)

	Session 1 09:00 – 10:30	30-minute Coffee Break	Session 2 11:00 – 12:30	1.0-hour Lunch	Session 3 13:30 – 15:30	30-minute Coffee Break	Session 4 16:00 – 17:30	Side Events
Monday 7 Sep 26	1a, 1b, 1c, 2, 3a, 3b, 3c, 3d (opening), 4a (opening)		6a, 6b, 6c, 6d, 6e, 6f, 6g, 6h		3e, 3f (opening), 3g		9a, 9b, 9c, 9d	Welcome event
Tuesday 8 Sep 26	7a, 7b, 7d		5a, 5b, 5c		5d		5d, 4b (openng)	PER side event in breakout room: Following the cohorts (1730-1830)
Wednesday 9 Sep 26	7c, 7e, 7f		12a, 12b		Report Drafting		Report Drafting	SGNTT pre-Session in breakout room (8am) Excursion organised by the host (from 15.30h)
Thursday 10 Sep 26	5d, 5e		6i		5d+5e		3f (closure), 4a (closure), 4b (closure), 12b (continuation), 12f	
Friday 11 Sep 26	11a, 11b, 11c		7f, 7g		8a, 8b, 8c, 8d, 8e		10a, 10b Buffer	
Saturday 12 Sep 26	3b (closure), 3d (Closure), 3f (closure), 4b (closure), 12b (closure), 12c, 12d, 12e		Report Drafting		Report drafting / 13		13	

Schedule of activities held on 5-6 September

	Session 1 09:00 – 10:30	30-minute Coffee Break	Session 2 11:00 – 12:30	1-hour Lunch	Session 3 13:30 – 15:00	30-minute Coffee Break	Session 4 15:30 – 17:00	Side Events
Saturday 5 Sep 26	Salas y Gomez and Nazca TT		Salas y Gomez and Nazca TT		Squid WG		Squid WG	
Sunday 6 Sep 26	Squid WG		Exploratory fisheries		Exploratory fisheries		Exploratory fisheries	HoD meeting (17h-18h)

**Note: lunch break is only 1 hour and the sessions finish at 17 hrs.*

SC14 Meeting Report
Annex 5: List of Meeting Documents

Plenary Documents	
SC14-Doc01	Provisional SC14 Meeting Agenda
SC14-Doc02	Annotated SC14 Agenda
SC14-Doc03_rev1	SC14 List of Documents
SC14-Doc04_rev3	SC14 Meeting schedule
SC14-Doc05	Scientific Committee Multi Annual Work Plan
SC14-Doc06	2026 intersessional SC web meetings
SC14-Doc07	Secretariat's Science related activities
SC14-Doc08_rev1	Scientific Support Fund
SC14-Doc09	Call for interest to organise forthcoming SC meetings
SC14-Doc10	A summary of current SPRFMO bycatch records (Including species of concern)
SC14-Doc11	Datasets held by the Secretariat
SC14-Doc12	Consolidated Guidelines for the Work of the SPRFMO Scientific Committee
SC14-Doc13	PR2IWG Submission to SC14 - Recommendation implementation timeframes
SC14-Doc14	Report of the Data Working Group to the SC
SC14-Doc15	Annual Report Australia
SC14-Doc16	Annual Report Belize
SC14-Doc17	Annual Report Chile Jack Mackerel
SC14-Doc18	Annual Report Chile Squid
SC14-Doc19	Annual Report China
SC14-Doc20	Annual Report Cook Islands
SC14-Doc21	Annual Report Cuba
SC14-Doc22	Annual Report European Union
SC14-Doc23	Annual Report Faroe Islands
SC14-Doc24	Annual Report Korea
SC14-Doc25	Annual Report New Zealand
SC14-Doc26	Annual Report Panama
SC14-Doc27	Annual Report Peru SPRFMO Area
SC14-Doc28	Annual Report Peru ANJ
SC14-Doc29	Annual Report Russian Federation
SC14-Doc30	Annual Report Chinese Taipei
SC14-Doc31	Annual Report United States
SC14-Doc32	Annual Report Vanuatu

Jack mackerel documents	
SC14-JM01	Catch history of *Trachurus murphyi* (including Annex 1)
SC14-JM02	Report of the Jack Mackerel Benchmark Workshop (SCW16)
SC14-JM03	Report of the Jack Mackerel MSE Workshop (SCW17)
SC14-JM04	Independent desk review of the SPRFMO Jack Mackerel Management Strategy Evaluation
SC14-JM05_rev1	Guide to the Jack Mackerel MSE papers for SC14
SC14-JM06	Jack mackerel MSE: questions and tasks for SC14
SC14-JM07	Jack Mackerel Management Strategy Evaluation for SC14
SC14-JM08	Jack mackerel MSE: technical information and work remaining
SC14-JM09	Response to the independent SC14 MSE desk review
SC14-JM10	Standardization of commercial CPUE for Chilean jack mackerel in central-southern Chile using hierarchical Bayesian spatio-temporal models
SC14-JM11	Hydroacoustic assessment of Chilean Jack Mackerel (*Trachurus murphyi*) in the northern zone of Chile (2026)
SC14-JM12_rev1	Management Strategies Evaluation for the Jack Mackerel Fishery
SC14-JM13_rev1	Improving Hydroacoustic Assessment of Chilean Jack Mackerel (*Trachurus murphyi*): Sampling Design and Bayesian Spatial Modelling for Density Estimation
SC14-JM14	A spatio-temporal approach for standardizing acoustic survey indices of Chilean jack mackerel in Chile
SC14-JM15	Update on the CJM CPUE Index based on fishing trip database and Acoustic Biomass Estimates in Chile
SC14-JM16	Spatiotemporal Dynamics of the Chilean Jack Mackerel Fishery off Central-Southern Chile During 2020–2026
SC14-JM17	Implementation of an informed creep correction into the Chile Jack Mackerel CPUE index
SC14-JM18	Jack mackerel acoustic density index in the central-north acoustic surveys, estimated using spatiotemporal models with sdmTMB
SC14-JM19	Update of Chilean jack mackerel CPUE abundance index estimated by spatiotemporal SPDE-based models using sdmTMB
SC14-JM20	PFA selfsampling report for the SPRFMO Science Committee 2026
SC14-JM21	PFA SPRFMO offshore fleet CPUE standardisation 2026

Deep Water documents	
SC14-DW01_rev2	Overview of Exploratory Fisheries
SC14-DW02	Australia's Exploratory Fishery Application for Toothfish in the Maquarie Ridge
SC14-DW03	Cook Islands FOP Exploratory Hapuka Fishery
SC14-DW04_rev1	Cook Islands FOP Exploratory Trap Fishery
SC14-DW05_rev1	European Union FOP Exploratory Toothfish Fishery
SC14-DW06	History of toothfish fisheries in SPRFMO
SC14-DW07	Potential scientific requirements to assist transition toothfish fisheries from exploratory fisheries to an established fishery
SC14-DW08_rev1	Chondrichthyan handling and release protocol for bottom fishing operations in SPRFMO Convention Area
SC14-DW09	Update on the Exploratory Toothfish Fishery in the Macquarie Ridge Continuation Research Block for 2025
SC14-DW10	Second Annual report of the EU Exploratory Toothfish Fishery
SC14-DW11	Biomass update for the Exploratory Patagonian Toothfish Exploratory Fishery George V Fracture Zone 2024-26
SC14-DW12	Improved particle dispersal modelling for validation of the South Pacific VME Bioregionalisation – Progress Report
SC14-DW13	New Zealand Exploratory Toothfish Fishing in SPRFMO: Interim report for 2025
SC14-DW14	History and Progress of New Zealand's Exploratory Fishing for Toothfish (*Dissostichus* spp.) in the SPRFMO Convention Area, 2016–2025
SC14-DW15	Review of stock structure studies of orange roughy *Hoplostethus atlanticus*
SC14-DW16	Update of New Zealand 2024 VME Encounter Review
SC14-DW17	Validation and improvement of VME indicator taxa abundance models: Progress report
SC14-DW18	Korea's progress report on exploratory toothfish fishery under CMM 14h-2025
SC14-DW19	Cook Islands exploratory fisheries for hapuka and lobster

Squid documents	
SC14-SQ01_rev1	Catch and Effort History of Jumbo Flying Squid
SC14-SQ02	Report of the Third Squid Workshop SCW18
SC14-SQ03	ENSO Impacts on Jumbo Flying Squid Habitat Off Peru
SC14-SQ04	Assessment of Squid Using an environment-dependent State-Space Biomass Dynamics Model
SC14-SQ05	January-July 2026 fishing season for squid (*Dosidicus gigas*) in Chilean waters
SC14-SQ06	Updated Stock Assessment of *Dosidicus gigas* in FAO Area 87 Using the Stochastic Production Model in Continuous Time (SPiCT)

Ecosystems documents	
SC14-Eco01	Report of the Ecosystem Workshop SCW19
SC14-Eco02	Abundance of Jack Mackerel, Mackerel and Vinciguerria during 2025-26 in the Peruvian sea
SC14-Eco03	Habitat Conditions of Jack mackerel and Mackerel in the Peru Current Species in the Humboldt System during 2024 to 2026

Salas y Gomez and Nazca documents	
SC14-SGN01_rev1	Evaluation of information for the Salas y Gomez and Nazca Ridges Area

Observer documents	
SC14-Obs01	Deep Sea Fisheries (DSF) Project - Overview of activities 2022-2026 and next steps
SC14-Obs02	CALAMASUR A probabilistic risk-analysis framework for reconciling competing stock assessments
SC14-Obs03	DSCC-ECO Priorities for SPRFMO deep-water fisheries and deep-sea ecosystems in a changing science and policy oceanscape
SC14-Obs04	RESTRICTED – Greenpeace - Expedition Report: Vulnerable Marine Ecosystems identified from direct observations within the Central Lord Howe 2024 temporary suspension of bottom fishing VME Encounter Area
SC14-Obs05	RESTRICTED - Greenpeace - Expedition Report: Vulnerable Marine Ecosystems identified from direct observations within the Northwest Challenger Bottom Trawl Management Area
SC14-Obs06	Report of the DSF Project Toothfish Workshop

Information documents	
SC14-Inf01	Schedules and agendas for the pre-SC14 activities

Working Papers	
SC14-WP01	Questions and Answers regarding Annual Reports
SC14-WP02	Peru's Observations on the Report of the SQWG ASTT
SC14-WP03_rev1	Evaluation of Information for the SGN Ridges Area
SC14-WP04	Datasets held by the Secretariat (Doc11)
SC14-WP05	SC Multiannual Workplan (Doc05)
SC14-WP06	Developing Exceptional Circumstances for JM MSE
SC14-WP07	Report of the Data Working Group to the SC (Doc14)
SC14-WP08	PR2IWG Submission to SC14 - Recommendation implementation timeframes (Doc13)
SC14-WP09	Consolidated Guidelines for the Work of the SPRFMO Scientific Committee
SC14-WP10	List of Acronyms used in the SC14 Report
SC14-WP11	Data Working Group - scientific data needs questionnaire
SC14-WP12	Jumbo Flying Squid Stock Assessment Models: Agreed Diagnostics and Evaluation Criteria
SC14-WP13	Jumbo Flying Squid Management Strategy Evaluation planning
SC14-WP14	Proposed Objectives for evaluating the proposal for possible measures in the SGN area
SC14-WP15	SGNTT Pre-SC and session summary for SC14 Report
SC14-WP16	Assessment Simulation Task Team (ASTT) for the Jumbo Flying Squid in the Southeastern Pacific Ocean - Terms of Reference and Workplan
SC14-WP17	Updated SGNTT Terms of Reference

SC14 Meeting Report
Annex 6: Questions & Answers on Annual Reports submitted to the Scientific Committee

Annual Reports

Annual Reports were submitted to SC14 by Australia, Belize, Chile, China, Cook Islands, Cuba, Curaçao, European Union, Faroe Islands, Korea, Liberia, New Zealand, Panama, Peru, Russian Federation, Chinese Taipei, United States of America, and Vanuatu (SC14-Doc15 to SC14-Doc34).

Prior to the meeting, Members and CNCPs were invited to submit questions and responses concerning the Annual Reports through a live collaborative document made available on Microsoft Teams as SC14-WP01.

This Annex reproduces the content of SC14-WP01. Where questions and responses were submitted through the collaborative document, these have been retained under the relevant Annual Report sections. Summary paragraph sections for which no questions or responses were submitted have also been retained to preserve the structure of the original Working Paper.

1. Australia

Summary: This report presents the Australian fishing activity in 2025 in the South Pacific Regional Fisheries Management Organisation (SPRFMO) Convention Area. Two Australian-flagged vessels fished in the established fishery in the SPRFMO Area in 2025 using demersal longline gears with 817,000 hooks deployed. Another Australian vessel fished in the exploratory fishery for toothfish using Auto Longline and a detailed report on this fishing is contained in Appendix B. No Australian-flagged vessel fished using trawl gears. The total catch reported in logbooks was 135.6 t, comprised primarily of yellowtail kingfish (Seriola lalandi), morwong (Nemadactylus spp.), blue-eye trevalla (Hyperoglyphe antarctica), ocean blue-eye trevalla (Schedophilus velaini) and other species.

Australia achieved 15.9% observer coverage in 2025. Observers did not report any bycatch of seabirds, marine mammals, marine reptiles or other species of concern in non-trawl operations in the SPRFMO Area in 2025. Observers reported 111.3 kg of benthic bycatch from 28 separate fishing operations in 2025, comprised mainly of gorgonian corals (Family Ellisellidae; 19 kg), crinoids (Class Crinoidae; 14 kg), starfish (Class Asteroidae; 4 kg), and non-living 'benthos' (74 kg). The required annual data were submitted to the SPRFMO Secretariat in accordance with Australia's data confidentiality policies and the relevant Conservation and Management Measures (CMMs).

2. Belize

Summary: During the reporting period, Belize had no fishing-support vessels authorized to operate within the SPRFMO Convention Area and no vessels authorized to conduct direct fishing operations in the Convention Area. Consequently, no Belizean vessels operated within the SPRFMO Convention Area during 2025, and there were no fishing activities to report for the reporting period.

3. Chile

3.1.Jack mackerel

Summary: Since 2020, the fishing operations on Chilean Jack mackerel have been conducted exclusively within the Chilean EEZ. During 2025, the industrial fleet targeting this resource was made up of 41 fishing vessels using purse seines.

A progressive increase in Jack mackerel catches was observed during the 2021–2025 period, reaching a maximum of 1,219,027 t in 2025. This trend is explained by the increase in the quota allocated to Chile plus quota transfers from other SPRFMO members.

Since 2021, size-structured Jack mackerel catches have shown a wide range of sizes, between 7 and 67 cm fork length (FL), with main modes fluctuating between 27 and 44 FL cm. Thus, during the 2025, the size range of includes specimens between 17 and 58 cm in FL, with a marked mode of 32 cm in FL.

Between 2021 and 2025, the Jack mackerel catches included a broad range of age groups, from I to XII, with age group V consistently representing the main mode across all years. While some variability was observed between years, the overall age structure remained stable, with contributions from multiple cohorts in most seasons.

Finally, it is important to reiterate that, as of January 2020, Image Recording Devices (DRI or EMS) have been implemented to monitor compliance with Bycatch Reduction Plans and fishery regulations across the entire industrial fleet. In addition, the mandatory use of Electronic Logbook Systems (SIBE) was also introduced in 2020 to report, on a set-by-set basis and in real time, total catches, bycatch and discards, and the spatial and operational characteristics of the fishing activity, in accordance with national legislation.

To date, the implementation of these Electronic Monitoring Systems (IRD and ELS) in the Chilean industrial fleet has focused primarily on ensuring compliance with regulations related to discards and incidental catch of seabirds, marine mammals, sea turtles and chondrichthyans. However, the potential for using these technologies beyond compliance particularly as tools for scientific monitoring and the collection of fishery-dependent data is now being explored. This approach is expected to complement traditional human observer programs, supporting a more robust ecosystem-based fisheries management approach. In the specific case of the Jack mackerel fishery, observer data collected between 2015 and 2025 confirmed low levels of incidental mortality, with most cases including sea lions, seabirds and sea turtles being released alive using proper handling protocols. These outcomes reflect the ongoing commitment of Chile to strengthen sustainable practices and ecosystem considerations in the management of this key pelagic resource.

Question 1 by the United States: Given the post-2023 decline in nominal CPUE and catch per fishing day, what standardized indicator should be used to distinguish abundance from vessel participation, trip duration, targeting, spatial availability, quota effects, and possible local depletion? How should its uncertainty enter the assessment and MSE?

Answer by Chile: The post-2023 decline in nominal CPUE and catch per fishing day observed in the Chilean industrial purse-seine fishery reflects operational and spatial restructuring rather than a reduction in Jack mackerel stock abundance. As documented in SC14-Doc 17, total catch and national quota allocations reached a peak of 1,219,027 tonnes in 2025. Concurrently, total fishing trips expanded from 812 to 1,221, and mean trip duration more than doubled, rising from 1.6 days in 2023 to 2.87 days in 2024, 3.7 days in 2025, and 4.2 days in 2026. Because trips required extended searching and transit times, raw catch rates per fishing day declined.

We recommend using the standardized spatio-temporal CPUE index as the primary fishery-dependent abundance indicator, rather than nominal CPUE based only on successful fishing trips. The model accounts for changes in seasonality, vessel capacity, fishing duration and annual spatial distribution, helping separate these effects from the underlying annual CPUE signal. However, since the current index is conditional on fishing activity, it may not fully capture changes in availability that affect whether vessels encounter or target jack mackerel in the first place. This is particularly relevant when periods of low availability result in reduced or suspended fishing activity.

For stock assessment, the standardized index should therefore enter with its estimated uncertainty and be interpreted alongside information on fishing participation, zero or unsuccessful trips, spatial coverage and fishery-independent indices. In the MSE, additional observation-error or alternative catchability scenarios could be used to test robustness to changes in availability and fleet behaviour.

Methodological specification of standardized CPUE model

The adopted Hierarchical Bayesian Spatio-Temporal Model (BHSTM / INLA Model $m2$, SC14-JM 10) explicitly disentangles these operational and regulatory factors from population density:

$$\log(\text{CPUE}_i) = \beta_0 + \beta_{\text{Year}(i)} + \beta_{\text{Quarter}(i)} + f(\log CB_i) + \beta_{\text{DFP}} \log DFP_i + s_{t_i}(x_i) + \epsilon_i$$

Trip Duration and Searching Time ($\log DFP_i$): Stepwise influence diagnostics show that fishing trip duration accounted for the largest temporal adjustment between nominal and standardized catch rates. Accounting for DFP shows that individual set-level density remained high across the period (144.5 t/set in 2025 and 156.1 t/set in 2026, well above the long-term historical mean).

Fleet Participation and Vessel Capacity ($f(\log CB_i)$): Modeling hold capacity (CB) with a non-linear second-order random walk (RW2) standardizes for fleet composition changes, including the increased participation of vessels larger than 1,200 m^3.

Spatial Availability and Localized Depletion ($s_{t_i}(x_i)$): Operating within coastal waters (< 150 nm) can cause transient, localized depletion around persistent fishing grounds. The model estimates independent annual spatial fields ($s_t(x)$) and integrates predictions across a fixed, uniform spatial grid covering the entire domain. This decouples localized fleet depletion at observed set locations from broad-scale stock availability, displaying temporal stability with a retrospective Mohn's ρ of 0.025.

Targeting and Quota Dynamics: Filtering for trips where Jack mackerel comprises $> 50\%$ of the catch isolates directed operations from Chub mackerel or northern anchovy fisheries. Seasonal quarter effects (β_{Quarter}) prevent late-season quota exhaustion efforts (such as December 2025 catches of 220,112 tonnes) from deflating the annual abundance signal.

Incorporation of Uncertainty into JJM

Observation and process errors are incorporated through data input preparation, ensuring consistency with the likelihood structure in jjm.tpl:

Data File Formatting: In jjm.tpl, input standard errors are converted to log-scale standard errors via obs_lse_ind = sqrt(log(square(obs_se_ind / obs_ind) + 1.)). To ensure the model calculates the correct variance, obs_se_ind must be entered in the .dat file as the arithmetic standard error ($\text{obs\_ind}_t \times CV_t$), not the raw CV.

Process Error Combination: Because INLA posterior standard errors reflect only estimation variance ($CV \approx 0.10 - 0.15$), additional process error ($CV_{\text{add}} \approx 0.10 - 0.20$) is combined externally:

$$CV_{\text{total},t} = \sqrt{CV_{\text{INLA},t}^2 + CV_{\text{add}}^2} \quad \text{obs\_se\_ind}(t) = \text{obs\_ind}(t) \times CV_{\text{total},t}$$

This weighting prevents the commercial CPUE index from dominating fishery-independent acoustic surveys (such as the 2025 acoustic estimate of 3,059,591 tonnes).

Implementation of Hyperstability in Assessment and MSE

Non-linear catchability dynamics can be addressed utilizing existing control file capabilities and simulation frameworks:

JJM Stock Assessment Sensitivity Testing: The assessment model natively supports non-linear power catchability ($\hat{I} = q \cdot (B^{\text{vuln}})^{\beta}$) via q_power_ind. Rather than estimating β internally—which creates strong parameter collinearity with $\log(q)$—hyperstability is evaluated via a fixed sensitivity trial in the .ctl file:

Set phase_q_power = -1.

Set q_power_prior = 0.80.

Set cvq_power_prior = 0.20.

This evaluates the sensitivity of biomass and depletion trajectories to potential hyperstability without compromising estimation stability.

Management Strategy Evaluation: In the Jack mackerel MSE, Operating Models incorporate non-linear observation models and lognormal observation errors scaled to CV_{total}. These scenarios test whether the SPRFMO harvest control rule, catch stabilization bounds, and Banking & Borrowing mechanisms maintain biomass above B_{MSY} when commercial catch rates respond hyperstably to changes in stock abundance.

3.2.Squid

Summary: The jumbo squid (Dosidicus gigas) fishery in Chile continues to operate under the regulatory framework established by Law No. 21.134, which since 2020 has allowed directed fishing for jumbo squid exclusively using jigging gear or handline. Catches were taken within Chile's Exclusive Economic Zone (EEZ), with the fishery conducted primarily by the artisanal fleet, while the industrial fleet caught the species only as bycatch. During 2025, a global catch quota was set at 200,000 tons, without allocation between the artisanal and industrial sectors.

Fishing activity followed the pattern observed in previous years, with catches concentrated during the first half of the year and a marked decline in the second half. The fishery also continued to develop mainly between the Coquimbo and Biobío regions, with no incidental catch of marine mammals, seabirds, or turtles recorded.

Indicators for the artisanal fleet show relatively stable fishing effort over the recent period, while CPUE has shown an overall declining trend compared with the early years of the series. Regarding size structure, the catch continued to be dominated by individuals above the reference size at sexual maturity, with a mode of approximately 70 cm mantle length (ML) in 2025.

Fishery monitoring was carried out by the Chilean Fisheries Development Institute (IFOP) through biological and fishery monitoring programs, providing the background information necessary for

4. China

Summary: In 2025, a total of 576 Chinese squid jigging vessels operated in the SPRFMO Convention Area, harvesting 484,700 tons of jumbo flying squid. The number of active vessels fluctuated monthly, ranging from a low of 297 in August to a peak of 503 in December, with total fishing efforts reaching 111,151 days and an average catch rate of 4.4 tons per day. During the 2025-2026 and 2026-2027 fishing seasons, an observer program was implemented, deploying 14 observers. In 2025 alone, 14 observers served onboard, with 12 having completed their assignments and returned to port by July 2026, while the remaining 2 continued their work at sea. The returned observers monitored 1,960 fishing days, and 47 transshipment activities, measured over 100,000 squid specimens.

Question 1 by the United States: The report gives two different values for the number of fishing days monitored by observers. Please clarify whether 1960 or 2081 fishing days were monitored by observers (noting that these translate to 1.76% or 1.87% coverage, respectively).

Answer from China: In 2025, a total of 14 observers served onboard and monitored 2,081 fishing days. Of these 14 observers, 12 completed their assignments and returned to port by July 2026 and monitored 1,960 fishing days in 2025. At the time of preparation of the national report, the other two observers were still deployed at sea carrying out observer missions and their observer data were not available for submission. However, they monitored a total of 121 fishing days in 2025. The total coverage rate was 1.87% in 2025.

5. Cook Islands

Summary: The annual report of the Cook Islands is presented in Document SC14-Doc20. The Cook Islands vessel, due to a change in vessel and a required vessel refit, the Cook Islands vessel was only able to complete one trip in 2025. The vessel primarily targeted deepsea golden crabs (*Chaceon* sp.) and hapuka (*Polyprion oxygeneios*), some sets targeting lobsters (*Jasus caveorum*) were also made. The vessel is fishing under both CMM 14d and CMM 14g, the operations are overseen by two observers onboard the vessel and the vessel is monitored using VMS.

The observers collect size frequency data as well as sex, maturity and shell state data from all *J. caveorum* and *Chaceon* sp. For *P. oxygeneios* the observers collect otoliths, length and sex information. In addition, genetic samples from *J. caveorum* and *P. oxygeneios* are being collected for the evaluation of stock structure and to assess links between our two different fishing areas as well as between seamounts. The Cook Islands has recently built our own fish ageing laboratory and, as part of our capacity development work, we will be undertaking our own analysis in-house and not outsourcing the work. The observers also collect catch and effort information as well as monitor VME indicator taxa interactions. We also have protocols in place to minimising interactions with marine mammals, reptiles and seabirds.

In our single trip, hapuka was the dominant species by both weight and number, comprising 97.2% of total retained weight (13,996.5 kg) and 91.7% of total fish retained (986 fish). Trumpeter (*Latris lineata*) was the second most abundant species by weight (171.5 kg; 1.2%), followed by spiny dogfish (*Squalus* sp.); 137.5 kg; 1.0%).

In the trap fishery crabs were the primary target and 21381.63kg were landed. Catch and biological sampling of *Chaceon* crabs in 2025 indicated a stable population with no evidence of

decline in size structure across the exploratory fishery to date. The majority of crabs landed were in the 12-14 cm carapace width range, with most individuals exceeding the estimated 50% maturity threshold of approximately 10cm. Reproductive data suggests a winter spawning period, supported by both berry state and shell state observations, though a sampling gap from July to October, coinciding with the lobster fishery closure, limits the completeness of seasonal biological information.

Fishing effort directed at crabs with only minor bycatch including prawns, gastropods, teleosts, and a small number of VME indicator taxa, predominantly octocorals.

Crab CPUE was low but consistent with previous trips and slightly elevated in trip 8, likely reflecting the targeted nature of this trip's fishing strategy rather than a change in population abundance. Trap fullness data indicates that saturation was not a significant factor, and the overall consistency of CPUE across trips suggests that current fishing effort levels are not producing a detectable stock response.

6. Cuba

Summary: Cuba reported no vessels fishing in the SPRFMO Convention Area in 2025 and therefore no fishing, research, or management data to report.

7. European Union

Summary: This report presents the European Union (EU) fishing activity in 2025 in the South Pacific Regional Fisheries Management Organization (SPRFMO) Convention area and the observer program implementation in 2025. The data on catches of Jack mackerel (*Trachurus murphyi*) by three EU trawlers in 2025 covers the period from June to December. Total catch in 2025 was 32 856 (29 635 CJM) tonnes. Three scientific observers were deployed on two EU fishing vessels in the period from July till December 2025.

A short section on the Pelagic Freezer-trawler Association (PFA) self-sampling program has been included in the report, demonstrating the main results of the self-sampling activities that cover all trips by EU vessels in the area. A PFA self-sampling report has been submitted to the SPRFMO SC, in which a description is presented of the fisheries carried out by vessels belonging to members of the PFA within the SPRFMO area from 2017 to 2025. In 2025 three EU vessels have been active in the SPRFMO convention area. In 2025, 9 PFA trips were self-sampled.

During the Jack mackerel Benchmark Working Group (SCW14) it was decided to develop a protocol for inclusion of self-sampling data for the EU fleet for those quarters where no observer trips were carried out. This document describes that protocol and the selection of quarters for which the self-sampling data will be used. For SC12 It is proposed to only use the self-sampling data from 2021 and onwards and only for quarters for which no observer data is present. For 2025 there are samples for two of the quarters when there was active fisheries in the SPRFMO Convention area. It is therefore proposed to use the self-sampling data for the second quarter of 2025.

Exploratory fishing for toothfish has continued to be undertaken by the Spanish vessel Tronio in 2025 in accordance with CMM14e-2024. In this campaign, effort was split across two research blocks: Block A, where all previous fishing (2021-2023) had taken place, and Block B, a previously unexplored section of the research block. In 2025 the TAC of 129t in Block A and 33t in Block B was nearly reached after approximately five weeks of fishing. A detailed survey report of the second year's exploratory fishing, together with an updated stock assessment integrating data from all campaigns between 2021 and 2025, is submitted to the SC.

Question 1 by the United States: We noticed that the observer sample size for age composition on page 10 is quite low considering that it should be a representative sample by trip, quarter, and fishing area. Each of these strata alone would likely require several hundred samples to be representative. Has the EU considered increasing the sample size?

Answer by the EU: The sample size of the otolith collections will be evaluated, and the sampling will be adapted accordingly in coordination with the EU regional coordination groups and our onboard observers.

8. Faroe Islands

Summary: The Faroe Islands had no vessels fishing in the SPRFMO Convention Area in 2025 and therefore no fishing, research, or management data to report. The entire 15,853-tonne *Trachurus murphyi* quota was transferred to Chile.

9. Korea

Summary: This presents the Republic of Korea's fishing activities and observer implementation in the SPRFMO Convention Area during the 2025 fishing season. Following the resumption of Korean trawl operations in 2024 after a multi-year absence (2020-2023), one pelagic trawl vessel continued fishing operations in the Convention Area in 2025, targeting jack mackerel (Trachurus murphyi). Total catch in 2025 was 112 (95 CJM) tonnes. No Korean jigging vessel operated in the Convention Area in 2025. In addition, exploratory bottom longline fishing for toothfish, initiated in 2025 under CMM14h-2025, took place during the two years is reported separately in a dedicated progress report.

10. New Zealand

Summary: In 2025, New Zealand had eight vessels permitted to fish in the SPRFMO Convention Area, of which three actively fished. Active bottom fishing comprised of one orange roughy trawl vessel that fished on the Westpac Bank, one exploratory toothfish fishery bottom longline vessel, and one other bottom longline vessel that fished on the West Norfolk Ridge.

Total reported catches in 2025 were 181 t of orange roughy landings, 51 t of other species, and 6.1 t from the exploratory toothfish fishery. Orange roughy catches were taken entirely from Westpac Bank. Commercial bottom trawl effort consisted of 17 trawl tows by one vessel, non-exploratory bottom longline fishing involved one vessel undertaking three trips to the West Norfolk Ridge and setting approximately 48,000 hooks, resulting in 50 t of catch.

For the exploratory toothfish fishery, one vessel completed a single exploratory trip, deploying 50,600 hooks and catching 6.1 t in total, comprising 0.1 t Antarctic toothfish, 1.1 t Patagonian toothfish, and small quantities of other species.

Trawl fisheries achieved 100% observer coverage. Bottom longline fisheries achieved 55% coverage, with 17 of 31 fishing days observed. Observers monitored both trawl trips and two bottom longline trips (including the exploratory trip).

Protected species interactions were low during 2025. No interactions with marine mammals, reptiles, or other species of concern were reported. One black petrel (*Procellaria parkinsoni*) interaction was observed in the bottom longline fishery on the West Norfolk Ridge. The bird was released alive and was observed flying away after release. Observers reported that all required seabird mitigation measures were being followed during the trip.

11. Panama

Summary: For the 2025 reporting period, Panama reaffirms its full compliance with all SPRFMO Conservation and Management Measures (CMMs). As in previous years, no fishing activities targeting SPRFMO-regulated species were conducted within the Convention Area. Panama's participation was limited to authorized logistical operations, including transshipments, port landings, and provision of fuel and supplies, in accordance with applicable regulations.

12. Peru

12.1. SPRFMO Area

Summary: As of June 2026, there are 1148 Peruvian vessels authorized and registered in the Commission record of vessels authorized to fish within the SPRFMO Convention area. From January 2025 to June 2026, a total of 4939.85 tonnes of *Trachurus murphyi* and 624.94 tonnes of *Scomber japonicus* were reported. Regarding Dosidicus gigas, a total of 408.70 tonnes were reported for 2025, but there were no reported catches during the first half of 2026. The research activities in the SPRFMO area, monitored by a Peruvian onboard observer program, provided reliable information on fishing effort, catch volumes, species composition of the catches, fishing areas, and distribution of the target species. No registers of top predators bycatch (seabirds, marine mammals, and sea turtles) were reported in any observation during the fishing activities from January 2025 to June 2026.

12.2. ANJ

Summary: The Peruvian marine environment is characterized by its high productivity and variability. It is particularly exposed to the effects of the opposed significantly warm (El Niño) and cold (La Niña) climatic patterns in the Pacific Ocean that alternate with relatively short periods of close to neutral conditions. Between 2013 and the first part of 2018, these changing environmental conditions caused a more dispersed distribution, reduced availability, lower

abundance indexes, and consequently lower catches of Jack mackerel. This has been followed by an expanded distribution in denser concentrations farther offshore, much higher abundance indexes, increased availability to the industrial and artisanal purse seine fleet, and higher catches of Jack mackerel from the second half of 2018 to 2022. In 2023, a Coastal Niño event was registered along the Peruvian coast, which led to a concentration of Jack mackerel south of the Peruvian coast, making this resource more accessible. In 2024, the catches initially decreased for an initial dispersion of Jack mackerel schools; but when the environmental conditions cooled, Jack mackerel concentrated again south of the coast. During 2025, oceanographic conditions were generally characterized by the seasonal cycle, near-normal sea surface temperature (SST) anomalies, and relatively stable salinity. From February 2026 onward, SST increased progressively, and warmer waters expanded shoreward, generating positive temperature anomalies of up to +2 °C. These anomalies intensified from May onward, primarily within 100 nautical miles (nm) of the coast, accompanied by a marked shoreward displacement of the Subtropical Surface Waters. Between January 2025 and June 2026, the fishery targeted a wide range of sizes, with the highest proportions of juveniles in October 2025 (93%) and November 2025 (87%); during the first half of 2026, the highest proportion of juveniles in the fishery occurred in February (52%) and June (54%). The research surveys in 2025 and 2026 also found younger and smaller juveniles. In late December 2025, IMARPE (Instituto del Mar del Perú) updated the available 2025 Jack mackerel assessment made for the Peruvian (far-north) stock with the JJM model using the configuration agreed during the 13th meeting of the Scientific Committee (SC13). This resulted in a range of options for setting the 2026 TAC that was included in its advice to the Government, recommending three scenarios: (i) the corresponding to approximately 80% of the catch associated with the fishing mortality at maximum sustainable yield (TAC = 175 000 tons, the precautionary scenario), (ii) the corresponding to approximately 90% of the catch associated with the fishing mortality at maximum sustainable yield (TAC = 195 000 tons) and, (iii) the catch corresponding to the catch associated with the fishing mortality at maximum sustainable yield (TAC = 216 000 tons). Based on this advice, in December 2025, PRODUCE established a regulatory measure for the Jack mackerel (*Trachurus murphyi*) to be caught in Peruvian jurisdictional waters. For the large-scale or industrial fleet with a hold capacity greater than 32.6 m3, the catch limit was set at 88 317 tons. For the artisanal fishing vessels and purse seine vessels with a hold capacity of less than 32.6 m3, the total limit was established at 86 683 tons, of which 34 427 tons were allocated for the January-April 2026 fishing period. Subsequently, the catch limit for the artisanal fleet for the same period was modified at 91 000 tons. For the May–August 2026 fishing period, an additional catch limit of 45 659 tonnes was established, increasing the allocation for artisanal fishing vessels using passive fishing gear (gillnets) and purse seine vessels with a hold capacity of less than 32.6 m³. An updated assessment with the JJM model has been made by IMARPE based on the most recent information and data available up to June 2026. The recent observations and assessments confirm the increasing trend in the biomass estimates observed from 2016, nevertheless, the model projection for 2026 shows a decrease in its trend. Despite this, the Peruvian Jack mackerel stock is in an overall healthy situation based on the reference points.

13. Russian Federation

Summary: The Russian fleet did not fish in the SPRFMO Area in 2025. The report presents information on the Russian Federation's (RF) nil fishing activities in 2025 within the South Pacific Regional Fisheries Management Organization (SPRFMO) Area.

14. Chinese Taipei

Summary: Jumbo flying squid is widely distributed throughout the eastern Pacific Ocean. Chinese Taipei's squid jigging fleet has targeted this species since 2002; however, the fishery was temporarily suspended from 2022 to 2024. During the 2025 fishing season, a single squid jigging vessel operated in the SPRFMO Convention Area, landing a total catch of 267 tons. The major fishing grounds were located between 15°–20°S and 74°–81°W. Observer coverage reached 82.7% of fishing days.

15. United States

Summary: The United States currently has no vessels participating in the fisheries managed by SPRFMO.As such, the United States has no data or information to provide regarding U.S. fisheries operating under SPRFMO jurisdiction in 2025 or 2026. Similarly, the United States has no information to provide regarding 1) catches, effort, and CPUE summaries; 2) fisheries data collection and research activities; 3) biological sampling and length/age composition of catches; 4) ecosystem approach considerations; and 5) observer implementation reports for fishing activities under SPRFMO jurisdiction.

The United States has a continuing interest in the fisheries managed by SPRFMO and may have vessels that enter these fisheries in the future. If U.S.-flagged vessels enter SPRFMO-managed fisheries, the United States would provide the Commission with all relevant data and information and abide by all relevant measures adopted.

16. Vanuatu

Summary: Vanuatu had no active fishing vessels in the Convention Area in 2025 and did not carry out any research activity.

17. Liberia (late paper)

Summary: Liberia had no active fishing vessels in the Convention Area in 2025 and did not carry out any research activity.

18. Curacao

Summary: Curacao had no active fishing vessels in the Convention Area in 2025 and did not carry out any research activity.

SC14 Meeting Report
Annex 7: Scientific Committee Multi Annual Work Plan

Summary

This paper submits to the meeting the current SPRFMO Scientific Committee (SC) Multiannual Workplan, as adopted by the 14th annual meeting of the Commission in March 2026. It sets out the next agreed programme of scientific work to be undertaken by the Scientific Committee, its Working Groups, and associated groups over a rolling three-year planning period. It identifies the principal scientific activities, their expected timing, the Members or bodies coordinating the work, and any associated resourcing requirements. The workplan provides a common framework for coordinating intersessional scientific work and for identifying the resources required to support the Committee's programme. It will be reviewed at the annual Scientific Committee meeting in September 2026 and updated as necessary for consideration and approval by the 15th Commission in March 2027.

How the workplan is developed and updated

The workplan operates as a rolling three-year plan. Each year, the Scientific Committee reviews the current workplan during its annual meeting and considers any changes required in light of implementation progress, and new scientific needs and priorities identified by the Committee or the Commission.

As part of this annual review, activities may be maintained, removed, rescheduled, amended or added as appropriate. The SC then submits the updated workplan, as part of its report, to the next Commission meeting for consideration (in the January–March period of the following year). The Commission may amend the workplan, including its funding, before adopting it. Once adopted by the Commission, the workplan provides the framework for the SC's intersessional work until the next annual review.

Where activities require funding, this is detailed in the plan. Activities are funded from the Organisation’s budget and/or voluntary contributions of Members or Observers. Budgetary costs are included in the draft annual budget that is developed by the Executive Secretary for the next financial year (1 July 2027–30 June 2028) to be considered by the next Finance and Administration Committee (FAC) and subsequent adoption by the Commission.

The workplan presented to SC14 (as SC14-Doc05) is the version adopted by the Commission at its 14th Annual Meeting (Ref: COMM14 Report-Annex 4a) in March 2026. During SC14 in September 2026, the Scientific Committee reviewed progress and considered any updates required for the next planning period. The current workplan in this document will be submitted to the 15th Commission in March 2027 for consideration and adoption.

How to read the workplan

The tables that follow organise activities by Working Group and cross-cutting area and identify, where applicable:

- Activity: the scientific task or work to be undertaken.
- Coordinator: the Member delegation(s), SC body, Chairperson or Secretariat responsible for coordinating progress on the activity. Where no coordinator is identified, responsibility rests with the SC collectively.
- Year: for the purposes of the workplan, a year represents the financial year.
- Funding: the anticipated funding requirement for the activity in each year and the funding source, i.e., Organisation budget or voluntary contributions. “In-kind” indicates that the work is expected to be undertaken by Members or other identified contributors without additional funding from the Commission; “N/A” indicates that no funding requirement is identified for that year. The funding corresponds to that financial year.
- Multi-year activities: activities shown across more than one year are expected to continue over multiple intersessional periods and are reviewed as part of the SC's annual workplan review.

1. Jack Mackerel Working Group

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
1.1 Jack Mackerel assessment								
1.1.1	Review available input data and its quality for the JM assessment	Secretariat	JMWG	SC15 SC16 SC17	In-kind	In-kind	In-kind	• Standing item
1.1.2	Provide TAC advice according to Commission request	SC	N/A	SC15 SC16 SC17	In-kind	In-kind	In-kind	• Standing item
1.1.3	Expert support during SC assessment	SC Chair	Secretariat	SC15 SC16 SC17	$16,000	$17,000	$18,000	• Standing item • Invited expert • Funding from SSF
1.1.4	Continue to update and compare standardizations of commercial tuning indices among different fleets and the impacts of increased efficiency in the fleets	JMWG Chair	CHL EU PER	SC15 SC16 SC17	In-kind	In-kind	In-kind	• Standing item
1.1.5	Workshop to review CPUE and abundance indices for JM – TORs to be developed for COMM15	JMWG Chair	JMWG	SC15 (2027)	$30,000	N/A	N/A	• Workshop (in-person) before the independent review (1.1.6)
1.1.6	Full independent external review of the JM assessments – TORs to be developed for COMM15	JMWG Chair	JMWG	SC15 (2027)	$60,000	N/A	N/A	• Workshop (5 days) • Invited experts (x2)
1.1.7	Benchmark workshop to review the data and configuration of the Jack Mackerel stock assessment model, pending results from 1.1.6 – TORs to be developed for COMM15	JMWG Chair	JMWG	SC16 (2028)	N/A	$60,000	N/A	• Workshop (tbd)
1.2 Jack Mackerel MSE								
1.2.1	Plan developed for JM MSE review	JMWG Chair	JMWG	SC15 (2027)	In-kind	N/A	N/A	
1.2.2	Second MSE workshop to agree an exceptional circumstances protocol for the HCR approved by COMM14, and to review advances in the implementation of model-based MSE	JMWG Chair	JMWG	TBD COMM15 decision	$30,000	N/A	N/A	• Workshop (5 days)

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
1.3 Jack Mackerel Ageing Techniques								
1.3.1	Workshop to evaluate methodologies for implementation in age readings in otoliths of jack mackerel (*T. murphyi*) among the age and growth laboratories of the SPRFMO – TORs to be developed for review at SC15	JMWG Chair	JMWG	SC16 (2028)	N/A	$30,000	N/A	• Workshop (tbd)
1.4 Chub Mackerel								
1.4.1	To discuss feasibility of a chub mackerel stock assessment	JMWG Chair	JWMG	SC15 (2027)	In-kind	In-kind	In-kind	

2. Deepwater Working Group

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
2.1 Orange roughy stock status								
2.1.1	Estimate stock status and provide advice	NZL	AUS	SC16 (2028)	In-kind	In-kind	In-kind	• CMM 3a-2026 requires new orange roughy TACs for 2029+
2.2 Deepwater stock structure								
2.2.1	Investigate the stock structure of orange roughy on the Westpac Bank and adjacent New Zealand EEZ	NZL	COK	SC16 (2028)	In-kind	In-kind	In-kind	• NZL contact: Alexander Arkhipkin

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
2.3 Other stock assessments and ecological risk assessments								
2.3.1	Review the risk assessment of teleost and elasmobranch species considering new available information and methods	AUS		SC18 (2030)	N/A	N/A	N/A	• AUS contact: Trent Timmiss
2.3.2	Assess other assessment options for hapuku and blue eye trevalla including standardised CPUE	AUS		SC15 (2027)	In-kind	In-kind	N/A	• AUS contact: Trent Timmiss
2.3.3	Refine species list for chondrichthyans in SPRFMO area and review the suitability of distribution data	AUS	NZL	SC15 (2027) or SC16 (2028)	N/A	In-kind	In-kind	• AUS contact: Trent Timmiss
2.4 VME encounters and benthic bycatch								
2.4.1	Develop an ID guide for benthic bycatch (including VME indicator taxa), following the steps proposed in SC9-DW12, and associated training videos	NZL		SC15 (2027)	In-kind	In-kind	In-kind	• NZL contact: Jordi Tablada
2.4.2	Evaluate the performance of the spatial management measures	NZL	AUS	SC16 (2028)	In-kind	In-kind	In-kind	• Relies on the abundance models in 2.5.2 • NZL contact: Alexander Arkhipkin
2.4.3	Improve the particle tracking model used in the validation of the bioregionalization and investigate connectivity amongst geographically separated areas of the same bioregion	NZL		SC15 (2027)	In-kind	In-kind	N/A	
2.4.4	Develop a standard to identify a VME eligible to be listed in Annex 9 of CMM 03	NZL	AUS	SC16 (2028)	In-kind	In-kind	N/A	• NZL contact: Alexander Arkhipkin
2.5 Bottom Fishery Impact Assessment								
2.5.1	The SC shall review, and update if required, the SPRFMO BFIAS every 5 years, to ensure that it reflects, as appropriate, best practice	DWWG		SC18 (2030)	N/A	N/A	N/A	• Standing item
2.5.2	Improve and validate abundance models for VME taxa, using independent data	NZL		SC15 (2027)	In-kind	In-kind	N/A	

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
2.5.3	Update cumulative BFIAS	NZL	AUS	SC15 (2027)	In-kind	In-kind	In-kind	• Standing item • NZL contact: Alexander Arkhipkin • AUS contact: Trent Timmiss
2.5.4	Derive an SAI threshold from an empirical study tailored to the dRBS approach	NZL		SC17 (2029)	In-kind $46,000	In-kind	In-kind	• $46,000 from the EU grant (Work Package 4) • NZL contact: Jordi Tablada
2.6 CMM 03 request regarding encounters with VMEs								
2.6.1	Developing a multi-spatial scale risk-based approach to assess encounters with VME indicator taxa	NZL		SC17 (2029)	In-kind	In-kind	In-kind	• NZL contact: Alexander Arkhipkin
2.6.2	Review all reported VME encounters	NZL		-	In-kind	As needed	As needed	• NZL contact: Alexander Arkhipkin
2.7 CMM 03 request regarding ongoing appropriateness								
2.7.1	Review all available data and provide advice on the ongoing appropriateness of the management measures to ensure the CMM continues to achieve its objective and the objectives of the Convention	DWWG		-	In-kind	In-kind	In-kind	• Seeking clarification from COMM15 if this work is a priority
2.8 CMM 03 request regarding marine mammals, seabirds, reptiles, and other species of concern								
2.8.1	Direct and indirect interactions between bottom fishing and marine mammals, seabirds, reptiles and other species of concern	AUS NZL		SC16 (2028)	In-kind	-	In-kind	• AUS contact: Trent Timmiss • NZL contact: Alexander Arkhipkin

3. Squid Working Group

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
3.1 Squid assessment								
3.1.1	Form a task team to conduct simulation and model evaluations for squid stock assessments	SC Chair	ASTT	SC15 (2027)	In-kind	N/A	N/A	
3.1.2	Squid workshop including potential assessment techniques, abundance indices simulated assessment and MSE road map development	SQWG Chair	SQWG	SC15 (2027)	$50,000	N/A	N/A	• Workshop (in person, 7 days, tbd May 2027) • $50,000 from SSF • Invited expert (x1)
3.1.3	Develop a template for biological data, including time, location, length, weight and maturity stage	SQWG Chair	SQWG	SC15 (2027)	In-kind	N/A	N/A	
3.1.4	Protocol for data submission and template management	Secretariat	SQWG	SC15 (2027)	In-kind	N/A	N/A	
3.1.5	Review available input data and its quality for stock assessment	Secretariat	SQWG	SC15 SC16 SC17	In-kind	In-kind	In-kind	• Standing item
3.1.6	Perform a stock assessment to evaluate the status of the jumbo squid	SQWG Chair	SQWG	SC15 SC16 SC17	In-kind	In-kind	In-kind	• Standing item
3.1.7	Develop an Operating Model to support MSE and other simulation work, including support for multiple phenotypes	SQWG Chair	CHL CHN	SC15 (2027)	In-kind	N/A	N/A	
3.1.8	Extend the Operating Model to explicitly incorporate environmental effects on population dynamics, enabling research on climate change impacts	SQWG Chair	SQWG	SC16 (2028)	In-kind	In-kind	N/A	
3.1.9	Expert support for intersessional work and the SC assessment (including attendance to the SC)	SC Chair	Secretariat	SC15 SC16 SC17	$75,000	$78,000	$82,000	• Standing item • Technical consultant

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
3.2 Squid CMM development								
3.2.1	Develop a plan for more detailed within-season fishery monitoring	SQWG Chair	SQWG	SC17 (2029)	In-kind	In-kind	In-kind	
3.2.2	Explore and develop alternative approaches to provide management advice if a stock assessment cannot be completed or is not suitable for management purposes	SQWG Chair	SQWG	SC16 (2028)	In-kind	In-kind	In-kind	
3.3 Squid connectivity								
3.3.1	Collect samples for population genomic studies (Convention Area and adjacent National Jurisdiction Areas)	SQWG Chair	SQWG	SC15 (2027)	In-kind	In-kind	In-kind	
3.3.2	DNA Sequencing using IcWGS, for population genomics analysis	SQWG Chair	CHN	2027	In-kind	In-kind	In-kind	
3.3.3	Review the DNA extraction protocols and analysis pipelines to lcWGC in an online workshop	SQWG Chair	PER	SC15 (2027)	In-kind	In-kind	In-kind	• Workshop (online, March/May 2027 tbd)
3.3.4	Provide a report with a phylogeographic analysis using the complete mitochondrial genome obtained from the lcWGS short reads, integrating data from all Members and include a review of the existing protocols	SQWG Chair	CHN	SC16 (2028)	In-kind	In-kind	In-kind	
3.4 Squid MSE								
3.4.1	Develop a staged roadmap for the Squid MSE, identifying the main technical and management components, respective roles, decision points and expected outputs	SQWG Chair	SQWG	SC15 (2027)	In-kind	In-kind	In-kind	
3.4.2	Facilitate dialogue with the Commission, managers and relevant stakeholders to identify management objectives, operational constraints, priority trade-offs and other considerations to guide the MSE	SQWG Chair	SQWG	SC16 (2028)	In-kind	In-kind	In-kind	

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
3.4.3	Develop the technical specifications for the Squid MSE, including operating-model scenarios, data and implementation assumptions, performance metrics and criteria for evaluating candidate management procedures	SQWG Chair	SQWG	SC16 (2028)	In-kind	In-kind	In-kind	
3.4.4	Design annual harvest control rules or other management procedures compatible with the SPRFMO management cycle, including climate-aware alternatives	SQWG Chair	SQWG	SC17 (2029)	In-kind	In-kind	In-kind	
3.4.5	Evaluate the performance of candidate management procedures through MSE to determine their robustness to biological, fishery, data and environmental uncertainty	SQWG Chair	SQWG	SC17 (2029)	In-kind	In-kind	In-kind	
3.4.6	Present preliminary MSE results and management trade-offs to the Commission, managers and relevant stakeholders, and use the feedback to refine the MSE framework and candidate management procedures	SQWG Chair	SQWG	SC18 (2030)	In-kind	In-kind	In-kind	

4. Ecosystems Working Group

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
4.1 Species distribution and preferences								
4.1.1	Analyse the habitat preferences of jack mackerel to identify environment-related changes in their distribution and abundance	CHL	CHL PER	SC15 (2027)	In-kind	In-kind	In-kind	
4.1.2	Second technical workshop to implement and evaluate regional species distribution models (SDMs) for priority species, using harmonised datasets and workflows, and advance applications under climate change scenarios	EWG Chair	EWG	SC15 (2027)	$30,000	N/A	N/A	• Workshop (in person, 5 days) • Invited expert (x1) • CHL VC for $24,000 • $6,000 from SSF
4.1.3	Explore the implications of potential spatial and temporal shifts in species distributions for management measures under climate change scenarios	EWG Chair	EWG	SC16 (2028)	In-kind	In-kind	In-kind	
4.1.4	Analyse behaviour, distribution, and abundance information about mesopelagic, euphausiids and other key species of the Humboldt Current System	CHL PER	CHL PER	SC15 (2027)	In-kind	In-kind	In-kind	
4.1.5	Analyse the habitat preferences of jumbo squid to identify environment-related changes in their distribution and abundance	EWG Chair	CHL PER CHN	SC15 (2027)	In-kind	In-kind	In-kind	
4.2 Standardised data products and modelling								
4.2.1	In collaboration with the Data Working Group, advance the harmonisation and interoperability of ecosystem-related datasets provided by Members, including their linkage to a common metadata repository	EWG Chair	EWG DWG	SC15 (2027)	In-kind	N/A	N/A	

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
4.3 Ecosystem assessment								
4.3.1	Develop and progressively expand the Ecosystem Status Report (ESR) to provide the Scientific Committee with an integrated assessment of ecosystem conditions and variability across the Southeast Pacific, including the SPRFMO Convention Area and adjacent EEZs	EWG Chair	EWG	SC15 (2027)	In-kind	In-kind	In-kind	
4.3.2	Strengthen collaboration between the EWG and other Scientific Committee Working Groups to identify and progressively develop ecosystem-related indicators, analyses and research activities relevant to their work	EWG Chair	EWG	SC16 (2028)	In-kind	In-kind	In-kind	
4.3.3	Explore ecosystem indicators and metrics that could support the progressive implementation of ecosystem-based fisheries management within SPRFMO, including their potential application to priority fisheries and management questions	EWG Chair	EWG	SC16 (2028)	In-kind	In-kind	In-kind	
4.4 Data collection from fishing vessels								
4.4.1	Evaluate the requirements and limitations for integrating existing acoustic survey data across areas into regional indicators of jack mackerel distribution and relative abundance	CHL	CHL PER	SC15 (2027)	In-kind	N/A	N/A	• Online workshop
4.4.2	Advance the integration of acoustic information collected from fishing vessels across areas to support regional indicators of jack mackerel distribution and relative abundance	CHL	CHL PER	SC15 SC16 SC17	In-kind	In-kind	In-kind	
4.4.3	Explore methodological approaches for combining acoustic information from scientific surveys and fishing vessels to improve the regional spatial and temporal characterization of jack mackerel distribution and relative abundance	EWG Chair	CHL PER	SC15 (2027)	In-kind	In-kind	In-kind	

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
4.4.4	Develop acoustic monitoring approaches using fishing vessels to derive spatial indicators of zooplankton distribution and relative abundance	CHL	CHL PER	SC15 (2027)	In-kind	In-kind	In-kind	• CHL contact: Nicolas Alegría
4.5 Jack Mackerel connectivity								
4.5.1	Define the practical sampling and technical requirements for progressing work on the priority jack mackerel connectivity topics identified by the Workshop (genetics, tagging, early life stages and reproduction)	CHL PER	N/A	SC15 (2027)	$12,500	N/A	N/A	• SSF funding source
4.5.2	Identify feasible opportunities to incorporate connectivity-related sampling into existing national surveys, monitoring programmes and fishing operations, and develop options for subsequent small-scale implementation	CHL PER	N/A	SC16 (2028)	$12,500	N/A	N/A	• SSF funding source

5. Data

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
5.1 Data								
5.1.1	Prioritise data needs for SC research and reporting to the Data Working Group	SC Chair	SC	SC15 (2027)	In-kind	In-kind	In-kind	

6. Other (cross-cutting issues)

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
6.1 Climate change								
6.1.1	Identify management implications of climate change on habitat and fisheries in the SPRFMO area (Decision 13-2023)							
6.1.2	Develop climate-change scenarios for use in stock assessment, operating models and MSE, in collaboration with the JMWG and SQWG							
6.2 Research in the Salas y Gomez and Nazca ridges area								
6.2.1	Provide a spatial analysis of the magnitude of the bentho-pelagic coupling across the Salas y Gomez and Nazca ridges area	CHL	N/A	SC15 (2027)	In-kind	In-kind	N/A	• CHL contact: Carlos Gaymer
6.2.2	Evaluate the existence of a causal nexus between pelagic fishing activities and the integrity of bottom ecosystems across the Salas y Gomez and Nazca ridges area	PER	N/A	SC15 (2027)	In-kind	N/A	N/A	• PER contact: Maritza Saldariagga
6.2.3	Review and discuss all compiled data and information and present possible measures to SC	SGNTT Coordinator	N/A	SC15 (2027)	In-kind	In-kind	In-kind	• Standing item
6.2.4	Provide a spatial analysis of marine mammal distribution across the Salas y Gomez and Nazca ridges area	CHL	N/A	SC15 (2027)	In-kind	In-kind	N/A	• CHL contact: Carlos Gaymer
6.3 Seabird bycatch								
6.3.1	Compile and characterise existing data relevant to seabird interactions with squid jigs and recommend future data collection protocols	NZL	CHN CT KOR ACAP	SC15 (2027)	In-kind	In-kind	In-kind	• NZL contact: Simon Lamping • Coordinate with SGNTT
6.3.2	Conduct trials on purse seine mitigation technologies, taking into account those described in	CHL	N/A	SC15 (2027)	In-kind	N/A	N/A	

Code	Activity	Lead	Participant	SC Reporting	Funding by Financial Year (NZ $)			Planning
					2027-28	2028-29	2029-30	
	the ACAP toolbox, and report on the outcomes of these trials including seabird bycatch rates							
6.3.3	Summarise and characterise seabird bycatch-related data held by the Secretariat and to work with interested Members and ACAP to identify any future potential improvements to data collection and reporting processes	Secretariat	NZL	SC15 (2027)	In-kind	In-kind	In-kind	• NZL contact: Simon Lamping
6.4 CMM 17 Marine Pollution								
6.4.1	Research marine pollution related to fisheries in the SPRFMO Convention Area to further develop and refine measures to reduce marine pollution and are encouraged to submit to the SC and the CTC any information derived from such efforts	SPRFMO Members and CNCPs	N/A	SC16 (2028)	In-kind	In-kind	N/A	• Standing item
6.5 Cooperation								
6.5.1	Continue engaging with the FAO, including through relevant projects such as the ABNJ Deep Sea Fisheries project	Secretariat	SC	SC16 (2028)	In-kind	In-kind	In-kind	
6.5.2	Continue to cooperate and collaborate with CPPS through the SPRFMO-CPPS MOU	Secretariat	SC	SC16 (2028)	In-kind	In-kind	In-kind	
6.5.3	Explore opportunities for cooperation and collaboration on science work under existing MOUs (e.g., on climate change, ecosystem approach to fisheries, etc.)	Secretariat	WG Chairs	SC15 (2027)	In-kind	N/A	N/A	
6.5.4	Explore opportunities for cooperation and collaboration on science work under the BBNJ Agreement	CHL	SC	SC15 (2027)	In-kind	N/A	N/A	• Report to COMM15 on the BBNJ COP in January 2027 on implications and way forward for SPRFMO

6.6 Secretariat scientific support								
6.6.1	Continue with analyses of catch composition and fishing activities; support CPUE analyses and general scientific analyses, as capacity allows	Secretariat	SC	SC15 SC16 SC17	In-kind	In-kind	In-kind	• Standing item
6.6.2	Engage professional rapporteur services for the SC Annual Meetings	Secretariat	N/A	SC15 SC16 SC17	$17,000	$28,000	$32,000	• Standing item
6.7 Other cross-cutting								
6.7.1	Update long version profiles (FAO species synopsis format) for jack mackerel, chub mackerel and jumbo flying squid for the SC Annual Meeting	Secretariat	N/A	SC15 SC16 SC17	In-kind	In-kind	In-kind	• Standing item
6.7.2	Develop a TOR template for SC activities to be submitted at each SC Annual Meeting	Secretariat	N/A	SC15 (2027)	In-kind	N/A	N/A	• Standing item

SC14 Meeting Report
Annex 8: Consolidated Guidelines for the Work of the SPRFMO Scientific Committee

1. Purpose and scope

These Guidelines provide the principal operational reference for the organisation and conduct of the work of the SPRFMO Scientific Committee (SC), including its Working Groups, Task Teams, intersessional activities, Annual Meeting, scientific submissions and reporting processes.

They are intended to assist all SC participants — including new participants, Working Group Chairpersons, Task Team Coordinators, paper authors and invited experts — in understanding:

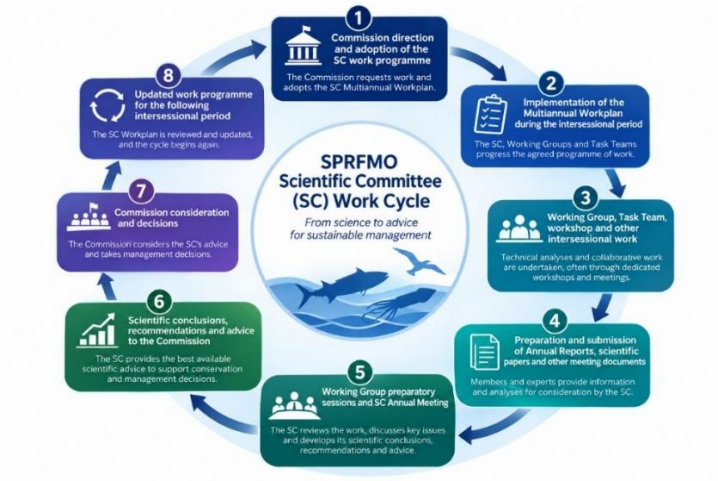
- how the Scientific Committee organises and progresses its work;
- the respective roles of the SC, Working Groups and Task Teams;
- how the Multiannual Workplan guides intersessional activities;
- how SC meetings, workshops and other intersessional activities are organised;
- the purpose and expected content of Annual Reports;
- the requirements for papers and presentations submitted to the SC;
- how individual pieces of scientific work relate to the Committee's agreed programme and priorities; and
- how scientific work is developed into conclusions, recommendations and advice to the Commission.

These Guidelines complement the SPRFMO Convention, Rules of Procedure, applicable Conservation and Management Measures (CMMs), decisions of the Commission and specific Terms of Reference adopted for SC bodies. Where any inconsistency arises, those instruments take precedence.

2. How the Scientific Committee Works

2.1. The Scientific Committee work cycle

The work of the Scientific Committee is continuous and extends beyond its Annual Meeting. Its activities can generally be understood as a recurring cycle:



The Commission may request specific scientific work from the SC through CMMs, Decisions, and meeting outcomes reflected in meeting reports. These requirements are typically incorporated as appropriate into the SC Multiannual Workplan.

The Annual Meeting of the Scientific Committee is therefore a **culmination of the preceding intersessional period** and the point at which the Committee reviews progress, agrees scientific advice and plans its future work for Commission endorsement.

2.2. The Multiannual Workplan

The Scientific Committee Multiannual Workplan is the principal planning instrument for the Scientific Committee's short- and medium-term scientific programme.

It identifies, as appropriate:

- the scientific activity or task;
- the Working Group or area of work to which it relates;
- the expected period of implementation;
- the Member, group, Chairperson, Coordinator or Secretariat lead;
- funding or resource requirements; and
- activities extending across more than one intersessional period.

The workplan is approved by the Commission and used throughout the year as the primary reference for determining which intersessional activities need to progress and how individual pieces of scientific work contribute to the overall programme of the Committee.

The workplan operates on a rolling multi-year basis. During each Annual Meeting, the SC reviews progress against the current Commission-adopted workplan and may recommend that activities be continued, amended, rescheduled or added in response to new scientific or management needs.

The resulting updated draft workplan is submitted to the Commission for consideration and adoption. Once adopted, it provides the agreed framework for the following intersessional period.

2.2.1. Relationship between scientific submissions and the Workplan

Scientific work submitted to the SC should, wherever applicable, contribute directly to an activity identified in:

- the Commission-adopted Multiannual Workplan;
- the Terms of Reference of the relevant Working Group or Task Team;
- a specific request of the Commission or requirement contained in a CMM; or
- another matter formally referred to the Scientific Committee.

Authors are therefore expected to identify the relevant linkage when submitting papers to the SC. This assists Working Groups, the SC Chairperson and participants in understanding why the work is before the Committee, what stage of the broader work programme it addresses and what action or advice is expected from the SC.

2.3 Role of the Secretariat's Science Manager

The Science Manager supports the implementation of the Multiannual Scientific Committee Workplan. Their core responsibilities include organizing and attending Scientific Committee and working group meetings, assisting committee chairpersons, coordinating intersessional activities, producing official meeting reports, and following up on recommendations contained in the Scientific Committee Report. Additionally, the role involves supporting the planning and conduct of stock assessments for SPRFMO species while developing analytical work to advance the objectives of the working groups. To further support research within SPRFMO, the Science Manager sources additional funding, manages research grants, and oversees project execution.

The Science Manager will also keep track of the recommendations and tasks of the Commission to the Scientific Committee.

3. Structure of the Scientific Committee

3.1. Working Groups

Working Groups are the SCs standing technical groups for major areas of scientific work. Unless otherwise decided by the SC, they operate on an ongoing basis and report to the Scientific Committee.

Each Working Group has agreed Terms of Reference defining its scope, responsibilities and principal areas of work.

3.1.1. Working Group Chairpersons

Working Group Chairpersons are recommended by the Scientific Committee in accordance with the applicable SC arrangements and Rules of Procedure and confirmed by the Commission.

Working Group Chairpersons coordinate with the Science Manager and are responsible for:

- coordinating the work of the Working Group;
- maintaining awareness of relevant Multiannual Workplan tasks;
- supporting the planning and progression of intersessional activities;
- convening Working Group meetings and preparatory sessions as required;
- ensuring that SC participants are informed of Working Group activities;
- coordinating, as appropriate, with Task Team Coordinators;
- reviewing documents submitted within the Working Group's area of responsibility;
- facilitating development of Working Group conclusions and recommendations; and
- reporting Working Group activities and recommendations to the Scientific Committee.

Working Groups should meet at least annually and have a standing opportunity to report their work to the Scientific Committee. Where required, and if time and logistics allow, Working Groups can also have a pre-SC focused session to discuss submitted documents and begin developing recommendations.

3.2. Task Teams

Task Teams are temporary technical bodies established to progress a defined piece of scientific work.

They have:

- a clearly defined purpose;
- specific Terms of Reference;
- identifiable expected outputs;
- a designated Coordinator;
- an anticipated timeframe; and
- a clear relationship with a Working Group or the Scientific Committee.

Task Teams are normally established for a limited period and work primarily during the intersessional period. They may include interested external experts where this assists completion of the technical work. The engagement of relevant external experts will follow the general guidelines under section 4.4 of these guidelines.

The Task Team Coordinator is responsible for coordinating the work of the group, in cooperation with the Secretariat, and reporting progress to the relevant Working Group and, ultimately, to the SC.

Each Task Team should provide at least one report to the Annual Meeting describing progress made during the intersessional period, results achieved, outstanding work and any recommendations requiring Working Group or SC consideration.

Task Teams should not become standing bodies by default. Where work may remain necessary beyond the originally anticipated period, the SC periodically reviews whether the Task Team should continue, be reconstituted or conclude.

See Annex 2 for a quick guide for Working Group Chairs and Task Team Coordinators.

3.3. Other technical arrangements

The SC may establish other temporary arrangements where necessary, including:

- ad hoc groups;
- specialist groups;
- steering groups;
- project groups;
- drafting groups; and
- other collaborative scientific arrangements.

Their scope, duration and reporting arrangements should be proportionate to the task being undertaken and should be clear to participants.

Where practicable, new technical activities should be connected to an existing Working Group or identified Multiannual Workplan task rather than creating additional permanent structures.

4. Intersessional Work

4.1. General principles

Intersessional work is an integral part of the Scientific Committee's programme.

Activities should be held well in advance of the SC Annual Meeting – i.e., **meetings (virtual or in person) should not be scheduled for the 30 days preceding the SC annual meeting**; activities should be planned and announced as far in advance as practicable (**at least 120 days prior**) so that Members can identify appropriate expertise, arrange participation, complete preparatory work and make any necessary travel or funding arrangements.

When planning intersessional work, consideration should be given to:

- the relevant Multiannual Workplan task;
- the objective and expected output of the activity;
- whether an additional meeting is necessary or whether work can be progressed by correspondence or through an existing meeting;
- the availability of relevant experts;
- the implications for Members with small scientific delegations;
- coordination with other SC meetings and workshops;
- Secretariat resources and support requirements; and
- any associated budget requirements.

The dates of activities, especially meetings, should be coordinated to the greatest extent possible across Working Groups by the chairpersons and with the Secretariat and unnecessary virtual meetings avoided.

4.2. Types of intersessional meetings

4.2.1. Scientific Committee Workshops (SCWs)

A Scientific Committee Workshop is a formal SC technical meeting convened to progress a significant scientific workstream.

SC Workshops are normally convened by the SC Chairperson or the relevant Working Group Chairperson and may include SC participants and invited experts.

They operate with meeting arrangements comparable to an SC meeting, including appropriate registration and credential requirements and a dedicated meeting webpage or repository through which documents and reports are made available and retained.

SC Workshops are normally held in person and should be scheduled well in advance, preferably planning at least 120 days in advance, with meeting materials, agendas, and related information circulated at least 90 days before the workshop.

4.2.2. Other Working Group or Task Team workshops

Working Groups and Task Teams may convene other workshops where necessary to progress technical work.

These workshops may be in person or virtual and may include external experts where appropriate.

For in-person workshops, announcements are recommended at least 120 days beforehand, and circulation of meeting materials at least 90 days in advance.

For virtual workshops, announcement ideally occurs at least 60 days beforehand, with meeting materials circulated at least 30 days before the meeting.

4.2.3. Preparatory meetings

Working Group preparatory meetings are intended to allow participants to consider documents submitted for the forthcoming SC Annual Meeting, identify key technical issues and begin developing Working Group conclusions and recommendations before the relevant plenary discussion.

Working Group preparatory meetings should normally take place at least 30 days before the Annual Meeting.

A preparatory meeting of the Scientific Committee may also be organised, normally at least 14 days before the Annual Meeting.

4.2.4. Other virtual meetings

Virtual meetings may be used where necessary to coordinate or progress intersessional work.

They should be scheduled as far in advance as practicable. The announcement should be circulated at least 14 days in advance, and circulation of relevant materials and access details no later than seven days before the meeting.

Virtual meetings should have a clear purpose and expected outcome and should not be convened where the matter can reasonably be progressed through existing work arrangements.

4.3. Meeting planning and Secretariat support

The Chairperson or Coordinator responsible for an intersessional meeting should provide the Secretariat with the following information with sufficient advance notice to enable appropriate arrangements to be made:

- meeting title and purpose;
- proposed date, time and duration;
- convening Chairperson or Coordinator;
- expected participants;
- draft agenda;
- meeting schedule with indicative times;
- list of presentations;
- background material;
- expected outputs;
- registration or credential requirements, where applicable;
- requirements relating to invited experts;
- whether a report will be produced; and
- any financial or logistical support required.

The level of Secretariat support will depend on the type of meeting. Formal SC Workshops receive a higher level of Secretariat support, while smaller Working Group and Task Team activities may operate with more limited support.

4.4. Invited experts

The Scientific Committee and its Working Groups may invite external experts where specialist expertise would materially assist its work. This may include contributing to stock assessments, providing expert opinion on stock status and management, peer reviewing, and drafting overviews and reports, among other specialist tasks.

The requirement for expertise should be identified and agreed at the Scientific Committee meeting and be included in the Workplan at least for the upcoming year, to allow for the Secretariat to arrange their participation. In exceptional circumstances, an expert may be hired without the requirement for that expertise having been identified and agreed at a Scientific Committee meeting or included in the Workplan for the upcoming year.

The SC Chairperson or Members may propose invited experts to SC Members for their agreement at least 60 days before the relevant meeting. The proposal shall include the expert's name, affiliation, and CV. Before submitting a proposal, it should be confirmed that the expert is available and willing to do the work. The Secretariat shall circulate proposals for experts to the SC Heads of Delegation for comment and applying a silence procedure.

Where an expert is invited for a particular technical task, the Secretariat and SC Working Group Chairperson will draft a consultancy agreement detailing the purpose of the invitation and expected contribution should be clearly identified.

5. Documents for the SC annual meeting

5.1. Types of documents

Documents submitted to an SC Annual Meeting generally fall into the following categories. Authors should reference the basis of all reports where applicable, such as CMM reporting requirements or SC requests. Documents should be provided to the Secretariat no later than 30 days in advance of the Annual Meeting.

5.1.1. Annual Reports

Provisions from Conservation and Management Measures (CMMs) require Members and CNCPs to submit Annual Reports to the Scientific Committee. Annual reports provide a concise overview of the fishing, research, data-collection and management activities undertaken by each Member or CNCP during the preceding year.

They are intended to inform the Scientific Committee and support its deliberations. They do not replace formal data submissions required under applicable CMMs and are not intended to substitute for detailed scientific papers. See section 7 of these guidelines for further information.

5.1.2. Meeting Papers

Meeting papers contain scientific analyses, technical work, proposals or other substantive material intended for consideration by the Scientific Committee under an item of the Provisional Agenda.

5.1.3. Information Papers

Information Papers provide material relevant to the work of the Scientific Committee but which may not require substantive consideration or a specific decision by the SC.

5.1.4. Late Papers

Papers received after the applicable submission deadline are identified as Late Papers. Their acceptance for consideration is subject to the Scientific Committee in accordance with the Rules of Procedure.

5.1.5. Exploratory Fishery Proposals

Exploratory Fishery Proposals are subject to the specific submission requirements and deadlines established in the applicable CMM, together with any checklist or assessment process agreed by the Scientific Committee.

Authors should consult the current applicable CMM and SC guidance rather than relying on historical deadline references.

6. Annual Reports to the SC

6.1. Purpose of Annual Reports

Members and CNCPs submit Annual Reports to keep the Scientific Committee informed, in a concise and consistent format, of their fishing, scientific, data-collection and relevant management activities during the preceding year. See Annex 4 for an Annual Report content guide.

A nil report shall be provided where there has been no fishing activity in the Convention Area. Reporting relevant information concerning straddling stocks and other stocks of interest to the Committee is encouraged.

Annual Reports have two complementary functions:

- to provide the SC with contextual information necessary to understand developments in SPRFMO fisheries and scientific activities; and
- to support reporting obligations established in relevant CMMs.

The applicable CMM references should be reviewed periodically because reporting requirements may change as measures are amended.

6.2. Recommended content of Annual Reports

Annual Reports should be concise and focus on information relevant to the Scientific Committee.

Where applicable, they should address the following areas.

6.2.1. Description of fisheries

Provide an overview of fisheries conducted by the Member or CNCP, including:

- fleet composition;
- changes in fleet composition or operation;
- summary information on fishing effort and catches;
- gear types, seasons and areas; and
- significant changes or new developments during the preceding year.

Where useful, information may provide a multi-year context to enable trends to be understood.

6.2.2. Catch, effort and CPUE

Provide summary information describing relevant trends in:

- fishing effort;
- catch by target species;
- bycatch, associated and dependent species; and
- nominal CPUE for the principal fisheries.

Scientific names should be used where appropriate, and species should be identified taxonomically as accurately as practicable.

6.2.3. Fisheries data collection and scientific research

Describe:

- national fisheries data-collection systems;
- relevant changes or improvements during the year;
- scientific surveys;
- stock assessments and other analyses;
- sampling programmes and coverage; and
- other research relevant to SPRFMO.

6.2.4. Biological sampling

Provide an overview of biological and size-frequency sampling and, where available, summary information on length, age or other relevant biological composition of catches.

6.2.5. Ecosystem considerations

Where applicable, report information concerning:

- seabird mitigation;
- interactions with seabirds;
- marine mammals;
- reptiles;
- other species of concern;
- Vulnerable Marine Ecosystem encounters; and
- abandoned, lost, discarded or retrieved fishing gear.

6.2.6. Observer programmes

Provide information relevant to implementation of observer programmes, including:

- programme design;
- observer allocation;
- coverage;
- training;
- types of information collected;
- bycatch monitoring;
- operational or safety issues; and
- material changes or improvements during the preceding year.

The original Annual Report guidance contains further detail on these elements.

6.3. Annual Report summary

Each Annual Report should include a concise one- to two-paragraph executive summary suitable for incorporation, where appropriate, into the SC annual meeting report or its annexes.

7. Scientific Papers and Other Submissions

7.1. General principle

Scientific papers submitted to the SC should enable participants to understand:

- Why is this work being presented?
- What was done?
- What was found?
- How does it relate to the SC work programme?
- What does the author need from the Scientific Committee?

The purpose of the paper should therefore be evident without requiring participants to infer its relationship to the broader SC programme.

7.2. Required front-page information

Each substantive paper submitted for consideration by the Scientific Committee should contain, near the beginning of the document, the following information.

7.2.1. Summary

Each paper should include a concise one paragraph executive summary to assist preparation of the SC report describing:

- the purpose of the work;
- the principal approach or analysis;
- the main findings; and
- the principal conclusion or recommendation.

7.2.2. Summary for managers

A short plain-language explanation written for decision-makers who may not have specialist expertise in the subject should explain:

- what issue was examined;
- why it matters for SPRFMO;
- the principal finding;
- the main uncertainty or limitation, where important; and
- the potential implication for scientific advice or management.

The Summary for Managers should not simply reproduce the technical abstract in less technical language. Its purpose is to communicate the decision relevance of the work.

7.2.3. Linkage to the SC work programme

The paper should identify the specific basis for its submission, where applicable:

- **Multiannual Workplan task/code:** [insert]
- **Working Group or Task Team Terms of Reference:** [insert relevant item]
- **Commission request / CMM / Decision:** [insert reference]
- **SC agenda item:** [insert]

Where a paper does not arise from an existing workplan or Terms of Reference item, the author should briefly explain why the work is relevant to the Scientific Committee.

7.2.4. Action requested from the SC

Authors should clearly identify what they are asking the Scientific Committee to do. For example:

- For information
- Review and provide technical feedback
- Endorse a scientific method or approach
- Agree a conclusion
- Recommend further work
- Provide scientific advice to the Commission
- Recommend an amendment to the Multiannual Workplan

Where appropriate, proposed recommendations or advice should be stated explicitly and in the summary.

7.3. Recommended structure of scientific papers

The precise structure will depend on the subject and nature of the scientific work. As a general guide, substantive papers should contain:

1. Summary
2. Summary for Managers
3. Linkage to SC work programme
4. Action requested from the SC
5. Background / Introduction
6. Methods / Data
7. Results
8. Discussion
9. Uncertainty and limitations
10. Conclusions
11. Recommendations or proposed next steps
12. References
13. Annexes, where required

Not every paper will require all of these sections. Authors should use a structure appropriate to the scientific work while ensuring that the purpose, result and requested action remain clear.

7.4. Format and presentation

Papers should be prepared in a clear and accessible format to facilitate their review and discussion by SC participants. **All pages should be numbered**, including pages containing figures, tables, references and annexes. Page numbers should be displayed consistently throughout the document.

Authors should also ensure that figures and tables are legible, sections and headings are clearly identified, and references to specific parts of the paper can be readily located during Working Group and plenary discussions.

7.5. Submission deadlines

Papers pertaining to items on the Provisional Agenda are to be provided electronically to the Executive Secretary in accordance with the deadlines established in the SPRFMO Rules of Procedure.

A general deadline of **30 days before the opening of the meeting**, applies with circulation by the Executive Secretary at least 20 days before the meeting.

Because Rules of Procedure and CMMs may subsequently be amended, participants should refer to the deadlines published for the relevant SC annual meeting and the current applicable Rules and CMMs.

Annual Reports should likewise be submitted by the published meeting deadline.

Submission in advance of deadlines is encouraged.

7.6. Late submissions

Late papers may not be accepted by the SC and so may not be considered at the Annual Meeting. Where a paper is received after the deadline, it is identified as a Late Paper and its acceptance for consideration is a matter for the Scientific Committee in accordance with the Rules of Procedure. Late papers create practical difficulties for participants, Chairpersons and the Secretariat, particularly where delegations need time to obtain specialist review or coordinate national positions. Authors should therefore make every effort to meet the applicable submission deadline.

8. Presentations

8.1. Purpose of presentations

Presentations should support discussion of submitted work rather than reproduce the paper in full.

A presentation should clearly identify:

- the scientific question being addressed;
- whether the work is new, ongoing or completed;
- the principal results;
- important uncertainty;
- the relationship to the relevant SC workstream; and
- the advice, recommendation or other action sought from the SC.

Presentations should conclude with a slide clearly identifying requested advice or recommendations, avoid unreadable tables and excessive text, and normally remain under 15 minutes unless otherwise agreed with the SC Chairperson.

A copy of the presentation should be provided to the Secretariat no later than the day before it is scheduled for presentation.

Presentations are at the discretion of the meeting Chairpersons; where there are time constraints, not all papers will be allocated time for a presentation.

9. The Annual Meeting of the SC

9.1. Preparation

Participants are expected to review relevant meeting documents before the Annual Meeting.

Working Group preparatory processes should be used to resolve technical questions where possible and identify matters requiring discussion or decision by the full Committee.

The purpose of plenary discussion should be to focus the Committee's limited meeting time on matters requiring:

- scientific judgement;
- resolution of outstanding technical issues;
- agreement on conclusions;
- prioritisation of future work; or
- formulation of scientific advice to the Commission.

Recent SC coordination discussions have emphasised reducing meeting fatigue, improving sequencing between Working Groups and plenary sessions, simplifying agendas, improving Working Group reporting and keeping the Committee focused on decision-relevant scientific advice.

9.2. Working Group reporting to the SC

Working Group discussions should result in a clear record of:

- principal scientific findings;
- areas of agreement;
- material uncertainties or differing scientific interpretations;
- work completed;
- outstanding tasks;
- proposed amendments to the Multiannual Workplan;
- recommendations requiring SC agreement; and
- proposed scientific advice to the Commission, where applicable.

Working Group reports should distinguish between technical discussion and the conclusions or decisions that require action by the Scientific Committee.

9.3. Scientific advice

The principal function of the SC Annual Meeting is not simply to receive scientific information but to transform relevant scientific work into coherent advice for the Commission.

Advice should, as far as practicable:

- state the scientific conclusion clearly;
- identify the evidence supporting the conclusion;
- describe important uncertainty;
- distinguish scientific findings from management choices;
- identify where further scientific work is required; and
- respond directly to any question or request received from the Commission.

Where the available evidence does not support a definitive conclusion, the SC should describe the uncertainty clearly rather than imply a level of confidence that is not supported by the analysis.

9.4. Meeting organization

To ensure the effective use of time during the annual SC meeting, the SC and Working Group Chairs should remain in close coordination with the Secretariat and Science Manager in advance of, and during the meeting. The purpose of this coordination is to:

a. develop the SC meeting schedule;

b. maintain, update, and communicate the meeting schedule and any adjustments to the schedule throughout the duration of the meeting through announcements and documents;

c. provide notice to Members of any changes in advance of the rescheduled sessions;

d. ensure time management and deadline tracking;

e. ensure relevant SC materials are being communicated to Members and between the Secretariat staff and relevant Chairs;

10. Document management and continuity

10.1. Record of SC work

Formal SC Workshops should have a dedicated meeting page or equivalent repository through which meeting materials and reports are retained.

The Secretariat maintains, as appropriate:

- Annual Meeting documents;
- Workshop reports;
- intersessional meeting records;
- Working Group and Task Team reports;
- Multiannual Workplans;
- Terms of Reference;
- relevant templates and guidance; and
- other records necessary to preserve institutional continuity.

Working Group Chairpersons and Task Team Coordinators should provide relevant records to the Secretariat rather than relying solely on personal or informal repositories.

10.2. Review of these Guidelines

These Guidelines are intended to function as a standing operational reference for the Scientific Committee.

They should be reviewed periodically and updated where necessary to reflect:

- changes to the Rules of Procedure;
- new or amended CMMs;
- Commission decisions;
- changes in the SC working structure;
- improvements agreed by the Scientific Committee; and
- experience gained from implementation.

Operational information that changes frequently — such as annual deadlines, current officeholders, individual workshop dates and active Task Teams — are maintained separately from these standing Guidelines.

ANNEX 1
Quick Guide for SC Document Authors

Before submitting a paper to the Scientific Committee, authors should confirm that:

- the paper relates to an item on the SC agenda;
- the relevant Multiannual Workplan task, Terms of Reference item, Commission request or CMM has been identified;
- a concise technical **Summary** is included;
- a plain-language **Summary for Managers** is included;
- the **Action requested from the SC** is explicit;
- conclusions and recommendations are clearly distinguished from background discussion;
- important uncertainties and limitations are identified;
- the paper has been submitted by the applicable deadline;
- any intended presentation is concise and focused on the principal findings and requested action; and
- the relevant Working Group Chairperson is aware of the submission, where applicable.

ANNEX 2
Quick Guide for Working Group Chairpersons and Task Team Coordinators

When planning intersessional work, Chairpersons and Coordinators should confirm:

- the activity has a clear relationship with the Multiannual Workplan or another SC mandate;
- objectives and expected outputs are defined;
- responsibilities and leads are clear;
- meeting dates are coordinated with the broader SC calendar;
- unnecessary additional meetings are avoided;
- participants receive sufficient advance notice;
- the Secretariat has been informed sufficiently early;
- external expert requirements have been identified early;
- reports or other outputs are prepared following the activity;
- progress is reported to the relevant Working Group and SC; and
- outstanding tasks are reflected in future work planning.

ANNEX 3
Annual Report Content Guide

Annual Reports should contain, as applicable:

1. Executive Summary
2. Description of Fisheries
3. Catch, Effort and CPUE Summaries
4. Fisheries Data Collection and Research Activities
5. Biological Sampling and Length/Age Composition
6. Ecosystem Approach Considerations
7. Observer Programme Implementation
8. Significant developments during the preceding year
9. Other matters relevant to the Scientific Committee

Annual Reports are intended to provide concise contextual and reporting information and do not replace required data submissions or substantive scientific papers.

ANNEX 4
History and Development of the Scientific Committee Working Structure

The Scientific Committee has progressively developed its Working Group and intersessional structure since its first Annual Meeting in 2013.

The Jack Mackerel and Deepwater Working Groups were established at the first SC meeting, building on scientific subgroups that had operated before entry into force of the SPRFMO Convention. Subsequent development of the Committee's work led to the creation of the Squid Working Group and the group originally established for habitat and ecosystem monitoring, together with numerous temporary Task Teams, specialist groups and other intersessional arrangements.

The Committee has also increasingly used dedicated Scientific Committee Workshops to progress technical work outside the Annual Meeting. This development reflects the increasing volume and complexity of the SC's scientific programme and the need to complete substantial analytical work intersessionally so that the Annual Meeting can focus on scientific conclusions and advice.

A detailed historical table of Working Groups, Task Teams, specialist groups, their periods of operation and past Chairpersons or Coordinators may be maintained by the Secretariat as an institutional record and updated periodically without requiring amendment of the operational sections of these Guidelines.

ANNEX 5
SC Meeting Cover Page Template

Authors of substantive papers submitted for consideration by the Scientific Committee should include the following information at the beginning of their paper.

[SC MEETING / WORKSHOP]

[DOCUMENT NUMBER]

[TITLE OF PAPER]

[Author(s)]
[Member / CNCP / Organisation, as applicable]

Summary

[Provide a concise, one-paragraph executive summary of the paper. Briefly describe the purpose of the work, the principal approach or analysis, the main findings, and the principal conclusion or recommendation.]

Summary for Managers

[Provide a short plain-language summary for decision-makers who may not have specialist expertise in the subject. Explain what issue was examined, why it matters for SPRFMO, the principal finding, any important uncertainty or limitation, and the potential implications for scientific advice or management.]

Linkage to the SC Work Programme

Identify the basis for submission of the paper, as applicable. Complete all relevant fields; fields that do not apply may be marked **N/A**.

	Reference
Multiannual Workplan task/code	[Insert task/code or N/A]
Working Group or Task Team Terms of Reference	[Insert relevant item or N/A]
Commission request / CMM / Decision	[Insert relevant reference or N/A]
SC agenda item	[Insert agenda item]

Where the paper does not arise from an existing Multiannual Workplan task, Terms of Reference, Commission request, CMM or Decision, briefly explain its relevance to the work of the Scientific Committee:

[Insert explanation, if applicable]

Action Requested from the Scientific Committee

[Clearly state what the Scientific Committee is being asked to do in relation to this paper. Where appropriate, reproduce the proposed recommendation or advice that the author is seeking from the SC.]

The Scientific Committee is invited to:

1. [note / consider / review / endorse / agree / recommend …];
2. [insert additional action, if applicable]; and
3. [insert additional action, if applicable].

The remainder of the paper should follow an appropriate structure for the work being presented. All pages of the submitted document should be numbered. Authors should refer to Section 7 of these Guidelines for further guidance on the preparation and submission of papers.

SC14 Meeting Report
Annex 9: Timeline for Implementation of Recommendations of the 2nd Performance Review

Timeframe for SC-relevant recommendations

№	Recommendations	SC13 2025 Recommendation	COMM Response (Agree/Agree in part/ Do not agree)	COMM Priority	Relevant bodies	IWG comments on timeframe for implementing recommendation	SC comments to COMM15 2027 – on SC-component of the recommendation
2	The Review Panel recommends the development of a Business Plan with a three-year planning horizon and an associated budget. The first Business Plan should include a review and enhancement of the Headquarters Agreement with the New Zealand Government. **COMM14 Comments:** COMM14 noted the interconnected nature of many of the PR2 recommendations and the need to ensure that the development of a revised planning framework does not result in duplicative/redundant documents. This will be considered in the development of the Implementation Plan.	SC has started thinking about how its workplan can be translated into a three-year planning horizon including consideration of resources.	Agree in part	HIGH	COMM, FAC, CTC, SC	[COMM15 2027] – Specific to Business Plan – needs decision on whether to implement/ progress. HQA review considered a low priority. Clarity is sought from COMM15 as to whether a fully-funded, comprehensive Business Plan is necessary to achieve the outcomes of this rec.	
3	The Review Panel recommends that the Commission improve its direction to subsidiary bodies, the Data Working Group, and the Secretariat by approving their work plans/programmes through the proposed integrated business plan, with a three-year planning horizon and associated budget/funding model. Commission oversight can be strengthened by assessing the performance of the subsidiary bodies and Secretariat against their components of the proposed Business Plan. This would involve developing a Workplan for the CTC and FAC, improving the approach to the SC Multiannual Work Plan, and developing an Operational Plan for the Secretariat, as well as an Information Management Strategy and associated Data Management Plan.	Flexibility is important within the 3 year workplan. SC would welcome prioritisation from Commission	Agree	HIGH	COMM, FAC, CTC, SC	[COMM15 2027] – Workplans suggested completion date. The development of workplans were agreed at COMM14 2026 and development of workplans should be ready for COMM15 consideration	

7	The Commission should develop an Information Management Strategy and Data Management Plan, placing a high priority on improving its overall approach to information management. This could draw on the SC's existing progress through SC12-Doc12.	Refer to PR2 IWG comments to COMM	Agree	HIGH	SC; Data Working Group (DWG); CTC; FAC; COMM	[COMM14 2026] – Completed The COMM adopted the Data Strategy by the Data WG. To be reviewed annually.	
9	The Commission should work towards conducting a comprehensive review of CMM 02-2022, following the development of the Information Management Strategy and Data Management Plan, as part of the Business Plan.	SC13 partially addressed this with advice to COM14 on CMM02 changes. This could be further reviewed after development of a Strategy and Plan.	Agree	HIGH	SC; Data Working Group (DWG); CTC; COMM	[COMM14 2026] – Completed CMM 02 revision agreed by COMM14 2026	
10	Jack mackerel - Continue discussions and actions toward full cooperation with the jack mackerel fishery occurring in adjacent national jurisdictions. The Commission should explore ways to incentivise improved cooperation and compatibility. **COMM14 comments:** COMM14 noted the existing arrangements for cooperation and the importance of sovereignty in relation to management of resources within national jurisdictions. In developing implementation options for this recommendation, focus will be on strengthening voluntary cooperation arrangements including for data sharing arrangements to support SPRFMO objectives.	It was noted that there is scientific cooperation in relation to high seas and adjacent national jurisdictions through data sharing and stock assessment. This could be enhanced for example through MSE processes.	Agree in part	Medium	SC – Jack Mackerel Working Group (JMWG), COMM	[COMM18 2030] – Suggested completion date Progress should be reviewed annually by Commission and measured against workplan items (if any).	
11	Jack mackerel - Undertake analysis of the jack mackerel fishery's impact on other fish stocks and the broader ecosystem. Provide scientific recommendations based on these reviews and adopt relevant management decisions as necessary, with particular attention to chub mackerel, protected species and species of concern.	It was noted that there is work underway and planned on chub mackerel bycatch. The MSE could include chub mackerel bycatch as a performance indicator.	Agree in part	MED/ LOW	SC – JMWG, Ecosystem Working Group (EWG); COMM	[COMM18 2030] – Suggested completion date. Progress should be reviewed annually by Commission and measured against workplan items (if any).	

12	Squid - To ensure effective and timely management of the squid fishery, it is essential to execute all tasks related to squid as outlined in the SC's Multiannual Workplan, which should be integrated into the broader Business Plan. This includes prioritising the development of management strategy evaluations (MSE) and harvest control rules (HCR), ensuring that work is directed and resourced in a more thoughtful and strategic manner, as part of an overall effort to achieve SPRFMO's long-term objectives. The Commission shall also consider alternative options if the stock assessment cannot be completed or if it is not suitable for management purposes.	The planning and timelines for these three elements are important and the subject of the SC multiannual workplan.	Agree	MED/ HIGH	SC – Squid Working Group (SWG); FAC; COMM	[COMM18 2030] – Suggested completion date. Progress should be reviewed annually by Commission and measured against workplan items (if any).	
13	Squid - Participants of the fishery, including Members with squid fisheries in areas under national jurisdiction, should fully cooperate with the Commission and the SC through data sharing to facilitate the assessment. COMM14 comments: Refer notes for Rec 10	Data sharing is a feature of the SC multiannual work plan, which would include meta data and analysis.	Agree	HIGH	SC – SWG, DWG; CTC; COMM	[COMM16 2028] – Suggested completion date. Progress should be reviewed annually by Commission and measured against workplan items (if any).	
14	Squid - Increase the observer coverage rate to generate relevant data that supports the SC's work, addressing both the targeted squid fishery and its potential impact on associated species.	Members noted the recent increases in observer coverage and development of EM standards	Agree in part	MED	SC – SWG; COMM	[1 SEPT 2029] – Suggested completion date The completion date aligns with CMM 18 paragraph 22. Milestones include 1 Sept 2025 and 1 Sept 2027.	
15	Squid - Given the uncertainties regarding the current fishing capacity, consider further precautionary measures, including strengthening fishing effort limitations.	Refer to PR2 IWG comments	Agree in part	MED	SC – SWG; COMM	[COMM14 2026] – Partially Complete Note COMM14 tasked SC14 with providing further advice on this rec.	

16	Squid - The Commission should ensure adequate funding and resources, including financial support, to involve scientists from academic institutions with relevant expertise. Additionally, Members and Observers should be encouraged to maintain their cooperation through both in-kind and financial contributions.	SC noted that funding and resourcing is reliant on FAC and Commission. It further noted the potential to increase financial contributions to balance with in-kind resourcing. This could be considered as part of the wider business planning.	Agree in part	LOW	SC – SWG; SCAF; FAC; COMM	[COMM18 2030] – Progress on this rec needs review in 2030 at the end of the performance cycle.	
18	Deepwater - With respect to all other fish species captured by paragraph 11 of CMM 03a, implement an operational trigger which, if met, would activate the development of more specific fisheries management measures, for example, catch limits.	Work for hapuku and blue eye trevella is on the workplan	Agree in part	LOW	SC – Deepwater Working Group (DWWG); COMM	[COMM18 2030] – Needs decision in 2030 on whether to implement/ progress. Noting low priority. This rec can be revisited at the end of the performance cycle.	
19	Exploratory Fisheries - The Commission and its relevant subsidiary bodies should initiate discussions to clarify how to apply Article 28 of CMM 13. This includes identifying fisheries approaching the ten-year mark and establishing a framework for transitioning them into established fisheries.	Noted that the toothfish workshop for SC14 will begin to address this recommendation	Agree	HIGH	SC – DWWG; COMM	[COMM15 2027] – Suggested completion date (for toothfish). SC14, including the toothfish workshop in 2026 may help to bring forward a framework for COMM15 consideration.	
20	Exploratory Fisheries - The SC should conduct review of the cumulative impacts of exploratory fisheries on both target stocks and the broader ecosystem.	It was noted that the workshop described above will begin to address the accumulative impacts on toothfish	Agree	MED	SC – DWWG	[COMM15 2027] – Needs decision in 2027 on whether to implement/ progress. This rec will see some progress in 2026, with the outcomes of the toothfish workshop, which could require further advice from COMM15 in 2027 on timeframe. Progress should be reviewed annually by Commission and measured against workplan items (if any).	

21	Exploratory Fisheries - The Commission should work to strengthen cooperation with adjacent RFMOs, particularly regarding the management of toothfish fisheries. Engaging with CCAMLR can provide valuable insights and support for the effective management of these fisheries and the process to transition these into established fisheries.	Noted that the workshop will begin the process to transition exploratory fisheries to established fisheries. It was noted that there is already a strong cooperative SPRFMO/CCAMLR relationship	Agree	MED	SC – DWWG; CTC; COMM	[COMM18 2030] – Suggested completion date. Progress should be reviewed annually by Commission and measured against key actions. The IWG note that this rec has seen some progress with the FAO led workshop which focused on toothfish cooperation, where there was representation by SPRFMO Secretariat. The IWG also note the upcoming toothfish workshop in 2026.	
22	All fisheries - To ensure the consistent application of the precautionary principle, the Commission should adopt a defined harvest strategy approach for all SPRFMO fisheries. This approach will provide a clear framework for decision-making, ensuring that measures are based on scientific advice, aligned with the Convention objectives, and adaptable to changing conditions. **COMM14 comments** COMM14 noted that in developing the implementation plan for this recommendation, it will be critical to consider the suitability of harvest strategy frameworks for small-scale fisheries, and in sequencing future Commission work on harvest strategies, the priority should be on large-scale fisheries.	SC noted that this would require Commission guidance including on how to approach this recommendation e.g. whether this might be done through an overarching framework that applies to all fisheries, or adopting individual harvest strategies for each of the fisheries. SPRFMO could draw from approaches taken in other RFMOs including SIOFA	Agree	HIGH	SC; COMM	[COMM17 2029] – Suggested completion date.	

SC14 Meeting Report
Annex 10: Data Working Group Questionnaire

How to Complete This Questionnaire	
Purpose	This questionnaire is part of the SPRFMO Data Working Group (DWG) data systems inventory. Its aim is to understand in detail what data each scientific working group uses, at what level of aggregation, and where the critical gaps lie.
Who should complete it	The Chairperson of the working group, ideally in consultation with WG members. If different members use different data types, please complete a row for each.
Sheet structure	Sheet 0 (Identification): complete first with your WG name and contact. Sheet 1 (Data Types Used): core section, complete fo all data types your WG uses. Sheets 2–3 (Spatial, Temporal): complete for each data type flagged as used in Sheet 1. Sheet 4 (Templates & Database): indicate needs for standardised data-sharing templates and a shared database. Sheet 5 (Data Gaps): list your most critical gaps, ranked by priority. Sheet 6 (Additional Comments): free text for anything not captured above.
Green cells	All green cells are for your responses. Cells with pre-filled grey/italic text (data type names, CMM references) are for reference only — do not overwrite them.
Dropdowns	Where a dropdown is available, click the cell and select from the list. If none of the options fits, select 'Other' and add detail in the Notes column.
Spatial resolution terms	Individual fish/record = finest level (one row per fish or sample). Haul/set level = one record per fishing operation. Trip/vessel level = one record per vessel trip. Grid cell = spatial grid (please specify resolution, e.g. 1°x1°, in the Notes column). Statistical area = SPRFMO statistical areas. Stock area = the geographic extent of the assessed stock. SPRFMO convention area = the entire SPRFMO area.
Temporal resolution terms	Per haul/set = finest level, one record per fishing operation. Per trip = one record per vessel trip. Monthly / Quarterly / Annual = aggregated by calendar period.
Importance grades	Critical = the assessment cannot proceed without this data type. High = substantially affects results if absent or of poor quality. Medium = improves precision but the analysis can proceed without it. Low = minor or supplementary use. Not currently used = WG does not use this data type at present.
Deadline and return	Please return the completed file to the Secretariat Science Manager (jfuller@sprfmo.int) by **9 October 2026**. Save as: SPRFMO_DWG_DataQuestionnaire_[WG name]_[date].xlsx
Data form terms	Raw as reported per CMM = data used in the form CCMs submit them under CMM 02 / CMM 18 (e.g. logbook catches by haul, observer length records). Estimate (derived product) = data that have been processed, expanded or modelled before use (e.g. length composition by stratum, age composition from age-length keys, CPUE index, mean weight-at-age, swept-area biomass index). Both = the WG uses raw and derived versions of the same data type.
Examples of estimates	Length composition (proportions or numbers-at-length by stratum); age composition (numbers-at-age, derived from ALK or direct ageing); CPUE index (standardised by GLM / GAM); weight-at-age, maturity-at-age, selectivity ogives; biomass / abundance indices; discard rates; effort estimates raised from sampled trips.
Current vs required aggregation	Sheets 2 and 3 ask for both the spatial / temporal aggregation your WG CURRENTLY uses (what is actually in your input files) and the MINIMUM and PREFERRED resolution your analyses require. The gap between current and required is what the DWG most needs to capture.

SPRFMO Scientific Working Group: Data Requirements Questionnaire

This questionnaire is being compiled by the SPRFMO Data Working Group (DWG) to understand what data the scientific working groups use, at what level of aggregation, and where the critical gaps are. Your responses will inform the DWG workplan and the review of CMM 02. Please complete one sheet per section. Use green cells for free-text responses; use dropdowns where provided. Return the completed file to the DWG Chair by [DATE]. Save as: SPRFMO_DWG_DataQuestionnaire_[WG name]_[date].xlsx

Working Group name:	
Chairperson / contact person:	
Date of completion:	
Members who contributed to this response:	

Section 1: Data Types Used

For each data type listed, indicate whether your working group uses it, its importance to your analyses, and the model or analysis type it feeds into. Add rows at the bottom for any data types not listed. Green cells = your response. Dropdowns available where indicated.

Pre-filled data types are provided as a starting point. For each, complete columns C–H. Add additional data types in the blank rows at the bottom.

Data Type	CMM / Source	Used by this WG? (Yes / No / Partial)	Importance to analyses	Model / analysis type	Data form used (Raw as reported per CMM / Estimate / Both)	If estimate: type of estimate (e.g. length comp, age comp, CPUE index, weight-at-age)	Estimate produced by (CCM / Secretariat / WG / External)	Notes
Catch by species, area, gear	*CMM 02-2025*							
Fishing effort by vessel, area, gear	*CMM 02-2025*							
Length samples	*CMM 02-2025*							
Weight samples	*CMM 02-2025*							
Age samples (otoliths)	*CMM 02-2025*							
Maturity data	*CMM 02-2025*							
At-sea observer reports	*CMM 18-2025*							
Electronic monitoring data	*CMM 18-2025*							
Bycatch and discards	*CMM 02-2025*							
VME encounter reports	*CMM 03a*							
Survey indices (acoustic / trawl)	*Non-CMM / voluntary*							
CPUE standardisation data	*Non-CMM / voluntary*							
Tagging / mark-recapture data	*Non-CMM / voluntary*							
Genetic / otolith samples	*Non-CMM / voluntary*							
Oceanographic / environmental data	*Non-CMM / external*							

Section 2: Spatial Aggregation Requirements

For each data type your WG uses, specify the spatial resolution required for your analyses. If a finer resolution than currently available would improve your analyses, please indicate this. Refer to the Instructions sheet for definitions of spatial resolution terms.

List only the data types your WG actually uses (from Section 1). Spatial resolution terms: Individual fish/record > Haul/set > Trip/vessel > Grid cell > Statistical area > Stock area > Convention area.

Data Type	Current spatial aggregation used by WG	Minimum spatial resolution required	Preferred spatial resolution	Is current resolution sufficient?	If not, what resolution is needed and why?	Spatial stratification needed? (e.g. by depth, habitat, fleet)	Impact on analyses if resolution is insufficient	Notes

Section 3: Temporal Aggregation Requirements

Specify the temporal resolution your WG requires for each data type it uses. Indicate whether the current reporting frequency is adequate and flag historical data gaps.

List only the data types your WG actually uses (from Section 1). Temporal resolution terms: Per haul/set > Per trip > Monthly > Quarterly > Annual.

Data Type	Current temporal aggregation used by WG	Minimum temporal resolution required	Preferred temporal resolution	Is current frequency sufficient?	If not, what frequency is needed?	Time series length required (years)	Are historical data gaps a significant problem?	Notes

Section 4: Standardised Templates and Database Needs

This section captures your working group's need for standardised data-sharing templates for common data types, and for a shared SPRFMO database. Your responses will help the DWG prioritise template development and assess the case for a central database. Green cells = your response. Dropdowns available where indicated.

Part A asks about standardised templates for each common data type. Part B asks about the need for, and desired features of, a shared database. Complete the parts relevant to your WG.

Part A: Standardised templates for common data types

Data type	Standardised template needed?	Priority for a template	What the template should standardise (fields, units, codes, format)	Preferred file format (CSV / Excel / XML / other)	Notes
Catch by species, area, gear					
Fishing effort by vessel, area, gear					
Length composition / length samples					
Age composition / age samples					
Biological data (weight, maturity)					
Observer / at-sea sampling data					
Bycatch and discards					
CPUE / standardisation input data					
Survey indices (acoustic / trawl)					
Other (specify)					

Part B: Need for a shared SPRFMO Scientific database

Does your WG need a shared/central database for data storage and access?	
Priority of a shared database for your WG	
Which data types should the database hold? (list the most important)	
What access or query features would your WG need? (e.g. download by species/area/year, API, versioning)	
What problems would a database solve that current arrangements do not? (e.g. version control, reproducibility, access delays)	
Would a database reduce your reliance on ad-hoc data requests to the Secretariat or CCMs?	
Any concerns about a shared database? (e.g. confidentiality, data ownership, resourcing)	

Section 5: Known Data Gaps and Limitations

List the most critical data gaps your WG faces. Rank by priority and describe the impact on your ability to provide scientific advice to the Commission.

Be as specific as possible. Distinguish between gaps that are addressable through better data collection versus those that require analytical solutions or Commission-level decisions.

Data gap / limitation (describe specifically)	Priority	Data type(s) affected	Impact on scientific advice (what advice cannot be given or is less reliable?)	Addressable through improved data collection?	If yes, what would be required?	Addressable through improved analytical methods?	Notes

Section 6: Additional Comments

Please use this sheet to provide any additional context, flag issues not captured in the sections above, or make suggestions for the DWG workplan and the CMM 02 review.

Are there data types not listed in Section 1 that your WG uses or needs?	
Are there data submission formats or standards that would significantly improve your work?	
Are there coordination issues with other WGs around shared data needs?	
Are there data types collected under CMMs that your WG does not use and considers of low scientific value?	
What single data improvement would have the greatest positive impact on your WG's scientific advice?	
Any other comments for the Data Working Group:	

The JM framework should separate three judgments for every potential trigger:

- Outside the tested envelope?
- What is the resulting stock or management risk?
- How much does it influence the MP recommendation?

This avoids treating every unusual observation as a crisis while ensuring that a benign-looking observation is investigated when it strongly affects the TAC.

An annual JM exceptional-circumstances review could examine:

- Stock and fishery indicators.
- Availability, quality, precision, and methodological consistency of MP inputs.
- New information about recruitment, productivity, natural mortality, or stock structure.
- Changes in fleet behavior, fishing areas, selectivity, or monitoring coverage.
- Catch and other removals relative to the recommended TAC and tested assumptions.
- Whether observed indicators remain within OM-generated predictive ranges.
- Whether the MP is behaving consistently with its intended yield, safety, and stability objectives.

For each item, the Working Group could record:

Question	Finding
Is it outside the MSE-tested range?	Yes, no, or uncertain
Is the departure explained?	Scientific or operational explanation
What is the stock-risk implication?	Low, moderate, or high
What is its influence on the TAC?	Low, moderate, or high
Is it already covered by a robustness OM?	Relevant OM or gap
What action is appropriate?	Monitor, investigate, recondition OMs, retune MP, or conduct full MSE

The predictive bounds and severity categories would need to be agreed for jack mackerel e.g., outside of 95% CPUE bound is an example.

Experience from other examples shows that exceptional-circumstances monitoring should be a structured scientific diagnosis rather than an automatic MP override. The Working Group should distinguish whether an observation lies outside the conditions tested in the MSE, whether it creates resource risk, and whether it materially affects the TAC recommendation. Depending on that diagnosis, the response may range from continued monitoring or targeted investigation to OM reconditioning, MP retuning, or full MSE redevelopment.

This suggests that JM should specify both an annual exceptional-circumstances protocol and a separate schedule for comprehensive MP review before implementation.

Distinguishing from an MP review

An MP is intended to balance three broad objectives over the long term:

- Yield: acceptable catches.
- Status and safety: low risk to the resource.
- Stability: limited catch variability.

Robustness comes from testing the MP across operating models representing plausible uncertainties—not merely against the most likely assessment.

A scheduled MP review responds to:

- New monitoring data and updated estimates of stock behavior.
- New scientific findings or revised uncertainty.
- Opportunities to improve performance while retaining acceptable risk.

The operating models are then revised or reconditioned and the existing MP is retested. Importantly, a review does not presume that the MP must change:

1. Retain it if it still meets the agreed objectives.
2. Retune its parameters if performance is no longer adequate.
3. Change its structure only when retuning is insufficient or a clearly better design is justified.

This differs from an exceptional-circumstances check. That is a more frequent check of whether monitoring observations remain within the conditions anticipated by the MSE. An exceptional-circumstances finding may trigger interim action or bring the full MP review forward.

SC14 Meeting Report
Annex 12: Jack Mackerel Summary Advice

Stock status summary for Jack mackerel, September 2026

Stock: Jack Mackerel (*Trachurus murphyi*)
Region: Southeast Pacific

In conformity with the approach by the SC since 2012, a comparison was made between the 1-stock (H1) and 2-stock (H2) model configurations for Jack mackerel. Since the 2026 benchmark assessment workshop focussed on improving the biomass indices, the scale of the stock(s) changed. Model results from the two areas differed over some periods, but both stocks under H2 showed increasing biomass since 2010 with fishing mortality on average being below F_{MSY}. This was also true under the H1 assessment model results.

Advice for 2027

The SC acknowledged that there appears to be more uncertainty on the status of the jack mackerel resource. Most members acknowledged that, to meet the management objective for jack mackerel in the medium term (2032) and long term (2036), fishing needs to be restricted to the fishing mortality similar to that of 2026. This gives a range of advice for 2027 as between 964 - 1,152 kt. In the interest of reducing the extent of TAC reduction, one member proposed evaluating the TAC in a step-wise manner. This gave a 2027 TAC of 1,319 kt.

In light of the accepted completion of the MSE, should the Commission decide to adopt a management procedure for this year, another Member proposed two candidates (CMP29 and CMP45) based on the extension from the 2026 TAC. This gives a 2027 TAC of 1,424 kt (both CMPs gave the same TAC advice due to specified constraints on TAC changes).

Stock status

		2027	2028
Fishing mortality in relation to:	F_{MSY}	Below	Below
Spawning stock biomass in relation to:	B_{MSY}	Above 80%	Above 80%

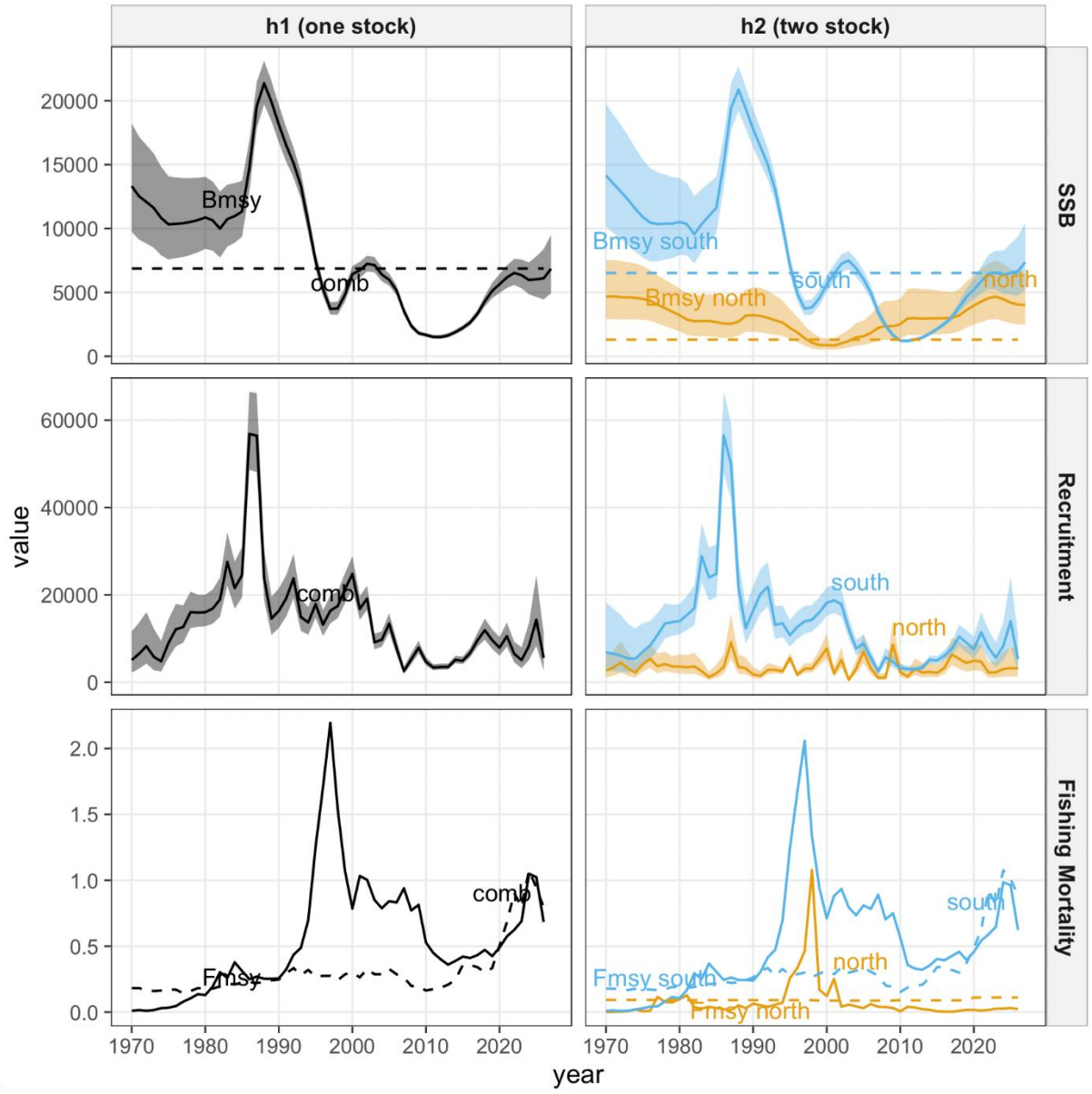


Figure 1. Jack mackerel in the southeast Pacific. Summary of stock assessment estimates over time showing spawning biomass (in thousands of tonnes; top), recruitment at age 1 (millions; middle), and total fishing mortality (as an instantaneous rate per year; middle). Columns show results for the one-stock hypothesis (H1, left) and two-stock hypothesis (H2, right, "north" stock in yellow and "south" stock in blue). Shaded areas refer to the estimated uncertainties.

Table 2: Advised catch, Catch Limits and reported catch of Jack Mackerel in the southeast Pacific.

Year	Advice	Recommended Maximum Catch	Catch Limit CMM area	Catch Limit throughout range	Catch throughout range
2013	Projection results under the assumption of recent average recruitment at the levels estimated for the recent period (2000–2012) indicate that fishing mortality should be maintained at or below 2012 levels to improve the likelihood of spawning biomass increasing. This results in catches for 2013 on the order of 441kt or lower.	441,000	360,000	438,000	355,540
2014	In sum, the advice to the Commission is to aim to maintain 2014 catches for the entire jack mackerel range in the southeast Pacific at or below 440 kt.	440,000	390,000	440,000	415,367
2015	The Commission should aim to maintain 2015 and 2016 catches for the entire jack mackerel range in the southeast Pacific at or below 460 kt.	460,000	410,000	460,000	395,210
2016	The SC agreed that the recommendation from 2014 for catches in 2016 is still appropriately precautionary. Namely, that the Commission should set 2016 catches limits for the entire jack mackerel range in the southeast Pacific at or below 460 kt, based on a status quo fishing mortality of 2014.	460,000	410,000	460,000	389,101
2017	On the application of the adjusted rebuilding plan adopted by the 2nd Meeting of the Commission as proposed from SC02, the Commission should aim to maintain 2017 catches for the entire jack mackerel range in the southeast Pacific at or below 493 kt.	493,000	443,000	493,000	406,125
2018	Given current stock status, the second tier of the Jack mackerel rebuilding plan could be applied, thereby substantially increasing the potential catch. Considering the uncertainties in the assessment however, the Scientific Committee adopts a precautionary approach and advises to maintain 2018 catches for the entire Jack mackerel range in the southeast Pacific at or below 576 kt.	576,000	517,582	576,000	527,538
2019	The SC recommended status quo fishing effort which gives 2019 catches throughout the range of the Jack mackerel stock(s) at or below 591 kt. Although the stock is estimated to be in the "second tier" of the harvest control rule (>80% of B_{MSY}), the retrospective analysis shows a tendency of overestimating the stock size. In addition, there is information that suggests that the growth of jack mackerel has been underestimated. These two factors warrant additional precaution and further investigation.	591,000	531,061	591,000	635,569
2020	In line with the accepted rebuilding plan ("Adjusted Annex K") and because the Jack mackerel biomass is estimated to be above B_{MSY}, the SC recommended a 15% increase in 2020 catches throughout the range of Jack mackerel resulting in a total catch limit at or below 680 thousand tonnes.	680,000	618,001	680,000	725,945
2021	In line with the accepted rebuilding plan ("Adjusted Annex K") and because the Jack mackerel biomass is estimated to be above B_{MSY}, the SC recommended a 15% increase in 2020 catches throughout the range of Jack mackerel resulting in a total catch limit at or below 782 thousand tonnes.	782,000	710,702	782,000	802,040
2022	In line with the accepted rebuilding plan (outlined in the SCW14 report) and because the Jack mackerel biomass is estimated to be above 100% of BMSY, the SC recommended: a precautionary 15% increase in 2022 catches throughout the range of Jack mackerel- at or below 900 kt.	900,000	817,943	900,000	961,598
2023	In line with the accepted rebuilding plan (outlined in the SCW14 report) and because the jack mackerel biomass is estimated to be above BMSY, the SC recommended a precautionary 15% increase in 2023 catches throughout the	1,035,000	981,832	1,080,000	1,113,4379

Year	Advice	Recommended Maximum Catch	Catch Limit CMM area	Catch Limit throughout range	Catch throughout range
	range of jack mackerel- at or below 1,035 kt. This advice for catch limits in 2023 does not depend on the stock structure hypothesis that is used.				
2024	In line with the accepted rebuilding plan (outlined in the SCW14 report) and because the jack mackerel biomass is estimated to be above BMSY, the SC recommended a precautionary 15% increase in 2024 catches throughout the range of jack mackerel- at or below 1,242 kt. This advice for catch limits in 2024 does not depend on the stock structure hypothesis that is used.	1,242,000	1,135,295	1,242,000	1,330,070*
2025	In line with the accepted rebuilding plan (outlined in the SCW14 report) and because the jack mackerel biomass is estimated to be above BMSY, the SC recommended a precautionary 15% increase in 2025 catches throughout the range of jack mackerel- at or below 1,428 kt. This advice for catch limits in 2025 does not depend on the stock structure hypothesis that is used.	1,428,000	1,419,119	1,552,500	1,494,544*
2026	The SC lacked consensus on the interpretation of the harvest control rule as outlined in the SCW14 report. As such, the SC provided two aforementioned approaches: · that the 2026 TAC be at or below 1,642.2 kt, (15% increase over the 2025 SC catch advice) · that the 2026 TAC be at or below 1,785.4 kt, (15% increase over 2025 TAC).	1,642,200 or 1,785,400	1,531,071	1,674,975	1,101,496*
2027	Given the uncertainty of the stock status and the pending status of the completed MSE, the SC was unable to come to a consensus on a single recommendation for specific maximum catch limits.	964,000 - 1,152,000 (assessment) or 1,319,000 (stepwise**) or 1,424,000 (CMPs 29 and 45**)			

2013 advice was given by the Science Working Group.

* Preliminary values estimated at SC14

** Advice recommended by some members of the SC

SC14 Meeting Report
Annex 13: Jack Mackerel Technical Annex

The jack mackerel technical advice annex will be linked here and uploaded to the SC14 meeting page when it becomes available.

SC14 Meeting Report
Annex 14: Chondrichthyan handling and release protocol for bottom fishing operations

Australian Government
Department of Agriculture, Fisheries and Forestry

ABARES

Chondrichthyan handling and release protocol for bottom fishing operations in SPRFMO Convention Area

Brooke D'Alberto and Trent Timmiss

Research by the Australian Bureau of Agricultural and Resource Economics and Sciences

Technical Report
August 2026



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Acknowledgement of Country
We acknowledge the continuous connection of First Nations Traditional Owners and Custodians to the lands, seas and waters of Australia. We recognise their care for and cultivation of Country. We pay respect to Elders past and present, and recognise their knowledge and contribution to the productivity, innovation and sustainability of Australia's agriculture, fisheries and forestry industries.

Background

At the 14th Meeting of the South Pacific Regional Fisheries Management Organisation (SPRFMO) Commission (COMM14), the Commission tasked the SPRFMO Scientific Committee (SC) to develop protocols for releasing sharks alive.

Following the tasking from COMM14, Australia has prepared a best handling and release protocol for sharks, rays and chimaeras (chondrichthyans) for bottom fisheries in the SPRFMO Convention Area. Available scientific literature, fisheries data and published shark and ray handling documents from other Regional Fisheries Management Organisations were reviewed to identify the most effective practises for best handling and release procedures for chondrichthyans commonly caught in SPRFMO demersal trawl and bottom longline fisheries.

This document provides detailed, fishery specific best handling practises to improve post-release survival of chondrichthyans and ensure crew safety.

Recommendations

That the SPRFMO SC **notes:**

1) The attached report prepared by Australia

That the SPRFMO SC **RECOMMENDS** to the Commission that it:

1) Endorse the methods, handling and release guidelines in the attached report.
2) Consider further work on reducing chondrichthyan bycatch in bottom fishing in the SPRFMO Conversion Area, including gear selectivity and modifications

Australian Government
Department of Agriculture, Fisheries and Forestry

ABARES

SPRFMO
South Pacific Regional Fisheries Management Organisation

Attachment A: Chondrichthyan handling and release protocol for SPRFMO bottom fisheries

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1 Introduction

Many chondrichthyan species are facing substantial global population declines due to overfishing (Dulvy et al. 2021). Bycatch (unintentional catch of non-target species) of chondrichthyans can pose a significant challenge for their conservation and management and is a major concern for the sustainability of fisheries (Alverson et al. 1994; Kennelly 2007). The need to reduce fishing mortality and bycatch of chondrichthyans has been widely recognised in domestic and international fisheries (Dulvy et al. 2021; FAO 1999).

In the SPRFMO Convention Area, chondrichthyans are most commonly caught with mid-water and demersal fisheries, including both longline and trawl gears. These fisheries, which also includes exploratory fisheries, target demersal fish species, such as orange toothfish, hapuku and lobsters, which are typically associated with seamounts, ridges and plateaus.

Gear selectivity on species composition occurs between trawl and longline methods (Clarke et al. 2005). In the SPRFMO Convention Area, mid-water and bottom trawl methods primarily interact with deepwater and benthic chondrichthyan species, such as dogfishes (Families Squalidae), kitefin sharks (Family Dalatiidae) and gulper sharks (Family Centrophoridae; Appendix A). While demersal longline fisheries, including exploratory fisheries, in the SPRFMO Convention Area interact with a wider range of chondrichthyan species (Appendix A) due to gear selectivity and greater depth range, including:

- pelagic species e.g. Blue shark (*Prionace glauca*), Hammerhead sharks (Family Sphyrnidae), Oceanic whitetip sharks (*Carcharhinus longimanus*), Thresher shark (*Alopias vulpinus*), Longfin mako (*Isurus paucus*), and Shortfin mako (*Isurus oxyrinchus*)
- coastal/reef associated species e.g. Whitetip reef shark (*Triaenodon obesus*), Grey reef shark (*Carcharhinus amblyrhynchos*), Stingrays (Family Dastatidae), Tiger shark (*Galeocerdo cuvier*), Bronze whaler (*Carcharhinus brachyurus*)
- deepwater species e.g. Dogfishes (Family Squalidae), Gulper sharks (Family Centrophoridae), Ghostsharks (Family Chimaeridae), Lantern sharks (*Etmopterus* spp.), Skates (Family Rajidae).

In SPRFMO, concerns about the incidental capture of vulnerable shark and rays species, as well as marine mammals, sea birds and reptiles, has resulted in increased efforts to design and implement conservation and management measures (CMMs) aimed at avoiding interactions of such species with fishing gears and reducing their mortality. Several species of sharks and rays are listed as other species of concern under Annex 14 of Conservation and Management Measure (CMM) Standards for the Collection, Reporting, Verification and Exchange of Data (CMM 02-2026; SPRFMO 2026), recognising these species vulnerability to fishing pressures in SPRFMO. One proven method on reducing mortality of chondrichthyans is to generate best handling practises and releasing animals alive to improve post-release survival (Ruiz-García et al. 2025).

At COMM14, the Commission tasked the SPRFMO SC to develop a protocol for releasing shark alive. Following the tasking from COMM14, Australia has prepared a best handling and release protocol for all species of sharks, rays and chimaera for bottom fisheries in the SPRFMO Convention Area. Available scientific literature and published shark and ray handling documents from other RFMO's

were reviewed to identify the most effective practises for best handling and release procedures for sharks and rays commonly caught in the SPRFMO trawl and bottom longline fisheries.

This paper details the best practises for handling and releasing chondrichthyan species alive for trawl and longline gears, as well as information to ensure crew safety and further considerations for chondrichthyan bycatch reduction methods.

2 Crew safety

Sharks and rays can add to the risk of commercial fishing to crew when caught (AFMA 2023). They are unpredictable animals and individuals behave differently when they are handled on the deck. Potential injuries of being struck, tripped or bitten by sharks, or stung and cut by ray barbs are possible.

Crew should always put their personal safety first when releasing sharks, rays and other large fish (AFMA 2023). To reduce risk of injury to the crew and to the animals, fishers should:

- Wear gloves and avoid working around the jaws of sharks and tails of rays.
- Keep the animal in the water, if possible, to reduce stress and post release mortality to the animals.
- If a shark or ray must be brought on the deck, then
  - minimise the time it takes to return it to the water to increase post release survival
  - carry and use stretchers/cradles to manually restrain sharks.
- In longline fisheries, cut sharks off close to the hook as possible while ensuring crew safety, in order to reduce the amount of trailing line.

2.1 Suggested equipment

It is important to have the correct equipment to ensure crew safety when handling chondrichthyans (Gilman et al. 2008; Hutchinson et al. 2024; Hutchinson et al. 2025; Mura et al. 2025), including:

- hook remover/de-hooker
- pincers or bolt cutters
- long-handled pruning shears
- gloves
- protective glasses.

3 Best practises for handling sharks, rays and chimaeras

This section outlines the best handling and release practises for chondrichthyans, for when the animal is able to be left in the water, or when the animal is brought onboard. Appropriate handling practises can have a significant impact on the survivorship of the animal after interaction with fishing gear (Patterson & Tudman, 2009). These handling practises can minimise risk of injury and stress to the animal, as well as for the crew members (AFMA 2023).

The condition of the animal can be assessed by noting several features (AFMA 2023). These features can indicate impending death:

- stiffening of the body with muscle tone becoming increasingly defined
- lighting of skin colour
- slow response to touch
- movement becoming sluggish or non-existent
- in some shark species, the eyelid (nictating membrane) is slow to close or doesn't close when the eye is touched
- major wounds on the body.

Animals in good condition will show strong, vigorous body and spiracle movement, as well as few or no lesions on the body.

3.1 All fisheries

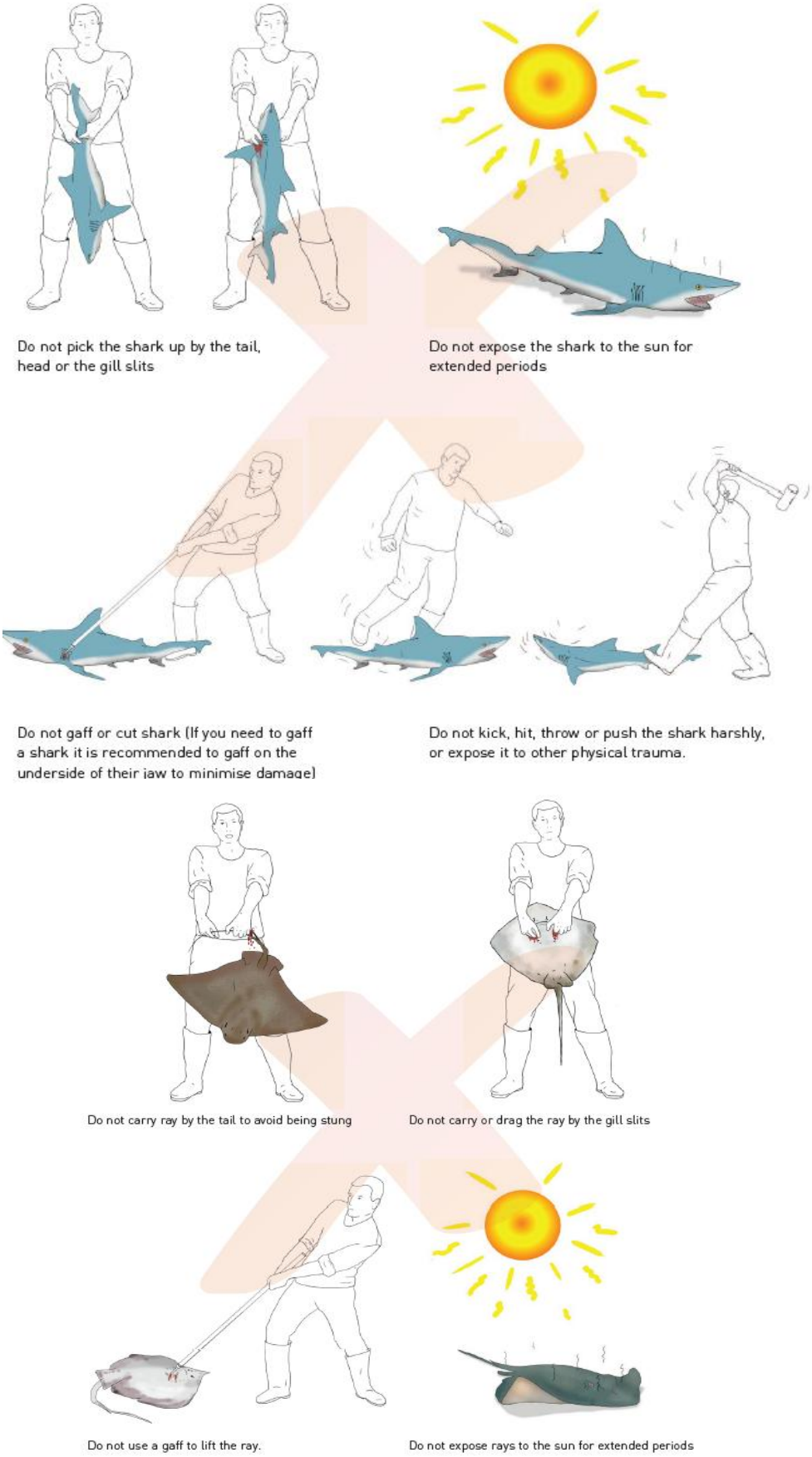
Do

- Keep the animals in the water if possible.
- Ensure sharks, rays, skates and chimaeras are released immediately.
- Prioritise releasing animals alive and in good condition, where possible.

Do not

- Leave the animal on the deck.
- Expose the animal to sun for extended periods.
- Lift the animal by the head, tail or gill slits.
- Drag or carry skate or rays by its lobes, tail, gill slits or spiracles.
- Gaff or cut animal where possible. If required to gaff the animal, it is recommended to gaff on the underside of their jaw to minimise damage.
- Kick, hit, throw or push the animal harshly or expose it to other physical trauma (Figure 1).

Figure 1 Incorrect methods of handling sharks, rays, skates and chimeras



Source: Australian Fisheries Management Authority.

3.2 Handling practises in the water

These handling practices are more appropriate for demersal longline fisheries, where the animal is able to be left in the water (AFMA 2023; FAO 2018; Hutchinson et al, 2017; Hutchinson et al. 2024).

It is important to keep the animals in the water if possible (Figure 2). If electronic monitoring system is being used onboard as a logbook validation and data collection tool, ensure where possible that the animal able to be identified on the video camera before being released, for example by bringing it close to the boat so that it can be captured by video.

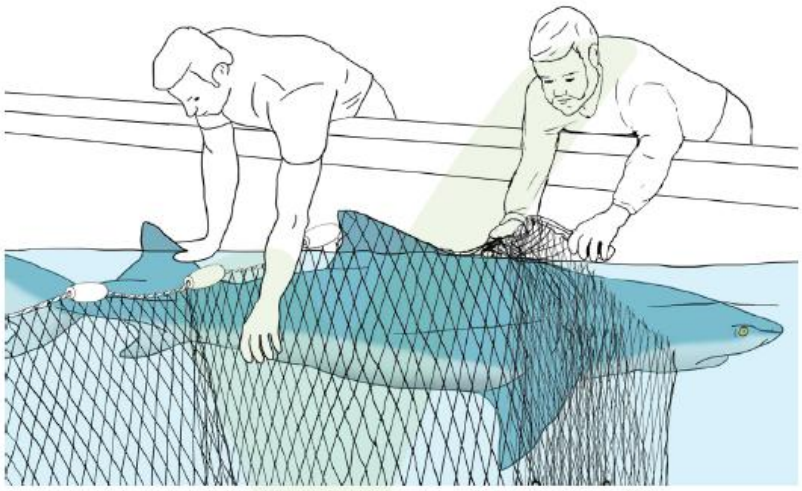
Do

- Slow the vessel and line hauling rate (if applicable) to bring the animal alongside the vessel for identification and gear removal.
- Remove all gear as much as possible while the animal is in the water.
- If attempting to remove hooks, use pliers or de-hookers or long-handled de-hookers for vessels with high freeboards (>1 metre).
- When hooks are not removed, use a line cutter to cut the line as close to the hook or mouth as possible, leave no more than 1 meter of gear attached to the animal and ensuring that weights are removed.
- Extreme care should be taken when working near the head of the shark.
- Where possible, always approach the shark from behind, particularly if it has been brought on aboard.
- For auto-longline vessels, remove all animals from the line before entering the de-hooking machine as it can cause significant injury to the animal's jaw.

Do not

- Use drag lines or drag the animal behind the vessel until the hook rips free of the jaw.
- Hit or slam the animal against the side of the vessel in attempt to get the animal off the line.
- Attempt to dislodge deeply hooked or ingested hooks by pulling the branchline off through the use of dehooker.
- Use gaffs for lifting or manoeuvring.
- Lift and drop animals from the vessel height.
- Lift the animal using the branchline if hooked.
- Wrap fingers, hands or arms in the line when bringing in an animal to the boat.
- Restrain the animal against the boat for long periods of time.
- Cut the tail of the animal.

Figure 2 Best handling methods for large sharks without bringing them on board



Correct handling practice: removing sharks from gear without bringing them on board.

Incorrect handling practice: Do not stand next to or in front of the shark, remain behind the head.

Source: Australian Fisheries Management Authority.

3.3 Handling practices onboard vessels

These handling practices are applicable for trawl and demersal longline fisheries where the animal is brought onboard the vessel.

If animals are brought onboard for gear removal and/or release, then (AFMA 2023; Graça Aranha et al. 2024):

- Under no circumstances should the animal be allowed to hit the roller on longline vessels, as this impact is likely to break their jaws and limit long term survival.
- Do not allow any animals to go through a dehooker on board.
- Use a net, lasso or second point of attachment to help lift onboard (if applicable).
- Manoeuvre the animals using manual restraint of pectoral fins and caudal peduncle (for sharks). This may require two crew members depending on the size of the animals.
- Use a stretcher or cradle for handling and restraint for the safety of the crew, and to reduce risk of injury to the animal.
- Keep the animal horizontal while lifting and animal and when the animal is placed onboard.

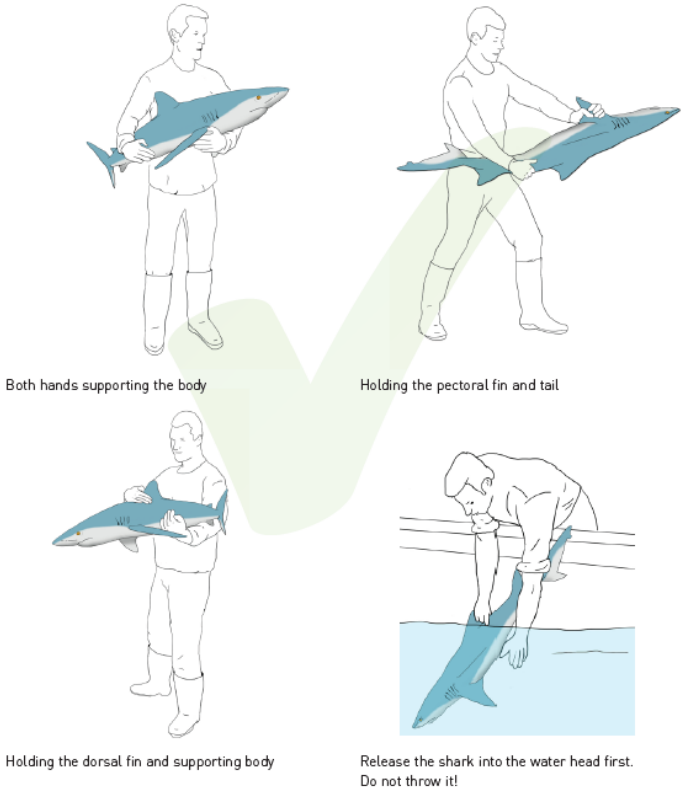
3.3.1 Sharks and Chimaeras

Small to medium sharks and chimaeras

For small to medium sized sharks and chimaeras (< 1 m), they may be handled by one person however they can be very fragile and need to be handled carefully (AFMA 2023; Figure 3).

- Use both hands to handle and release the animal by either
  - using both hands to support the body
  - holding the pectoral fin and tail
  - holding the dorsal fin and supporting the body.
- Release the animal head first into the water.
- Do not throw the animal into the water.

Figure 3 Best handling methods for small to medium sharks and chimeras



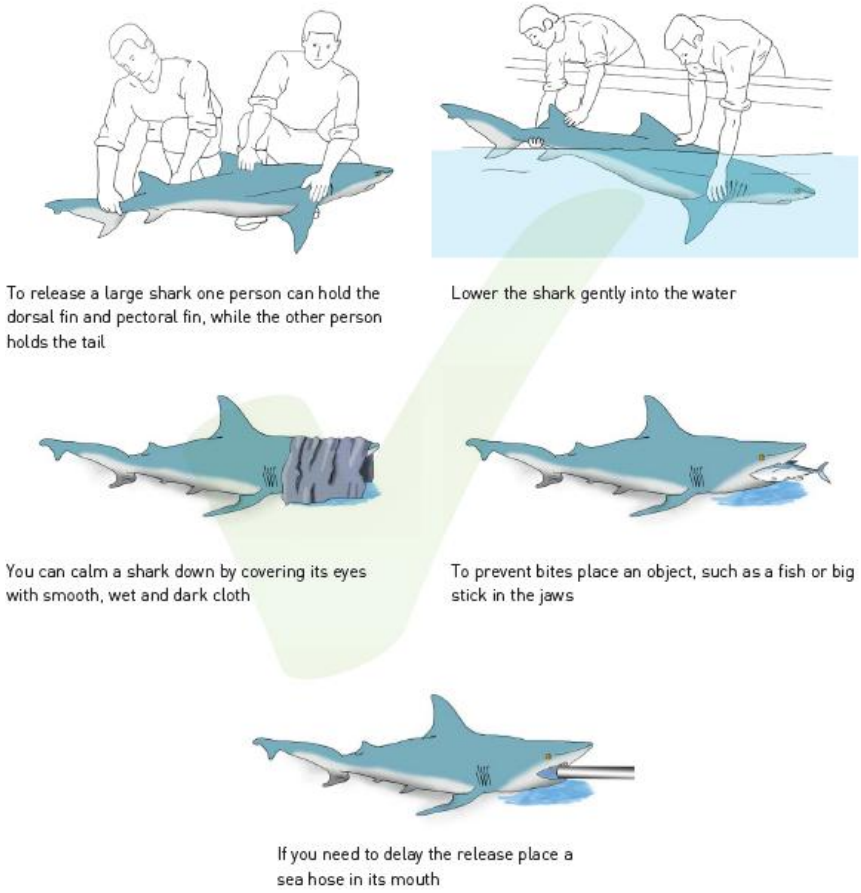
Source: Australian Fisheries Management Authority

Medium to large sharks and chimaeras

For medium to large sharks and chimaeras (1-2 m), it is best to handle these animals with two people (AFMA 2023; Figure 4).

- To release a large animal one person can hold the dorsal fin and pectoral fin, while the other person holds the tail. Then lower the animal gently into the water.
- If the animal is agitated, calm the animal down by covering its eyes with a smooth, wet and dark cloth.
- To prevent bites, place an object, such as fish or large stick in the jaws.
- If release is delayed, place a sea hose with running water in the animal's mouth to ensure they can breathe and to increase its survivability.

Figure 4 Best handling methods for medium to large sharks and chimeras



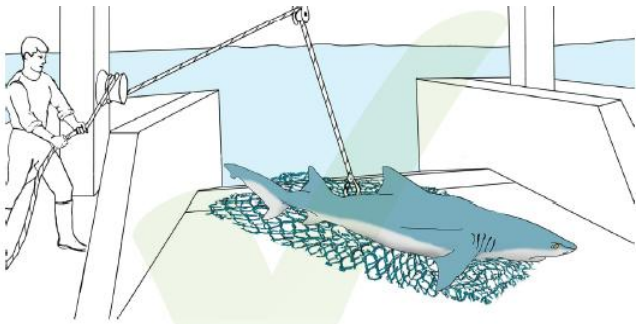
Source: Australian Fisheries Management Authority.

Very large sharks

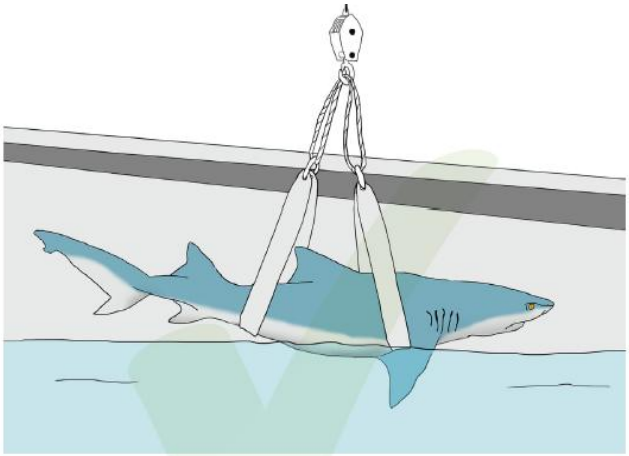
All efforts should be made to free very large sharks (> 2 m) without bringing them onboard the vessel. If a very large shark is required to be brought onboard (AFMA 2023; Figure 5):

- Prepare by laying out a large tarp or unused section of a trawl mesh and the shark should be removed from the fishing gear onto the tarp or mesh.
- Once the shark is on board, place a wet towel over its eyes to calm the animal down and reduce the risk of injury.
- Place a running sea hose into the mouth of the shark to irrigate the gills to ensure they can breathe, while the gear is being removed for the animal.

Figure 5 Best handling methods for very large sharks when bringing the animals on board



Correct handling practice: shark brought on board onto trawl mesh



Correct handling practice: shark lifted with the use of wide slings

Source: Australian Fisheries Management Authority.

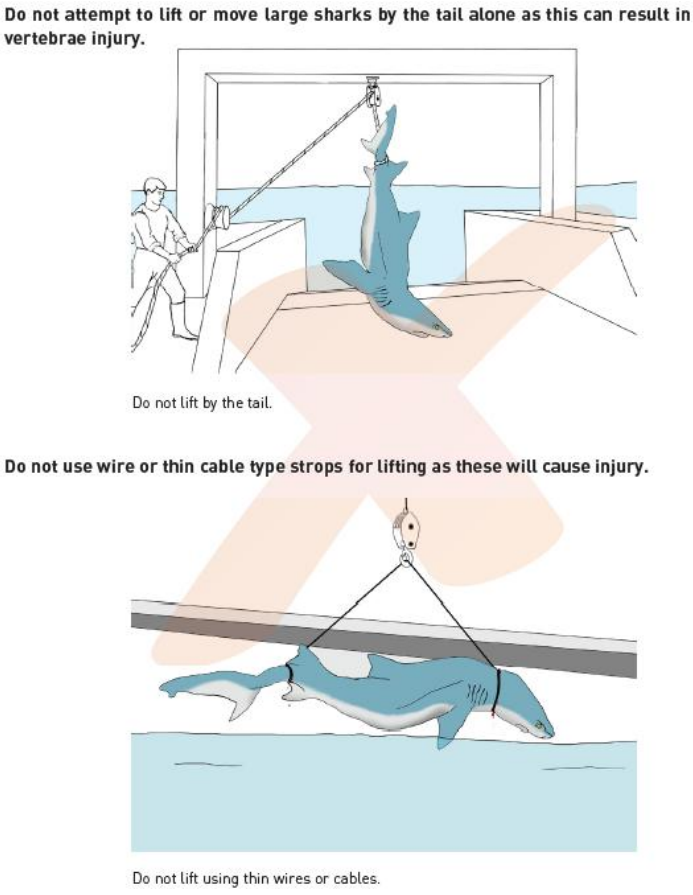
Sharks in good condition should be returned to the water with minimal lifting and head first.

- Manoeuvre the shark towards the stern using the tarp or mesh to help spread the pressure more evenly through the animal's body.
- Release head first down the stern ramp.
- For vessels without a stern ramp, the shark may need to be lifted, which should be undertaken with a minimum of two wide slings to support the weight of the animal while it is out of the water.

For sharks in poor condition, attempts to revive the animal should take place by:

- Placing the shark on the side of the boat with the shark facing forward.
- Having the boat just in gear or moving forward slowly to allow water to pass through the gills of the shark to re-oxygenate it.
- Do not use a gaff to hold the shark in position.
- Do not attempt to lift large sharks by the tail alone as this can result in vertebrae injury.
- Do not use wire or thin cable type strops to lift large sharks as these will cause injury (Figure 6).

Figure 6 Incorrect handling methods when bringing a large shark on board



Source: Australian Fisheries Management Authority.

3.3.2 Skates and Rays

For all skates and rays (AFMA 2023; Hutchinson et. al, 2017):

Do not

- Carry skates and rays by the tail to avoid being cut or strung.
- Carry or drag skates and rays by the gill slits or spiracles.
- Use gaff to lift the skates and rays.
- Expose skates and rays to sun for extended periods.

When handling small and medium sized skates and rays (< 1m; AFMA 2023; Figure 7):

- May be handled by one person.
- Isolate the tail and pick the animal up by the snout or spiracles (openings behind the eyes) and support the base of the tail.
- Make sure fingers are kept away from the mouth.
- Hold the ray away from your body to avoid lashes of the tail and barb.
- Keep the animal as upright as possible to avoid bending the tail and compromising the vertebrae.

For large skates and rays (1-2 m; AFMA 2023; Figure 7):

- Use two people to handle the animal.
- Carry the animal by the wings.
- Support the snout and wings.

Figure 7 Best handling methods for skates and rays



Source: Australian Fisheries Management Authority.

4 Post release mortality and survivorship

There are a number of factors which can influence the post release survivorship of chondrichthyans. This includes the method of capture (longline or trawl), species specific sensitivity to physiological stress (e.g. hammerhead shark species are very sensitive to stress, compared to other large, bodied sharks), time spent on the line and/or on the deck, air temperature, temperature differences between bottom and surface waters, amount of trailing gear left on the animal, and handling methods (Table 1).

Table 1 Factors affecting chondrichthyan mortality by demersal longline, mid-water trawl and bottom trawl gears.

Fishing method	Factors affecting mortality	References
Bottom longline	Physiological sensitivity to stress	Mandelman and Skomal 2009; Musyl & Gillman 2018
	Gear composition	Bowlby et al. 2020; Francis et al. 2023; Hutchinson et al. 2021; Musyl & Gillman 2018
	Leaving animal in the water	Francis et al, 2023; Hutchinson et al. 2021; Bowlby et al. 2020
	Amount of gear left on animal	Francis et al, 2023; Hutchinson et al., 2021
	Handling and release methods	Hutchinson et al., 2021
	Air temperature/water temperature difference	Talwar et al. 2017
Trawl (demersal, mid-water)	Physiological sensitivity to stress	Ruiz-García et al. 2025; Ruiz-García et al. 2026
	Handling and release methods	Ellis et al. 2017; Ruiz-García et al. 2025; Ruiz-García et al. 2026
	Time spent on deck	Ruiz-García et al. 2025; Ruiz-García et al. 2026
	Air temperature/water temperature difference	Talwar et al. 2017; Scacco et al. 2023; Ruiz-García et al. 2025

4.1 Fishing related injuries

4.1.1 Hook damage

The type of hook used in longline fisheries may have a direct impact on the type of fishing related injuries for elasmobranchs. Hooks lodged in gills can tear tissue, causing severe blood loss, while swallowed hooks can be lodged in the digestive tract and cause abscesses, leading to infection and death. Hooks which break through the digestive track may also become lodged in other organs such as the liver (AFMA 2023).

To reduce the risk of injury to non-target sharks, the use of circle hooks is encouraged (AFMA 2023). Unlike J-hooks, circle hooks are designed to significantly reduce the chance of swallowing the hooks and causing internal damage.

4.1.2 Gaffing

It is generally not recommended using a gaff to handle or move chondrichthyans due to the potential for injury to the animal (AFMA 2023). Gaffing to the rear of the head or gill region can result in death from damage to the brain and/or cause severe blood loss. Gaffing to other parts of the body along the trunk can result in additional organ damage and potentially result in death, depending on the location, depth of the wound and animal condition (AFMA 2023).

If it is required to gaff a shark, ray, skate or chimaera, it is recommended that it is used on the underside of their jaw. In this area, the skin is soft, will not cause significant damage or blood loss, and is more likely to heal relatively quickly with no long-term impacts to the animal (AFMA 2023).

4.1.3 Maiming

Chondrichthyans that are caught in nets should be carefully untangled or cut free, before being quickly released into the ocean (AFMA 2023). Maiming and discarding of live animals to facilitate a quick removal from a tangled net and increase the processing of the catch should be avoided to improve the survival of the animal once released (AFMA 2023).

4.1.4 Pressure changes and collapsed organs due to gravity

Deepwater chondrichthyan species, which are commonly interacted with in SPRFMO demersal fisheries, have adapted to living at great depths. Relative quick changes in depth can cause barotrauma from the rapid decrease in pressure when brought to the surface (Patterson & Tudman, 2009; AFMA 2023). Furthermore, once the animal is removed from the water, the organs can become compressed, displaced and/or collapsed. The impact of gravity over a prolonged period may restrict blood flow by compressing the heart and circulatory system (AFMA 2023).

In addition to pressure changes, as deepwater species are brought to the surface, their liver oils expand and change from solid to liquid. This results in buoyance issues and animals floating on their back when they reach the surface (Patterson & Tudman, 2009).

It is important to support the bodies of the chondrichthyans when returning them to the water and prioritise immediate release.

4.1.5 Air exposure and temperature shock

Chondrichthyans can experience temperature shock when retrieved from the water. This is caused by wind chill and more likely to occur in the colder seasons when the water temperature is warmer than the air temperature (AFMA 2023; Talwar et al. 2017). Chondrichthyans tend to have body temperatures similar to their surroundings and sudden temperature changes disrupt bodily functions, potentially causing mortality (AFMA 2023).

All efforts should be made to the return chondrichthyans to the water as quickly as possible.

Bycatch reduction methods

Reducing bycatch of chondrichthyans, particularly deepwater species, is one of the main strategies for mitigating the impact of fishing on these animals. This may be achieved through reducing spatial and temporal overlap between fishing operations, avoiding known areas with high concentrations of chondrichthyans, and gear modification (Graça Aranha et al. 2024).

Some species, including deepwater chondrichthyans, are known to aggregate in areas of biological significance for feeding, mating, parturition or nursery habitats. Several of these areas may be consistent in space and/or time. If these areas are identifiable by the fishers, then fishing in these areas could be avoided. Other aggregation sites may be dependent on environmental variables and thus harder to predict and avoid. The efficacy of spatial management is dependent on movement patterns, spatial distribution and aggregating behaviour so information on these parameters is essential.

Some considerations to reduce interaction rates and mortality with chondrichthyans species for both demersal longline and trawl method are (Graça Aranha et al. 2024; Hutchinson et al. 2017):

- When practical, avoid fishing in areas with high rates of chondrichthyan bycatch.
- When identified, avoid fishing in known nursery areas of chondrichthyans.

Further work should be considered on the impact of gear selectivity and potential modifications, such as leader material and hook shape, and fishing operation considerations, such as fishing depth and haul speed, on the effectiveness of reducing chondrichthyan bycatch in bottom fishing in the SPRFMO Conversion Area.

Appendix A: Chondrichthyan species in SPRFMO in bottom fisheries

Table A1 Presence or absence of chondrichthyan species by gear type based on current and historical catch and effort from Australian mid-water trawl, bottom trawl and demersal longlines.

FAO code	Common name	Scientific name	Demersal Longline	Bottom Trawl	Mid water Trawl
RNZ	Angel Sharks	Family Squatinidae	X		
GAB	Australian Sawtail Catshark	*Figaro boardmani*	X		
HYD	Black Ghostshark	*Hydrolagus homonycteris*	X		
RSK	Blacktip sharks	*Carcharhinus, Loxodon & Rhizoprionodon spp*	X		
BSH	Blue Shark	*Prionace glauca*	X		
DNA	Brier Shark	Deania calcea	X	X	
NTC	Broadnose Shark	*Notorynchus cepedianus*	X		
BRO	Bronze Whaler	*Carcharhinus brachyurus*	X		
CCE	Bull Shark	*Carcharhinus leucas*	X		X
PPC	Common Sawshark	*Pristiophorus cirratus*	X		
DGX	Dogfishes	Family Squalidae	X	X	
SYX	Draughtboard Sharks	*Cephaloscyllium spp.*	X		
CEM	Endeavour Dogfish	*Centrophorus moluccensis*	X		
CWM	Ghostsharks	Family Chimaeridae	X		
DGZ	Greeneye Spurdog	*Squalus chloroculus*	X		
AML	Grey Reef Shark	*Carcharhinus amblyrhynchos*	X		
GUP	Gulper Shark	*Centrophorus granulosus*	X	X	X
DGX	Gulper Sharks	Family Centrophoridae	X	X	X
CTU	Gummy Shark	*Mustelus antarcticus*	X		
SPY	Hammerhead Sharks	Family Sphyrnidae	X		
CEU	Harrisson's Dogfish	*Centrophorus harrissoni*	X		
SHL	Lantern Sharks	Family Etmopteridae	X	X	X
LMA	Longfin Mako	*Isurus paucus*	X		
SDQ	Longsnout Dogfish	*Deania quadrispinosa*	X		
OCS	Oceanic Whitetip Shark	*Carcharhinus longimanus*	X		
DOP	Piked Spurdog	*Squalus megalops*	X		

FAO code	Common name	Scientific name	Demersal Longline	Bottom Trawl	Mid water Trawl
DGX	Roughskin Dogfishes	*Centroscymnus & Deania spp*	X	X	
PWS	Sawsharks	Family Pristiophoridae	X		
GAG	School Shark	*Galeorhinus galeus*	X		
RSK	Sharks (mixed)	Subclass Elasmobranchii	X	X	X
SMA	Shortfin Mako	*Isurus oxyrinchus*	X		
XAN	Sixgill and Sevengill Sharks	Family Hexanchidae	X		
SRX	Skates	Order Rajiformes	X		
LXL	Sleeper sharks	Family Somniosidae	X	X	X
SPZ	Smooth Hammerhead	*Sphyrna zygaena*	X		
CWO	Southern Dogfish	*Centrophorus zeehaani*	X		
PPU	Southern Sawshark	*Pristiophorus nudipinnis*	X		
STT	Stingrays	Family Dasyatidae	X		
ALV	Thresher Shark	*Alopias vulpinus*	X		
TIG	Tiger Shark	*Galeocerdo cuvier*	X		
RSK	Weasel Sharks	Family Hemigaleidae	X		
RSK	Whaler Sharks	Family Carcharhinidae	X		
SYX	Whitefin Swellshark	*Cephaloscyllium albipinnum*	X		
DGS	Whitespotted Spurdog	*Squalus acanthias*	X		
TRB	Whitetip Reef Shark	*Triaenodon obesus*	X		

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A scenario was considered acceptable when no retrospective pattern was detected, more than half of the indices passed each residual diagnostic test, and the median value of the shape parameter occurred lower than Schaefer.

Non-exhaustive list of diagnostics

Retrospective pattern:

a. Mohn' rho (-0.15,0.2)

Index residual:

a. Temporal trend test
b. Normality test
c. Autocorrelation test

Shape parameter:

a. The median value should be lower than Schaefer

Testing the predictive ability of the models: Models should be evaluated on their ability to predict the observations that management advice depends on. It is therefore recommended that each candidate stock assessment model be subjected to hindcast cross-validation. This process should involve:

a. Sequential removal of the terminal years of data (three years)
b. Refitting the model to each truncated time series.
c. Projecting the fitted model forward over the withheld years setting any process error to zero. The projected biomass should be multiplied by the estimated catchability to generate a predicted value of each withheld index observation, and this prediction compared directly with the value actually observed.
d. Calculating the mean absolute scaled error (MASE)

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Annex 16: Jumbo Flying Squid Management Strategy Evaluation planning

Workplan item	Item description	Lead	Timeline
3.1.9	Develop an Operating Model to support MSE and other simulation work, including support for multiple phenotypes.	CHL/CHN/SQ WG/ECU	
3.1.10	Extend the Operating Model to explicitly incorporate environmental effects on population dynamics, enabling research on climate change impacts.	SQWG	
3.2.1	Develop a plan for more detailed within-season fishery Monitoring depending upon the uptake of EM, etc.	SQWG	
3.2.2	Explore and develop alternative approaches to provide management advice if a stock assessment cannot be completed or is not suitable for management purposes.	SQWG	
3.1.X	Use available data from Members to parameterise key biological processes in the Operating Model, including maturity, growth and mortality by phenotype.	SQWG	
3.1.X	Develop an approach for conditioning the Operating Models in the absence of a benchmarked assessment model	SQWG	

MSE Objective: Evaluate whether management procedures compatible with the annual SPRFMO management cycle can achieve agreed sustainability objectives for jumbo flying squid under realistic biological, fishery and environmental variability, and assess whether climate-aware management procedures can improve robustness to environmental variability and climate-related changes.

Code	Activity	Coordinator	Funding		
			2027	2028	2029
3.5 Squid MSE					
3.5.1	Develop a staged roadmap for the Squid MSE, identifying the main technical and management components, respective roles, decision points and expected outputs.	SQWG/SC	In-kind	-	-
3.5.2	Facilitate dialogue with the Commission, managers and relevant stakeholders to identify management objectives, operational constraints, priority trade-offs and other considerations to guide the MSE.	SQWG/SC	-	In-kind	In-kind
3.5.3	Develop the technical specifications for the Squid MSE, including operating-model scenarios, data and implementation assumptions, performance metrics and criteria for evaluating candidate management procedures.	SQWG	-	In-kind	-
3.5.4	Design annual harvest control rules or other management procedures compatible with the SPRFMO management cycle, including climate-aware alternatives.	SQWG	-	In-kind	-
3.5.5	Evaluate the performance of candidate management procedures through MSE to determine their robustness to biological, fishery, data and environmental uncertainty.	SQWG	-	-	In-kind
3.5.6	Present preliminary MSE results and management trade-offs to the Commission, managers and relevant stakeholders, and use the feedback to refine the MSE framework and candidate management procedures. [2030?]	SQWG	-	-	-

OM requirements (ASTT ToR 2024):

Biology: to reproduce the different morphotypes of jumbo flying squid identified in the Southeastern Pacific, considering their differences in growth, and size at first maturity, as well as alternative assumptions regarding reproduction and stock-recruitment dynamics, and to mimic the semelparous biological trait and high natural mortality after spawning of the species.

Ecology: to consider ontogenetic migrations and spatial distributions of different phenotypes reported in the literature, as well as the high degree of cannibalism observed in this species. To consider the effect of climate variability on key parameters related to the life history of this species (e.g., growth, natural mortality, among others).

Fisheries: to consider the differences in selectivity among the various fleets operating on this species in the Southeastern Pacific, [both] at the size level (e.g., offshore vs. inshore fleets) [and sex level (e.g., trawl vs. jigging).]

Sampling: to consider different uncertainty scenarios associated with different levels of sampling effort (e.g., observer coverage, number of ports sampled).

Data reporting: to produce both aggregate statistics (i.e., catches, average sizes) and disaggregated data by size, fishing area, and fleet type, consistent with standardization of sampling effort among Members.

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Annex 17: Assessment Simulation Task Team for the Jumbo Flying Squid Terms of Reference and Workplan

1. Summary

Strong evidence of the complex population structure of the jumbo flying squid (*Dosidicus gigas*) in the Eastern Pacific Ocean exists. Three morphotypes with different size ranges, maturity sizes, and spatial distribution have been described for this species. Currently, three stock assessment models are under discussion in the context of the SPRFMO. However, these models currently do not take into account the biological and ecological knowledge of the species. For these reasons, an Assessment Simulation Task Team (ASTT) for the jumbo flying squid assessment with simulated data was proposed during SC11 and approved at COMM12 (COMM12-Doc06), with a reporting cycle for 2024 and 2025. The objective of the ASTT is to test the robustness of potential assessment models to the multiple uncertainties in the population structure of jumbo flying squid and the impact of the data availability in the performance of the assessment. The simulated assessment will provide understanding of the uncertainties associated with the assessment of Jumbo Flying Squid and the impact in the management measures for this resource within the SPRFMO Area.

2. Introduction

The assessment of cephalopods on a global scale is currently impeded by the life history of this resource and the paucity of information available from fisheries. The aforementioned species possess a number of distinctive biological characteristics, such as high phenotypic plasticity, rapid growth and a comparatively short lifespan. As a consequence of these attributes, it proves particularly challenging to develop a modelling tool that attempts to reproduce their population dynamics in a manner that more closely resembles reality (Arkhipkin et al. 2021), even more if there is evidence of a complex population structure as in the case of the jumbo flying squid *Dosidicus gigas* (Arguelles et al. 2001, 2017, 2019, 2019, 2023a, 2023b, Csirke et al 2018, Fang et al 2017, Gretchina & Zúñiga 2017 and 2018, Nigmatullin et al. 2001, Payá 2019, Xu et al 2018). The jumbo flying squid in the Eastern Pacific Ocean presents high variability in size at maturity, as was described by Nigmatullin et al. (2001) where three groups with different size ranges, maturity sizes and spatial distribution are mentioned.

Despite these difficulties, within the framework of the SPRFMO, efforts have been made to implement models that attempt to reproduce the population dynamics of *D. gigas*. Within the SPRFMO Jumbo Flying Squid Working Group, preliminary assessment models have been presented (China: Xu et al 2018 - SC6-SQ06, Peru: Cordue et al. 2018 - SC6-SQ07, Chile), which necessitated the incorporation of biological data (e.g., size, maturity) throughout its distribution area. Subsequently, three models presented during SC 10 (SPRFMO SC10-Report 2022) were discussed. To date, three models are under discussion (Payá 2023 SC11-SQ07, Li et al. 2023 SC11-SQ08 and Roa-Ureta and Wiff 2023 SC11-Obs03). However, a limitation of these models is that they operate on the assumption of a single population with identical longevity, length at maturity, growth rate, and natural mortality across the extensive range of the jumbo flying squid's distribution.

The Assessment Simulation Task Team (ASTT) for the jumbo flying squid assessment with simulated data was proposed during SC11 and approved at COMM12 (COMM12-Doc06), with a reporting cycle for 2024 and 2025. The ASTT will assess the robustness of the proposed models to the various uncertainties inherent to the population structure of the jumbo flying squid. This will entail an investigation into the existence of at least three clearly differentiated morphotypes in the southeastern Pacific, as proposed by Arkhipkin et al. (2021). Additionally, the ASTT will elucidate the uncertainties associated with the utilisation of potential

assessment models and their implications for the management of the resource. This document sets forth the objectives of the group and its terms of reference for the activities of the group.

3. Terms of Reference

The objective of the ASTT is to test the robustness of the potential assessment models to the multiple uncertainties in the population structure, unique biological and life history characteristics of jumbo flying squid and the impact of the data availability in the performance of the assessment.

The Jumbo Flying Squid ASTT has the following Terms of Reference (TR):

1. Generate simulated data consistent with the requirements described in the next session.
2. Elaborate a protocol for the comparison of assessment models for the jumbo flying squid stock assessment in the Southeastern Pacific.
3. Apply this protocol for the comparison of candidate assessment models.
4. Produce a realistic simulation model of the population dynamics of the jumbo flying squid in the Southeastern Pacific for its future use as operative model in a management strategy evaluation (MSE) context.
5. Report the results to the Scientific Committee

4. Simulated data requirements

The simulated data should fulfil the following requirements:

Biology: to reproduce the different morphotypes of jumbo flying squid identified in the Southeastern Pacific (Nigmatullin et al. 2001), considering their differences in growth and size at first maturity, as well as alternative assumptions regarding reproduction and stock-recruitment dynamics, and to mimic the semelparous biological trait and high natural mortality after spawning of the species.

Ecology: to consider ontogenetic migrations and spatial distributions of different phenotypes reported in the literature (e.g. Csirke et al. 2015, Hu et al. 2022), as well as the high degree of cannibalism observed in this species. To consider the effect of climate variability on key parameters related to the life history of this species (e.g., growth, natural mortality, among others).

Fisheries: to take into account the differences in selectivity among the various fleets operating on this species in the Southeastern Pacific, both at the size level (e.g., offshore vs. inshore fleets).

Sampling: to consider different uncertainty scenarios associated with different levels of sampling effort (e.g., observer coverage, number of ports sampled).

Data reporting: to produce both aggregate statistics (i.e., catches, average sizes) and disaggregated data by size, fishing area, and fleet type, consistent with standardization of sampling effort among Members.

5. Simulation plan

5.1. Population structure

One population, common spawning ground with spatial structure.

H1.0: Just one morphotype (control)

H1.1: Three morphotypes (small, medium and large) are spatially defined (space is a good proxy of environment but constant)

H1.2: Three morphotypes (small, medium and large) are environmentally defined (more than one phenotype is possible to be observed in some areas).

Each morphotype has its own set of parameters (growth, mortality and reproduction).

5.2. Fisheries structure

H2.1 Two fisheries: Artisanal (Peru, Ecuador and Chile) and industrial (high seas)

H2.2 Four fisheries: Equatorial + Peru + Chile + High Seas

Each fishery has its own set of parameters (fishing mortality and gear selectivity).

- Time variability in fishing mortality for each fishery will be simulated consistently with historical trends.

5.3. Parameter Uncertainty

Parameter	Value	
	CONSTANT	SCENARIOS
	One value per ontogenetic stage (e.g. gnomonic model, definition of stages is important). Higher in the high seas (1 o.m.), lower in coastal areas. **Check: SC7-SQ07, SC6-SQ06.**	**Variability given by the environment (PCTI, Humboldt Current Index, use several). Smooth variation, not only on/off.** **Check: SC11-OBS04, SC11-SQ03**
Reproduction/ Recruitment	Peak in austral spring/summer, spawning all year (medium and large). Relative fecundity different by morphotype. Total fecundity is different by morphotypes. Maturity norm different by morphotype. SR: steepness by morpho Stock-Recruitment specific for cephalopods, do not use BH. Ricker to Shepherd. Check Ibañez et al. (2015)	Squid matures at smaller sizes during El Niño.
Growth	Schnute model One growth curve by morphotype	As with mortality
Gear Selectivity	By fleet High seas: different for Chinese (equatorial) **Asymptotic selectivity, by fleet.**	

All parameters will include process error, possibly with temporal autocorrelation.

5.4. Data collection and availability uncertainty

	H4.0 (perfect information) monthly	H4.2 (current)	H4.3 (near future)
Catch (total)	X (no error)	Monthly	Monthly
Catch (by fleet)	X (no error)	Monthly	Monthly
Catch-at-length (total)	X (no error)	-	-
Catch-at-length (by fleet)	X (no error)	Only for high seas, daily	All fleets
Average catch length (total)	X (no error)	-	-
Average catch length (by fleet)	X (no error)	Only for high seas, daily	All fleets
CPUE (by fleet)	X (no error)	Year	Year
Fishing Effort	X (no error)	-	Month, all fleets
All environmental indices used	X	X	X

6. Workplan

2023-2024: Report to SC 12 (2024)

First coordination meeting (10-JUN-2024)

Agenda for In-person ASTT workshop (25-27 September 2024, Lima-Perú)

- Adoption of terms of reference
- Discussion on implementation of Operating Models (TR 4)
    - Environmental effects
    - Uncertainty quantification
- Scenarios for the generation of simulated assessment data (TR 1)
    - Population and fisheries structure
    - Parameter uncertainty
    - Data collection and availability uncertainty
    - Environmental scenarios and climate change
- Protocol for the comparison of assessment models (TR 2)
- Draft of report for SC (TR 5)

2024-2025: Report to SC 13 (2025)

Progress developing the OM (SquidSim)

2025-2026: Report to SC 14 (2026)

In person workshop (SCW18): Update timeline, discuss simulation plan and parameterisation based in a systematic literature review.

2026-2027: Report to SC 15 (2027)

First coordination meeting (January 2027)

Second coordination meeting, distribution of simulated datasets (February 2027)

Deadline for simulated assessments (End of March 2027)

In person workshop for report drafting and results discussion (April 2027/May 2027)

Agenda for In-person ASTT meeting (April 2027/May 2027)

- Discussion on the results of the simulated assessment (TR3)
- Discussion on improvements to operating models (TR4)
- Draft of report for SC (TR5)

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SC14 Meeting Report
Annex 18: 2025-2026 SPRFMO Southeastern Pacific Ecosystem Status Report

2025-2026 SPRFMO SOUTHEASTERN PACIFIC ECOSYSTEM STATUS REPORT

A report of the Ecosystem Working Group to the Scientific Committee of the South Pacific Fisheries Management Organisation

Executive Summary

The 2025–2026 Ecosystem Status Report (ESR) provides a preliminary integrated assessment of environmental conditions across the eastern and southeastern Pacific, based on five regional domains spanning the Equatorial High Seas, Northern Humboldt, Northern Chile, Central-Southern Chile, and the Oceanic Southeast Pacific. The reporting period covers September 2025 to August 2026, with longer historical records used to place recent conditions in context.

The most prominent feature of the reporting period was the rapid development of El Niño conditions during the first half of 2026. Following predominantly negative ENSO conditions through 2024–2025 and into early 2026, tropical Pacific indicators shifted rapidly toward a warm state. This transition was accompanied by the eastward and upward propagation of warm subsurface waters across the equatorial Pacific and, by August 2026, strong warming of the upper eastern equatorial Pacific.

The regional expression of this transition was strongest in the Equatorial High Seas and Northern Humboldt. By August 2026, sea surface temperature anomalies reached +3.83°C and +3.17°C, respectively, compared with +1.77°C in Northern Chile, +0.81°C in Central-Southern Chile, and +0.75°C in the Oceanic Southeast Pacific. Sea level showed an even stronger meridional contrast, with detrended anomalies reaching +21.11 cm in the Equatorial High Seas and +8.03 cm in Northern Humboldt, while conditions farther south were substantially weaker or close to climatological levels. These patterns indicate that the developing tropical signal had already propagated strongly into the northern part of the ESR domain by the end of the reporting period.

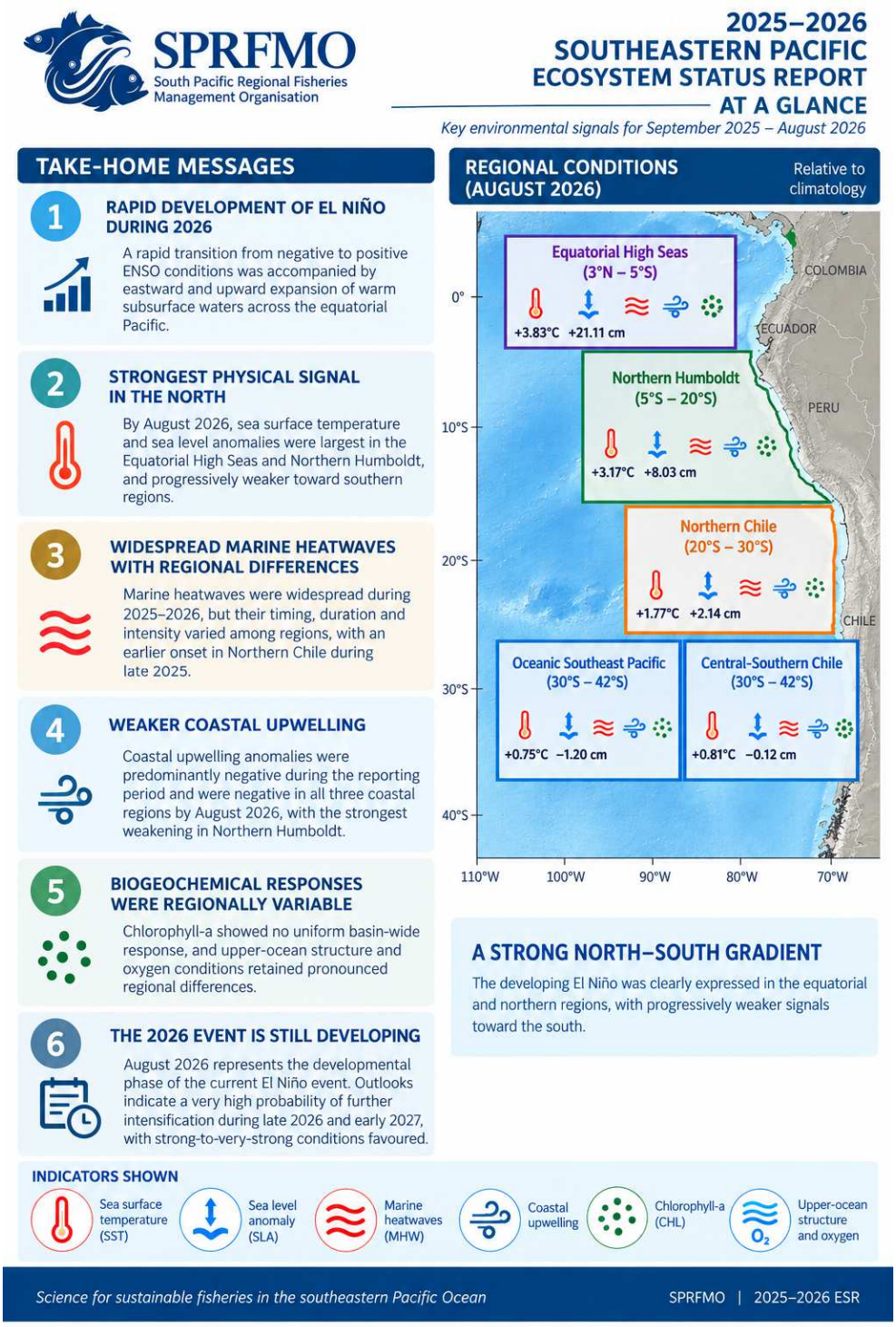
Marine heatwaves were widespread during 2025–2026 but differed substantially among regions in their timing, duration, and intensity. Northern Chile experienced MHW conditions already during late 2025, preceding the more widespread development observed during 2026. Prolonged events subsequently occurred in the Equatorial High Seas, Northern Humboldt, and Northern Chile, while Central-Southern Chile and the Oceanic Southeast

Pacific were characterised primarily by more frequent but shorter events. Higher-intensity conditions were particularly evident in Northern Humboldt.

Responses of other ecosystem indicators were less spatially coherent than those of temperature and sea level. Coastal upwelling anomalies were predominantly negative during the reporting period and were negative in all three coastal regions by August 2026, with the strongest weakening in Northern Humboldt. Chlorophyll-a, however, showed no comparable basin-wide response: concentrations at the end of the reporting period were slightly below climatology in Northern Humboldt and Northern Chile, slightly above climatology in the Equatorial High Seas and Central-Southern Chile, and close to climatological conditions in the Oceanic Southeast Pacific. Upper-ocean structure and oxygen conditions also retained pronounced regional differences associated with the contrasting physical and biogeochemical regimes across the study area.

Taken together, the indicators show that the 2025–2026 ecosystem state was characterised by a rapidly developing large-scale warm event superimposed on strong regional heterogeneity. Temperature and sea level provided the clearest and most spatially coherent expression of the developing El Niño, whereas coastal upwelling, chlorophyll-a, marine heatwaves, and subsurface conditions exhibited more region-specific responses. This highlights the importance of evaluating ecosystem conditions through multiple complementary indicators rather than assuming a uniform response to basin-scale climate forcing.

Importantly, August 2026 represents the developmental phase rather than the culmination of the current El Niño event. The NOAA CPC outlook issued in August 2026 indicates a very high probability of El Niño persisting through the remainder of 2026 and early 2027, with strong-to-very-strong conditions favoured during late 2026. Consequently, environmental and ecosystem responses may continue to develop beyond the present ESR reporting period. Continued monitoring will be particularly important for assessing subsequent changes in upper-ocean temperature and sea level, coastal upwelling, oxygen conditions, marine heatwaves, and primary productivity.



2025–2026 Ecosystem Status Report at a glance. The infographic and graphical elements were generated with the assistance of OpenAI ChatGPT, based on the environmental indicators, results, and interpretations presented in this report. All numerical values, scientific content, and final interpretations were reviewed by the authors.

SPRFMO
South Pacific Regional Fisheries Management Organisation

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1. Study area

The preliminary **Ecosystem Status Report (ESR)** was structured around five regional domains encompassing contrasting coastal and oceanic environments of the eastern and southeastern Pacific (Figure 1). The regions were defined to provide spatial units for the calculation and comparison of environmental and ecosystem indicators, while representing major latitudinal and coastal–oceanic contrasts across the study area.

The five regions were defined as follows: **(1) Equatorial High Seas**, extending from 3°N to 5°S and from 110°W to 90°W; **(2) Northern Humboldt**, extending from 5°S to 20°S and from 90°W to the South American coast; **(3) Northern Chile**, extending from 20°S to 30°S and from 85°W to the coast; **(4) Central-Southern Chile**, extending from 30°S to 42°S and from 85°W to the coast; and **(5) Oceanic Southeast Pacific**, extending from 30°S to 42°S and from 105°W to 85°W.

The regionalisation was designed to distinguish broad environmental domains rather than political or management jurisdictions. In particular, it separates the equatorial oceanic environment from the Northern Humboldt system and distinguishes the northern and central-southern sectors of the Chilean margin. An additional oceanic domain off central-southern Chile was included to allow coastal–oceanic contrasts in ecosystem conditions to be evaluated using a common set of indicators.

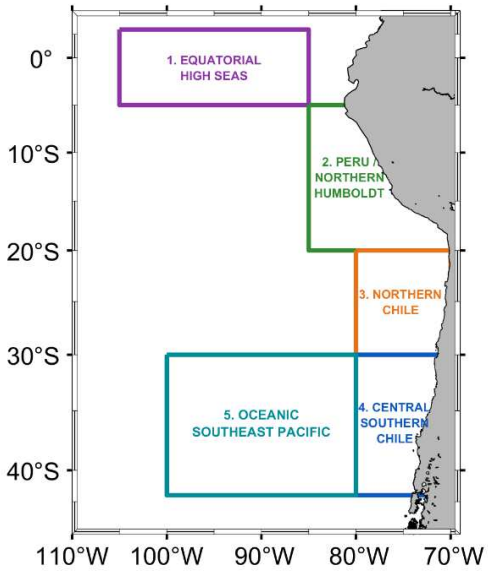


Figure 1. Regional domains used for the preliminary Ecosystem Status Report (ESR): (1) Equatorial High Seas (3°N–5°S, 110–90°W); (2) Northern Humboldt (5–20°S, 90°W–coast); (3) Northern Chile (20–30°S, 85°W–coast); (4) Central-Southern Chile (30–42°S, 85°W–coast); and (5) Oceanic Southeast Pacific (30–42°S, 105–85°W).

2. Sea surface temperature and thermal conditions

2.1. Data source

Sea surface temperature (SST) conditions were characterised using the Global Ocean Operational Sea Surface Temperature and Sea Ice Analysis (OSTIA) products distributed by the Copernicus Marine Service. OSTIA provides daily, gap-free Level-4 estimates of foundation SST on a 0.05° × 0.05° global grid, integrating satellite observations from infrared and microwave radiometers with in situ observations.

2.2. Methods: Regional time series and thermal anomalies

Thermal conditions were evaluated separately for the five regions defined for the preliminary Ecosystem Status Report (ESR): Equatorial High Seas, Northern Humboldt, Northern Chile, Central-Southern Chile, and Oceanic Southeast Pacific. For each region, gridded SST values were spatially averaged and aggregated into monthly means to generate regional SST time series.

Monthly SST anomalies (SSTA) were calculated relative to the long-term climatological mean for the corresponding calendar month:

$$SSTA_{y,m} = SST_{y,m} - \bar{SST}_m ,$$

where $SST_{y,m}$ is the regional mean SST for year y and month m, and $\bar{SST}_m$ is the climatological SST for the corresponding calendar month. Positive values represent warmer-than-average conditions, whereas negative values represent cooler-than-average conditions.

To characterise the persistence and temporal accumulation of thermal anomalies, cumulative SST anomalies were calculated as:

$$CSSTA_t = \sum_{i=1}^{t} S\,STA_i .$$

The cumulative anomaly was used as an integrated measure of the persistence of anomalously warm or cool conditions rather than as a formal statistical estimate of temperature trend. Periods characterised by a sustained increase in CSSTA indicate the predominance of positive SST anomalies, whereas sustained decreases indicate the predominance of negative anomalies. Changes in the slope of the cumulative curve therefore provide a means of identifying transitions between relatively warm and cool periods.

2.3. Results: regional SST and thermal anomalies

Sea surface temperature showed a pronounced seasonal cycle across all five ESR regions, superimposed on substantial interannual variability (Figure 2). Mean temperatures

decreased progressively from the Equatorial High Seas and Northern Humboldt regions towards Northern and Central-Southern Chile, while the Oceanic Southeast Pacific showed intermediate conditions. The amplitude of the seasonal cycle was comparatively small in the Equatorial High Seas and increased towards the temperate regions.

Monthly SST anomalies revealed several coherent warm and cool periods across the study area, although their magnitude differed among regions. A particularly pronounced warm anomaly occurred during 1997–1998, with the strongest signal in the Equatorial High Seas and Northern Humboldt regions and a progressively weaker expression towards the south. Other periods of positive anomalies were evident around 2015–2016 and again during the most recent years. Conversely, persistent negative anomalies occurred during several periods, including the late 2000s and early 2020s, with particularly clear signals in the Chilean and oceanic regions.

The cumulative SST anomaly further highlighted differences in the persistence of thermal conditions among regions. The Equatorial High Seas and Northern Humboldt showed the largest cumulative fluctuations, including a sharp increase during the late 1990s followed by a prolonged decline through much of the 2000s and early 2010s. Northern Chile exhibited a broadly similar but weaker pattern, whereas cumulative anomalies in Central-Southern Chile and the Oceanic Southeast Pacific varied over a narrower range. All five regions showed an upward trajectory towards the end of the record, indicating the recent predominance of positive monthly SST anomalies.

By August 2026, positive SST anomalies were observed across all five ESR regions, with a marked latitudinal gradient in their magnitude. Monthly SST anomalies reached +3.83°C in the Equatorial High Seas, +3.17°C in Northern Humboldt, +1.77°C in Northern Chile, +0.81°C in Central-Southern Chile, and +0.75°C in the Oceanic Southeast Pacific (Figure 2). The recent warming signal was therefore strongest in the equatorial and northern regions and progressively weakened towards the southern and oceanic sectors.

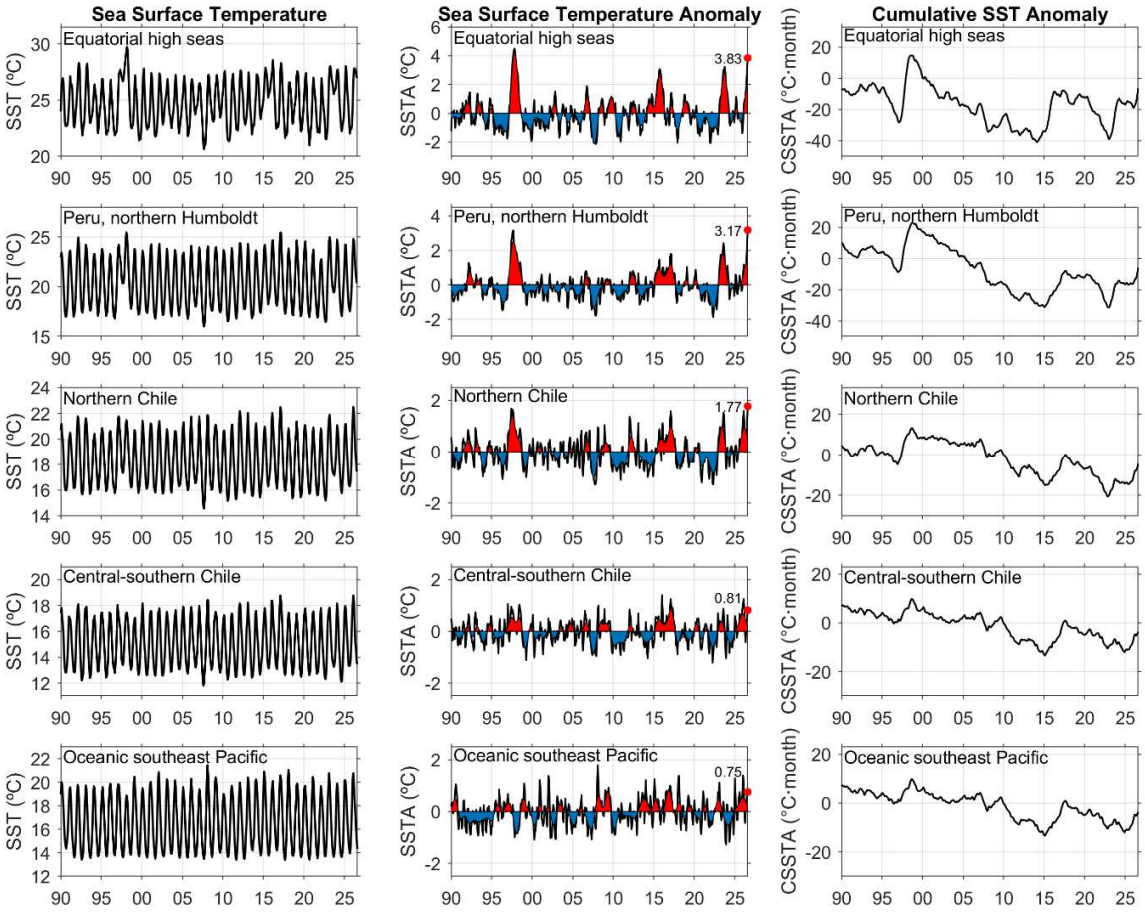


Figure 2. Monthly sea surface temperature (SST), SST anomalies (SSTA), and cumulative SST anomalies (CSSTA) for the five regions considered in the preliminary Ecosystem Status Report (ESR), from 1990 to August 2026. Left panels: regional mean monthly SST. Middle panels: monthly SST anomalies relative to the climatological monthly mean; positive and negative anomalies are shown in red and blue, respectively, and red dots indicate the most recent values (August 2026). Right panels: cumulative SST anomalies, calculated as the sequential sum of monthly SSTA, providing an integrated representation of the persistence of anomalously warm or cool conditions.

2.4. Methods: Spatial SST anomaly analysis

In addition to the regional time series, spatial SST anomalies were calculated at each grid cell to characterise the geographical extent and intensity of recent thermal conditions. Monthly SST anomaly fields were obtained by subtracting the long-term climatological SST for each calendar month from the corresponding monthly SST field:

$$SSTA_{x,y,m} = SST_{x,y,m} - \bar{SST}_{x,m},$$

where x denotes an individual OSTIA grid cell.

Monthly anomaly maps were produced for September 2025–August 2026, providing a spatial representation of the most recent annual cycle considered in the preliminary ESR. These fields complement the regional indices by identifying spatial heterogeneity within and among ESR regions and by showing whether regional mean anomalies reflect spatially widespread conditions or more localised thermal features.

2.5. Results: spatial patterns of SST anomalies

Spatial SST anomalies showed substantial temporal and geographical variability during September 2025–August 2026 (Figure 3). During September–November 2025, thermal conditions were spatially heterogeneous, with generally weak anomalies across much of the study area and alternating areas of positive and negative anomalies. Positive anomalies became more widespread from December 2025 onwards, particularly in the southeastern Pacific between approximately 20°S and 40°S.

During January–March 2026, positive SST anomalies persisted over extensive areas of the eastern South Pacific, including the Northern Humboldt and Northern Chile regions and adjacent oceanic waters. In contrast, cooler-than-average conditions developed farther south, particularly south of approximately 35–40°S during March and April, producing a pronounced meridional contrast in SST anomalies.

From May 2026 onwards, the spatial distribution changed markedly, with increasingly strong and widespread positive anomalies developing in the equatorial and northern sectors. This warming intensified through June and July and was most pronounced by August 2026, when anomalies exceeding +3°C occupied extensive areas of the equatorial eastern Pacific and Northern Humboldt region, with locally stronger anomalies approaching or exceeding +5°C. Positive anomalies also extended southward along the South American margin and into the subtropical Southeast Pacific, although their magnitude generally decreased towards the south.

The spatial fields therefore indicate that the positive regional SST anomalies observed in August 2026 (Figure 2) were part of the broad-scale warming pattern shown in Figure 3, rather than isolated local features. However, the magnitude and temporal development of the warming were spatially heterogeneous, with the strongest anomalies concentrated in the equatorial and northern portions of the ESR study area.

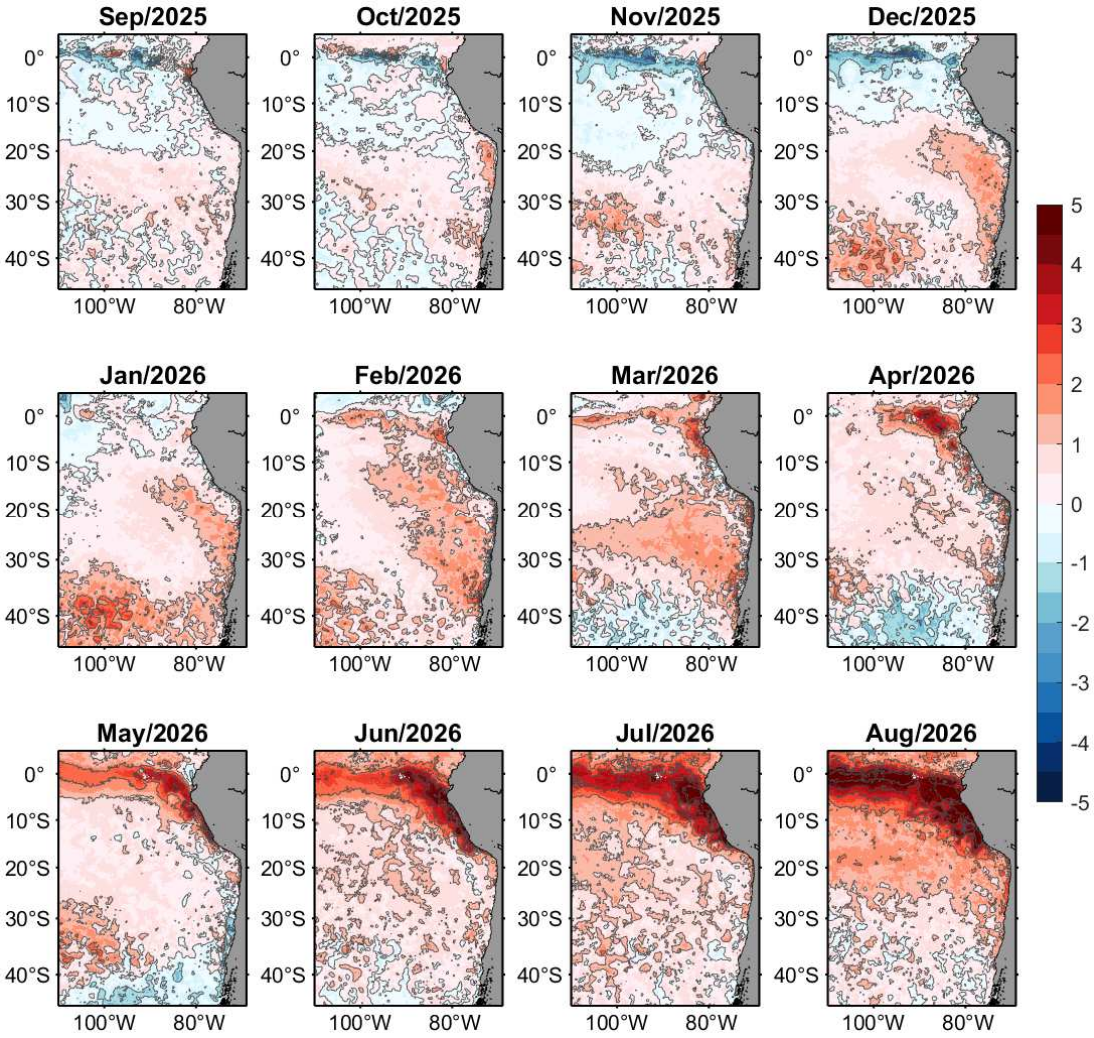


Figure 3. Spatial distribution of monthly sea surface temperature anomalies (SSTA) across the ESR study area from September 2025 to August 2026. Anomalies were calculated at each OSTIA grid cell relative to the corresponding climatological monthly mean. Positive (red) and negative (blue) values indicate warmer- and cooler-than-average conditions, respectively. Contours indicate the spatial distribution and magnitude of SST anomalies. Units are °C.

3. Marine heatwaves and cold spells

3.1. Methods: Marine heatwave and cold-spell identification

Marine heatwaves (MHWs) and marine cold spells (MCSs) were identified from the daily regional SST time series derived from OSTIA (Section 2), following the framework proposed by Hobday et al. (2016, 2018). For each ESR region, daily climatological mean SST and the corresponding 90th and 10th percentile thresholds were calculated for each calendar day and smoothed using a 15-day locally weighted regression.

MHWs were defined as periods during which daily SST exceeded the seasonally varying 90th percentile threshold for at least five consecutive days (Hobday et al., 2016). Conversely, MCSs were identified using the corresponding lower-tail criterion, with SST below the 10th percentile threshold for at least five consecutive days. Events separated by gaps of up to two days were treated as a single event. The analysis was conducted continuously across 2025 and 2026, allowing events extending across the end of a calendar year to be identified as a single event.

For each event, duration and thermal intensity relative to the climatological threshold were calculated. MHW intensity was classified according to the four-category framework of Hobday et al. (2018), based on multiples of the difference between the climatological mean and the 90th percentile threshold: Category I (Moderate), Category II (Strong), Category III (Severe), and Category IV (Extreme). An equivalent classification was applied to cold conditions relative to the 10th percentile threshold. Regional summaries included the number of events, cumulative event days, maximum event duration, and number of days assigned to each intensity category.

3.2. Results: Marine heatwaves and cold spells

Marine heatwaves were detected across all five ESR regions during 2025–2026, but their frequency, duration, timing, and intensity differed substantially among regions (Figure 4). In contrast, marine cold spells were largely absent during the period analysed, with only a single short cold event detected in the Equatorial High Seas.

The Equatorial High Seas showed the longest individual event, with one MHW lasting 113 days during 2026. All 113 MHW days were classified as Category I. This was also the only region where a marine cold spell was detected, consisting of a single 7-day event during 2025.

In the Northern Humboldt region, three MHWs accounted for 106 days, including one prolonged event lasting 86 days during the second half of 2026. This region showed the greatest diversity in MHW intensity, with 65, 26, 10, and 6 days classified as Categories I, II, III, and IV, respectively. Two shorter events of 8 and 12 days were also detected during early 2026. No marine cold spells were identified.

The Northern Chile region experienced six MHWs totalling 179 days, including a particularly persistent event lasting 109 days during early 2026. Most MHW days were classified as Category I (142 days), with an additional 34 Category II days. Notably, MHW conditions were

already detected in Northern Chile during late 2025, including events before the transition into 2026, whereas comparable MHW conditions in the other ESR regions generally emerged during 2026. This asynchronous onset highlights the regional character of the thermal conditions preceding the more widespread MHW development observed during 2026.

In Central-Southern Chile, MHW activity was more fragmented. Eleven events were identified, accounting for 190 days, the largest cumulative number of MHW days among the five regions, although the longest individual event lasted only 29 days. Most MHW conditions were moderate, with 177 days classified as Category I and 5 days as Category II. Events occurred during both 2025 and 2026, but were generally shorter and more recurrent than the prolonged events observed farther north.

The Oceanic Southeast Pacific also exhibited recurrent MHW activity, with nine events totalling 136 days and a maximum individual duration of 33 days. All classified MHW days were Category I, indicating predominantly moderate conditions. As in Central-Southern Chile, the thermal signal was characterised by multiple relatively short events rather than the prolonged episodes observed in the northern regions.

Overall, MHW conditions during 2025–2026 were widespread but strongly heterogeneous in their temporal expression across the ESR study area. The northern regions were characterised by fewer but substantially longer-lasting events, including the 113-day event in the Equatorial High Seas and the 109-day event in Northern Chile, whereas Central-Southern Chile and the Oceanic Southeast Pacific generally experienced a larger number of shorter events. Higher-intensity MHW conditions were particularly evident in the Northern Humboldt region, while conditions in the Equatorial High Seas and Oceanic Southeast Pacific remained predominantly moderate.

The timing of MHW onset also differed among regions. In particular, Northern Chile experienced MHW conditions during late 2025 before the development of the more widespread events observed across the ESR regions during 2026. Together with the marked differences in event duration and intensity among regions, this temporal asynchrony indicates that the expression of MHW conditions was not spatially uniform and suggests that regional-scale processes may modulate the manifestation of broader thermal anomalies across the study area.

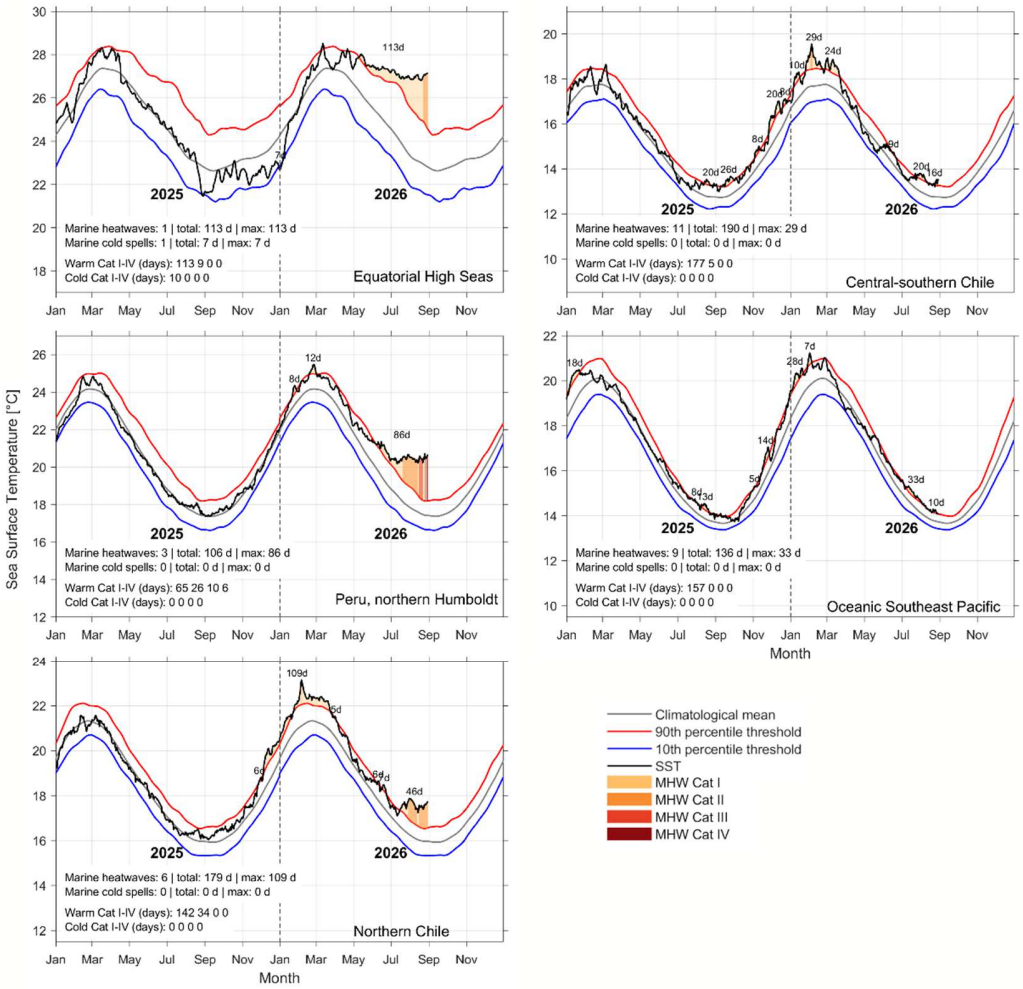


Figure 4. Marine heatwaves (MHWs) and marine cold spells (MCSs) across the five regions considered in the preliminary Ecosystem Status Report (ESR) during 2025–2026. Black lines show daily sea surface temperature (SST), grey lines the daily climatological mean, and red and blue lines the seasonally varying 90th and 10th percentile thresholds, respectively. Shaded areas indicate MHW intensity according to Categories I–IV (Moderate, Strong, Severe, and Extreme), while numbers indicate the duration (days) of individual events. The vertical dashed line marks the transition between 2025 and 2026. Insets summarise the number of MHW and MCS events, cumulative event days, maximum event duration, and the number of days within each intensity category.

4. Sea level conditions

4.1. Data source

Sea level conditions were characterised using daily sea level anomaly (SLA) fields from the Global Ocean Gridded L4 Sea Surface Heights and Derived Variables product distributed by the Copernicus Marine Service. SLA represents variations in sea surface height relative to a

reference mean sea surface and was analysed over the five regions defined for the preliminary Ecosystem Status Report (ESR).

Daily SLA fields were spatially averaged within each ESR region and subsequently aggregated into monthly means. SLA values were converted from metres to centimetres for analysis and presentation. The historical record available from the product was used to characterise long-term variability, while September 2025–August 2026 was considered the reporting period for the current ESR.

4.2. Methods: Regional sea level variability and long-term change

Regional monthly SLA time series were calculated by spatially averaging all valid grid cells within each ESR region, accounting for the decrease in grid-cell area with latitude through cosine-latitude weighting. Because SLA contains both long-term sea-level change and shorter-term variability, these components were analysed separately. A linear trend was fitted independently to the monthly SLA series of each region. The fitted trend was retained as an estimate of long-term sea-level change and expressed in mm yr^{-1}.

To characterise interannual sea-level variability independently of this long-term change, the fitted linear trend was subtracted from each regional SLA time series. The mean detrended SLA for each calendar month was subsequently calculated over the historical record and removed from the corresponding monthly values. The resulting detrended SLA anomalies therefore represent departures from the typical seasonal conditions after removal of the linear long-term change.

A 12-month running mean of the original monthly SLA series was additionally calculated to illustrate low-frequency sea-level variability while retaining the long-term signal. This running mean was used for visualisation rather than as a formal estimate of trend.

4.3. Results: Regional sea level variability and long-term change

Sea level anomaly showed substantial temporal variability across all five ESR regions, superimposed on a persistent increase over the historical record (Figure 5). Linear trends were positive and relatively consistent among regions, ranging from 2.48 to 2.96 mm yr^{-1}. Estimated rates were 2.57 mm yr^{-1} in the Equatorial High Seas, 2.48 mm yr^{-1} in Northern Humboldt, 2.63 mm yr^{-1} in Northern Chile, 2.74 mm yr^{-1} in Central-Southern Chile, and 2.96 mm yr^{-1} in the Oceanic Southeast Pacific. The 12-month running means similarly showed progressively higher SLA during the latter part of the record, although substantial interannual and decadal variability was superimposed on this long-term increase.

After removal of the linear trend and climatological seasonal cycle, marked differences in interannual sea-level variability were evident among regions. The largest departures occurred in the Equatorial High Seas, including a pronounced positive event during 1997–1998 and additional positive anomalies around 2015–2016 and during the most recent period. These signals were also apparent in Northern Humboldt but with lower amplitude, while variability was generally weaker farther south.

During the September 2025–August 2026 reporting period, a pronounced positive sea-level anomaly progressively developed in the equatorial and northern sectors. By August 2026, detrended SLA reached +21.11 cm in the Equatorial High Seas and +8.03 cm in Northern Humboldt, while a substantially weaker positive anomaly (+2.14 cm) occurred in Northern Chile. Conditions were close to the climatological expectation in Central-Southern Chile and slightly negative in the Oceanic Southeast Pacific. The end of the reporting period was therefore characterised by a strong meridional gradient in detrended sea-level conditions, with exceptionally elevated values concentrated in the equatorial and northern portions of the study area.

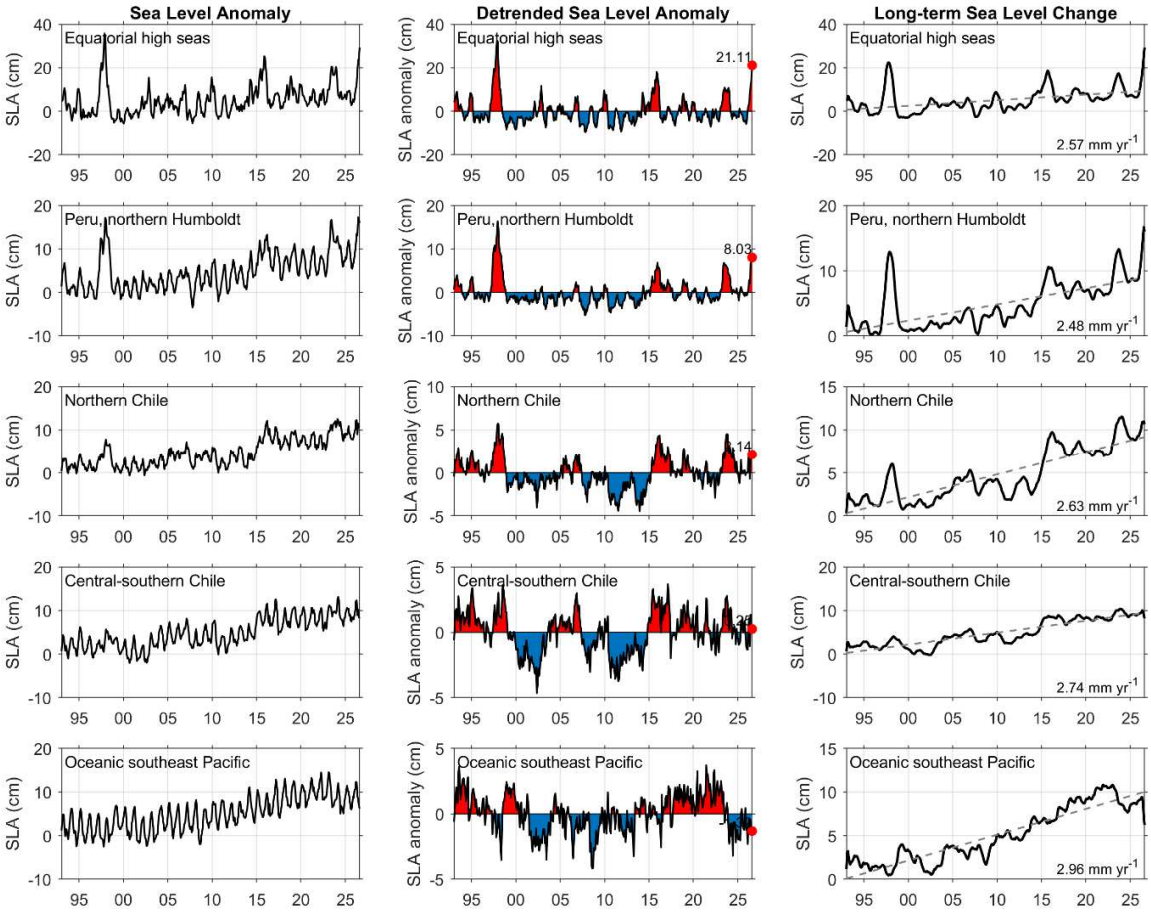


Figure 5. Regional sea level variability across the five Ecosystem Status Report (ESR) regions. Left: monthly sea level anomaly (SLA). Centre: detrended SLA anomalies, calculated after removal of the regional linear trend and climatological seasonal cycle; positive and negative anomalies are shown in red and blue, respectively, with August 2026 highlighted. Right: 12-month running mean of SLA (black line) and fitted linear long-term trend (grey dashed line), with estimated rates of sea-level change indicated for each region. SLA is expressed in centimetres and trends in mm yr^{-1}.

4.4. Methods: Spatial sea level anomaly analysis

To examine the spatial structure of recent sea-level conditions, monthly SLA fields were calculated from the daily gridded observations for September 2025–August 2026. Monthly fields were expressed in centimetres and mapped using a common scale across all months, allowing changes in both the magnitude and geographical distribution of SLA to be compared throughout the reporting period.

These spatial fields complement the regional time series by identifying within-region heterogeneity and by determining whether changes in regional mean SLA represent spatially extensive conditions or more localised features. Unlike the regional detrended anomalies

described above, the spatial maps show the original SLA fields, thereby retaining both long-term sea-level change and shorter-term variability.

4.5. Results: Spatial sea level conditions

Spatial SLA patterns showed substantial geographical and temporal variability during September 2025–August 2026 (Figure 6). During September–November 2025, SLA was comparatively low across the equatorial eastern Pacific, while higher and spatially heterogeneous values occurred farther south. Positive SLA became more widespread during December 2025 and early 2026, although substantial spatial heterogeneity remained across the study area.

A distinct large-scale positive sea-level signal developed in the equatorial and northern eastern Pacific during the first half of 2026. The feature became increasingly evident from March–April and intensified substantially from May 2026 onwards, expanding across the Equatorial High Seas and towards the Northern Humboldt region. By June–August, the highest SLA values were concentrated across the equatorial eastern Pacific and adjacent northern sector.

By August 2026, this development resulted in a pronounced meridional contrast, with strongly elevated SLA across the equatorial and northern eastern Pacific and considerably lower values toward Northern Chile, Central-Southern Chile, and the Oceanic Southeast Pacific. This spatial pattern was consistent with the regional detrended time series, which showed that the strong positive sea-level conditions at the end of the reporting period were concentrated primarily in the Equatorial High Seas and Northern Humboldt regions.

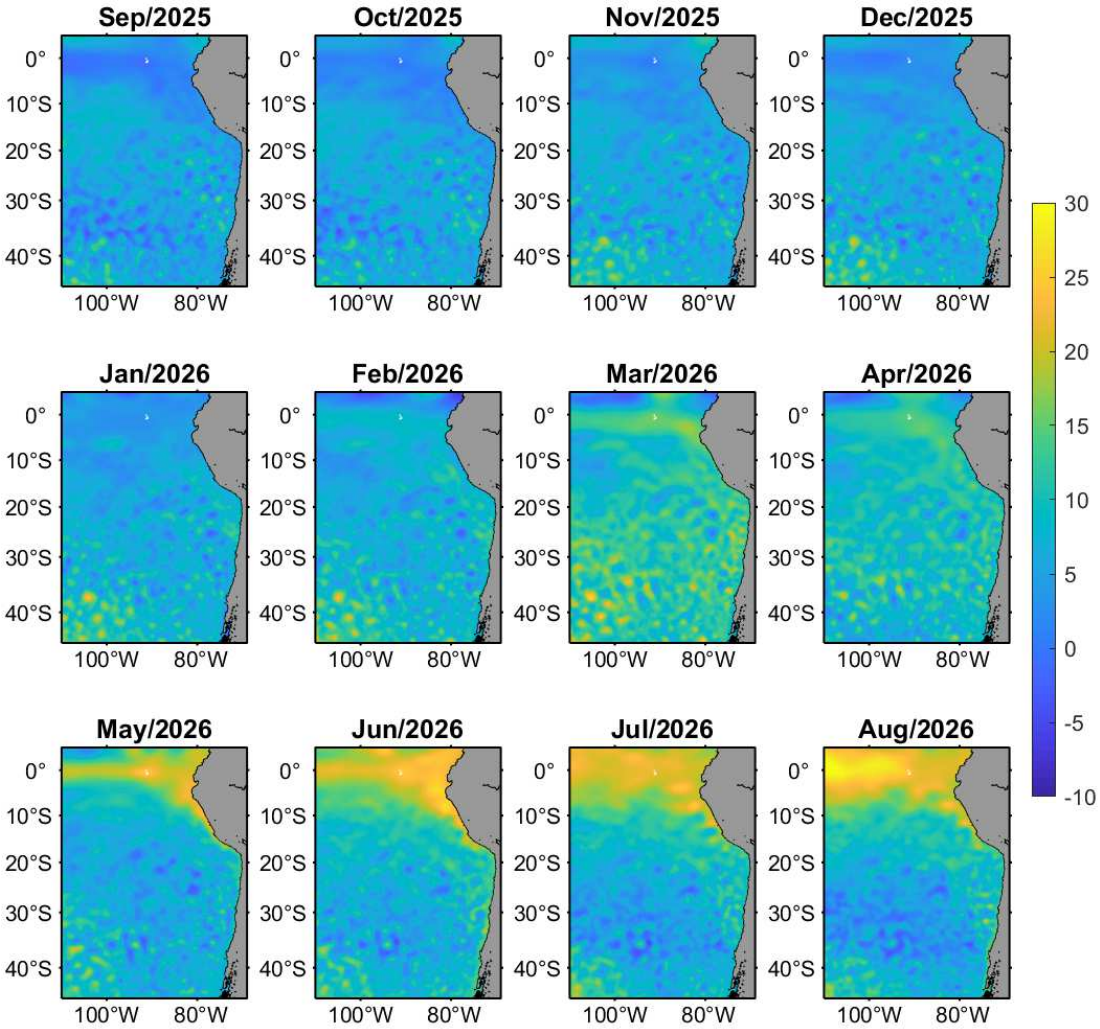


Figure 6. Monthly sea level anomaly (SLA) fields across the Southeast Pacific during the ESR reporting period, from September 2025 to August 2026. SLA is expressed in centimetres, with a common colour scale applied to all months to facilitate comparison of the magnitude and spatial distribution of sea-level conditions through time. These maps show the original SLA fields and therefore retain both long-term sea-level change and shorter-term variability.

5. Coastal upwelling conditions

5.1. Data source

Coastal upwelling conditions were characterised using daily 10-m wind fields from the ERA5 atmospheric reanalysis. Zonal (u) and meridional (v) wind components were used to estimate wind stress and the associated surface Ekman transport along the eastern boundary of the Southeast Pacific.

The analysis focused on three coastal ESR regions: **Northern Humboldt (Peru), Northern Chile, and Central-Southern Chile**. For each region, representative coastal bands extending up to **200 km offshore** were used to characterise regional-scale wind-driven upwelling conditions.

5.2. Methods: Coastal upwelling index

Daily wind stress components were calculated from the ERA5 10-m wind fields as:

$$\tau_x = \rho_a C_D \mid U \mid u$$
$$\tau_y = \rho_a C_D \mid U \mid v$$

where ρ_a is air density (1.225 kg m^{-3}), C_D is a constant drag coefficient (1.3 × 10^{-3}), and $\mid U \mid$ is wind speed.

Ekman transport was subsequently calculated as:

$$M_x = \frac{\tau_y}{\rho_w f}$$
$$M_y = -\frac{\tau_x}{\rho_w f}$$

where ρ_w is seawater density (1025 kg m^{-3}) and f is the latitude-dependent Coriolis parameter.

To account for changes in coastline orientation, Ekman transport was projected onto a **local offshore unit vector** derived from the smoothed orientation of the continental coastline. The resulting cross-shore Ekman transport was used as the Coastal Upwelling Index (UI), with **positive values representing offshore Ekman transport and therefore upwelling-favourable conditions**, and negative values representing onshore transport.

Regional daily indices were calculated as area-weighted means within representative 200-km coastal bands. The bands covered **12–18°S for Northern Humboldt, 20–30°S for Northern Chile, and 32–38°S for Central-Southern Chile**. Grid-cell values were weighted by the cosine of latitude to account for differences in cell area.

Daily indices were aggregated into monthly means. For each region, a monthly climatology was calculated over the available historical record, and monthly UI anomalies were obtained by subtracting the corresponding climatological monthly mean from each observation:

$$UI'_{y,m} = UI_{y,m} - \bar{UI}_m$$

where $UI_{y,m}$ is the monthly upwelling index for year y and month m, and UI_m is the long-term climatological mean for that calendar month.

Cumulative UI anomalies were subsequently calculated as the cumulative sum of the monthly anomalies. Increasing cumulative anomalies therefore indicate sustained periods of stronger-than-average upwelling-favourable transport, whereas decreasing values indicate persistent weaker-than-average conditions. The current ESR reporting period extends from September 2025 to August 2026.

5.3. Results: Regional coastal upwelling variability

Coastal upwelling conditions showed pronounced seasonal and interannual variability across the three regions, with predominantly positive monthly UI values indicating that offshore, upwelling-favourable Ekman transport was the prevailing condition over most of the historical record (Figure 7). The magnitude and variability of the index were greatest in Northern Humboldt, while Northern Chile showed lower variability and Central-Southern Chile displayed the largest occurrence of monthly values approaching or falling below zero.

The monthly anomaly series revealed substantial differences in low-frequency variability among regions. In Northern Humboldt, predominantly negative anomalies characterised the early part of the record, followed by an extended period of generally stronger-than-average upwelling conditions from approximately the late 1990s through the early 2010s. Thereafter, anomalies became progressively more negative, with weaker-than-average conditions prevailing during much of the most recent decade. This transition is particularly evident in the cumulative anomaly series, which increased markedly from the late 1990s to the early-to-mid 2010s before declining persistently towards 2026.

Northern Chile exhibited a broadly similar but substantially weaker low-frequency pattern. The cumulative anomaly decreased during the early 1990s, subsequently increased through the 2000s and first half of the 2010s, and then declined during the most recent decade. By the end of the reporting period, the cumulative anomaly had returned close to its initial level, indicating that the prolonged positive anomalies of the intermediate period had largely been offset by more recent weaker-than-average upwelling conditions.

Central-Southern Chile showed a different temporal pattern. The cumulative anomaly declined through much of the 1990s and 2000s, reaching its lowest values around the late 2000s, before recovering during the following decade. A particularly marked increase

occurred from approximately 2017 to the early 2020s, indicating a sustained period of stronger-than-average upwelling-favourable transport. More recently, this positive tendency weakened, and the cumulative index declined during the latter part of the record.

During the September 2025–August 2026 ESR reporting period, monthly anomalies were predominantly negative across the three coastal regions, although individual months showed considerable variability. By August 2026, the UI anomaly was negative in all three regions, with the largest negative departure occurring in Northern Humboldt, followed by Central-Southern Chile and Northern Chile. Together with the downward trajectories of the cumulative anomaly curves toward the end of the record, these results indicate weaker-than-average wind-driven upwelling conditions during the most recent period, particularly in Northern Humboldt.

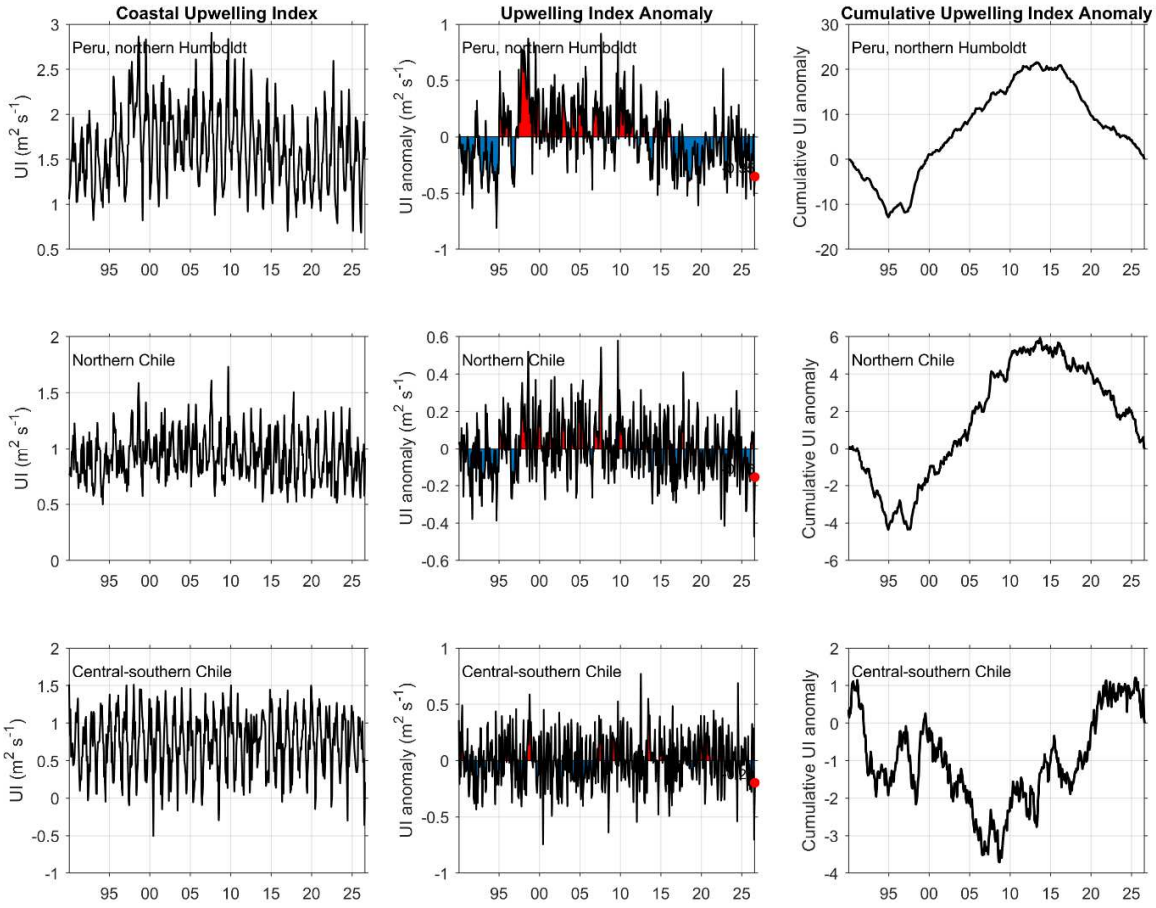


Figure 7. Regional variability in the Coastal Upwelling Index (UI) across the three coastal Ecosystem Status Report (ESR) regions. **Left:** monthly area-weighted cross-shore Ekman transport, with positive values indicating offshore, upwelling-favourable transport. **Centre:** monthly UI anomalies relative to the long-term monthly climatology; positive and negative anomalies are shown in red and blue, respectively, with August 2026 highlighted. **Right:** cumulative monthly UI anomalies, where increasing and decreasing trajectories indicate sustained periods of stronger- and weaker-than-average upwelling-favourable transport, respectively. UI is expressed in $m^2\ s^{-1}$.

6. Mixed layer depth, subsurface oxygen, and oxycline dynamics

6.1. Data source

Mixed layer depth (MLD) and dissolved oxygen at 100 m were obtained from the Global Ocean Physics Reanalysis (GLOBAL_MULTIYEAR_PHY_001_030) and the Global Ocean Biogeochemistry Hindcast (GLOBAL_MULTIYEAR_BGC_001_029) products distributed by the Copernicus Marine Service, without splicing to the near-real-time analysis and forecast systems. Both products span the period from January 1993 onward, with the physical reanalysis extending through June 2026 and the biogeochemical hindcast through May 2026. MLD was obtained at 0.083° horizontal resolution and 50 vertical levels; dissolved oxygen

was obtained at 0.25° horizontal resolution and 75 vertical levels using the PISCES biogeochemical model.

6.2. Methods: Regional time series

The same five regions used elsewhere in this report were used here: Equatorial High Seas, Northern Humboldt, Northern Chile, Central-Southern Chile, and Oceanic Southeast Pacific. For each region and each month, MLD and 100 m oxygen values were averaged spatially, weighted by grid-cell area, to produce a single regional value. Oxycline depth was computed profile by profile within each region and then summarised as the regional median.

6.3. Results: regional patterns in MLD, oxygen, and the oxycline

Mixed layer depth follows a clear seasonal rhythm almost everywhere, but the strength of that rhythm changes a lot from north to south. In the Equatorial High Seas the mixed layer stays shallow year-round, rarely exceeding 20–30 m, with only a few of sharper spikes standing out, related with El Niño events (1997-1998, 2015-2016). Moving south, seasonal deepening becomes progressively more pronounced: Northern Humboldt cycles between roughly 10 and 60 m, Northern Chile between 15 and nearly 80 m, and also show a few maximus related with El Niño (1997-1998, 2007, 2010, 2019 y 2024), and Central-Southern Chile shows a similar range. The Oceanic Southeast Pacific is the most extreme case among the five, with winter mixing regularly pushing past 80 m and, in recent years, occasionally beyond 100 m, well past what the other regions ever reach (Figure 8).

Dissolved oxygen at 100 m tells a different regional story, one shaped less by seasons than by the strength of the oxygen minimum zone. The Equatorial High Seas and Northern Humboldt sit within that low-oxygen core, with concentrations mostly between 85 and 150 mmol m^{-3}; both show a sharp spike around 1997–1998, followed in Northern Humboldt by a long decline through the 2000-2015 that points to an expanding, more intense minimum zone, then partial recovery after roughly 2015 and a further dip around 2020–2022. Northern Chile and Central-Southern Chile sit outside the core of the minimum zone and hold higher, steadier values, Northern Chile zone gently declining toward a trough near 2010 before recovering. The Oceanic Southeast Pacific stays consistently the most oxygenated region in the record, with values above 250 mmol m^{-3} throughout (Figure 8).

Oxycline depth broadly mirrors the oxygen patterns, but adds a vertical dimension to the story. In the Equatorial High Seas and Northern Humboldt, where the minimum zone is strongest, the oxycline sits shallow, mostly within 40–70 m, keeping low-oxygen water close to the surface; Northern Humboldt shows a marked temporary deepening during the 1997–

1998 event, when the oxycline dropped toward 100–110 m before returning to its usual depth. Northern Chile shows a deeper and irregular oxycline, generally between 50 and 100 m with a brief shallowing during the same 1997–1998 period. Central-Southern Chile and the Oceanic Southeast Pacific show the deepest and most variable oxyclines of all five regions, frequently exceeding 150 m and at times reaching close to 300 m, consistent with the weaker, more diffuse oxygen minimum found in these more oceanic waters (Figure 8).

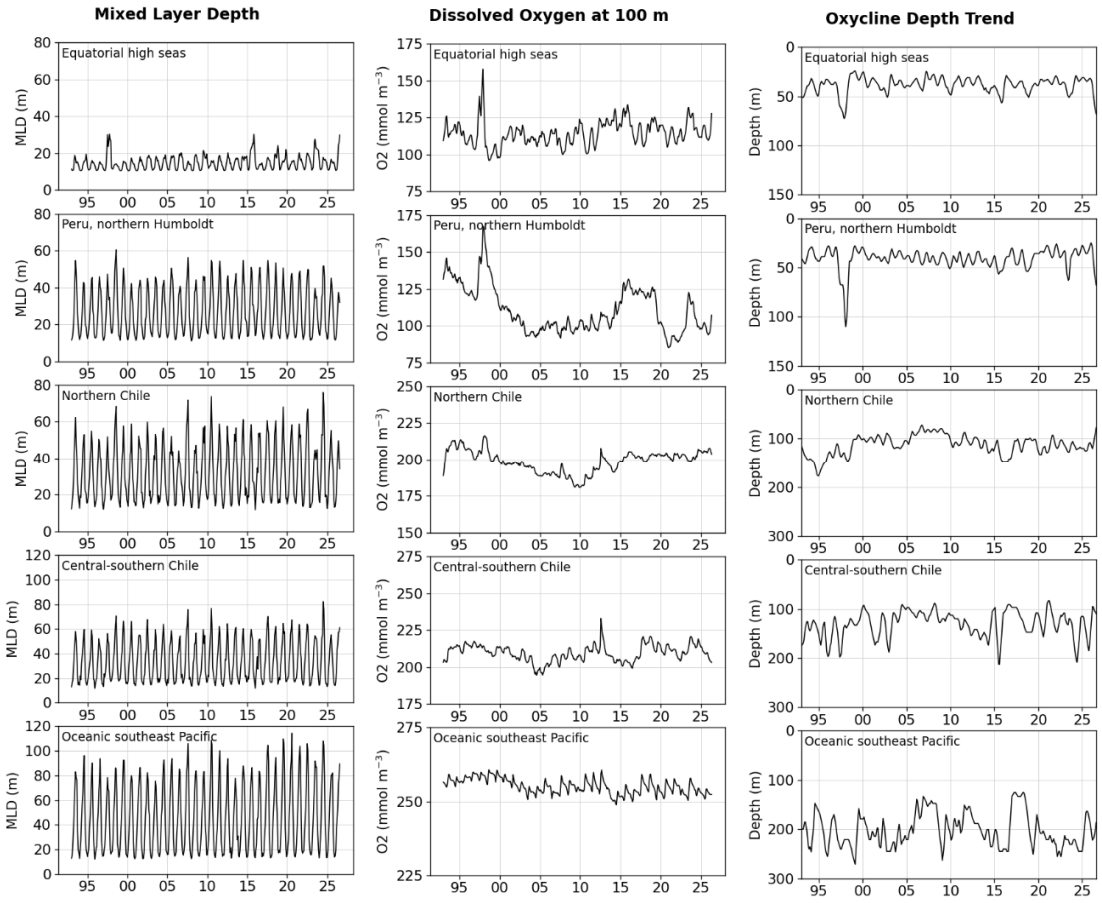


Figure 8. Long-term variability in upper-ocean vertical structure and oxygen conditions across the five Ecosystem Status Report (ESR) regions. **Left:** monthly regional mixed layer depth (MLD). **Centre:** monthly dissolved oxygen concentration at 100 m depth. **Right:** regional median oxycline depth derived from individual vertical oxygen profiles; the depth axis is reversed so that shallower oxycline conditions appear toward the top. Regional values were calculated from the Copernicus Marine physical reanalysis and biogeochemical hindcast products over their respective periods of availability (1993–2026). MLD and oxycline depth are expressed in metres, and dissolved oxygen in mmol m^{-3}.

7. Chlorophyll-a conditions

7.1. Data source

Surface chlorophyll-a concentration (CHL) was obtained from the **Global Ocean Colour (Copernicus-GlobColour), Bio-Geo-Chemical, Level 3 daily satellite product (OCEANCOLOUR_GLO_BGC_L3_MY_009_103)** distributed by the Copernicus Marine Service. The product provides globally gridded satellite ocean-colour observations at approximately **4-km spatial resolution** and daily temporal resolution from September 1997 onwards. It combines observations from multiple ocean-colour satellite missions, including SeaWiFS, MODIS, MERIS, VIIRS and Sentinel-3 OLCI.

Chlorophyll-a concentration, expressed in mg m^{-3}, was used as an indicator of surface phytoplankton biomass. The complete historical record available for the analysis was used to provide long-term context, while **September 2025–August 2026** was considered the reporting period for the preliminary ESR.

7.2. Methods: Regional chlorophyll-a time series and anomalies

The same five ESR regions used for the physical indicators were considered: Equatorial High Seas, Northern Humboldt, Northern Chile, Central-Southern Chile, and Oceanic Southeast Pacific. Daily satellite CHL observations were aggregated into monthly fields, and regional monthly values were calculated by spatially averaging all valid ocean grid cells within each region, accounting for differences in grid-cell area with latitude.

For each region, a climatological monthly cycle was calculated from the historical record. Monthly chlorophyll-a anomalies (CHLA) were then estimated as the difference between each monthly regional value and the corresponding long-term climatological mean for that calendar month:

$$CHLA_{y,m} = CHL_{y,m} - \bar{CHL}_m$$

where $CHL_{y,m}$ represents chlorophyll-a concentration in year y and month m, and $\bar{CHL}_m$ is the long-term climatological mean for month m.

Cumulative chlorophyll-a anomalies were calculated as the cumulative sum of monthly anomalies. Increasing trajectories therefore represent sustained periods in which chlorophyll-a concentrations were predominantly above the seasonal climatology, whereas decreasing trajectories indicate persistent below-average conditions. These cumulative anomalies were used to characterise low-frequency changes in chlorophyll conditions rather than as formal estimates of temporal trend.

7.3. Results: Regional chlorophyll-a variability

Chlorophyll-a concentration showed pronounced regional differences in both magnitude and seasonal variability (Figure 7). The highest concentrations occurred in the coastal regions, particularly **Northern Humboldt and Central-Southern Chile**, where monthly concentrations frequently approached or exceeded 1 mg m^{-3}. Northern Chile showed intermediate concentrations, whereas substantially lower values characterised the Equatorial High Seas and especially the Oceanic Southeast Pacific, reflecting the comparatively oligotrophic conditions of the oceanic domain.

The regional anomaly series revealed substantial low-frequency variability superimposed on the seasonal cycle. In the **Equatorial High Seas**, anomalies were generally small, although several short-lived departures occurred throughout the record. Cumulative anomalies increased strongly during the early part of the satellite record, subsequently declined for more than a decade, and remained predominantly negative during much of the period after the mid-2010s. The latest monthly anomaly was slightly positive (**+0.03 mg m^{-3}**).

Northern Humboldt exhibited substantially greater variability. Strong negative anomalies occurred near the beginning of the satellite record, followed by predominantly positive conditions during the early 2000s. Alternating positive and negative periods subsequently occurred, with relatively frequent positive anomalies from approximately the mid-2010s through the early 2020s. The cumulative anomaly remained negative for most of the historical record but increased markedly during the most recent decade, approaching its initial level by 2026. The August 2026 anomaly was slightly negative (**–0.08 mg m^{-3}**).

In **Northern Chile**, chlorophyll-a increased from relatively low values at the beginning of the record and subsequently fluctuated around comparatively stable concentrations for much of the 2000s and 2010s. The cumulative anomaly declined strongly during the first years of the record, followed by a prolonged recovery that reached positive values during the early 2020s. More recently, this trajectory reversed, consistent with predominantly negative anomalies toward the end of the record. By August 2026, CHLA was **–0.08 mg m^{-3}**.

Central-Southern Chile displayed strong seasonal variability and a gradual increase in regional chlorophyll-a concentrations over much of the record. Its cumulative anomaly declined until approximately the mid-2010s and then increased markedly, consistent with a prolonged period dominated by positive anomalies. Although considerable month-to-month variability persisted during 2025–2026, the August 2026 anomaly remained slightly positive (**+0.039 mg m^{-3}**).

The **Oceanic Southeast Pacific** showed the lowest chlorophyll-a concentrations and smallest absolute anomalies among the five regions. Cumulative anomalies declined during the first decade of the record, subsequently recovered gradually, and remained close to neutral during the most recent years. Chlorophyll-a conditions in August 2026 were essentially climatological (**−0.0005 mg m⁻³**).

Overall, the end of the **September 2025–August 2026 reporting period** was characterised by contrasting regional conditions: slightly above-average chlorophyll-a in the Equatorial High Seas and Central-Southern Chile, below-average concentrations in Northern Humboldt and Northern Chile, and near-climatological conditions in the Oceanic Southeast Pacific.

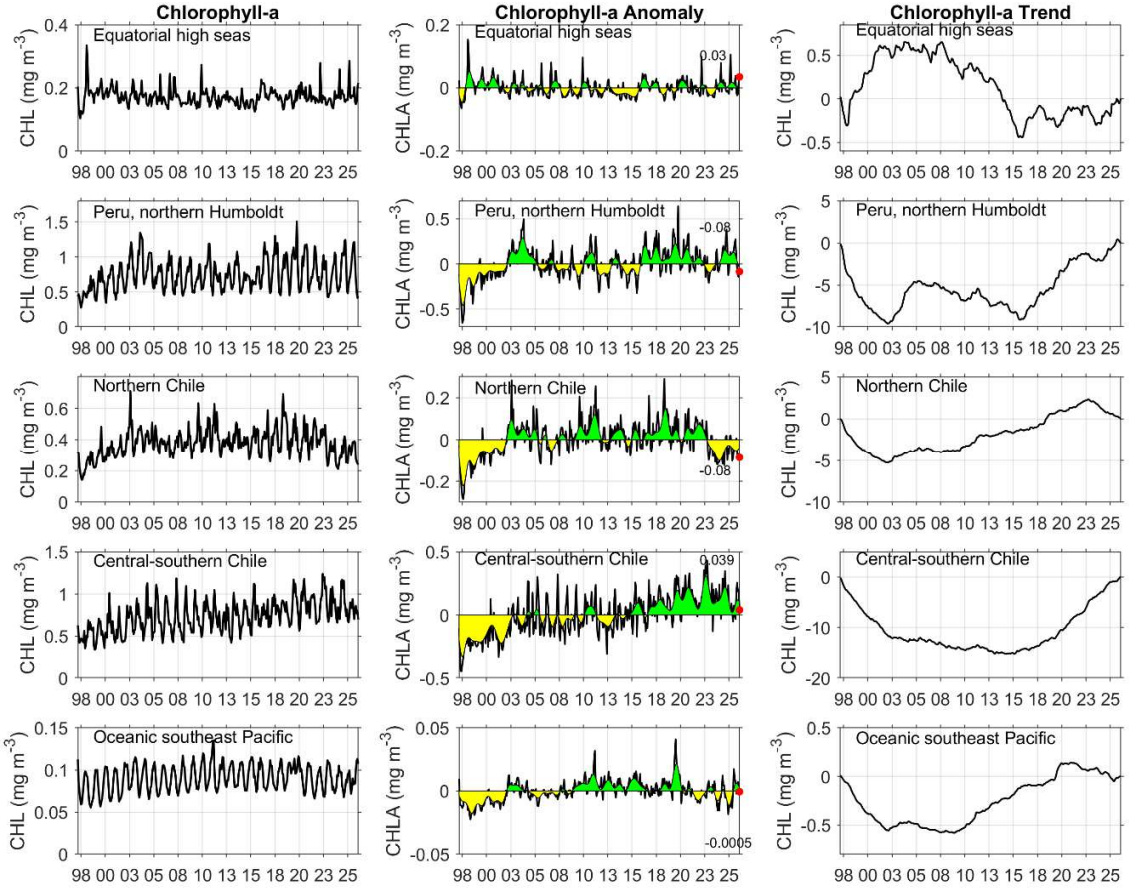


Figure 9. Regional chlorophyll-a variability across the five Ecosystem Status Report (ESR) regions. Left: monthly surface chlorophyll-a concentration. Centre: monthly chlorophyll-a anomalies relative to the long-term monthly climatology; positive and negative anomalies are shown in green and yellow, respectively, with August 2026 highlighted. Right: cumulative monthly chlorophyll-a anomalies, where increasing and decreasing trajectories

indicate sustained periods of above- and below-average chlorophyll-a conditions, respectively. Chlorophyll-a concentration and anomalies are expressed in mg m^{-3}.

7.4. Methods: Spatial chlorophyll-a analysis

Monthly chlorophyll-a fields were examined for **September 2025–August 2026** to characterise the spatial distribution of surface phytoplankton biomass during the ESR reporting period. Monthly fields were derived from the satellite observations and displayed using a common logarithmic colour scale because chlorophyll-a concentrations span more than two orders of magnitude across the study domain.

The spatial analysis was used to complement the regional indices by resolving coastal–oceanic gradients and identifying geographically localised changes that may not be evident from regional averages.

7.5. Results: Spatial chlorophyll-a conditions

Monthly chlorophyll-a fields showed a persistent and pronounced **coastal–oceanic gradient** throughout the reporting period (Figure 10). Elevated concentrations were consistently associated with the eastern boundary and coastal waters of Peru and Chile, whereas low concentrations dominated the offshore subtropical Southeast Pacific.

From September 2025 through the austral summer of 2025–2026, relatively high chlorophyll-a concentrations persisted along much of the Peruvian coast and locally along Chile. In contrast, an extensive low-chlorophyll region occupied the offshore subtropical domain, particularly between approximately 20°S and 30°S. This oligotrophic feature remained evident throughout the annual cycle, although its geographical extent and intensity varied among months.

During the first half of 2026, coastal chlorophyll-a remained elevated along Peru, while concentrations in the offshore and Chilean sectors showed considerable spatial heterogeneity. Toward **July–August 2026**, enhanced chlorophyll-a became particularly evident in the equatorial eastern Pacific near the South American coast, whereas much of the subtropical oceanic region continued to exhibit low concentrations.

By August 2026, the spatial distribution therefore remained strongly heterogeneous, with locally elevated chlorophyll-a in the equatorial and coastal eastern Pacific contrasting with low concentrations across much of the offshore subtropical domain. This spatial structure highlights that the relatively small regional anomalies observed at the end of the reporting period can coexist with pronounced local gradients in surface phytoplankton biomass.

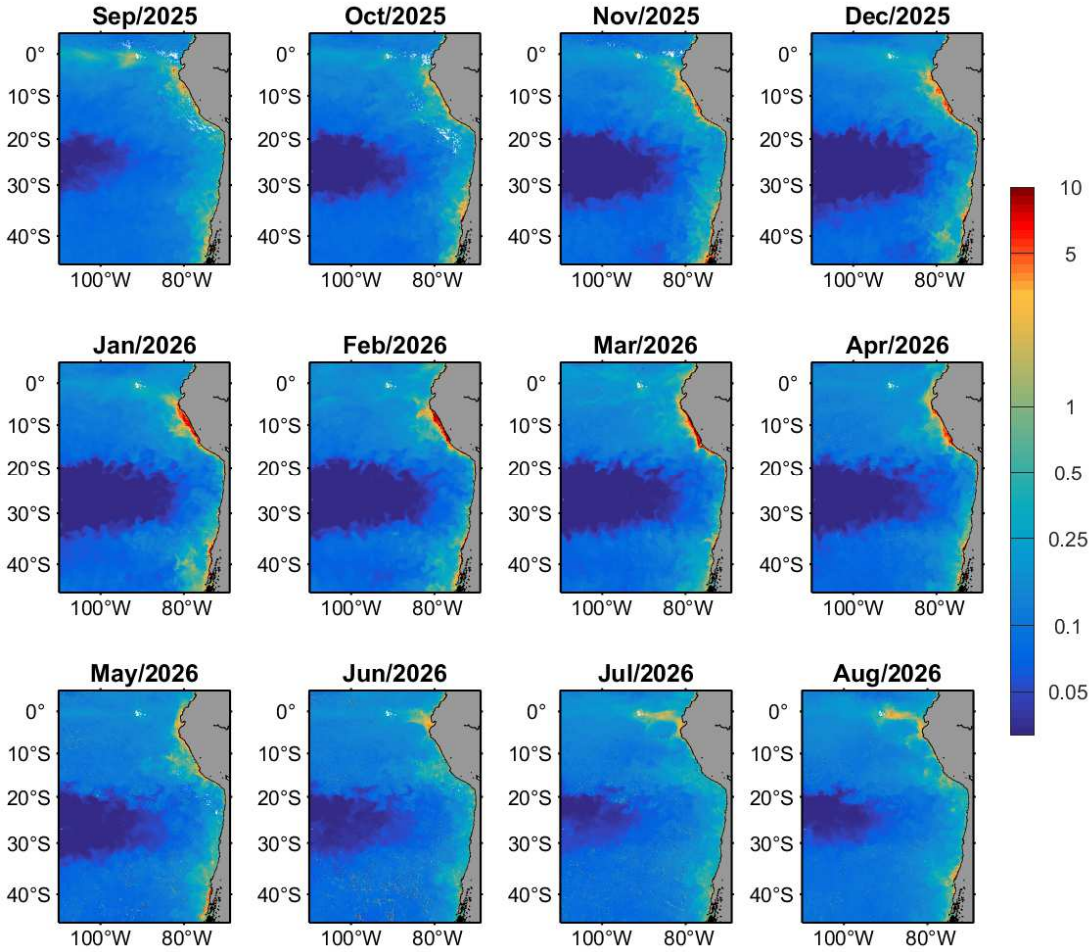


Figure 10. Monthly surface chlorophyll-a concentration across the Southeast Pacific during the ESR reporting period, from **September 2025 to August 2026**. Chlorophyll-a is expressed in mg m^{-3} and displayed using a common logarithmic colour scale across all months to facilitate comparison of coastal–oceanic gradients and changes in the spatial distribution of surface phytoplankton biomass through time.

8. El Niño–Southern Oscillation conditions and outlook

8.1. Data sources and ENSO indicators

The evolution of the El Niño–Southern Oscillation (ENSO) was characterised using complementary indicators from the NOAA Climate Prediction Center (CPC) and NOAA Physical Sciences Laboratory. These included the **Relative Oceanic Niño Index (RONI)**, the **Multivariate ENSO Index version 2 (MEI.v2)**, equatorial Pacific subsurface temperature anomalies, and the official CPC ENSO probability and event-strength outlooks issued in August 2026.

RONI characterises ENSO-related sea surface temperature variability in the Niño-3.4 region relative to the contemporaneous tropical mean state, while MEI.v2 integrates multiple oceanic and atmospheric variables to represent the coupled state of the tropical Pacific. Their joint evolution was examined from 1995 through August 2026 to place current conditions in a longer-term ENSO context.

The development of the 2026 event was further examined using monthly longitude–depth sections of equatorial Pacific temperature anomalies for September 2025–August 2026. These indicators were considered alongside the regional environmental conditions described elsewhere in this ESR, particularly SST, SLA, upper-ocean structure, coastal upwelling and chlorophyll-a.

Observed conditions through August 2026 were explicitly distinguished from the CPC forecast extending beyond the ESR reporting period. Consequently, projections concerning the subsequent magnitude and persistence of the event are presented as an outlook rather than as observed characteristics of the 2026 event.

8.2. Historical context and development of the 2026 El Niño

The historical evolution of MEI.v2 and RONI shows the alternating warm and cold phases of ENSO over the past three decades, including the major warm events of 1997–1998 and 2015–2016, as well as the prolonged cold conditions that characterised several recent years (Figure 11). Although the two indices differ in magnitude and temporal evolution, their major positive and negative phases are broadly consistent, providing complementary evidence of the large-scale coupled state of the tropical Pacific.

The period preceding the current event was dominated by negative ENSO indices. Both indicators remained predominantly negative through much of 2024–2025 and into early 2026. A rapid transition subsequently occurred during 2026. RONI changed sharply from negative to positive values, while MEI.v2 also moved from negative conditions toward a warm-phase state. By August 2026, RONI had increased to strongly positive values, indicating that the transition represented one of the most rapid warm-phase developments evident in the recent record.

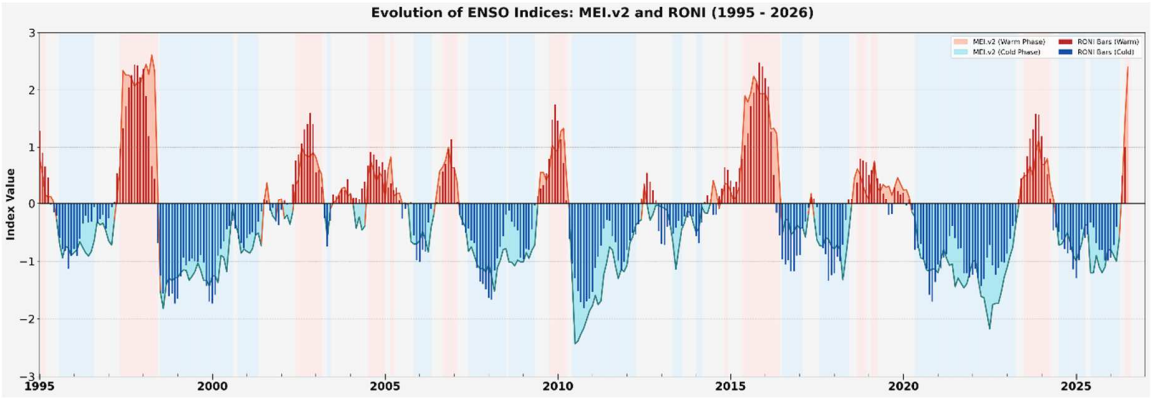


Figure 11. Evolution of the Multivariate ENSO Index version 2 (MEI.v2) and the Relative Oceanic Niño Index (RONI) from 1995 to August 2026. Warm and cold phases identified by MEI.v2 are indicated by red and blue background shading, respectively, while positive and negative RONI values are shown by red and blue bars. The historical series provides context for the rapid transition from negative ENSO conditions in 2025–early 2026 to strongly positive conditions by August 2026.

The subsurface evolution provides additional evidence of how this transition developed across the equatorial Pacific (Figure 12). During **September–November 2025**, positive temperature anomalies were concentrated primarily in the western and central equatorial Pacific at approximately 100–200 m depth, while negative anomalies occupied the upper thermocline farther east. This produced a pronounced zonal contrast across the basin.

The subsurface structure changed substantially during early 2026. Positive anomalies progressively extended eastward while the negative anomalies of the central and eastern Pacific weakened. By March–April, warm anomalies had become increasingly prominent across the central Pacific and were extending toward the eastern basin. This transition accelerated during May–June, when a broad band of positive temperature anomalies extended eastward and upward along the equatorial thermocline.

By **July–August 2026**, strong positive temperature anomalies occupied much of the upper central and eastern equatorial Pacific and had become substantially shallower toward South America. The August section shows particularly strong warming across a broad portion of the eastern equatorial upper ocean. Together with the rapid increase in the ENSO indices, this evolution indicates a major reorganisation of the tropical Pacific upper ocean during the first half of 2026 and the establishment of El Niño conditions by the end of the ESR reporting period.

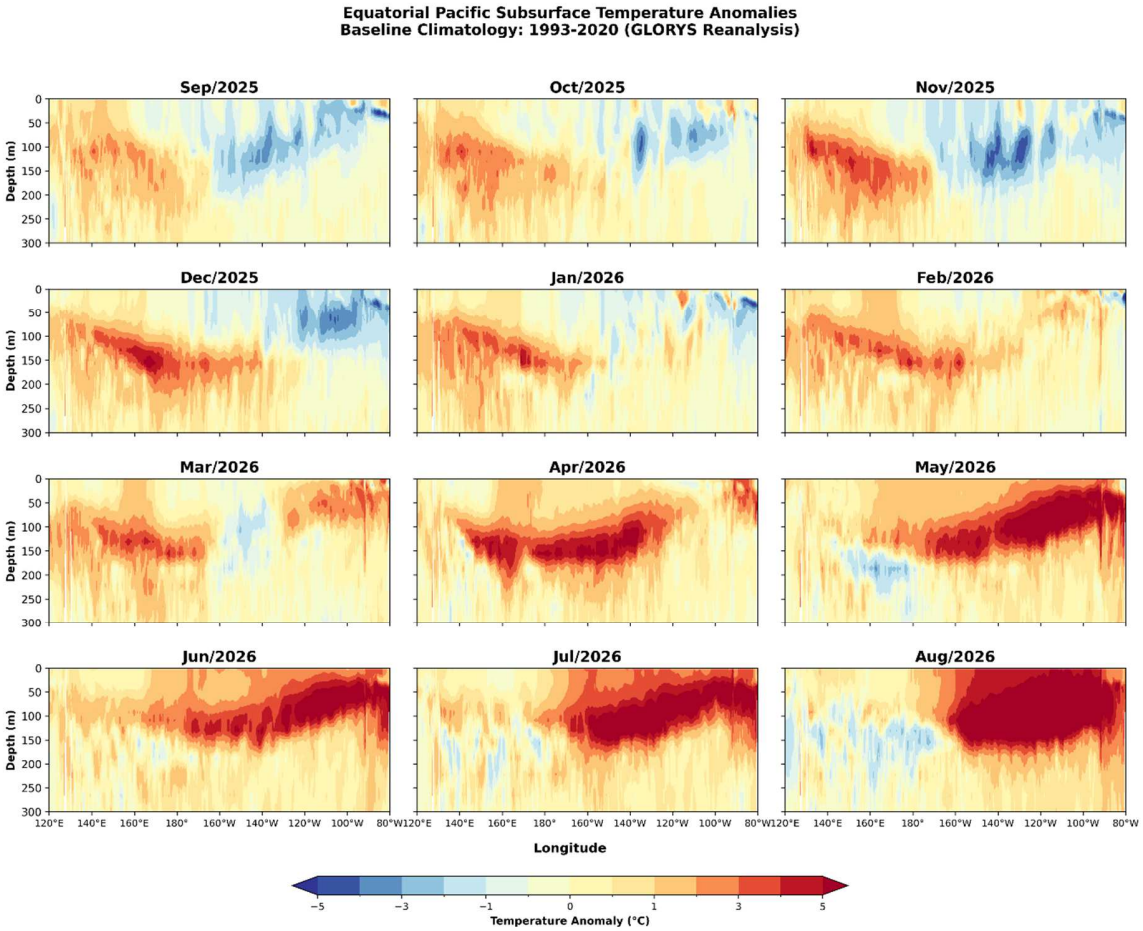


Figure 12. Monthly longitude–depth sections of equatorial Pacific subsurface temperature anomalies from **September 2025 to August 2026**, relative to the 1993–2020 climatology. Positive (red) and negative (blue) anomalies are expressed in °C. The sequence shows the progressive eastward and upward expansion of warm subsurface waters during early 2026, culminating in strong positive temperature anomalies throughout the upper central and eastern equatorial Pacific by July–August 2026.

8.3. Regional expression across the Southeast Pacific

The regional environmental indicators examined in this ESR show that the developing tropical Pacific signal was expressed unevenly across the Southeast Pacific. Its clearest manifestations occurred in the **Equatorial High Seas and Northern Humboldt** regions, particularly in temperature and sea level.

By August 2026, SST anomalies reached approximately **+3.83°C in the Equatorial High Seas and +3.17°C in Northern Humboldt**. Positive anomalies were also present farther south but decreased progressively in magnitude, reaching approximately **+1.77°C in Northern Chile, +0.81°C in Central-Southern Chile, and +0.75°C in the Oceanic Southeast Pacific**. This

pronounced meridional gradient indicates that the strongest surface warming remained concentrated in the northern part of the ESR domain.

Sea level exhibited an even clearer spatial gradient. By August 2026, detrended SLA reached approximately +21.11 cm in the Equatorial High Seas and +8.03 cm in Northern Humboldt, compared with +2.14 cm in Northern Chile. Central-Southern Chile remained close to climatological conditions, whereas the Oceanic Southeast Pacific showed slightly negative SLA. The monthly spatial fields similarly documented the progressive development of elevated sea level in the equatorial and northern sectors during the first half of 2026, with the signal becoming particularly pronounced from May onward.

Other ecosystem-related indicators showed less spatially coherent responses. Coastal upwelling anomalies at the end of the reporting period were negative in all three coastal regions analysed, with the largest negative departure occurring in Northern Humboldt, indicating weaker-than-average wind-driven offshore Ekman transport. Chlorophyll-a did not exhibit an equivalent basin-wide response: August 2026 concentrations were slightly below climatology in Northern Humboldt and Northern Chile, slightly above climatology in the Equatorial High Seas and Central-Southern Chile, and close to climatological conditions in the Oceanic Southeast Pacific.

Taken together, the indicators show that by August 2026 the clearest regional expression of the developing El Niño occurred in upper-ocean temperature and sea level, and was concentrated in the equatorial and northern sectors. The weaker and less spatially coherent responses in upwelling and chlorophyll-a emphasise that biological and coastal responses cannot be assumed to track ENSO indices directly and should continue to be evaluated at the regional scale.

8.4. ENSO outlook

The NOAA CPC outlook issued in August 2026 indicates a very high probability that El Niño will persist beyond the end of the present ESR reporting period (Figure 13). El Niño probabilities reach essentially 100% from JAS through JFM, remaining approximately 97% in FMA and 82% in MAM. Neutral conditions become increasingly probable only toward the latter part of the forecast horizon, while the probability of La Niña remains negligible.

The event-strength probabilities indicate that the principal uncertainty concerns the eventual magnitude of El Niño rather than its occurrence. The probability distribution shifts strongly toward the strong and very strong El Niño categories during late 2026, particularly

around OND and NDJ. Weaker categories become progressively more important thereafter as the event is forecast to decline during early 2027.

The RONI forecast provides a consistent picture. The ensemble mean increases from approximately **+1.8°C in JAS to +2.6–2.7°C around OND**, remains strongly positive through NDJ, and then decreases progressively during early 2027. Forecast uncertainty increases with lead time, however, and the probability intervals encompass a substantial range of possible event magnitudes.

The ESR therefore ends at a particularly important transition point. By August 2026, multiple observational indicators already show a rapidly developing warm event, including the sharp rise in RONI and MEI.v2, eastward and upward expansion of subsurface warming, strong SST anomalies, and elevated sea level in the equatorial and northern Southeast Pacific. At the same time, the CPC outlook indicates that the event is expected to **intensify further after the August 2026 endpoint of this report**, with strong-to-very-strong conditions favoured during late 2026.

Consequently, the environmental and ecosystem responses documented in this ESR should be regarded as representing the **developmental phase of the 2026 El Niño rather than its complete evolution**. Continued monitoring during the next ESR period will be important for assessing the subsequent regional expression of the event, particularly its effects on upper-ocean structure, coastal upwelling, oxygen conditions and primary productivity.

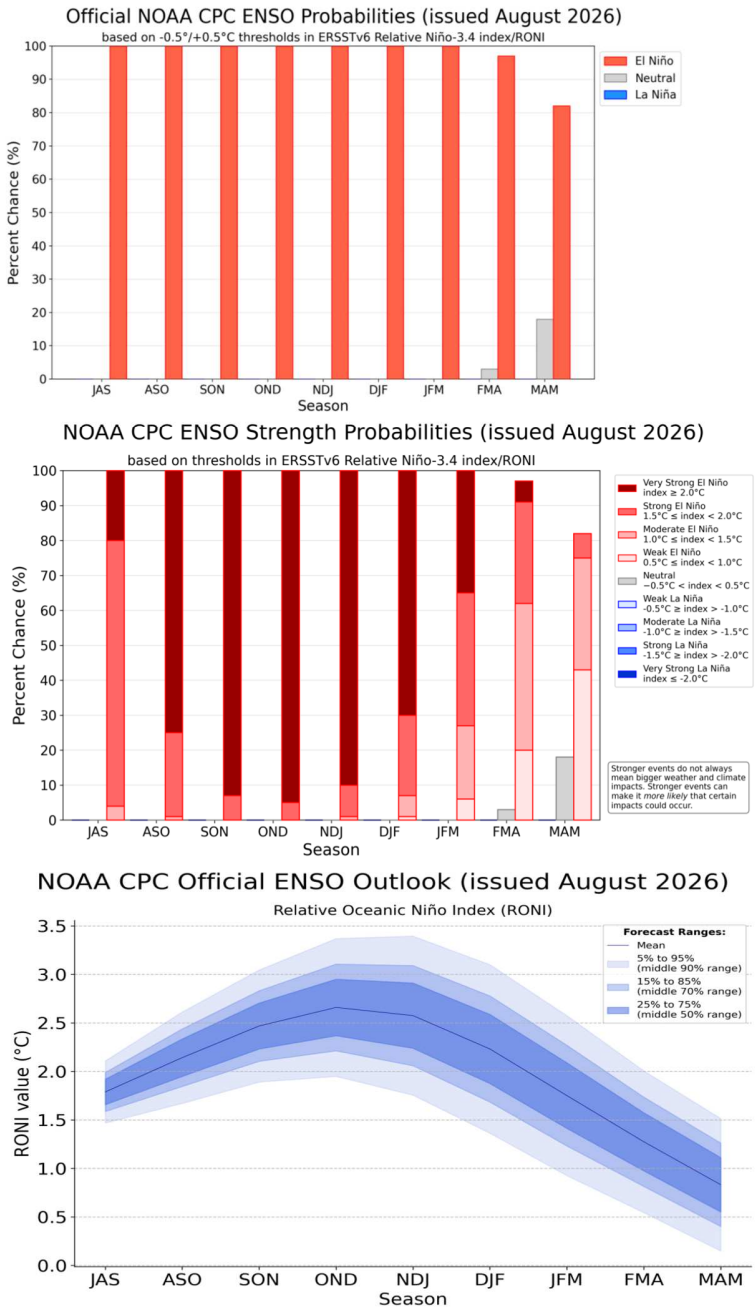


Figure 13. NOAA Climate Prediction Center (CPC) ENSO outlook issued in **August 2026**. **Top:** probabilities of El Niño, neutral, and La Niña conditions for successive three-month seasons, based on the ERSSTv6 Relative Niño-3.4 Index (RONI). **Middle:** probabilities of different ENSO strength categories, indicating an increasing likelihood of strong to very strong El Niño conditions during late 2026. **Bottom:** forecast evolution of RONI, showing the ensemble mean and the 50%, 70%, and 90% probability ranges. The outlook indicates a very high probability of El Niño persistence and further intensification during late 2026, followed by a projected weakening during early 2027.

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Hobday, A.J., Oliver, E.C.J., Sen Gupta, A., Benthuysen, J.A., Burrows, M.T., Donat, M.G., Holbrook, N.J., Moore, P.J., Thomsen, M.S., Wernberg, T., & Smale, D.A. (2018). Categorizing and naming marine heatwaves. *Oceanography*, 31(2), 162–173.

The coordinator of the Salas y Gómez and Nazca Ridges Task Team (SGNTT) Team gave a brief presentation highlighting the significant progress undertaken during the last year. Members noted the progress of their work in compiling and evaluating the scientific information relevant to the Salas y Gómez and Nazca Ridges (SGN) area, pursuant to the Commission's Decision 17-2024. The evaluation organised available scientific information according to the agreed Evaluation Criteria, reviewed fishing activity and associated data, evaluated potential impacts, and developed recommendations for consideration by the Scientific Committee (SC), with all these work items included in paper SC14-SGN01 rev1. The SGNTT indicated that the compilation and assessment of information included in SC14-SGN01 provided a sound basis for developing advice to the Commission.

Members discussed the conclusions and proposed recommendations from SC14-SGN01, including the assessment that the evaluation criteria for SGN had been met and that the available information supported consideration of enhanced management measures. While there was broad support for the work undertaken, Peru noted that maintained technical reservations on some aspects of the document and that some of its comments and recommendations regarding the use of gray literature had not been incorporated. The coordinator of the Task Team indicated he attempted his best to balance differing interpretations of some of the information and data provided, and invited Members to re-familiarise themselves with the revised version of SC14-SGN01 (rev1) which he thought may help alleviate some of Peru's concerns. Members also identified the need to ensure that the scientific basis and wording of the recommendations accurately reflected the strength and limitations of the available evidence, including with respect to non-peer-reviewed literature and information requiring further validation. In that regard, it was proposed that a working paper would be open based on the contents of SC14-SGN01 (rev1) to allow for some minor edits to better reflect in the paper the basis of some of the proposed recommendations by the SGNTT.

Members expressed comfort with the recommendations as originally drafted in SC14-SGN01 (rev1), although some minor amendments were requested to ensure the alignment between the proposed wording and the text from the Commission Decision 17-2024. The coordinator indicated that he had not received further proposed recommendations prior to the meeting except for Chile, which were then shared with the wider SGNTT.

Chile's proposed recommendations drove a considerable discussion focused on information on bycatch and pelagic fishing activity in the area. Following discussion, four members explicitly stated their disagreement, noting that the information presented did not constitute scientific evidence of an impact from pelagic activities. Consequently, the task team did not include that recommendation in the report. However, members agreed on the importance of continued improvement in data collection and reporting, while differing views were expressed on whether the available information should be characterised as a "gap", given existing reporting

requirements under SPRFMO CMMs and the reported low levels of bycatch. It was agreed that the wording should more clearly distinguish between existing reporting obligations, uncertainty or incompleteness in the available information, and opportunities for improvement. Members also identified the need to verify that the fishing activity represented in the assessment was complete, particularly for jack mackerel fisheries, including data reported for 2021–2022, and to clarify the characteristics of the bycatch information presented in the report.

Chile also presented a recommendation to restrict pelagic fisheries to a confined area within the SGN area. Following discussion, the Task Team reached the conclusion that such recommendation was not appropriately supported by available scientific evidence, and highlighted that further research would be needed to consider such recommendation. Members highlighted the need to distinguish the substantially greater benthic impacts associated with bottom trawling and midwater trawling targeting bentho-pelagic species (i.e., alfonsinos) from those associated with other bottom-contact methods, noting that some of those methods are currently authorised in some parts of the Salas y Gómez and Nazca Ridges area. Members also discussed the appropriate use of terminology, including consistency with the ecosystem-based approach referenced in Decision 17-2024, and the need for recommendations to provide sufficiently specific and actionable guidance to the Commission.

As a result, SC14-WP03_rev1, including the recommendations in therein, represent all the work produced by the task Team to be considered by the SC 2026.

SC14 Meeting Report
Annex 20: Evaluation of information for the Salas y Gómez and Nazca Ridges area

South Pacific Regional Fisheries Management Organisation

14th Meeting of the Scientific Committee

Tórshavn, Faroe Islands, 7 September - 12 September 2026

Evaluation of information for the Salas y Gómez and Nazca Ridges Area

Salas y Gómez and Nazca Task Team

7 September 2026

Executive Summary

The Salas y Gómez and Nazca ridges constitute one of the most distinctive seamount systems in the southeastern Pacific Ocean. Extending approximately 4,000 km and comprising more than 110 seamounts and guyots, the ridge system encompasses a broad range of geomorphological, oceanographic, and ecological conditions within a single interconnected biogeographic region. Its combination of extensive seamount habitats, strong environmental gradients, and relative isolation has produced exceptionally high levels of biodiversity, endemism, and ecological distinctiveness, leading to its recognition as an Ecologically or Biologically Significant Area (EBSA) under the Convention on Biological Diversity.

The area is characterised by an unusually diverse assemblage of seafloor habitats. Elevated volcanic features, ridge crests, escarpments, guyots, and seamount flanks provide hard-substrate environments that support extensive coral- and sponge-dominated communities. Habitat suitability models and recent submersible surveys indicate that vulnerable marine ecosystem (VME) indicator taxa are widespread across both ridges, particularly on elevated topographic features where favourable hydrodynamic conditions enhance food delivery to suspension-feeding organisms. Recent expeditions have repeatedly documented dense coral and sponge assemblages, many of which exhibit the structural complexity and ecological characteristics associated with VMEs.

A defining feature of the region is the relatively high degree of ecological integrity retained across much of the system. Although some seamounts have been subject to historical bottom fishing, available evidence suggests that large portions of the ridges remain comparatively lightly disturbed relative to many other seamount provinces globally. Recent surveys continue to document intact habitat-forming assemblages, abundant long-lived sessile fauna, and taxa new to science. This relative naturalness substantially increases the scientific and conservation value of the area by providing rare examples of minimally disturbed deep-sea ecosystems.

The ridge system also provides exceptional geographic and geomorphological representation. The Nazca Ridge is expressed as a broad aseismic ridge containing diverse seamount morphologies and contourite-related sedimentary features, whereas the Salas y Gómez Ridge is dominated by a volcanic island-seamount chain associated with long-lived intraplate volcanism. Together they encompass a wide range of geomorphic landforms and environmental conditions. The system spans a pronounced east-west oceanographic gradient, ranging from ultra-oligotrophic conditions associated with the South Pacific Gyre in the west to increasingly productive waters influenced by the Humboldt Current system toward the east. This gradient generates substantial variation in productivity, oxygen conditions, food supply, and ecological communities across the region.

Biologically, the area represents one of the most distinctive marine regions of the southeastern Pacific. Available evidence indicates exceptionally high levels of endemism. The region has long been recognised as an important biogeographic outpost linking the southeastern Pacific with Indo-West Pacific faunal affinities. Recent scientific expeditions continue to discover new taxa and expand understanding of biodiversity patterns throughout the ridges system, indicating that significant portions of the area's biodiversity remain undocumented.

As previously noted, the region also contains widespread concentrations of habitat-forming organisms that are intrinsically vulnerable to disturbance. Deep-sea corals, hydrocorals, sponges, and other sessile taxa exhibit slow growth, great longevity, low recruitment rates, and limited recovery potential. Evidence from other neighbouring seamount systems demonstrates that physical disturbance from bottom-contact fishing can result in ecological impacts that persist for decades or

even centuries. Consequently, much of the ecological value of the ridge system derives from communities that possess both high conservation value and low resilience to disturbance.

The significance of the area for threatened and migratory species, particularly in areas within the high seas remains unclear. The evidence is strongest for benthic communities and certain localised nursery or foraging functions, such as Galápagos shark nursery habitat around Salas y Gómez Island (Chile's Exclusive Economic Zone), breeding of seabirds in Rapa Nui and Salas y Gómez Island and likely swordfish and Chilean jack mackerel recruitment and nursery areas associated with some parts of the ridges. However, for many highly mobile pelagic species, including seabirds, sea turtles, sharks, tunas, and marine mammals, the available evidence supports occurrence and habitat use rather than demonstrating that the region is uniquely important for critical life-history stages.

The scientific value of the area is exceptionally high. The ridge system provides a natural laboratory for studying seamount ecology, endemism, population connectivity, deep-sea biodiversity, oceanographic-biological interactions, and ecosystem responses to environmental gradients. Despite substantial recent advances in knowledge, only a small portion of the undersea features within the region have been directly surveyed. The recent discovery of previously unknown species and communities indicates that the area remains one of the most scientifically promising deep-sea regions globally.

The overall assessment undertaken by SPRFMO Members revealed broad agreement that the area satisfies several criteria relating to bioregional representation, biodiversity representation, uniqueness, vulnerability, naturalness, VME occurrence, cultural significance, and scientific interest. The only criterion that did not receive broad consensus concerned the degree to which the area has demonstrable special importance for the life-history stages of threatened or highly migratory species, reflecting ongoing uncertainties rather than an absence of ecological significance. To that effect, future data collection and research efforts could further improve understanding of the ecological role of the area for highly mobile species, including potential breeding, nursery, feeding, migratory, and connectivity functions. Additional information derived from telemetry studies, genetic analyses, fisheries-independent surveys, ecological monitoring, and observations from currently under-sampled sectors of the ridge system may help reduce existing uncertainties and strengthen future assessments of the area's significance for threatened species and critical life-history stages.

Current fishing activity within the area is relatively limited when compared to the wider southeastern Pacific, with most effort concentrated along the eastern portion of Nazca Ridge. Jumbo flying squid represents the dominant contemporary fishery, while tuna and swordfish fisheries contribute comparatively small proportions of their overall catches from within the broader area. Historical bottom-contact fisheries have occurred on some seamounts and provide evidence of the long-term ecological consequences that can result from disturbance of vulnerable deep-sea habitats.

Overall, the weight of evidence indicates that the Salas y Gómez-Nazca ridge system is a globally significant seamount province that combines exceptional biodiversity, high endemism, vulnerable marine ecosystems, remarkable geomorphological diversity, substantial scientific value, and relatively high ecological integrity. While uncertainties remain for some mobile pelagic species and unsurveyed portions of the ridge system, the scientific evidence consistently identifies the area as one of the most distinctive and ecologically important marine regions within the South Pacific.

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Purpose

The purpose of this paper is to update the Scientific Committee on the work that the Salas y Gómez and Nazca Task Team, supported by its participants, including Members and Observers, has progressed in the last year. Here we present all relevant data and information regarding the Salas y Gómez and Nazca Ridges Area, which is used as a basis to discuss and propose potential enhanced management measures for this area, fulfilling task 6.2.4 *"Review and discuss all compiled data and information and present possible measures to SC14 for the recommendation to COMM15*' of the 2026 Scientific Committee Multi-annual Workplan.

The paper also includes an up-to-date analysis of all fishing and observer data, and an evaluation of fishing impacts for the Salas y Gómez and Nazca Ridges Area, which were undertaken largely by Chile under the guidance of the Salas y Gómez and Nazca Task Team. While the information presented here regarding fishing activities and impacts reflect the collective work of the Task Team, some Members have expressed technical reservations on specific aspects of the interpretation of the data during the development of the paper. Nevertheless, while not every technical aspect may have been unanimously agreed, this paper is the result of the collective work of the Salas y Gómez and Nazca Task Team. Consequently, this paper represents the most comprehensive compilation of scientific information for the Salas y Gómez and Nazca Ridges Area developed under SPRFMO to date, and as such, it intends to address tasks 6.2.1 "*Provide an analysis of all fishing data within the Salas y Gómez and Nazca ridges area, including for 2024*", 6.2.2 "*Provide an evaluation of fishing impacts for the Salas y Gómez and Nazca ridges area*", and 6.2.3 "*Undertake an analysis of observer data from all fisheries (not limited to SPRFMO if that data is available) regarding interactions with marine mammals, seabirds, reptiles and other species of concern within the Salas y Gómez and Nazca ridges area and adjacent areas*" of the 2026 Scientific Committee Multi-annual Workplan.

Background

At its 2024 annual meeting, the Commission adopted Decision 17-2024 To Protect the Salas y Gómez ad Nazca Ridges Area, tasking the Scientific Committee (SC) to include the Salas y Gómez and Nazca Ridges as a standing agenda item from 2024 onward. Under this item, the SC was instructed to compile and review relevant scientific information and data about the area and recommend possible measures to the Commission. These recommendations should be based on an ecosystem-based approach aimed at preserving biodiversity and fishery resources, as well a sustainable use of marine resources. Provided materials and advice from the SC to the Commission should also include the findings of any scientific research and work developed under the SC Multi-annual Workplan on the Salas y Gómez and Nazca Ridges Area.

Following the Commission's Decision 17-2024, the SC agreed to "*to establish a Task Team for the Salas y Gómez and Nazca Ridges Area to compile and review all relevant scientific information and data about the Area and recommend possible measures to be presented to the SC13 in 2025, based on an ecosystem-based approach that aims at preserving its biodiversity and fishing resources in the Convention Area.*" (SC12-Report). Following due process, Terms of Reference for t Task Team were defined to provide further detail regarding the tasks to be fulfilled (e.g., scope, deadlines, responsibilities). The Terms of Reference for the Task Team were last updated at the 13th Meeting of the SC in 2025 held in Wellington, New Zealand (Annex-17 of the SC13-Report).

Due to unforeseen circumstances the Task Team could not deliver their findings to the SC in 2025, as initially instructed by the Commission, but nevertheless kept steadily working during 2025 and 2026,

with the outcomes of the work being presented here. As work was being progressed by the Task Team, some of the outputs were published as annexes of SC reports or stand-alone items but are included here to facilitate their accessibility and consideration, either in the main body of the manuscript, or as an annex. While no substantial changes have been made to such outputs, typography errors have been addressed.

The main work outputs provided in this report are:

- A definition of the Salas y Gómez and Nazca Ridges Area, in the context of SPRFMO, with clearly defined geographical boundaries
- An Evaluation Criteria to serve as the framework for assessing areas for enhanced protection measures, including the Salas y Gómez and Nazca Ridges Area
- A compilation of available information and data on the Salas y Gómez and Nazca Ridges Area, including an evaluation of fishing impacts and an analysis of historical fishing activity and observer data
- An assessment of information on the Salas y Gómez and Nazca Ridges Area against the Evaluation Criteria
- Potential recommendations to the Scientific Committee for the Salas y Gómez and Nazca Ridges Area

Scientific Information

This section provides an evaluation of information relating to the Salas y Gómez and Nazca Ridges Area (Figure 1), organised according to the Evaluation Criteria (see Annex A – Evaluation Criteria for assessing spatial management proposals) that was agreed by the Task Team and the SC in 2025 (SC13-Report). The materials provided here are based on technical documents (submitted to SPRFMO as Member scientific papers), with emphasis on peer-reviewed studies and formal reports that describe the geomorphology, oceanography, biodiversity, vulnerability, cultural significance, and research value of the area. The compiled information was used by Members to individually assess each criterion of the Evaluation Criteria, with a short summary of the scientific information developed to facilitate such assessment (see Annex B – Summary of available information). The Salas y Gómez and Nazca Ridges are recognised as an Ecologically or Biologically Significant Area (EBSA) by the United Nations Convention on Biological Diversity (CBD, 2017). This section builds upon the scientific basis underpinning the original EBSA description (Gálvez-Larach, 2012) and incorporates the advances

in knowledge generated over the last decade (Wagner et al., 2021; Gaymer et al., 2025).

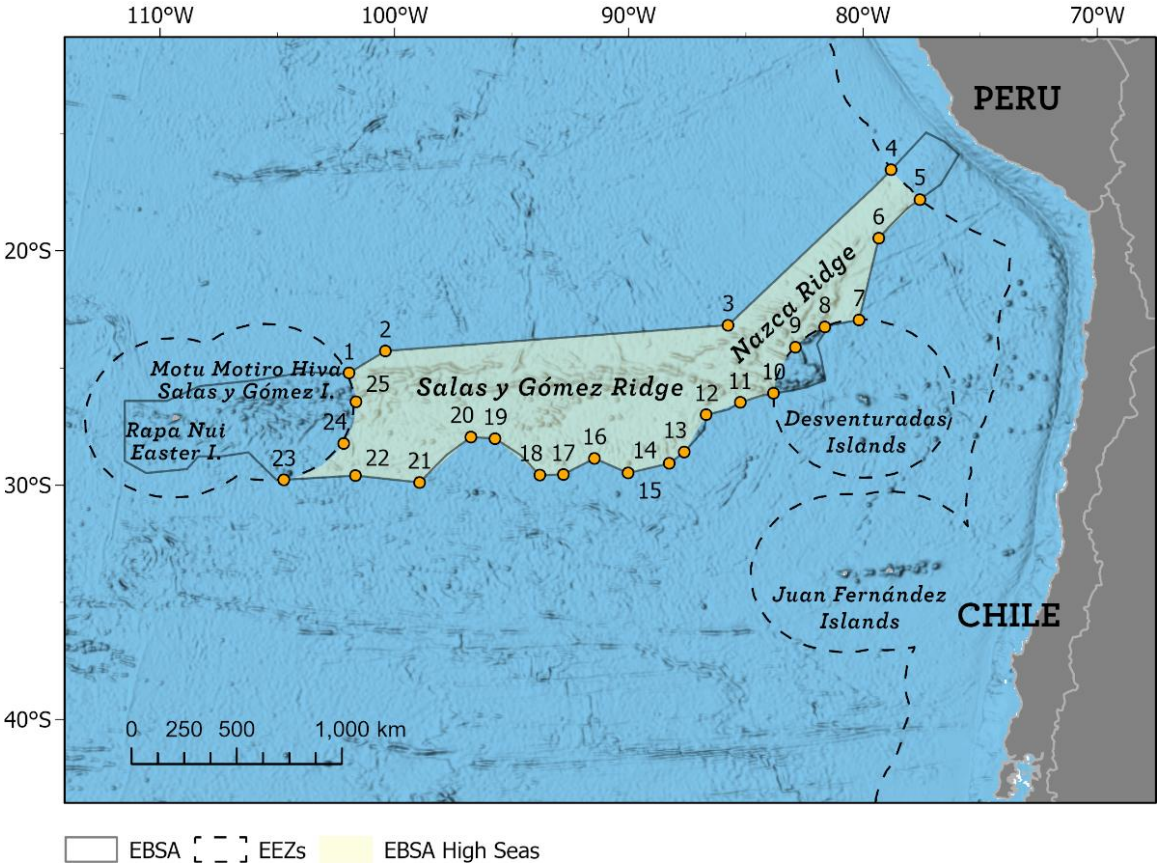


Figure 1 The Salas y Gómez and Nazca (SGN) Ridges Area (light-yellow polygon) that is located within the High Seas, with the main topographic and geographic features referenced in the text labelled. The SGN area represents 73% of the area recognised by the Convention of Biology Diversity as an ecologically or biologically significant area (EBSA, grey solid line) found beyond the Exclusive Economic Zones (EEZs, black dashed line) of Chile and Peru. The coordinates of the points can be found in Annex C.

3.1 Bioregional representation

3.1.a Area is known to contain unique, rare or distinct habitats or ecosystems that fishing operations will disturb

The Salas y Gómez and Nazca Ridges Area provides notable bioregional representation within the southeastern Pacific because it contains habitat types and ecosystems that are uncommon at regional and global scales, including the Easter Island and Desventuradas Ecoregions (Spalding et al., 2007, Wagner et al., 2021; Gaymer et al., 2025). Elevated hard-substrate features such as seamount summits and flanks, guyots, crests, and escarpments are likely to support structurally complex benthic communities dominated by habitat-forming deep-sea corals and sponges, including scleractinians, octocorals, stylasterid hydrocorals, antipatharians and hexactinellids (Clark et al., 2010, Tapia-Guerra et al., 2025, *in prep*). Habitat suitability index models using occurrence data from the area for vulnerable marine ecosystem (VME) indicator taxa (corals and sponges) across the ridges systems (Figure 2, Georgian et al., 2021; Parin et al., 1997; Mironov et al., 2006; Mechó et al. *in prep.*) indicate that prominent topographic features are likely to support distributions of stony corals and sponges, particularly on elevated terrain where current regimes and substrate characteristics favour sessile suspension feeders (Figure 3, Georgian et al., 2021). These habitat-forming taxa are recognised as VME indicator taxa under Annex 5 of the current SPRFMO bottom-fishing measures (CMM03-2025),

and recent expeditions have shown evidence of their presence throughout both ridges (Easton et al., 2019; Friedlander et al., 2021; Tapia-Guerra et al., 2021a, b, 2025; Mechó et al. *in prep.*). These assemblages are directly relevant to bioregional representation and are not uniformly distributed throughout the Salas y Gómez and Nazca Ridges Area and instead are associated to a combination of bathymetry, substratum, and oceanographic conditions, a pattern similarly observed in other important biogeographical areas across the South Pacific (i.e., Anderson et al., 2016; Rowden et al., 2017; Stephenson et al., 2021).

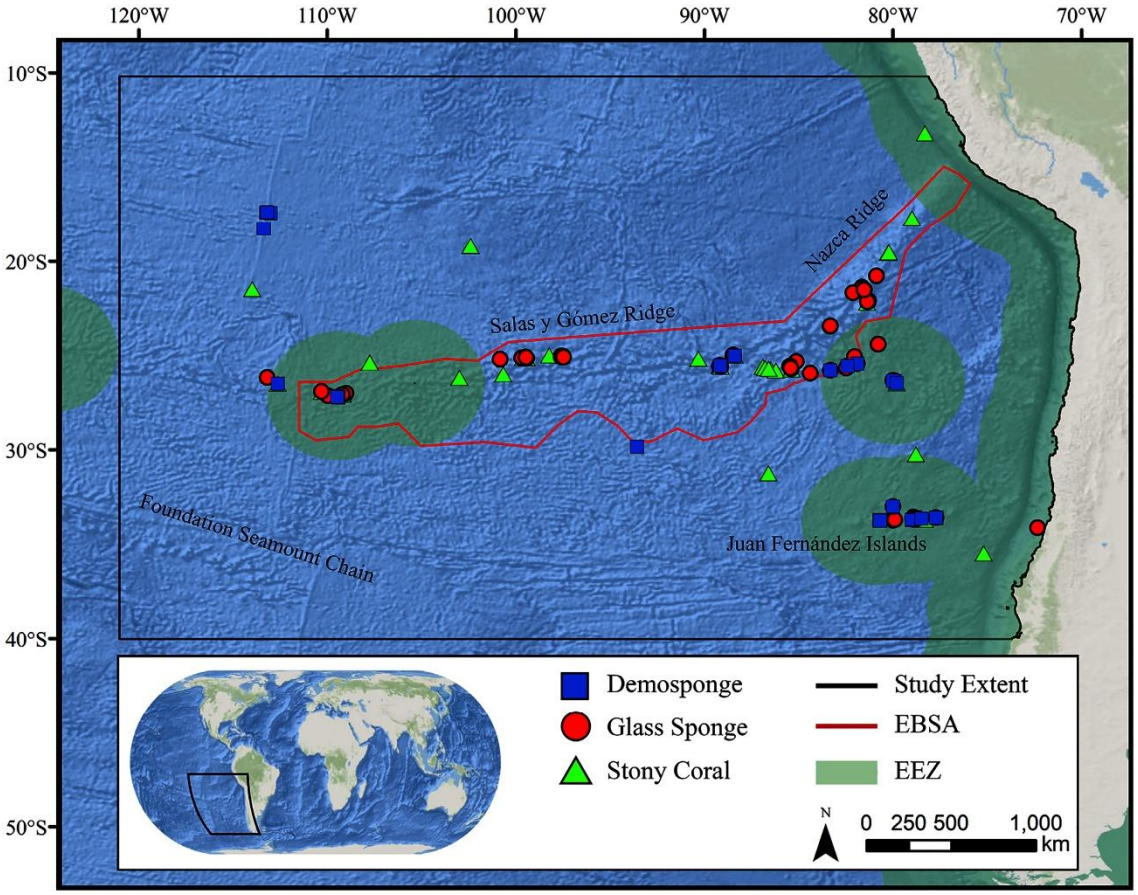


Figure 2 Distribution of occurrence records for demosponges, glass sponges, and stony corals, national exclusive economic zones (EEZs), and Ecologically or Biologically Significant Marine Area (EBSA) designation. Sourced from Georgian et al. (2021) https://doi.org/10.7717/peerj.11972/fig-1 .

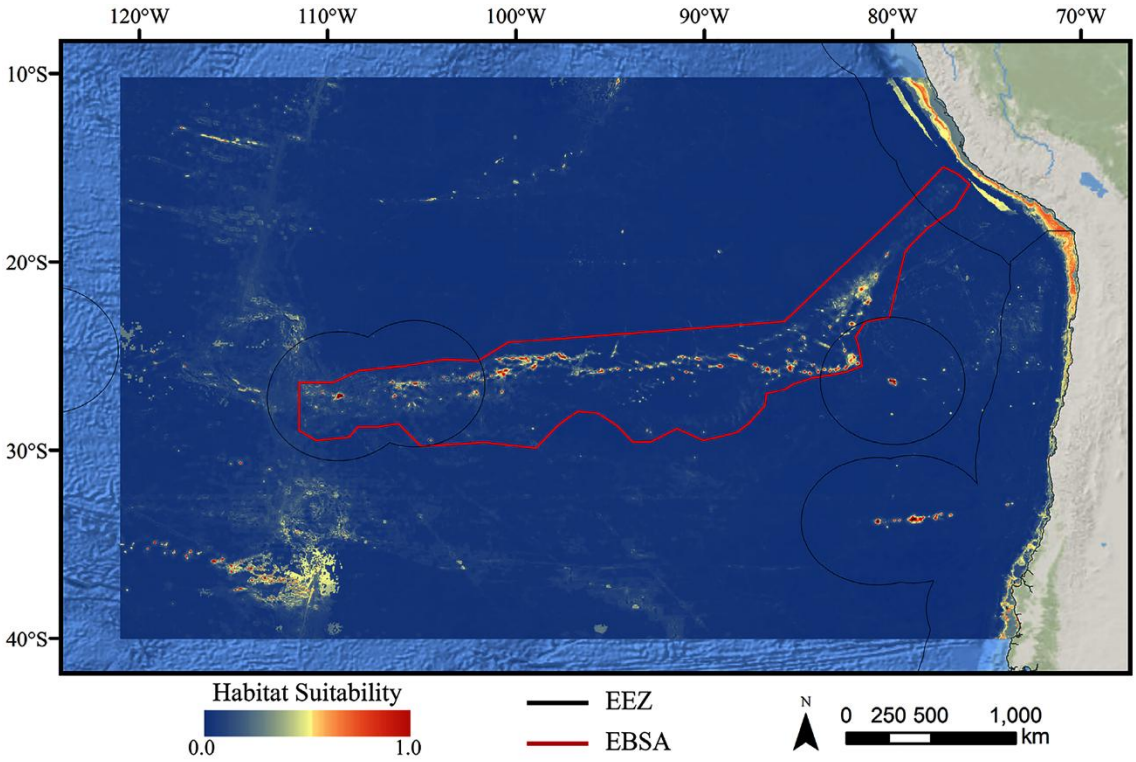


Figure 3 Predicted habitat suitability for the stony coral ensemble model. Warmer colours indicate more suitable habitat. Sourced from Georgian et al. (2021) https://doi.org/10.7717/peerj.11972/fig-5 .

Deep-sea benthic communities are widely recognised as vulnerable to direct contact from bottom gears and to other physical disruptions of the seabed (Clark et al., 2016), and current SPRFMO bottom-fishing measures (CMM03-2025) identify corals and sponges as VME indicator taxa due to their structural complexity, fragility, and generally slow recovery (SC09-DW11).

There is ample evidence in the primary literature that physical disturbance (for example, bottom trawling) can cause long-lasting changes to deep-sea benthic communities, particularly in seamounts and other habitats dominated by sessile, structure-forming taxa such as corals, hydrocorals, sea pens, and sponges. Clark et al. (2019) found that on New Zealand seamounts, heavily trawled sites had lower benthic abundance and richness than unfished or occasionally fished sites, and recovery remained limited after 15 years of protection; and a follow-up study by Goode et al. (2025) from the same region detected only early, spatially patchy signs of early recovery nearly two decades after fishing ceased. Work by Morrison et al. (2020) on Arctic sponge grounds showed that disturbed areas still differed from control sites and had lower megafaunal densities four years after disturbance. Similarly, evidence presented in Petit et al. (2026) demonstrates that trawled seamounts in the nearby Juan Fernández Archipelago still exhibit strong ecological consequences from bottom trawling activity occurring more than two decades ago, sharply contrasting with the healthy benthic ecosystem observed at an ecologically comparable and non-trawled proximate seamount (Petit et al., 2026; Tapia-Guerra et al., 2026).

The evidence assembled for this area therefore indicates that its bioregional significance is linked both to the presence of distinct benthic habitats and to the fact that these habitats are susceptible to disturbance when fishing activities interact with the seabed (Petit et al., 2026; Tapia-Guerra et al., *in prep.*).

The Salas y Gómez and Nazca Ridges are notable for containing ecological formations that appear to be rare in the global ocean. Recent syntheses and expedition reports describe exceptionally deep light-dependent coral and algal communities on parts of the western end of Salas y Gómez Ridge and at the intersection of the Nazca Ridge with the Salas y Gómez Ridge, extending beyond 300 m depth under conditions of exceptional water transparency and low turbidity (Easton et al., 2019; Tapia-Guerra et al., 2021b, 2025; Gaymer et al., 2025). This observation is significant because mesophotic communities at such depths are globally uncommon and poorly documented, and imply a distinctive interplay among irradiance penetration, water transparency, substrate availability, and local hydrography. Within a bioregional framework, these communities represent a habitat type that is indicative of a unique combination of oceanographic and geomorphological conditions that distinguishes the Salas y Gómez Ridge and Nazca Ridge within the broader Pacific Ocean (Parin et al., 1997; Tapia-Guerra et al., 2021b; Gaymer et al., 2025).

Even though these communities had been largely documented within the portions of the EBSA that overlaps with Chile's EEZ, recent expeditions have found mesophotic coral systems along seamounts of the western part of Salas y Gómez Ridge and in the transition zone between the Salas y Gómez and Nazca ridges, within the high seas (Tapia-Guerra et al., 2021b; Easton et al., 2024), confirming preliminary findings from historic Soviet expeditions described by Parin et al. (1997). Several of the seamounts in both ridges have peaks within the mesophotic zone where water temperatures are >15 °C), further suggesting suitable conditions for light-dependent benthic communities across non-surveyed locations (Figure 4) (Easton et al., 2019; Tapia-Guerra et al., 2021b, *in prep.*).

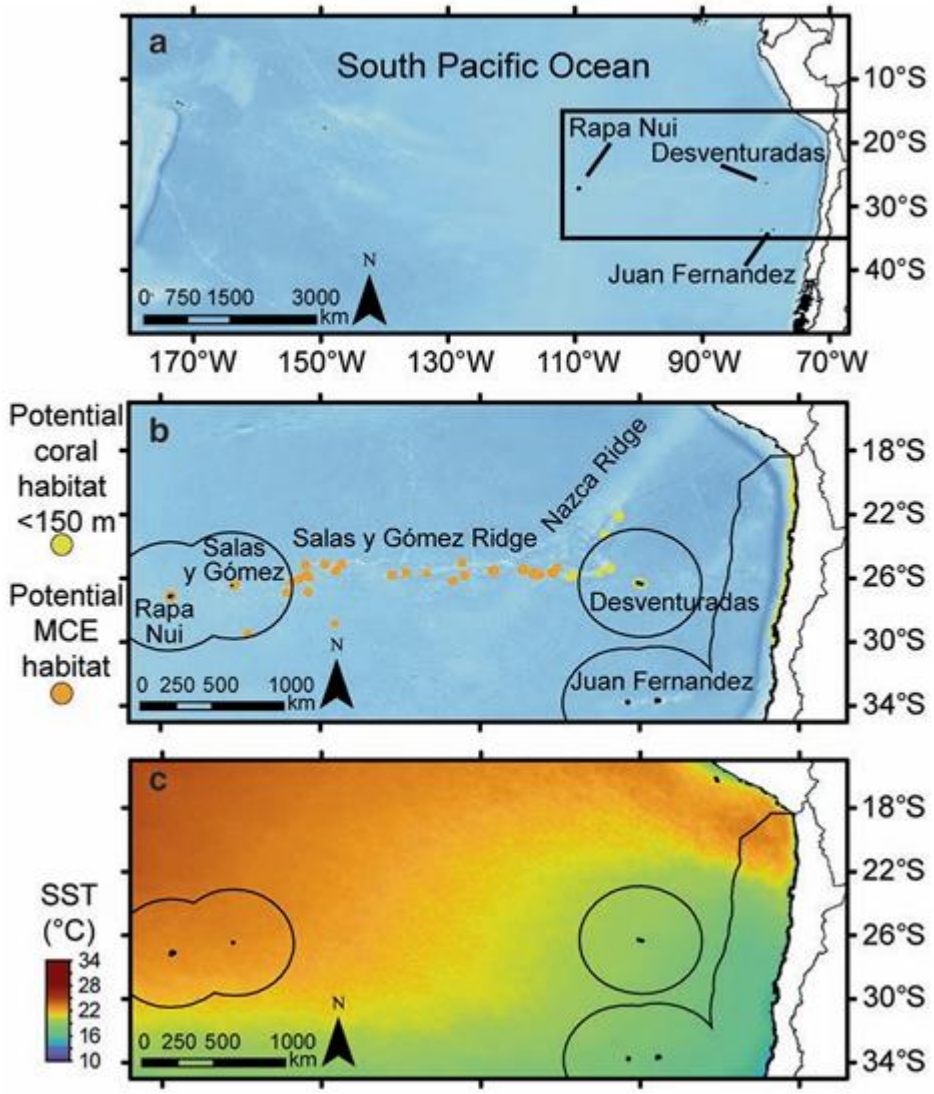


Figure 4 (a) South Pacific Ocean with the extent of the subsequent panels indicated by the black-outlined box. (b) Potential coral habitat and (c) sea surface temperature (SST) of the Salas y Gómez Ridge, Nazca Ridge, and Chilean Exclusive Economic Zone (EEZ). Potential coral habitat (yellow) was identified and defined as seafloor north of 30° S that has suitable depths (<150 m) to support mesophotic coral ecosystem (MCE) as identified from bathymetric data. Because in situ temperatures at these depths are <15 °C east of ~85° W, potential MCE habitat is likely restricted to zones highlighted in orange. Sourced from Easton et al. (2019).

3.1.b Areas with a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity

A second dimension of bioregional representation is the comparatively high degree of naturalness retained across much of the area (Wagner et al., 2021). Although some sectors of the wider South Pacific may have been substantially affected by bottom fishing (Stephenson et al., 2025), including nearby areas to the Salas y Gómez and Nazca Ridges Area (Porobic et al., 2019), available evidence indicates that large portions of the Salas y Gómez and Nazca ridges remain lightly disturbed (Gálvez-Larach, 2009; Georgian et al., 2021; Gaymer et al., 2025), with only 12 seamounts with historical bottom fishing activity reported (Dunstan et al., 2011), although anecdotal evidence suggests this number could be higher throughout both ridges (A. Smith, A.P. Smith Fishing Consultancy Ltd, pers. comm., February 2026). This conclusion is supported by the persistence of intact benthic habitat-forming assemblages, the observation of abundant long-lived sessile fauna on surveyed seamounts,

and the continuing discovery of taxa that are new or likely to be new to science (Wagner et al., 2021; Easton et al., 2024; Sellanes et al., 2024; Gaymer et al., 2025; Gallardo-Salamanca et al., 2026; Petit et al., 2026; Sánchez et al., *in review*). Three recent remotely operated vehicle surveys (Figure 5) have documented coral and sponge communities with substantial three-dimensional structure, as well as associated invertebrate and fish assemblages' characteristic of minimally altered deep-sea habitat (Easton et al., 2024; Sellanes et al., 2024; Schmidt Ocean Institute, 2024).

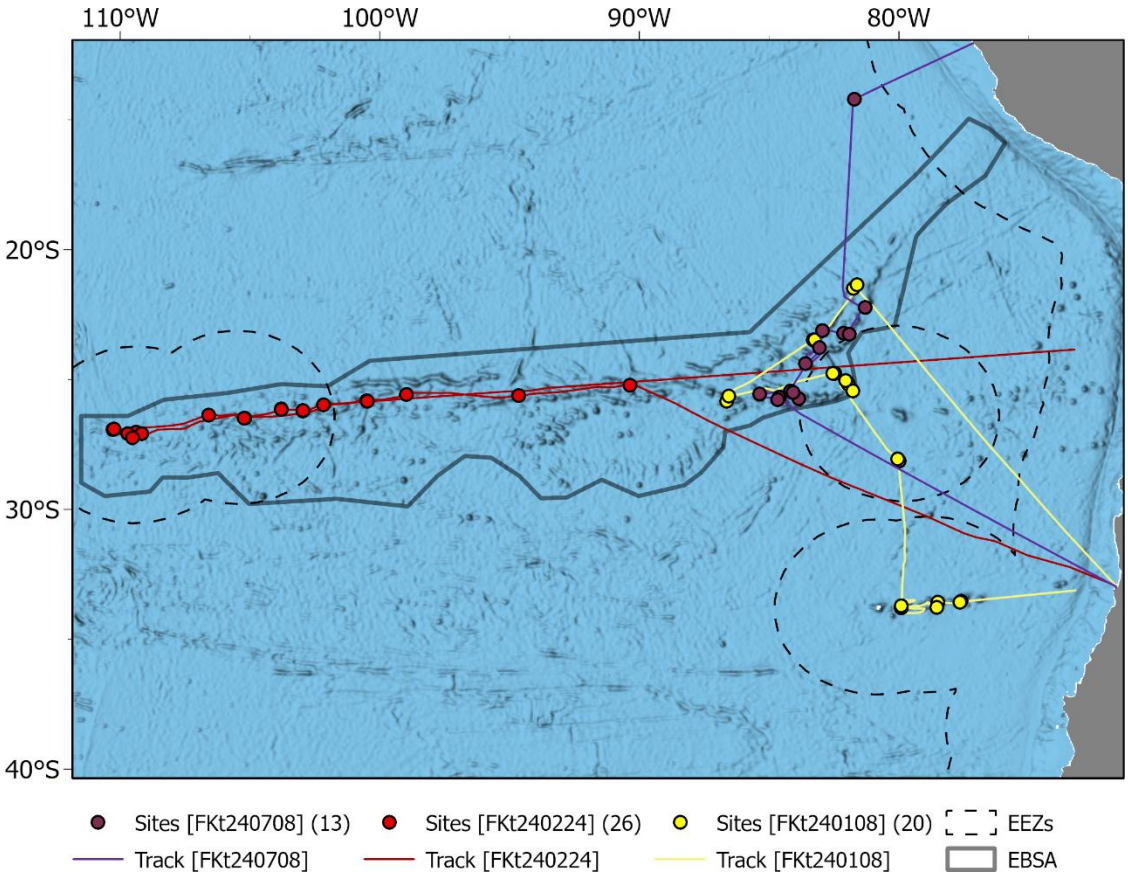


Figure 5 Surveyed sites and vessel tracks from three recent Schmidt Ocean Institute/Center for Ecology and Sustainable Management of Oceanic Islands research expeditions: FKt240108 (Jan-Feb 2024, in yellow), FKt240224 (Feb-Apr 2024, in red) and FKt240708 (Jul-Aug 2024, in fuchsia). Number of surveyed sites are given in round brackets for each expedition. Boundary lines for the Ecologically or Biologically Significant Area (EBSA) are shown in solid grey, and Exclusive Economic Zones (EEZs) are shown as black dashed lines for reference.

From a bioregional perspective, the presence of relatively undisturbed ecosystems is scientifically important. Such systems can function as benchmarks for evaluating anthropogenic effects elsewhere, and they capture ecological configurations that may already have been diminished in more heavily exploited settings. In that sense, bioregional representation in this area does not depend only on species lists or habitat counts; it also depends on the maintenance of ecological integrity. The combination of distinct habitat types and relatively low disturbance therefore provides a strong basis for concluding that the area contributes substantially to bioregional representation within the SPRFMO Convention Area, a finding aligned with the EBSA recognition (Criteria 1 and 7) by the United Nations Convention on Biological Diversity (CBD, 2017).

3.2 Geographic and/or geomorphological representation

3.2.a The area provides for important or desirable geographic representation within the SPRFMO area

The Salas y Gómez and Nazca ridges jointly represent an extensive and unusual seamount system in the southeastern Pacific. Regional compilations indicate that the Salas y Gómez and Nazca ridges system contains approximately 110 seamounts, representing about 41% of the seamounts identified in the southeastern Pacific, and is characterised by an exceptionally high concentration of seamounts (Gálvez-Larach, 2009). Although they differ in orientation, geological history, and oceanographic setting, these ridges comprise a nearly continuous seamount chain extending over approximately 4,000 km (across Peruvian and Chilean waters and the high seas) and are widely recognised as a single biogeographic region characterised by high biodiversity, endemism, and ecological connectivity among seamount habitats (Boteler et al., 2022; Fedorov, 1985; Parin et al., 1997; Wagner et al., 2021; Gaymer et al., 2025).

The Nazca Ridge extends in a northeast-southwest direction to about 29°S, 90°W for approximately 2,200 km from the Peru-Chile trench region, while the Salas y Gómez Ridge extends roughly 2,800 km in a more zonal configuration from the East Pacific Rise and intersects the Nazca Ridge at about 24°S, 83°W (Woods and Okal, 1994; Gaymer et al., 2025). Woods and Okal (1994) described the Nazca Ridge based on short-period Rayleigh waves dispersion; according to their results, the Nazca Ridge is clearly visible, standing about 1,500 m above the surrounding abyssal plain, and extending south-west from the Peru-Chile trench to where it intersects the Salas y Gómez Ridge. Past the intersection, however, the 3,500 m isobath continues south-west about 29°S, 90°W, thereby forming a linear feature of low relief along the same geographic trend as the recognised Nazca Ridge, until the Roggeveen Rise. This combination provides broad geographic representation by spanning gradients in latitude, longitude, depth, productivity, and water-mass characteristics across a large portion of the SPRFMO area (Hammond et al., 2025).

Geomorphological classifications place the Nazca Ridge within the broader category of large oceanic topographic or igneous provinces (classified as an Oceanic Plateau) and characterise it as an aseismic intraplate ridge forming a broad and comparatively continuous regional topographic structure (Parin et al., 1997; Harris et al., 2014; Harris et al., 2023; Harris et al., 2026). However, this regional continuity does not imply morphological uniformity. Parin et al. (1997) described substantial variation in the morphology, summit configuration, depth and relief of individual seamounts along the ridge, distinguishing flat sub-horizontal, convex and acute-topped summit morphologies. Bathymetric analyses further reveal flat-topped guyots, dome-shaped edifices, irregular multi-peaked seamounts and elongated ridge-like structures (Fedorov and Ivanov, 1981, 1984). According to Hampel et al. (2004), the southwestern part of the Nazca Ridge exhibits greater bathymetric elevations associated with volcanic features than the northeastern part, where the relief is significantly gentler. Superimposed on this volcanic and tectonic framework, towards northeast of the Nazca Ridge, the sedimentary morphologies consistent with contourite drift systems have been recognised on and around the ridge, reflecting interactions among volcanic construction, tectonic evolution, deep-water circulation and sediment transport (Calvès et al., 2022; Harris et al., 2023; Harris et al., 2026).

The Salas y Gómez Ridge, by contrast, is more appropriately described as an island-seamount chain, expressed as an irregularly spaced, quasi-linear series of volcanic islands, guyots, and seamounts associated with long-lived intraplate volcanism (Pilger and Handschumacher, 1981; Parin et al., 1997). Although organised along the Easter-Salas y Gómez alignment, the ridge exhibits substantial geomorphological variability, including elongated volcanic edifices, rounded and dome-shaped seamounts, broad flat-topped features, and structurally complex morphologies (Rodrigo et al., 2014).

Considered together, the Nazca and Salas y Gómez ridges encompass a diverse assemblage of seafloor landforms and geomorphic classes within a contiguous biogeographic region.

Across the Salas y Gómez and Nazca ridges system, three major geographic and biogeographic sectors can be distinguished: the Easter Island Ecoregion in the western sector, the Salas y Gómezian region along the central Salas y Gómez Ridge, and the Nazca region toward the eastern sector (Fedorov, 1982, 1985; Fedorov and Ivanov, 1981, 1984; Tapia-Guerra et al., *in prep.*). These areas are superimposed on a geomorphologically heterogeneous seafloor (Harris et al., 2026) and encompass contrasting combinations of seamount and mound morphology, summit depth, flank configuration, symmetry and vertical relief, and gentle relief in the north-east Nazca Ridge (Calvès et al., 2021). The Easter Island sector includes morphologically diverse volcanic edifices influenced by the complex tectonic setting associated with the Easter Microplate and Easter Fracture Zone, whereas the central Salas y Gómez sector is characterised by a prominent E–W volcanic alignment containing numerous large seamounts and broad flat-topped or plateau-like edifices. Toward the east, the Nazca sector comprises generally deeper and, in several cases, more asymmetric edifices embedded within the broader topographic structure of the Nazca Ridge (Tapia-Guerra et al., *in prep.*). Considered together, the Easter Island, Salas y Gómezian, and Nazca sectors therefore represent a contiguous but geomorphologically heterogeneous seafloor province, encompassing volcanic chains, individual seamounts and guyots, ridge-like structures, escarpments, and sedimentary depositional features across multiple spatial scales.

Oceanographically, the area bridges contrasting regimes. Western sectors lie closer to the South Pacific Gyre and are characterised by very low nutrient concentrations (e.g. ultra-oligotrophic system) (SC12-Doc37) and high water clarity, whereas easternmost sectors are influenced by the Humboldt Current system, the Peru-Chile upwelling domain, and an oxygen minimum zone of approximately 700-m thick due to a high nutrient content (SC13-SGN01_rev1; SC12-Doc37). The transition from ultra-oligotrophic conditions associated with the South Pacific Gyre along the Salas y Gómez Ridge to oligotrophic and mesotrophic in the Nazca Ridge and eutrophic in the easternmost portion, due to the influence of the upwelling system (Cornejo, 2026), is exceptional within an interconnected ridge system and likely contributes to substantial ecological and biogeographic turnover across the region (Wagner et al., 2021; Hammond et al., 2025; Harris et al., 2026). These pronounced environmental gradients may generate distinct ecological settings along the Salas y Gómez and Nazca Ridges, consistent with the ecological benthic-unit framework proposed by Harris et al. (2026). The area therefore represents more than a single habitat type; it captures a cross-section of the southeastern Pacific's oceanographic heterogeneity.

3.2.b The area proposed is known to contain unique or unusual geomorphological features that fishing operations may damage

The geomorphological distinctiveness of the area is further reflected in the concentration of seamounts, guyots and volcanic elevations (Harris et al., 2014; Yesson et al., 2011). Regional compilations indicate that the ridge system contains more than 110 seamounts and guyots in a relatively small area (94% of the Southeast Pacific and 11% of the Pacific Ocean (Kitchingman et al., 2008)), making it one of the densest seamount concentrations in the southeastern Pacific, and among the largest concentrations of seamounts in the high seas globally (Georgian et al., 2021; Harris et al., 2014; Gálvez-Larach, 2009; Yesson et al., 2011) (Figure 6). Summits of these undersea features occur over a broad bathymetric range, from approximately 150 m below the sea surface to depths well beyond 1,000 m, while surrounding abyssal depths exceed 4,000 m (mean 2,100 m) (Gálvez-Larach, 2009; Wagner et al., 2021; Gaymer et al., 2025). The resulting extreme topographic relief generates

pronounced environmental gradients over relatively short horizontal distances, producing exceptional habitat heterogeneity and promoting ecological partitioning according to depth, hydrodynamic conditions, substrate characteristics, and oxygen availability (Clark et al., 2010).

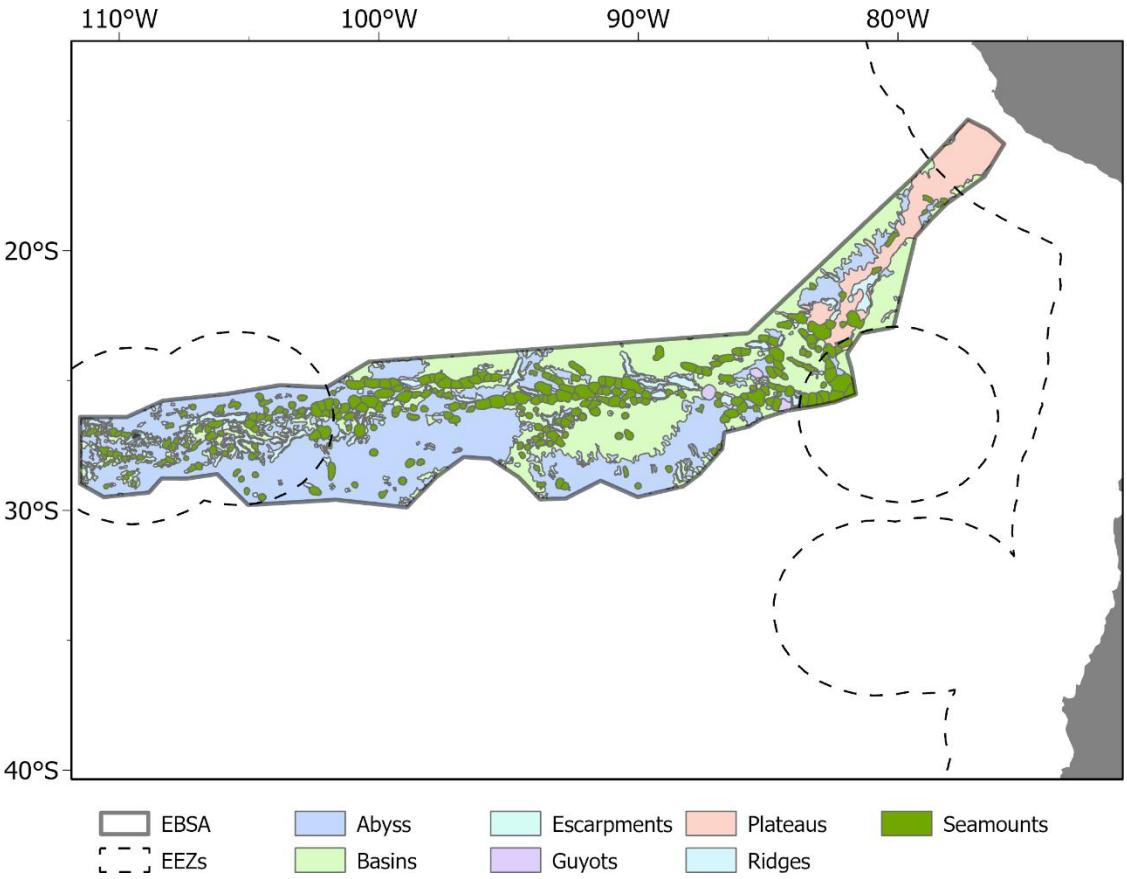


Figure 6 Distribution of seafloor geomorphological undersea features (Harris et al., 2014). Boundary lines for the Ecologically or Biologically Significant Area (EBSA) are shown in solid grey, and Exclusive Economic Zones (EEZs) are shown as black dashed lines for reference. Underlying spatial data can be accessed from http://www.bluehabitats.org.

The Nazca Ridge is believed to rise approximately 1,500 m (Hampel et al., 2004) to 2,000 m (Wipf et al., 2008) above the adjacent oceanic floor, with elevations approximately ranging from 50 m to 1,000 m towards the eastern end, which also displays evidence of strong biophysical coupling with regional circulation (SC12-Doc37). However, recent studies based on high-resolution multibeam bathymetric data complemented by backscatter have shown that the Nazca Ridge harbours seamounts with summits between 200 and 500 m deep (Tapia-Guerra et al., *in prep.*), in line with early descriptions of the area provided by Fedorov and Ivanov (1981, 1984) and Parin et al. (1997).

Mesoscale eddies can facilitate the offshore transport of organic matter from the Peruvian margin toward the Nazca Ridge, potentially contributing to enhanced particulate organic carbon (POC) delivery and deposition in deep-ridge ecosystems (Flores et al., 2026). Regional POC flux modelling using a power-law attenuation function indicates that only about 16% of net primary production is exported below the euphotic zone (40-60 m) in the portion of the Nazca Ridge within the Peruvian jurisdictional waters (SPRFMO SC13-SGN01_rev1; SPRFMO SC12-Doc 37). Combined with the estimated contributions of the physical and migrant carbon pumps, this limited downward transfer of organic material suggests weak coupling between pelagic production and benthic ecosystems due to zooplankton and bacterial grazing in the eastern most portion of the Nazca Ridge (SPRFMO SC13-

SGN01_rev1; SPRFMO SC12-Doc 37). However, this may not hold across the rest of the Nazca Ridge and the Salas y Gómez Ridge. Recent work by Cornejo (2026) shows high values of Phytoplanktonic Biomass Export Index and Benthopelagic Index in oceanic stations across the Salas y Gómez and Nazca ridges in depths of up to 4,000 m, suggesting a greater transfer potential of phytoplankton biomass and particulate organic matter to the seafloor. Cornejo (2026) indicates though, that these indices should be interpreted as indirect indicators, which require further validation, ideally through the continuous monitoring of oceanographic and biogeochemical variables, as well as sediment traps and benthic observations coupled with pelagic measurements. Despite exceptionally high primary production, the Peruvian coast "performs as a relatively inefficient biological carbon pump due to extensive remineralization, zooplankton grazing, and high trophic transfer efficiencies" (Bam et al., 2023).

The Nazca Ridge's interaction with low-oxygen water masses, pronounced relief, and across-slope current structures likely influences food supply to benthic communities and may shape species distributions in ways not observed in simpler abyssal settings. Overall, there is a transition from relatively productive waters influenced by the Humboldt Current system in the easternmost end to oligotrophic and ultra-oligotrophic conditions toward the Salas y Gómez Ridge and the South Pacific Gyre (Cornejo 2026). Across this gradient, declining nutrient availability and primary productivity may be associated with increasing dependence on pelagic food webs and the transport of organic matter through zooplankton and other mobile consumers (Cornejo 2026).

The susceptibility of these geomorphological features to damage follows from their ecological function. Throughout the Salas y Gómez and Nazca Ridges, seamount summits, ridges, and escarpments provide essential habitat for diverse assemblages of sessile and habitat-forming taxa, owing to the availability of hard substrates and hydrodynamic conditions that enhance the delivery of suspended food particles (Clark et al., 2010; Wagner et al., 2021). Physical disturbance to these features, particularly where it affects sessile habitat-forming taxa such as corals and sponges, can reduce habitat complexity, alter community composition, and require decades to centuries for recovery (Althaus et al., 2009; Clark et al., 2010; Koslow et al., 2001; Petit et al., 2026).

The significance of the area's geomorphological diversity extends beyond the representation of distinct landforms, because these features underpin habitat heterogeneity, support vulnerable habitat-forming communities, and influence ecosystem structure and function. Consequently, disturbance to the geomorphology or the associated biota may have disproportionate ecological consequences (Althaus et al., 2009; Clark et al., 2010; Wagner et al., 2021, Gaymer et al., 2025).

3.3 Biodiversity representation

3.3.a The area is known to contain unique or rare (occurring in only a few locations) species, populations or communities

The Salas y Gómez and Nazca ridges support exceptionally distinctive marine biological assemblages characterised by high levels of endemism, evolutionary uniqueness, and strong biogeographic isolation. Longstanding ichthyological work identified the ridge system as a major biogeographic transition zone and the easternmost extension of Indo-West Pacific affinities in the southeastern Pacific, with a fish fauna containing a substantial endemic component (Parin, 1991; Parin et al., 1997). More recent synthesis has extended this picture by documenting high levels of endemism across fish and invertebrate assemblages associated with the ridge system and neighbouring island groups, highlighting the region as a centre of speciation and evolutionary diversification (Wagner et al., 2021; Chavez-Molina et al., 2023). Regional endemism in the Salas y Gómez and Nazca ridges is

exceptionally high, with estimates ranging from approximately 41-44% for fishes and 46-51% for benthic invertebrates, reflecting the region's long-term isolation and unique evolutionary history (Parin et al., 1997; Gálvez-Larach, 2012). Surveys of nearshore reef fishes at the Juan Fernández and Desventuradas Islands found that endemic species comprised up to 96-99% of total fish abundance, a level considered among the highest known examples of assemblage-level endemism in marine ecosystems globally (Friedlander et al., 2016). Nevertheless, continued discoveries of new species and limited sampling across some habitats indicate that biodiversity inventories for the broader ecoregion remain incomplete (Friedlander et al., 2016; Wagner et al., 2021).

The area is also increasingly recognised as supporting ecological formations of exceptional global significance. Gaymer et al. (2025) reported the presence of the deepest known light-dependent coral and algal communities (below 300 m). These assemblages highlight a unique combination of oceanographic, geomorphological, and ecological conditions that have no known parallels elsewhere in the global ocean. And although such assemblages had been documented at the western end of the Salas y Gómez Ridge, around Rapa Nui and Salas y Gómez Island, and at the intersection of the Nazca Ridge with the Salas y Gómez Ridge within Chile's EEZ (Parin et al., 1997; Tapia-Guerra et al., 2021b), recent expeditions have reported mesophotic coral systems along seamounts of the western part of Salas y Gómez Ridge within the high seas (Figure 5) (Easton et al., 2024). Wagner et al. (2021) reviewed earlier discoveries from seamount expeditions, and recent post-cruise reports from Easton et al. (2024) and Sellanes et al. (2024) note additional specimens and morphotypes suspected to represent new taxa.

Despite growing scientific attention and significant recent research efforts, some parts of the Salas y Gómez-Nazca ridge system remain incompletely documented, particularly across its deep-sea habitats and many seamounts. Even so, it is widely recognised as a global marine biodiversity hotspot and among the most distinctive biogeographic regions in the southeastern Pacific (Parin et al., 1997; Wagner et al., 2021; Gaymer et al., 2025). Rare species and communities in this context are not defined only by low abundance but also by geographically restricted occurrence, unusual habitat associations, and taxonomic novelty. It is important to note that these attributes are most strongly expressed in the region's benthic and seamount-associated communities, which exhibit exceptionally high levels of endemism and have yielded numerous species new to science, indicating that the biodiversity of many ridge habitats remains incompletely characterised (Parin et al., 1997; Wagner et al., 2021; Gaymer et al., 2025).

3.3.b The area is known to contain a high diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity

Beyond endemism, the area supports a broad diversity of ecosystems and habitat types. Benthic habitats include hard-substrate coral and sponge gardens, mixed assemblages on seamount flanks, soft-sediment environments influenced by organic matter deposition, and shallow to mesophotic phototrophic communities, the latter having been documented at the western extremes of the system around Rapa Nui and Motu Motiro Hiva (also known as Easter Island and Salas y Gómez, respectively), and according to reports from recent expeditions, also in the high seas of the Salas y Gómez Ridge and at the intersection of the Nazca Ridge with the Salas y Gómez Ridge (Easton, 2024; Easton et al., 2019; Wagner et al., 2021). Pelagic habitats are equally varied because the ridge system intersects migratory pathways, frontal structures, eddy fields, and productivity gradients. Habitat suitability models developed by Georgian et al. (2021) predicted favourable conditions for a wide distribution of corals and sponges along seamounts, ridges, and escarpments. While these models indicate that benthic diversity is likely distributed across numerous discrete topographic nodes rather

than being concentrated at only a few localities, it is important to note that direct in situ observations remain geographically concentrated, leaving significant sampling gaps across much of the system, particularly on the northeast portion of the Nazca Ridge. Georgian et al. (2021) acknowledged that the scarcity of direct observations in deeper waters throughout the area is an obstacle for effective spatial management, categorising the area as a 'data-poor' environment. However, information collected in recent years from both the Nazca and the Salas y Gómez ridges (Figure 5) has significantly enhanced the current understanding of distribution and abundance of dominant benthic invertebrate taxa, as new confirmed records across both ridges have been reported and analysed, and subsequently included in the validation and further development of predictive models of deep-sea corals and sponges in the area (Easton, 2024; Sellanes, 2024; Tapia-Guerra et al. 2025, 2026, Mechó et al. *in prep.*).

The area also has documented significance for life stages or concentrations of some pelagic species. Fisheries-related studies identified the Nazca Ridge and the eastern Salas y Gómez Ridge as a nursery area for swordfish (Yáñez et al., 2004; Yáñez et al., 2006), as well as for Chilean jack mackerel (Arcos, 2001, as cited in Wagner et al. (2021) and Gaymer et al. (2025)). Additional work cited in recent syntheses indicates nursery areas for sharks around Rapa Nui and Salas y Gómez Island (Morales et al., 2018; Morales-Serrano & Gonzalez-Pestana, 2024). These examples show that biodiversity representation in some parts of the area includes not only resident benthic assemblages but also ecologically important functions for wide-ranging pelagic fauna.

Community composition varies markedly across the Salas y Gómez and Nazca Ridge system, with fish and invertebrate assemblages showing high levels of spatial turnover among seamounts and subregions, indicating substantial beta diversity across environmental and geographic gradients (Friedlander et al., 2021). This is expected in a system characterised by strong gradients in depth, isolation, current exposure, oxygen concentration, and food supply. Such gradients can produce distinct summit, upper-slope, mid-slope, and deep-flank assemblages on individual seamounts, while broader east-west environmental variation generates additional turnover across the ridge system. Consequently, the Salas y Gómez and Nazca ridges support a highly heterogeneous mosaic of assemblages, with substantial species turnover among locations and environmental settings contributing to high regional biodiversity. Despite this heterogeneity, the ridge system may also facilitate connectivity among populations through dispersal pathways linking seamounts that maintain genetic exchange (Boteler et al., 2022; Flores et al., 2026). These interacting processes likely contribute to the exceptional biogeographic distinctiveness and elevated endemism documented for the region's benthic and seamount-associated fauna (Parin et al., 1997; Wagner et al., 2021). Regardless the variability, several groups such as sponges, corals, toad fishes, macrourids, and gastropods are present across both ridges (Sazonov and Iwamoto, 1992; Tenorio et al., 2024; Gaymer et al., 2025). This suggests a degree of ecological connectivity throughout the area, although this hypothesis is somehow at odds with the idea that some species' distributions may be constrained by the contrasting oceanographic conditions of the biogeographic transition zone located between 82° and 85°W (Fernández-Zúñiga et al., 2025; Parin et al., 1997).

3.3.c The area is known to contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery

Much of the ecological value of the Salas y Gómez-Nazca Ridge system is linked to fragile habitat-forming species. Surveys of ridge seamounts have recorded diverse assemblages of deep-sea corals, hydrocorals, gorgonians, and sponges, which are recognised as vulnerable marine ecosystem (VME)

indicator taxa (SPRFMO CMM 03-2025 Annex 5) (Georgian et al., 2021; Friedlander et al., 2021; Wagner et al., 2021; Gaymer et al., 2025;). Until recently, records of such assemblages were predominantly linked to studies and surveys conducted across seamounts in the Rapa Nui-Salas y Gómez region and the Nazca-Desventuradas Marine Park, with limited sampling within the high-seas, although modelling suggested presence of these assemblages in unsampled undersea features beyond national jurisdiction (Figure 2) (Georgian et al., 2021). Recent expeditions (Figure 5) and studies have confirmed this across a variety of surveyed sites within and outside the high seas portion of the EBSA (Tapia-Guerra et al., 2025, 2026; Mechó et al. *in prep.*).

VME indicator taxa create structurally complex habitats that increase benthic heterogeneity and provide refuge, settlement surfaces, and feeding opportunities for a diverse associated fauna (Watling & Auster, 2021), which contribute to the region's ecological complexity. Many habitat-forming species, particularly black corals (Antipatharia) and sponges, are exceptionally long-lived and slow-growing, with recovery periods that may extend over decades to centuries, and in some cases longer (Wagner et al., 2021; Gaymer et al., 2025). The same biological and morphological characteristics that make these taxa important habitat formers, including slow growth, great longevity, erect and fragile structures, and low recovery rates, also render them highly susceptible to physical disturbance and slow to recover following damage (FAO, 2009; Petit et al., 2026).

The repeated documentation of coral-, sponge-, and other VME-associated assemblages across surveyed seamounts indicates that vulnerable benthic habitats are a widespread component of the Salas y Gómez-Nazca Ridge ecosystem. Their prevalence, combined with the ecological importance and vulnerability of habitat-forming taxa, supports the view that the ridge system is representative of a biologically rich deep-sea environment characterised by both high ecological value and sensitivity to disturbance (Friedlander et al., 2021; Watling & Auster; 2021).

3.4 Uniqueness and rarity

3.4.a The area warrants conservation and preservation due to their unique features, resources, and/or characteristics

The distinctiveness of the Salas y Gómez-Nazca Ridge system arises from the combined effects of geographic isolation, complex seamount topography, and strong oceanographic and environmental gradients, which together have promoted the development of highly endemic and biogeographically unique biological communities (Parin et al., 1997; Friedlander et al., 2021; Wagner et al., 2021). Biogeographically, the ridge benthic fauna has long been recognised as unusual for the eastern Pacific because it contains affinities with the Indo-West Pacific while remaining geographically separated from the core distribution of many related taxa (Parin, 1991). This configuration has likely promoted colonisation, isolation, and local diversification over evolutionary time. Recent reviews continue to identify the area as a globally important hotspot of marine distinctiveness, with elevated endemism and a high potential for cryptic diversity (Wagner et al., 2021; Gaymer et al., 2025).

Endemism is one of the defining characteristics of the biodiversity associated with the Salas y Gómez and Nazca Ridge system and a key indicator of its ecological and evolutionary significance. Although estimates differ among taxa and are constrained by incomplete sampling, the literature summarised by Chavez-Molina et al. (2023) indicates that endemic fish and invertebrates comprise a substantial fraction of the known biota associated with the ridge system and nearby islands. Studies conducted throughout the region, including the Desventuradas Islands and Juan Fernández archipelago, have documented exceptionally high rates of endemism among reef, benthic, and demersal communities (Friedlander et al., 2016; Sellanes et al., 2019, Gaymer et al., 2025). While island-focused studies

cannot be extrapolated uniformly to the entire Nazca Ridge, they suggest the broader interpretation that the ridge-linked seascape functions as an evolutionary and ecological centre of uniqueness, however, this interpretation remains to be validated for the northern Nazca Ridge proper, where biological data is more limited and sampling remains spatially uneven. Studies based on data collected by recent expeditions (Figure 5) are likely to help confirm this interpretation.

The western and eastern portions of the ridge system are also distinctive in different ways. Western sectors near the centre of the South Pacific Gyre experience ultraoligotrophic conditions and exceptional water transparency. These conditions appear to enable unusual photic-zone depth penetration and facilitate the deepest recorded light-dependent coral and algal communities (see section 3.2). In contrast to the ultra-oligotrophic western sectors of the ridge system, the Nazca Ridge shows oligotrophic and mesotrophic conditions and at its eastern part is influenced by productivity exported from the Humboldt Current upwelling ecosystem through mesoscale eddy transport (Flores et al., 2026). Despite the very high primary production, the Peruvian coast appears to be a relatively inefficient biological carbon pump (SPRFMO SC13-SGN01_rev1; SPRFMO SC12-Doc 37, Bam et al., 2023) (see section 3.2.b), with further research needed is needed to understand carbon fluxes and remineralisation rates are modified under El Niño and La Niña (Bam et al., 2023). These nutrient cycling processes can alter the delivery of particulate organic carbon to offshore ridge habitats, where seamount topography can modify circulation patterns, influence benthic-pelagic coupling, and affect the distribution of food resources to deep-sea communities (SPRFMO SC13-SGN01_rev1; SPRFMO SC12-Doc 37), although this may be limited to the Nazca Ridge (or parts of it) (Flores et al., 2026). A recent study based on data from 58 cruises suggests that at the Salas y Gómez and Nazca ridges holds a great potential capacity for phytoplankton biomass and particulate organic matter transfer to the seafloor, up to depths of approximately 4,000 m (Cornejo 2026). Dissolved oxygen, nutrient cycling, and biological productivity are linked through numerous feedback mechanisms, many of which remain poorly understood. This limits our ability to reliably assess their impacts as ocean conditions continue to change.

In scientific terms, rarity in this region should not be interpreted solely as scarcity. Rather, it encompasses restricted geographic occurrence, unusual ecological function, singular environmental combinations, and the occurrence of taxa or communities with limited known analogues elsewhere. On that basis, the area's unique features comprise both biotic and abiotic attributes, including endemic assemblages, deep phototrophic communities, a dense seamount chain, and a ridge system spanning contrasting trophic regimes. These properties collectively justify treatment of the area as exceptional; however, it is critical to note that biological knowledge of the ridges remains remarkably sparse; 32 discrete seamounts have been explored so far in the region (Figure 5) (Georgian et al., 2021; Tapia-Guerra et al., 2021, *in prep*.; Mechó et al. *in prep*.).

3.5 Vulnerability, fragility, sensitivity, or slow recovery/resilience

3.5.a Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features

The vulnerability of the Salas y Gómez and Nazca Ridges Area is closely tied to the composition of its benthic communities and the life-history characteristics of key habitat-forming taxa. Survey data, although limited to 32 discrete seamounts, indicate that many seamounts are dominated by sessile, structure-forming organisms such as deep-sea stony corals, octocorals, black corals, stylasterids, and sponges. These groups often have low natural mortality, episodic recruitment, slow growth, and long

lifespans. Consequently, the direct removal or breakage of colonies can produce ecosystem changes that persist for extended periods (Wagner et al., 2021; Gaymer et al., 2025).

The area also meets broader vulnerability criteria owing to its exceptionally high levels of endemism, distinctive biological communities, globally significant habitats, and unique geomorphological and oceanographic characteristics (see sections 3.1, 3.2 and 3.3). These characteristics contribute to ecological vulnerability because recovery is influenced not only by the life history traits of individual species, but also by dispersal limitations, habitat specialisation, and the restricted availability of suitable environmental conditions across the ridge system (Clark et al., 2010). Recovery of disturbed seamount communities may be constrained by limited larval supply from distant source populations, the strength and direction of ocean-current mediated dispersal pathways, and the availability of suitable hard substrata required for settlement of sessile fauna such as corals and sponges (Clark et al., 2010; Rogers et al., 1994). Where communities depend on depth bands, oxygen conditions, or hydrodynamic regimes, habitat disturbance may be difficult to reverse even if physical substrata remain present (Clark et al., 2010; Rogers, 1994; Rogers, 2018).

Until recently, current biological knowledge was biased toward the Chilean marine protected areas (Rapa Nui, Motu Motiro Hiva and Nazca-Desventuradas) and western island ecoregions. However, a comprehensive assessment of historical survey efforts, including the most recent expeditions (Figure 5) and associated studies, shows that the easternmost sector of the Nazca Ridge and portions of the central Salas y Gómez Ridge remain poorly characterised, with limited visual observations available to validate benthic community distributions (Figure 12).

Scientific assessments of seamount ecosystems globally support the interpretation that oceanic seamount and deep-coral environments are among the marine ecosystems most sensitive to persistent anthropogenic effects, especially when those effects involve mechanical contact with the seabed (FAO, 2009; Friedlander et al., 2021). This general conclusion is reinforced by direct observations of dense coral and sponge assemblages on topographic highs across both ridges (Easton, 2024; Sellanes, 2024; Schmidt Ocean Institute, 2024). The repeated co-occurrence of fragility, isolation, and long-lived taxa indicates low resilience to disturbance.

Recovery potential is further shaped by the area's geomorphology and hydrography. Steep terrain, strong local current regimes, and oxygen variations can structure communities very precisely in space. If disturbance removes habitat complexity from a summit, escarpment, or ridge crest, recolonisation may not simply proceed from adjacent soft-sediment areas because the lost community may depend on a narrow combination of hard substrate, flow exposure, and water-mass characteristics. In eastern sectors, the influence of low-oxygen waters may additionally constrain depth distributions and habitat continuity (Hammond et al., 2025). These factors contribute to slow and potentially incomplete recovery trajectories (Clark et al., 2010; Rogers et al., 1994).

For these reasons, vulnerability in the area is best understood as a property of its benthic and seamount-associated communities rather than as a list of sensitive species. The ridge system contains biological communities that are intrinsically fragile, habitats whose re-establishment is likely to be protracted, and environmental settings that are not widely replicated elsewhere in the region. Accordingly, the weight of evidence suggests the conclusion that the benthic ecosystem of the area exhibits high vulnerability, fragility, sensitivity, and slow recovery, while the easternmost Nazca Ridge remains a 'data-poor' environment whose specific resilience and recovery trajectories are not yet fully characterised.

3.6 Area is of special significance for threatened or important species or ecosystem properties

3.6.a There is evidence that the area is of special importance for life history stages of species and/or threatened species

The compiled evidence indicates that the Salas y Gómez and Nazca Ridges Area supports numerous species that are endangered, threatened, near threatened, declining, or otherwise of conservation concern. Some of these species use parts the area to feed, breed and migrate (Gaymer et al., 2025). However, the importance of the area to these species relative to other areas remains an open question. The summary evaluation reports observations in the area of at least 25 species of sharks and rays, 21 seabird species, seven marine mammal species, seven species of bony fishes, and five marine turtle species with relevant threat categories or conservation concern (Gaymer et al., 2025; Nuñez & Luna-Jorquera, 2026; Parin, 1991; Parin et al., 1997; Wagner et al., 2021). These records suggest both resident and transient use of the region and are consistent with the role of seamount systems as aggregation zones, navigational features, and foraging habitat for mobile pelagic fauna (Morato et al., 2010). However, for some of these wide-ranging species, the Salas y Gómez and Nazca ridges may represent only a portion of their basin-scale pelagic habitats. In some cases, like the endangered Polynesian storm-petrel (*Nesofregetta fuliginosa*), the importance of the Salas y Gómez Island for the species has led to the designation of the island as an Important Bird and Biodiversity Area (IBA) (BirdLife International, 2026).

For example, the main foraging areas of the five sea turtle species mentioned by Wagner et al. (2021) are not restricted to the Salas y Gómez and Nazca Ridges region; rather, these species predominantly forage in more coastal environments. For instance, the Eastern Pacific green turtle (*Chelonia mydas agassizii*) feeds in coastal neritic areas off Peru (Quiñones et al., 2022), although recent genetic, morphometric, and ecological studies indicate that the Rapa Nui-Salas y Gómez region functions as an important foraging area for both the black and yellow morphotypes of *Chelonia mydas*, supporting individuals connected to multiple Pacific lineages, including those associated with the eastern Pacific and French Polynesia (Alvarez-Varas et al., 2021a, 2021b, 2022; Petit et al., 2020).

The loggerhead turtle (*Caretta caretta*), although considered an oceanic species, occurs predominantly in offshore waters of the Peru-Chile Current System, where individuals have been recorded tens to hundreds of kilometres from the Peruvian coast and remain largely associated with the southeastern Pacific foraging region (Alfaro-Shigueto et al., 2008; Mangel et al., 2011). The leatherback turtle (*Dermochelys coriacea*) primarily forages in neritic and shelf-associated waters off Peru, with important concentration areas documented in northern Peru and off the central-southern coast near Pisco-Ica (Quiñones et al., 2021; Costanza et al., 2021; Mangel et al., 2024).

The hawksbill turtle (*Eretmochelys imbricata*) is a highly coastal species that forages in mangrove and coastal reef habitats and is largely known to be associated to nearshore environments in the eastern Pacific, making its occurrence within the offshore Salas y Gómez and Nazca ridge system unlikely (Gaos et al., 2012; Liles et al., 2011) although the species been recorded in nearshore waters off Rapa Nui Easter Island (Álvarez-Varas et al., 2015). The Eastern Pacific hawksbill population (Mexico to Peru, ~15,000 km of coastline) numbers only ~500–700 nesting females in total (Gaos et al., 2010, 2017), with over 70–80% of all known nesting concentrated at just two Central American mangrove estuaries, Bahía de Jiquilisco (El Salvador) and Estero Padre Ramos (Nicaragua) (Liles et al., 2011; Gaos et al., 2017), and this population is characterised by short, neritic movements (<5 km from shore)

rather than long-distance oceanic dispersal (Gaos et al., 2012); Peru itself has no confirmed nesting sites, only incidental coastal bycatch records (Alfaro-Shigueto et al., 2010).

Finally, six of the petrel species identified by Gaymer et al. (2025), namely the Wedge-tailed Shearwater (*Ardenna pacifica*), Phoenix Petrel (*Pterodroma alba*), Henderson Petrel (*P. atrata*), Black-winged Petrel (*P. nigripennis*), Murphy's Petrel (*P. ultima*), and Herald Petrel (*P. heraldica*), have breeding distributions centred in the central and western Pacific Ocean, with major breeding colonies occurring in Hawaii, Polynesia and Melanesia, including French Polynesia and the Pitcairn Islands (Pierce et al., 2007; Oppel et al., 2017; Pyle & Pyle, 2017; Howell & Zufelt, 2019; Le Bouteiller & Borsa, 2020;). Breeding within Chilean insular territories of the Salas y Gómez-Rapa Nui region is comparatively limited, consisting of small and geographically peripheral populations, occasional breeding records, or only a few confirmed nests in some years, primarily on Motu Nui and adjacent islets (Marín & Cáceres, 2010;). Consequently, the regional contribution of the Salas y Gómez and Nazca ridges system to the global breeding populations of these species is likely less important relative to that of their principal breeding areas elsewhere in the Pacific.

Beyond the domain of species-specific studies, Núñez & Luna-Jorquera (2026) provide the first trait-based assessment of seabird functional diversity across the Salas y Gómez and Nazca Ridges based observations of 36 seabird species and 8,179 individuals collected during 11 oceanographic surveys (Figure 7). The authors concluded that the area supports highly distinctive but functionally vulnerable seabird assemblages. The area hosts species with unique ecological roles and relatively little redundancy, meaning biodiversity loss could translate directly into loss of ecosystem functions. However, uncertainties around sampling coverage, additional traits, and palaeontological aspects of community structure mean that the mechanisms shaping this functional diversity remain incompletely understood (Núñez & Luna-Jorquera, 2026).

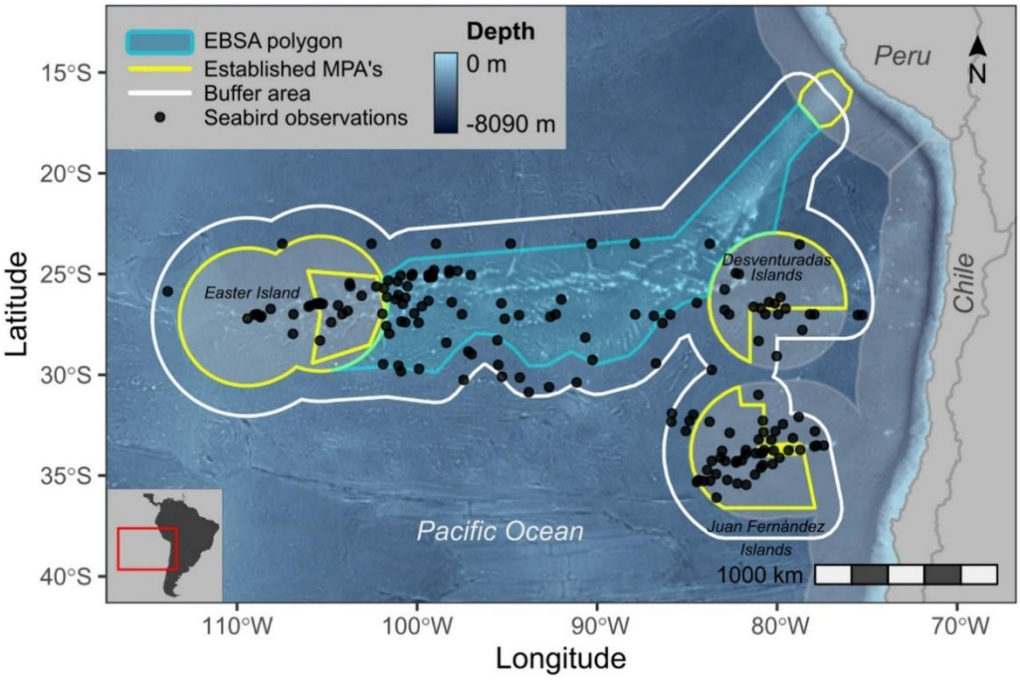


Figure 7 Black dots show the position of the daily surveys to determine seabird richness and abundance of seabirds at sea within and around the Salas & Gómez and Nazca ridges area. The map shows the study area (white line), the Salas & Gómez and Nazca ridges Ecologically or Biologically Significant Area (EBSA) boundary and the diverse marine protected areas in Peruvian and Chilean waters. Sourced from Núñez & Luna-Jorquera (2026).

Evidence for special significance at particular life-history stages is stronger for some taxa than for others. The Nazca Ridge and eastern Salas y Gómez Ridge have been identified as a nursery area for swordfish and Chilean jack mackerel (*Trachurus murphyi*) based on fisheries and ecological analyses (Arcos, 2001; Yáñez et al., 2004; Yáñez et al., 2006). However, Arcos et al. (2001) identified the primary nursery habitat for the Chilean jack mackerel based on its latitudinal position north of 30°S and specific oceanographic parameters. While the original study defined this zone broadly (i.e., north of 30°S) and through environmental variables, subsequent scientific literature has superimposed these biological data onto the wider Salas y Gómez and Nazca Ridges area. However, the National Geographic Pristine Seas expedition to Desventuradas Islands and the southernmost part of the Nazca Ridge recorded high abundances of juvenile *T. murphyi* around San Ambrosio Island, reinforcing the hypothesis that the Desventuradas Islands area acts as a nursey ground for this species (National Geographic & Oceana, 2013).

Recent studies identified Rapa Nui Easter Island and Motu Motiro Hiva Salas y Gómez Island, at the western end of the ridge system, as the first documented nursery areas for Galápagos sharks in the southeastern Pacific, while regional syntheses highlight recruitment and breeding functions for Chilean jack mackerel across the Nazca Ridge system, noting the latter remains debatable (Gaymer et al., 2025; IUCN SSC Shark Specialist Group, 2024; Morales-Serrano & Gonzalez-Pestana, 2024). It is worth noting that the IUCN Shark Specialist Group identified lack of information across the entire EBSA as the main hurdle to evaluate and meet the IUCN Important Shark and Ray Areas (ISRA) criteria when evaluating the wider EBSA as a candidate ISRA (García-Rodríguez, 2025; Jabado et al., 2023). To date, recognised ISRA areas include Salas y Gómez/Motu Motiro Hiva (IUCN SSC Shark Specialist Group, 2024; https://sharkrayareas.org/portfolio-item/salas-y-gomez-motu-motiro-hiva-isra/) and Rapa Nui (IUCN SSC Shark Specialist Group, 2026; https://sharkrayareas.org/portfolio-item/rapa-nui-isra/) both within Chile's EEZ.

The mere presence of species within the Salas y Gómez Ridge or the Nazca Ridge does not necessarily constitute definite evidence that the area is of particular importance for either critical life-history stages or for threatened species. Many of the taxa included in the Gaymer et al. (2025) list correspond to highly mobile species, such as tunas, billfishes, sharks, seabirds, marine mammals, and sea turtles, whose wide-ranging movements across large oceanic areas make occasional presence insufficient to infer ecological dependence on this specific area. Demonstrating that the area is of special importance for life-history stages would require evidence of key ecological functions (e.g., breeding, nursery, spawning, or persistent feeding aggregation areas).

For many other threatened species, however, the currently available evidence is sufficient to confirm occurrence and likely habitat use and, in some cases, breeding area (within Chile's EEZ), but not yet sufficient to demonstrate that the area is uniquely important for all life-history stages. This distinction is important scientifically. The area should not be characterised as equally critical for every threatened taxon recorded there. Rather, the evidence supports a gradient of significance: well-supported foraging, breeding, nursery or recruitment roles for some species, strong probable habitat and passage functions for others, and more general occurrence records for the remainder.

3.6.b There is evidence that the area contains habitat for the survival and recovery of endangered, threatened, declining species or is an area with significant assemblages of such species

The region contains ecosystem properties important to the survival and persistence of associated biota. Seamount topography modifies currents, elevates encounter rates between suspension feeders and food particles, and creates structurally complex benthic habitat (Genin & Dower, 2007; Wang et

al., 2024). Coral and sponge assemblages provide three-dimensional substrate and shelter used by other invertebrates and demersal fish (Rogers, 1994). Reports such as the National Geographic and Oceana expedition summary for the Desventuradas Islands region described these habitats as essential to a range of benthic assemblages and highlighted their role in supporting trophic complexity (National Geographic & Oceana, 2013).

The islands of Salas y Gómez, San Félix and San Ambrosio are all considered IBAs by BirdLife International, and these places as well as Rapa Nui are considered Key Biodiversity Areas (KBA) by the KBA Partnership Program (KBA, World database of key biodiversity areas, https://www.keybiodiversityarea s.org/kba-data, 2020). More recently, Salas y Gómez and Rapa Nui have been declared as Important Shark and Ray Areas (ISRA). The entire Salas y Gómez and Nazca Ridges area has also been recognised internationally as an Ecologically or Biologically Significant Area under the Convention on Biological Diversity, reflecting a combination of high endemism, vulnerable deep-sea ecosystems, and potential connectivity corridors for highly mobile pelagic species including sharks, turtles, and cetaceans, with direct movement data for these species remaining limited (Boteler et al., 2022; Gálvez-Larach, 2012; CBD, 2020). Although EBSA designation is not itself proof of any single ecological process, it supports the interpretation that the aggregate evidence points to regional significance for some species, some of which may be threatened, and broader ecosystem properties.

Overall, the area contains habitat and ecological features that are likely important for survival, persistence, and in some cases recovery of vulnerable taxa, even where species-specific demographic data remain incomplete.

3.7 VMEs are known to occur and/or triggering of VME indicator thresholds reported for the area proposed

3.7.a Known or consistent triggering of VME indicator thresholds occurs

The evidence for VME occurrence in the Salas y Gómez and Nazca Ridges Area is substantial. Scientific surveys and syntheses report occurrence of multiple taxa that are widely recognised as indicators of VMEs under the FAO Deep-Sea Fisheries Guidelines (FAO, 2009) and as such listed as VME indicator taxa within SPRFMO's bottom-fishing management framework (SPRFMO CMM 03-2025 Annex 5). These include framework- or reef-forming stony corals such as *Madrepora* spp. and *Solenosmilia* spp., black corals, stylasterid hydrocorals, gorgonians, and large hexactinellid sponges. The ecological significance of these taxa lies in their capacity to create complex biogenic structures, their fragility, long lifespans, and their slow rates of recovery (FAO, 2009; SPRFMO CMM 03-2025 Annex 5).

Historical fishing records indicate that VME indicator taxa have been accidentally caught by bottom trawl gear in parts of the Salas y Gómez and Nazca Ridges Area. However, the area's current interpretation is informed primarily by direct scientific observation rather than by fisheries bycatch alone (Petit et al., 2026). This distinction is important because non-fishing survey methods provide stronger evidence of the *in situ* form, density, and structural complexity of benthic assemblages than can be inferred from fragmented specimens recovered in gear (see section 3.7.b).

It is worth noting that when the encounter protocol and its associated VME indicator taxa weight thresholds were adopted in CMM03, bottom trawling no longer occurred in the Salas y Gómez and Nazca Ridges Area.

3.7.b VMEs have been observed through non-fishing operations

Recent expeditions in diverse parts of the Salas y Gómez and Nazca ridges area (Figure 5) have directly documented deep-sea sessile invertebrates' (i.e., corals and sponges) assemblages characteristic of VMEs using remotely operated vehicles and other visual sampling techniques (Figure 9, Figure 10). Post-cruise reports from Easton et al. (2024) and Sellanes et al. (2024), together with expedition documentation from the Schmidt Ocean Institute (2024) and a habitat study by Tapia-Guerra et al. (*in prep.*) (Figure 5), describe numerous observations of structurally complex benthic communities on previously unexplored seamounts of the Salas y Gómez and Nazca ridges, which add to the existing compilation of occurrence records of some VME indicator taxa (Figure 8). These observations include dense coral gardens, large sponges, mixed octocoral fields, and diverse associated fauna occupying hard-substrate topographic highs (Friedlander et al., 2021; Tapia-Guerra et al., 2025). Considering the limited sampling coverage across the EBSA relative to its extent and the numerous undersea features it encompasses, some VME indicator taxa appear to exhibit spatial

clustering. For instance, records of black corals are concentrated largely at the intersection of the Salas y Gómez Ridge with the Nazca Ridge (Figure 8-D).

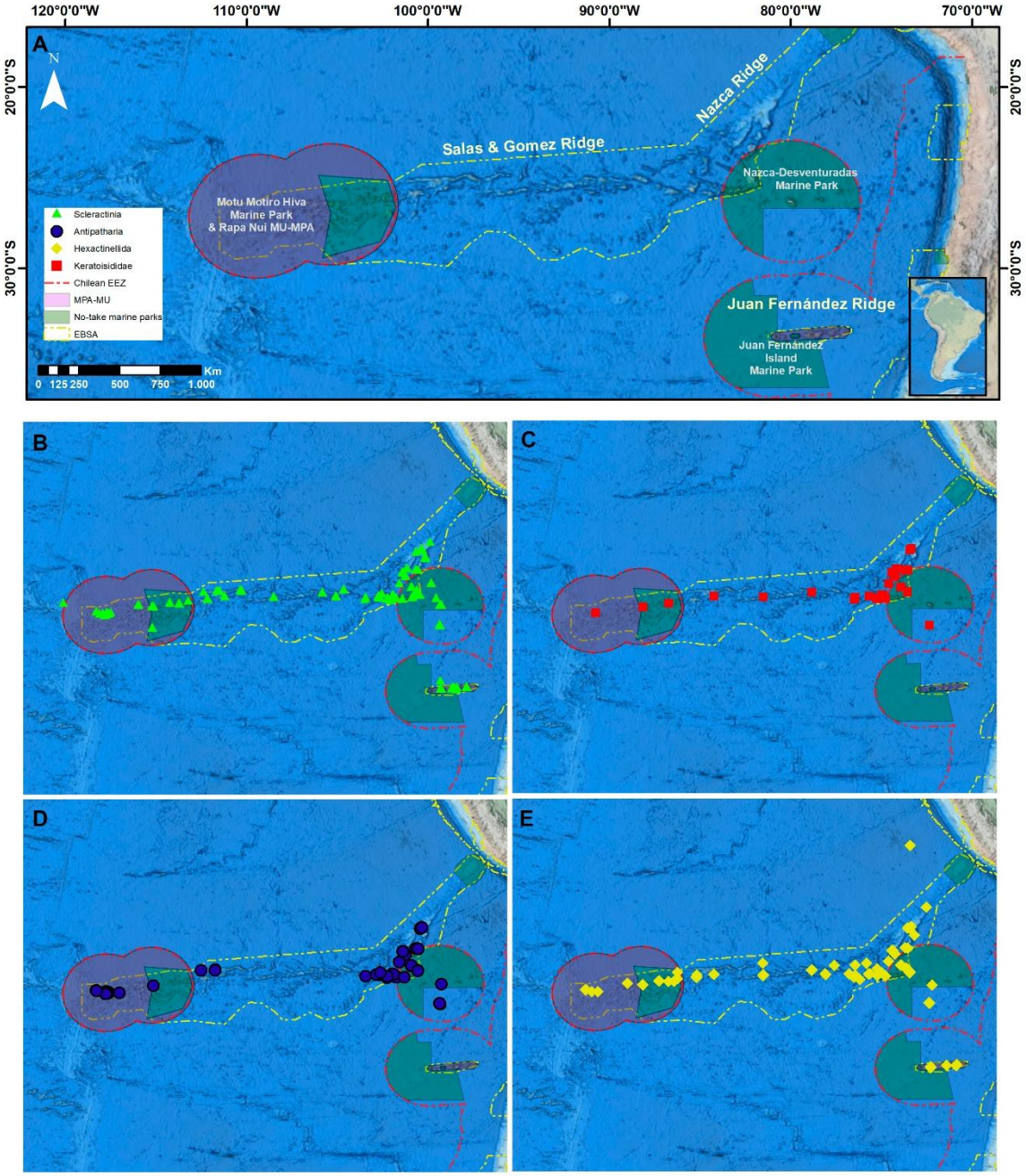


Figure 8 Distribution of occurrence records of VME indicator taxa across the Salas y Gómez and Nazca Ridge system. (A) Area of interest; (B) stony corals (Scleractinia); (C) bamboo corals (family Keratoisididae); (D) black corals (order Antipatharia); and (E) glass sponges (class Hexactinellida). Occurrence records were compiled from the Global Biodiversity Information Facility (GBIF), the Ocean Biodiversity Information System (OBIS), previous scientific expeditions, including CIMAR 22 (2016), EPIC (2019), and the Schmidt Ocean Institute/ Center for Ecology and Sustainable Management of Oceanic Islands (ESMOI) expedition (2024) (see Figure 5). Sourced from Mechó et al. (*in prep.*).

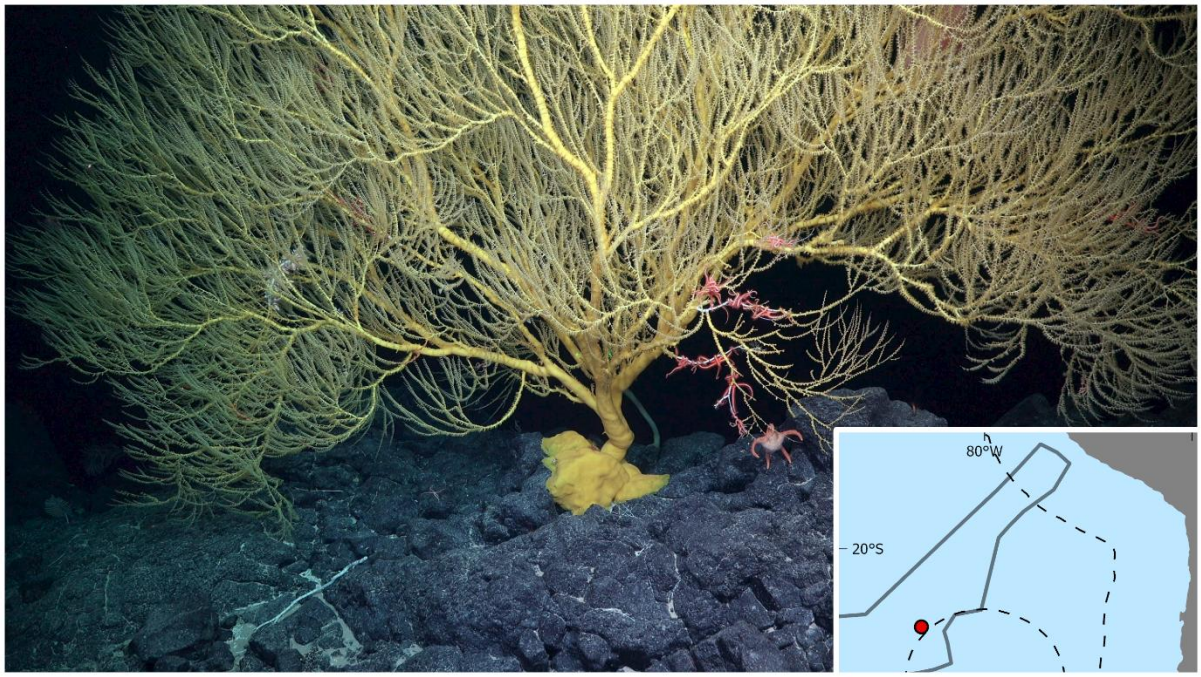


Figure 9 A large bamboo coral holding benthic ctenophores, barnacles, a sea star, and ophiuroids was documented on Dive 696 while exploring a newly discovered and mapped seamount, catalogued as KW-14176, along the Nazca Ridge off the coast of Chile. Inset map displays location of seamount KW-14176 (red circle). Credit: ROV SuBastian / Schmidt Ocean Institute. Video Frame Grab Images acquired during R/V Falkor (too) expedition FKt240708 (2024). MGDS. doi:10.60521/332002. Location of dives sourced from MGDS https://www.marine-geo.org/tools/events/4538.

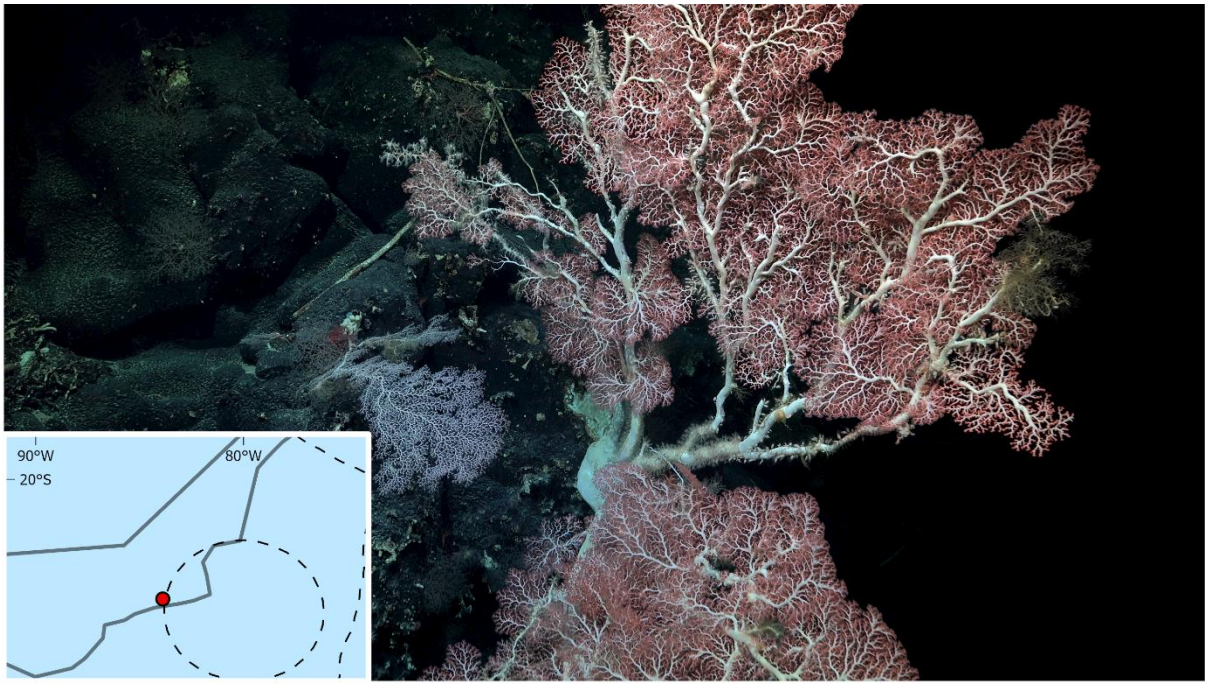


Figure 10 Hard coral (thought to be *Corallium* spp.) documented at 1526 m deep on Dive 698 on an unnamed, unexplored seamount (designated as T09) along the Nazca Ridge off the coast of Chile. Credit: ROV SuBastian / Schmidt Ocean Institute. Video Frame Grab Images acquired during R/V Falkor (too) expedition FKt240708 (2024). MGDS. doi:10.60521/332002. Inset map displays location of seamount T09. Location of dives sourced from MGDS https://www.marine-geo.org/tools/events/4538.

Habitat modelling provides additional support by indicating that suitable environmental conditions for coral and sponge likely to be widespread across the EBSA, particularly on seamounts, ridges, and escarpments (Georgian et al., 2021). Georgian et al. (2021) also highlighted that model predictions for stony corals and sponges should be interpreted with caution due to the limited availability of independent data for validation, although recent expeditions (Figure 5) have reduced this gap (Mechó et al., *in prep.*). Therefore, although these models provide valuable insights into the potential distribution of suitable habitat, they do not substitute for direct observations, noting that surveying each undersea feature within the EBSA is financially and logistically challenging, to say the least. These constraints are common among deep-sea RFMOs, which have typically relied in predictive modelling of VME indicator taxa habitat to design and implement spatial management measures (e.g., Howell et al., 2016; Knudby et al., 2013), including SPRFMO (Georgian et al., 2019; Stephenson et al., 2021; Rowden et al., 2026).

Recently collected survey data may be used to quantify the abundance of VME indicator taxa across surveyed sites, enabling the development of abundance-based predictive models that are likely to overcome some of the recognised limitations of presence-only habitat suitability models and provide a more robust basis for assessing the distribution and ecological significance of VMEs across the entire EBSA (Anderson et al., 2016; Bennion et al., 2025; Georgian et al., 2021). In the meantime, and while collected data from recent expeditions is being analysed and processed and more robust habitat suitability models are published (Mechó et al., *in prep.*; Figure 11), the Georgian et al. (2021) habitat suitability models for stony corals and sponges remain the best available information regarding the distribution of potential VMEs (as a proxy) across a large spatial scale such as the entire EBSA (*sensu* Stephenson et al., 2021). Where area-specific information is lacking or limited, “other information that is relevant to inferring the likely presence of vulnerable populations, communities, and habitats should be used” (FAO, 2009).

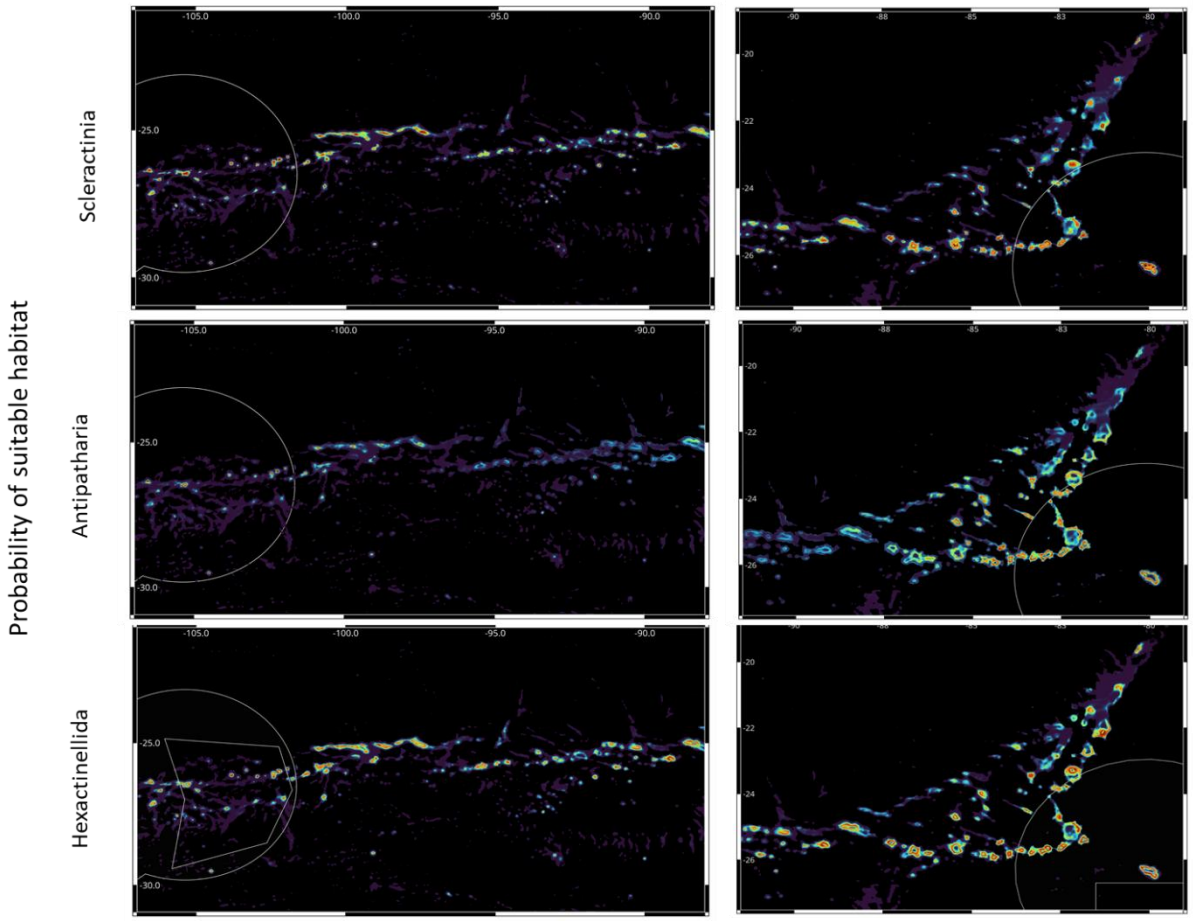


Figure 11 Predicted habitat suitability for Scleractinia, Antipatharia and Hexactinellida. Warmer colours indicate more suitable habitat (HSI, 0-1). Sourced from Mechó et al. (*in prep.*)

Taken together, the evidence satisfies both components of this criterion: VME indicator taxa are known to occur, and VMEs have been observed through non-fishing operations.

3.8 Cultural significance

3.8.a The area has an exceptionally rich and long history and cultural significance

Although the present document adopts a natural sciences tone, cultural significance can be evaluated using empirical evidence drawn from social sciences, such as archaeology, historical geography, ethnography, and maritime heritage studies. Delgado et al. (2022) examined the hidden maritime cultural landscape of the Salas y Gómez and Nazca ridges and concluded that the area forms part of a broader seascape with longstanding significance for Polynesian navigation, mobility, and interaction. Within this interpretation, the ridges are not merely geological structures but components of routes and seafaring spaces that connected islands and peoples across the southeastern Pacific.

The western part of Salas y Gómez Ridge is of relevance to Rapanui cultural history. Available evidence indicates that the ridge and associated islands were incorporated into ancestral voyaging networks and subsistence-related seascapes. Scientific arguments for prehistoric trans-Pacific interaction have also drawn on botanical and genetic evidence related to the dispersal of sweet potato (*Ipomoea batatas*), which has been interpreted as consistent with contact or exchange between Polynesian and Indigenous American populations prior to European arrival in the region.

While the mechanisms and frequency of such contacts remain debated in some details, the ridges are scientifically relevant as part of the maritime geography through which those contacts may have occurred (Delgado et al., 2022; Gaymer et al., 2025).

Further, this area was important during European colonial exploration and became incorporated into broader networks of maritime navigation, exploration, fisheries, and regional trade (Conservation International, 2026). Voyaging, fishing, and the transportation of commodities across these remote waters left signs of the human history of exploration and exploitation (Delgado et al., 2022).

From an assessment perspective, cultural significance is therefore supported by evidence that the area belongs to an ancestral navigational seascape with long temporal depth and documented relevance to Indigenous maritime history. The criterion is not evaluated on symbolic grounds alone; it is supported by a body of interdisciplinary research linking seafloor geography, island connectivity, voyaging, and material or biological traces of exchange.

3.9 Scientific interest

3.9.a The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SPRFMO region

The Salas y Gómez and Nazca Ridges Area is of high scientific interest because it enables investigation of multiple classes of processes in a single regional system. At the geological level, the ridges offer opportunities to study volcanic chain formation, hotspot or tectono-magmatic histories, relief development, and sedimentary interactions such as contourite drift formation on oceanic topography (Woods and Okal, 1994; Calvès et al., 2022; Harris et al., 2023). At the oceanographic level, the area spans a major transition between ultra-oligotrophic gyre waters and eastern boundary upwelling influence, allowing examination of how current systems, eddies, oxygen minimum zones, and offshore carbon export interact with seamounts and slopes (Dewitte et al., 2021; Hammond et al., 2025; Flores et al., 2026; SPRFMO SC13-SGN01_rev1; SPRFMO SC12-Doc 37).

Biologically, the region functions as a natural laboratory for questions of endemism, connectivity, colonisation, and adaptation in isolated deep-sea and seamount settings. Wagner et al. (2021) and Flores et al. (2026) highlighted the distinctiveness of the ridge communities and the challenges of understanding how populations are connected across widely spaced topographic features. The persistence of likely undescribed species and the repeated discovery of novel taxa during recent expeditions indicate that current knowledge remains incomplete and that the area retains high potential for fundamental biodiversity discovery (Easton et al., 2024; Sellanes et al., 2024; Gaymer et al., 2025).

Consequently, numerous oceanographic cruises, fisheries surveys, and recent expeditions employing remotely operated vehicles and submersibles and running visual censuses have been conducted throughout the ridge system, leading to the discovery of new species, deep light-dependent coral communities, extensive coral and sponge assemblages, previously undocumented habitats and seabird and marine mammal censuses (Figures 7 and 12). The frequency and diversity of these research efforts reflect the area's outstanding scientific value and its importance for improving understanding of geological, oceanographic, ecological, and biogeographic processes within the SPRFMO Convention Area.

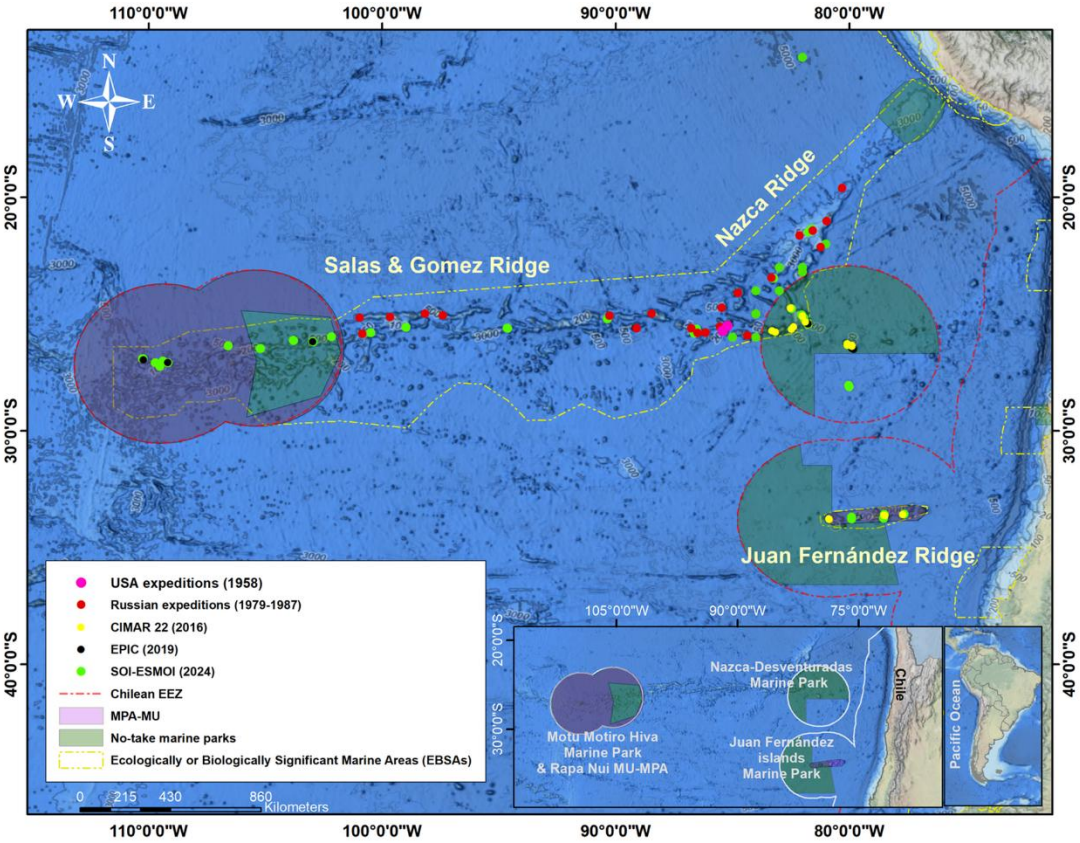


Figure 12 Surveyed areas by different expeditions to Salas y Gómez and Nazca Ridges Area since 1958. Elaborated by J. Tapia-Guerra, ESMOI.

The ridge system is also scientifically important for evaluating conservation and management questions in areas beyond national jurisdiction. It provides a case study in how habitat suitability modelling, visual surveys, fisheries information, migratory patterns and governance processes can be integrated to assess VMEs, biodiversity hotspots, and threats in the high seas. Because the area includes both surveyed and unsurveyed features, it is well suited to designing comparative studies on representativeness, vulnerability, and the transferability of ecological patterns across seamount provinces.

A further component of scientific interest lies in the possibility of understanding ecological and evolutionary processes across strong environmental gradients compressed within one connected system. Western and eastern sectors differ markedly in productivity, water clarity, and oxygen levels, yet both are linked by ridge topography that may act as stepping stones for some organisms while isolating others, depending on their dispersal capacity. This setting is valuable for studying how environmental filtering, dispersal limitation, and habitat discontinuity interact to shape community composition (Flores et al., 2026). In summary, the area has exceptional research value for ecosystem science, geology, oceanography, fisheries ecology, biogeography, and biodiversity discovery within the SPRFMO Convention Area.

Assessment of information against Evaluation Criteria

4.1 Methods

Due to time limitations and Member's divergences in some aspects of the Evaluation Criteria (Annex A – Evaluation Criteria for assessing spatial management proposals), the Task Team decided that Members would undertake individual evaluations of the Evaluation Criteria using all available information about the Salas y Gómez and Nazca Ridges Area. At the time of the evaluation (April 2026, ref. G24-2026), all compiled information was available to Members, but it was not organised in way that could help inform the evaluation process, something that was specifically raised by some Members. That is, the information was not structured according to the nine points of the Evaluation Criteria. To address this limitation, a summary of all available information was developed by the Task Team (Annex B – Summary of available information), and subsequently used as the basis for this assessment.

4.2 Results

A total of eight Members (n = 8) submitted the assessment for the Salas y Gómez and Nazca Ridges Area in response to request ref. G24-2026. A summary of the results provided by Members can be found in Table 1, which presents how many responses were classified as Yes (Y) or No (N) for each criterion (and associated sub-criteria where applicable). Due to some Members providing other responses rather than just the initially proposed Yes/No, a new Partially (P) option has been added to reflect this. Additionally, some Members provided comprehensive comments (Table 2), but the original comments can be found in their respective assessments, which are available in the SPRFMO SC Microsoft Teams site.

The number of *Yes* responses was greater than *No* and/or *Partially* responses for all criteria except for 6-a.

Table 1 Members responses (Yes-Y/Partially-P/No-N) to assess each criterion of the Evaluation Criteria for assessing spatial management proposals (p103 Annex 19 SC13 Report). Each type of response makes use of a colour palette, akin to a heatmap (Yes-Green, Partially-Beige, No-Red) with colour intensity ranging from zero (low intensity) to eight (n = 8, maximum number of responses) (high intensity).

Criteria	Summary	Meets Criteria (Y/P/N)		
		Y	P	N

1. Bioregional Representation	a. Area is known to contain unique, rare or distinct habitats or ecosystems that fishing operations will disturb.	6	1	1
	b. Areas with a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity.	7	1	0
2. Geographic and Geomorphological Representation	a. The area provides for important or desirable geographic representation within the SPRFMO area.	7	0	1
	b. The area proposed is known to contain unique or unusual geomorphological features that fishing operations may damage	5	1	2
3. Biodiversity Representation	a. The area is known to contain unique or rare (occurring in only a few locations) species, populations or communities.	7	1	0
	b. The area is known to contain a high diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.	6	1	1
	c. The area is known to contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.	8	0	0
4. Uniqueness and Rarity	a. The area warrants conservation and preservation due to their unique features, resources, and/or characteristics.	8	0	0
5. Vulnerability, Fragility, Sensitivity, or Slow Recovery/Resilience	a. Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.	8	0	0

6. Area is of Special Significance for Threatened or Important Species or Ecosystem Properties	a. There is evidence that the area is of special importance for life history stages of species and/or threatened species.	3	1	4
	b. There is evidence that the area contains habitat for the survival and recovery of endangered, threatened, declining species or is an area with significant assemblages of such species.	5	0	3
7. VMEs are Known to Occur and/or Triggering of VME Indicator Thresholds Reported for the Area Proposed	a. Known or consistent triggering of VME indicator thresholds occurs.	5	0	3
	b. VMEs have been observed through non-fishing operations.	7	1	0
8. Cultural Significance	a. The area has an exceptionally rich and long history and cultural significance	6	0	2
9. Scientific Interest	a. The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SPRFMO region	8	0	0

Table 2 Summary of Members' assessment and main comments

Criteria		Summary
1. Bioregional Representation	a.	Overall, Members acknowledged that the area contains unique, rare or distinct habitats that can be disturbed from fishing activity, except one Member that disagreed. Some Members indicated that disturbance risk was mainly associated with bottom fishing, with other fisheries (i.e., pelagic) likely to carry less risk, although the need for further data and a detailed evaluation of fishing impacts (for each fishery) was highlighted (see task "6.2.2 Provide an evaluation of fishing impacts for the Salas y Gómez and Nazca ridges area" in the 2026 SC Multi-annual work plan, currently being progressed by Chile).

	b.	Overall, Members agreed that the area has comparatively higher degree of naturalness due to less anthropogenic pressures, but one Member noted that past bottom fishing pressure was likely significant, albeit in discrete locations (e.g., underwater topographic features at fishable depths), and similar to levels registered in other parts of the SPRFMO Convention Area where bottom trawling historically occurred (seamounts of the Southwest Pacific). One Member indicated preference for a zoning approach, although I note the assessment is an independent step prior to the discussion of potential enhanced management measures.
2. Geographic and Geomorphological Representation	a.	Overall, Members agreed the area provides for important or desirable geographic representation within the wider SPRFMO area, particularly the eastern part of the Convention Area, except one Member that disagreed.
	b.	Most of the Members agreed the area hosts unique or unusual geomorphological features that fishing operations may damage, but emphasis was made in that further work required to assess potential impacts from the different fisheries that can occur in the area (currently or in the future) (see task "6.2.2 Provide an evaluation of fishing impacts for the Salas y Gómez and Nazca ridges area" in the 2026 SC Multi-annual work plan, currently being progressed by Chile). One of the two Members that disagreed indicated that evidence regarding uniqueness of topographic features such as seamounts remains limited and there is a large number of seamounts within the area.
3. Biodiversity Representation	a.	Overall, it was acknowledged the area hosts unique or rare species, populations or communities, with one Member indicating that the reasoning behind this was mainly based on known and likely distribution of benthic species.
	b.	All Members except one agreed the area is known to contain a high diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity, although a Member indicated there was no information regarding genetic diversity, and another Member highlighted the patchy distribution of VME indicator taxa.
	c.	All Members agreed the area is known to contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile or with slow recovery.
4. Uniqueness and Rarity	a.	All Members agreed that the area warrants conservation and preservation due to their unique features, resources, and/or characteristics.
5. Vulnerability, Fragility, Sensitivity, or Slow	a.	All Members agreed that the area contains unique/rare/endemic species, populations, communities, habitats, ecosystems or geomorphological features.

Recovery/Resilience		
6. Area is of Special Significance for Threatened or Important Species or Ecosystem Properties	a.	Half of the Members indicated that evidence of the area being of special importance for life history stages of species and/or threatened species is lacking, and that anecdotal records of such species do not necessarily mean that the area is of special importance to them (species). One of the disagreeing Members indicated that further research is needed to test this hypothesis. The other half of the Members agreed that the criterion is met, although one of them only agreed partially, due to information for most mobile species lacking.
	b.	Most Members agreed the area contains habitat for the survival and recovery of endangered, threatened, declining species or is an area with significant assemblages of such species. However, three Members disagreed and highlighted the lack of information to meet the criterion and the need for further research.
7. VMEs are Known to Occur and/or Triggering of VME Indicator Thresholds Reported for the Area Proposed	a.	Most Members agreed that known or consistent triggering of VME indicator taxa thresholds occurs, but three Members disagreed, citing that when the VME indicator taxa thresholds were adopted in CMM03, bottom trawling no longer occurred in the area. It was acknowledged however that VME indicator is known to occur in the area and that there has been accidental bycatch of VME indicator taxa (see next criterion 7.b).
	b.	The majority of Members agreed that VMEs occur in the area, with one Member partially agreeing but indicating the lack of a framework within SPRFMO to formally classify areas as VMEs.
8. Cultural Significance	a.	The majority of Members acknowledged the cultural importance of the area, except two Members. One of the disagreeing Members indicated that cultural values should be identified by Members in their respective areas of jurisdiction but not in the high seas, while the other pointed to the lack of a clear definition to assess “cultural significance”.
9. Scientific Interest	a.	All Members agreed in that the area has high scientific research interest.

Fishing in the Salas y Gómez and Nazca Ridges

5.1 Introduction

The remarkable ecological features of the Salas y Gómez and Nazca Ecologically or Biologically Significant Marine Area (EBSA) have attracted fisheries from around the world since operations began in the early 1970s (Gaymer et al., 2025). Until the 1980s, Soviet trawlers operated along the Salas y Gómez and Nazca ridges, targeting jack mackerel (*Trachurus murphyi*) and redbaits (*Emmelichthys* spp.), primarily utilising pelagic (midwater) trawls, and occasionally bottom trawls (Parin et al., 1997; Arana et al., 2009; Clark, 2009). During the 1990s, a commercial fishery for orange roughy (*Hoplostethus atlanticus*) and alfonsino (*Beryx splendens*) developed on seamounts around the Juan Fernandez Archipelago; however, it was closed in 2006 following the collapse of the fishery (Clark et al., 2009; Payá et al., 2005; Tingley & Dunn, 2019). More recently, Chilean and Russian vessels have targeted Chilean jagged lobster (*Projasus bahamondei*) and golden crab (*Chaceon chilensis*) utilising traps on the Nazca Ridge (Parin et al., 1997; Payá et al., 2005; Clark, 2009; Gálvez-Larach, 2009; Vega et al., 2009; Yáñez et al., 2009; Arana, 2014). Along the Salas y Gómez Ridge, pelagic longline fisheries targeting tunas, including *Thunnus obesus* and *T. albacares*, as well as swordfish (*Xiphias gladius*), have operated for the past three decades (Vega et al., 2009; Gálvez, 2012; Friedlander et al., 2013).

Today, fishing within the EBSA is dominated by pelagic fisheries targeting jumbo flying squid (*Dosidicus gigas*), tunas, and swordfish, together with smaller-scale benthic fisheries targeting hapuka (*Polyprion oxygeneios*), Chilean jagged lobster, and golden crab (SPRFMO, 2024). Fishing activity is concentrated mainly along the eastern Nazca Ridge adjacent to Peruvian waters, where jigging for jumbo flying squid is the predominant activity, while bottom longlining, potting, and pelagic purse seining occur at lower levels (SPRFMO, 2024, 2026), noting that bottom trawling is currently not authorised under current SPRFMO bottom fishing regulations. Nevertheless, fishing within the EBSA remains relatively low, accounting for approximately 5% of the fishing activity recorded across the broader southeastern Pacific, according to data from the SPRFMO and the Inter-American Tropical Tuna Commission (IATTC, 2026).

5.2 Materials and methods

Fishing activity on the EBSA was evaluated based on two different sources: (1) data from the two regional fisheries management organizations (RFMOs) currently managing the main resources exploited in international waters of the South and Eastern Pacific Ocean, SPRFMO (data, 2008–2024), which manages jumbo flying squid (*Dosidicus gigas*) and jack mackerel (*T. murphyi*) fisheries among others, and (2) IATTC (data, 1990–2022), which manages tunas and swordfish resources (Sánchez-Espinoza et al., 2026).

The spatial and temporal distribution of jumbo flying squid catches was analysed separately for the Chinese, Korean, and Chinese Taipei fleets using georeferenced catch data reported by the SPRFMO. Two datasets were used: a publicly available dataset containing annual catches by flag at a spatial resolution of 5° × 5° for the period up to 2021 (https://sprfmo.org/data-sets), and a dataset provided directly by the SPRFMO at a resolution of 1° × 1°, which was used to complete the 2022–2024 period. The southeastern Pacific, approximately corresponding to FAO Major Fishing Area 87, was used as the spatial reference area. Because the datasets differed in spatial resolution and temporal coverage,

they were analysed independently. Analyses were restricted to years in which each fleet reported jumbo flying squid catches within the high seas portion of the Salas y Gómez and Nazca Ridges Area . Geographic coordinates were projected to UTM Zone 18S using the WGS 84 datum. Annual catch-intensity surfaces were subsequently generated for each fleet using inverse distance weighting (IDW) spatial interpolation. For the Korean fleet, spatial interpolation was not performed for 2013 and 2014 because of the limited number of available georeferenced catch records.

5.3 Results

The species composition of catches in the study area during the 2008–2024 period was dominated by *D. gigas*, which accounted for nearly all catches in most of the years analysed (Figure 13). Catches showed marked interannual variability, with relatively low levels between 2011 and 2015, generally below 10,000 t per year. From 2016 onward, *D. gigas* catches increased substantially, reaching approximately 45,000 t in both 2016 and 2019. The highest catch levels in the entire time series were recorded in 2022 and 2023, with approximately 71,000 and 56,000 t, respectively.

Although *D. gigas* clearly dominated the time series, greater diversity in the species composition of catches was observed in 2021 and 2022. In 2021, catches of *B. splendens* and *E. nitidus* reached approximately 4,000 t each. Subsequently, in 2022, catches of *T. murphyi* approached 4,000 t, whereas *S. japonicus* catches were approximately 2,000 t.

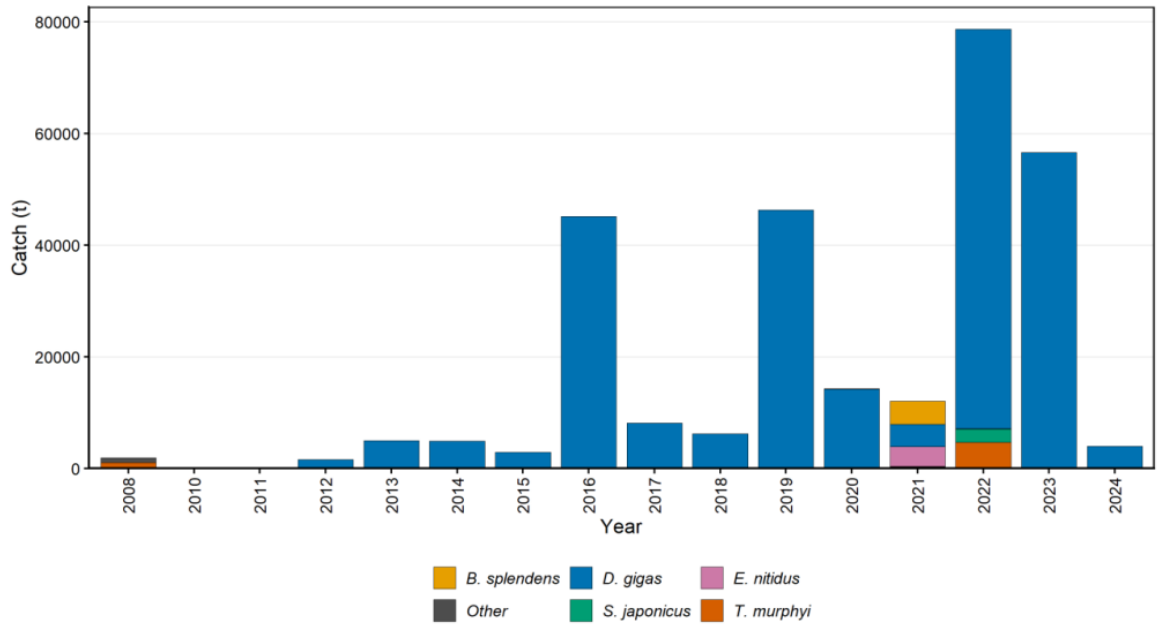


Figure 13 Annual composition of catches (t) by species in the Salas y Gómez and Nazca EBSA during the 2008–2024 period. Sourced from Sánchez-Espinoza et al. (2026). Data from SPRFMO.

2.1 5.3.1 Contribution of the Salas y Gómez and Nazca EBSA to the major fisheries managed by SPRFMO and IATTC

The contribution of the Salas y Gómez and Nazca EBSA to high-seas jumbo flying squid catches showed marked interannual variability during the 2011–2024 period, with no clear temporal trend (Table 3). On average, the area accounted for 5% of the catches recorded on the high seas, with values ranging from 0.02% to 18.63%. Between 2011 and 2015, the contribution of the area was consistently low (Figure 14), remaining below 2%. Subsequently, the highest relative contributions of the time series were recorded in 2016 and 2019, reaching 18.63% and 14.77% of the total high seas

catch, respectively. In absolute terms, the highest catches within the area were recorded in 2022 and 2023 (71,547 t and 56,634 t), equivalent to 13.91% and 11.45% of high-seas catches, respectively.

High-seas jumbo flying squid catches were led mainly by the fleets of China, Korea, and Chinese Taipei during the 2011–2024 (Table 4). Among these fleets, China accounted for the highest levels of high-seas catches, with an annual average of 333,238 t, substantially higher than those recorded by Chinese Taipei (9,203 t) and Korea (4,675 t). China also recorded the highest catches within the Salas y Gómez and Nazca EBSA, particularly in 2022 and 2023, when the highest values of the time series were observed. However, given the magnitude of its total high-seas catches, the relative contribution of the Salas y Gómez and Nazca EBSA was low, representing an average of 6% of its catches and reaching maximum values of approximately 14% in 2016, 2019, and 2022.

Unlike the Chinese fleet, Korea and Chinese Taipei recorded lower catch volumes in absolute terms; however, a considerably larger proportion of their catches was concentrated within the Salas y Gómez and Nazca EBSA, in the Nazca portion of it (Table 4). In the case of Korea, jumbo flying squid fishing in this area began in 2011 with low catch levels (73 t), subsequently increasing between 2012 and 2020. During this period, catches from the high seas portion of the Salas y Gómez and Nazca Ridges Area represented between 19% and 89% of the fleet's total high-seas catches. From 2021 onward, no jumbo flying squid catches were recorded for this fleet, except for marginal catches in 2024. Chinese Taipei, meanwhile, recorded catches within the high seas portion of the Salas y Gómez and Nazca Ridges Area between 2016 and 2021. Initially, from 2016 to 2019, these catches represented between 33% and 74% of its reported high-seas catches. However, during the final two years of the analysed time series, 2020 and 2021, this contribution decreased substantially, reaching approximately 10%–17%.

Table 3 Annual catches (t) of the jumbo flying squid (*Dosidicus gigas*) fishery during the 2011–2024 period, disaggregated into total catches across the SPRFMO Convention Area, including both the high seas and exclusive economic zones; catches taken exclusively on the high seas; and catches taken specifically within the Salas y Gómez and Nazca EBSA. The percentage of catches within the Salas y Gómez and Nazca EBSA relative to the total catches reported on the high seas is also presented

Year	Total (t)	High seas (t)	Salas y Gómez and Nazca EBSA (t)	Percentage of catch in the Salas y Gómez and Nazca EBSA relative to high seas
2011	871,030	292,873	73	0,02
2012	927,462	283,496	1,656	0,58
2013	835,129	277,815	5,016	1,81
2014	1,095,419	345,795	4,939	1,43
2015	996,951	338,275	2,956	0,87
2016	745,770	242,518	45,176	18,63
2017	755,735	312,255	8,169	2,62
2018	860,833	353,987	6,278	1,77
2019	900,053	313,333	46,287	14,77
2020	908,726	361,127	14,092	3,90
2021	995,831	422,640	4,038	0,96

2022	1,074,784	514,500	71,547	13,91
2023	1,220,428	494,500	56,634	11,45
2024	601,523	274,033	4,052	1,48
Mean	913,548	344,796	19,351	5

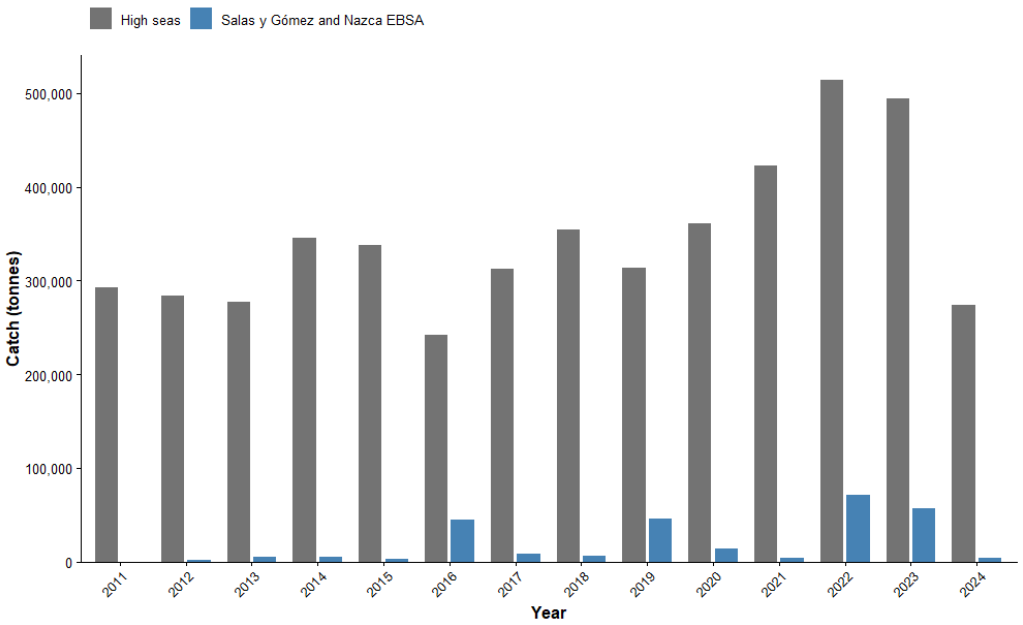


Figure 14 Annual catches (t) in the High Seas (grey) and within the Salas y Gómez and Nazca EBSA (Blue) during the 2011–2024 period. (Data source: SPRFMO 2026).

Table 4 Annual catches (t) of jumbo flying squid (*Dosidicus gigas*) reported by China (CHI), Korea (KOR), and Chinese Taipei (CT) during the 2011–2024 period, disaggregated into total catches across the SPRFMO Convention Area, including both the high seas and exclusive economic zones; catches taken exclusively on the high seas; and catches taken specifically within the Salas y Gómez and Nazca EBSA. The percentage of catches within the Salas y Gómez and Nazca EBSA relative to the total catches reported on the high seas is also presented.

	High seas (t)			High seas portion of the Salas y Gómez and Nazca ridges (t)			Percentage of catch in the high seas portion of the Salas y Gómez and Nazca ridges relative to the wider high seas		
Year	CHI	KOR	CT	CHI	KOR	CT	CHI	KOR	CT
2011	250,000	7,410	35,418		73			0,98	
2012	261,000	8,310	14,177		1,656			19,92	
2013	264,000	6,034	7,759		5,016			83,12	
2014	332,523	7,203	4,795		4,435			61,57	
2015	323,636	4,263	10,072	99	2,856		0,03	67,01	
2016	223,300	4,388	12,989	32,028	3,111	9,692	14,34	70,90	74,61

2017	296,100	3,460	7,338	543	2,505	5,121	0,18	72,41	69,78
2018	346,200	3,651	3,848	3,488	1,511	1,279	1,01	41,39	33,23
2019	305,670	5,577	2,085	43,344	2,004	939	14,18	35,92	45,03
2020	358,000	1,003	2,087	12,829	895	369	3,58	89,23	17,66
2021	422,000		665	3,966		72	0,94		10,81
2022	514,500			71,547			13,91		
2023	494,500			56,634			11,45		
2024	273,900	128		4,052	0,54		1,48	0,42	
Mean	333,238	4,675	9,203	22,853	2,187	2,912	6	49	42

With respect to the IATTC, the tuna fishery is the second largest fishery in the Salas y Gómez and Nazca EBSA. Since the beginning of the fishery in 1990 catches in the EBSA have remained low (< 400 [t]) with a single peak of 1,572 (t) in 2001 (Table 5). From 2007 onward, catches showed marked interannual variability, with several years exceeding 1,000 t and the highest catches recorded in 2018 (3,190 t), 2020 (3,900 t), and 2021 (3,488 t). Despite these increases, catches within the EBSA represented, on average, only 0.22% of total IATTC high-seas tuna catches over the study period. Even during the two highest-catch years, 2020 and 2021, catches within the EBSA represented 0.87% and 0.75% of high-seas catches, respectively. (Figure 15).

Katsuwonus pelamis (64%) led the catches of tuna followed by *T. obesus* (22%) and *T. albacares* (14%). The extraction of *K. pelamis* was executed primarily by the Latin-American countries of Ecuador (44%), Panama (20%), Colombia (14%), and Venezuela (7%), while catches in the EBSA represented < 8% among these countries when considering all tuna species combined. Specifically, the contribution of the EBSA to the IAATC high seas portion to these countries was between 0.01% and 1.4% for Ecuador, while ranged between 0.01% and 7% for Panama (reported catches: 2009-2022), Colombia (reported catches: 2013-2022), and Venezuela (reported catches: 2006-2020).

The fisheries for *Thunnus obesus* and *T. albacares* followed a similar pattern with Ecuador (76%) and Panama (13%) dominating the fishery. Catches in the EBSA compared to the High Seas were < 3.5% for all the fishery years reported. Noteworthy, like the jumbo flying squid fishery, most of these catches occurred in the northern portion of the Nazca Ridge.

Table 5 IATTC annual catches (t) for the tuna (*Katsuwonus pelamis, Thunnus obesus*, and *T. albacares*) fishery reported during 1990-2022, broken down by the Total (HS+EEZ) (High Seas and Exclusive Economic Zone) extraction, only High Seas, and from the Salas y Gómez and Nazca EBSA. The percentage of captures in the Salas y Gómez and Nazca EBSA was calculated with respect to the High Sea's catches.

Year	Total (t)	High Seas (t)	Salas y Gómez and Nazca EBSA (t)	Percent catches in the Salas y Gómez and Nazca EBSA relative to the high seas fishing zone
1990	483,480	179,837	5	0.00
1991	440,981	140,889	8	0.01
1993	439,476	129,568	98	0.08

1994	442,063	179,664	141	0.08
1995	503,510	234,704	32	0.01
1996	513,969	229,126	43	0.02
1997	588,134	288,885	22	0.01
1998	540,049	246,566	397	0.16
2001	713,230	422,022	1,572	0.37
2002	743,312	403,379	16	0.00
2003	831,578	436,967	77	0.02
2004	624,818	337,481	3	0.00
2005	680,459	301,611	79	0.03
2006	606,937	335,522	36	0.01
2007	492,725	259,561	255	0.10
2008	608,377	299,646	281	0.09
2009	599,076	365,639	726	0.20
2010	510,371	316,726	616	0.19
2011	589,689	333,488	2,760	0.83
2012	589,516	376,593	418	0.11
2013	601,242	372,259	1,227	0.33
2014	608,328	390,565	654	0.17
2015	699,134	421,343	624	0.15
2016	693,580	449,407	1,172	0.26
2017	655,281	412,594	1,870	0.45
2018	639,134	409,512	3,190	0.78
2019	690,381	454,160	1,464	0.32
2020	635,084	446,291	3,900	0.87
2021	672,710	467,763	3,488	0.75
2022	664,723	492,208	1,696	0.34
Average	603,378	337,799	896	0.22

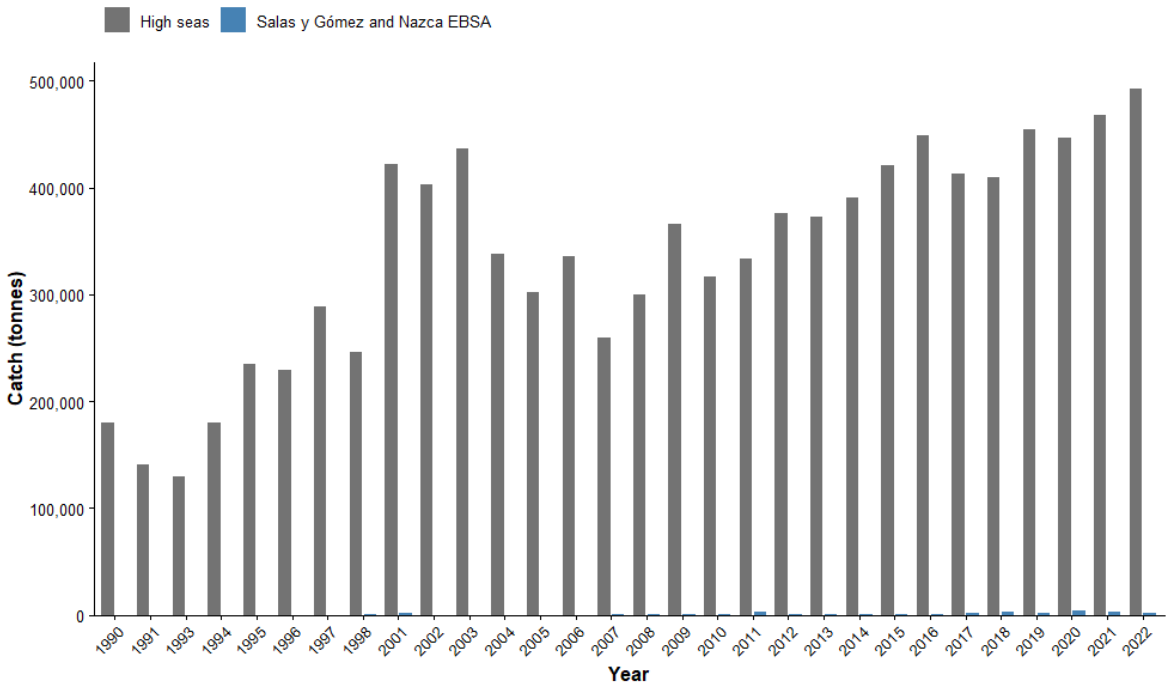


Figure 15 Total annual catches (t) (1993-2022) of *Thunnus albacares*, *T. obesus*, and *Katsuwonus pelamis* in the High Seas area managed by IATTC (grey bars) and in the Salas y Gómez and Nazca EBSA (blue bars) (data source: IATTC).

For the swordfish, the IAATC fishery data reports started in 1990 with most catches occurring in countries Exclusive Economic Zones. Catches in the Salas y Gómez and Nazca EBSA were lower than 20 (t) until 2001 when they significantly increased to ~1,500 (t), with peaks in 2001 and 2002 representing 27.9% and 16%, respectively, compared to the High Seas catch. In contrast, a decreasing trend was observed during the last three operating years in the EBSA when catches dropped to lower than ~200 (t) (Table 6, Figure 16). Between 1990 and 2022, swordfish fishing has been led by the Spanish fleet with more than 99% of the total IAATC catch. Data available from the high seas portion of the Salas y Gómez and Nazca Ridges Area for this period has shown that the biomass of swordfish caught in the EBSA contributes to an average of 6.21% with respect to the IATTC catches in High Seas. During the last three years catches in the EBSA declined to < 1.5% of the high seas catch.

Table 6 IATTC annual catches (t) for the swordfish (Xiphias gladius) fishery reported during 1990-2022, aggregated by the Total (HS+EEZ) (High Seas and Exclusive Economic Zone) extraction, only High Seas, and from the Salas y Gómez and Nazca EBSA. The percentage of catch in the high seas area of the Salas y Gómez and Nazca ridges was calculated with respect to the wider High Sea's catches.

Year	Total (HS +EEZ) (t)	High Seas (t)	Salas y Gómez and Nazca EBSA (t)	Percentual capture in the Salas y Gómez and Nazca EBSA relative to the high seas fishing zone
1990	10,873	407	0	0.07
1991	14,995	489	1	0.15
1992	14,091	225	0	0.06
1993	10,605	248	1	0.60
1996	9,558	337	0	0.05

1998	13,049	1,086	18	1.63
2000	11,316	2,128	14	0.67
2001	17,975	5,470	1,530	27.98
2002	19,718	10,231	1,646	16.09
2003	18,519	8,864	627	7.08
2004	15,683	8,597	836	9.73
2005	13,241	5,940	346	5.83
2006	13,697	6,442	652	10.11
2007	14,033	5,475	839	15.33
2008	15,325	7,099	761	10.72
2009	19,448	9,610	563	5.86
2010	22,880	10,962	1,027	9.37
2011	25,504	11,512	896	7.78
2012	30,740	11,624	1,104	9.50
2013	27,904	12,899	498	3.86
2014	27,667	12,037	365	3.03
2015	32,186	14,540	341	2.35
2016	31,887	14,246	515	3.62
2017	30,517	13,625	1,071	7.86
2018	31,610	16,680	1,262	7.56
2019	31,119	14,052	800	5.69
2020	28,259	14,496	103	0.71
2021	23,993	11,960	94	0.78
2022	24,684	14,329	198	1.38
Mean	20,727	8,469	555	6.21

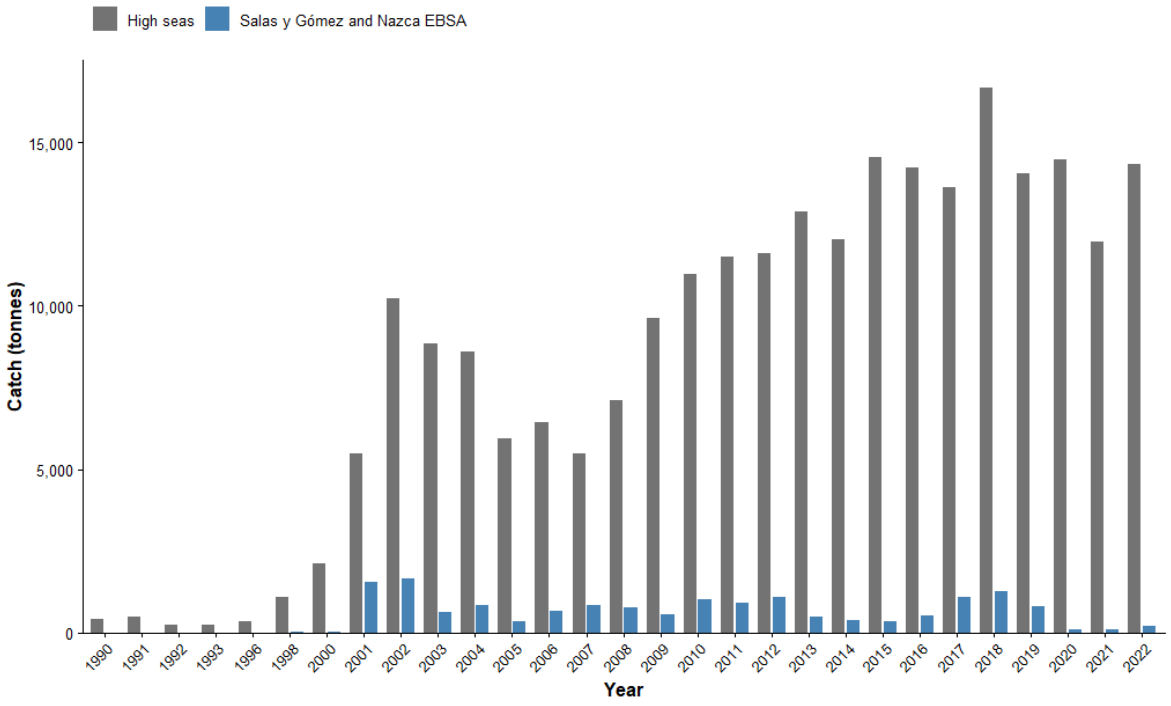


Figure 16 Annual catches (t) (1990-2022) of swordfish (*Xiphias gladius*) in the High Seas and in the Salas y Gómez and Nazca EBSA (data source: IATTC).

2.2 5.3.2 Annual percentage composition of jumbo flying squid catches by fleet

Jumbo flying squid harvesting in the study area was conducted by fleets from China, Korea, and Chinese Taipei (Figure 17)**.** The percentage composition of catches showed substantial changes in the relative contribution of these fleets during the study period. Between 2011 and 2014, all catches were taken by the Korean fleet. In 2015, although Korea remained the predominant fleet (96.6%), China participated in the fishery for the first time. From 2016 onward, the composition of catches by flag became more diverse. In that year, China accounted for the largest proportion of catches (71.4%), followed by Chinese Taipei (21.6%) and Korea (6.9%). In 2017, Chinese Taipei reached its highest relative contribution, accounting for 62.7% of catches, whereas Korea and China represented 30.7% and 6.6%, respectively. From 2018 onward, China regained its predominance in the fishery, progressively increasing its relative contribution. Finally, from 2022 onward, 100% of the recorded catches corresponded to the Chinese fleet.

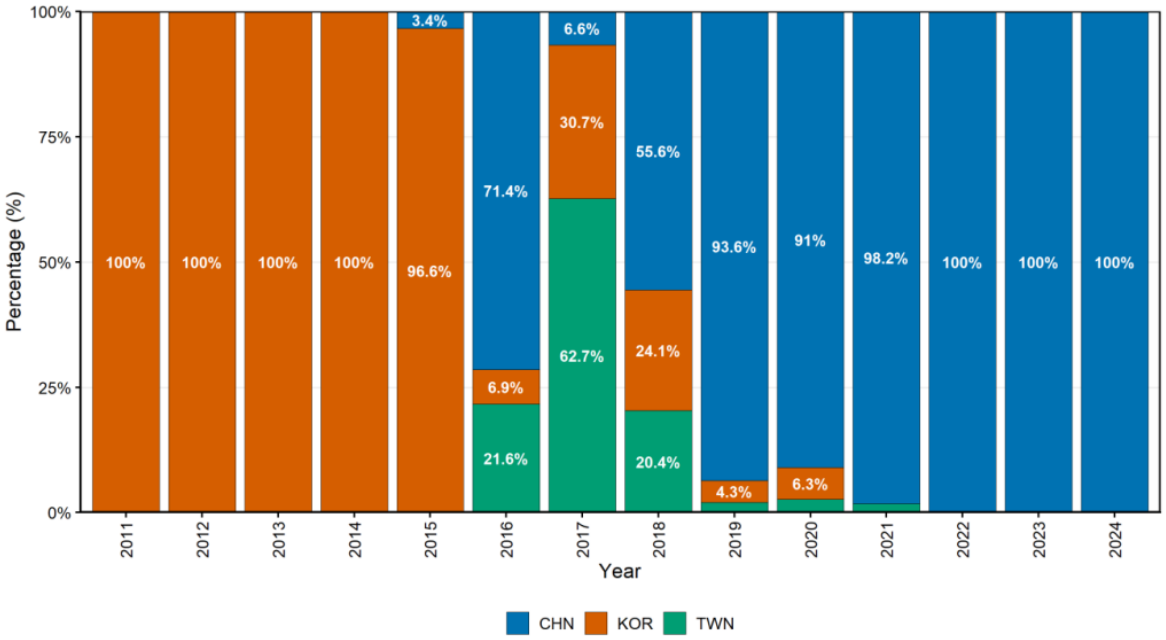


Figure 17 Annual percentage contribution (%) of jumbo flying squid (*Dosidicus gigas*) catches by fleet (CHN, KOR, and TWN) within the high seas portion of the Salas y Gómez and Nazca EBSA during the 2011–2024 period (Figure taken from: Sánchez-Espinoza et al., 2026. Data from SPRFMO).

2.3 5.3.3 Spatial and temporal distribution of jumbo flying squid catches by fleet in the high seas of the southeastern Pacific

Figures 18–20 show important spatial differences in the distribution and magnitude of jumbo flying squid catches among the Chinese, Chinese Taipei, and Korean fleets in the southeastern Pacific. Overall, the Chinese fleet had the broadest spatial coverage, with records widely distributed across the southeastern Pacific, from remote oceanic sectors to the eastern margin of the Pacific Ocean. In contrast, the Chinese Taipei and Korean fleets operated within considerably smaller areas and exhibited more restricted spatial distributions.

The spatial distribution of jumbo flying squid catches by the Chinese fleet showed high interannual variability in both the location and magnitude of the main fishing areas (Figure 18). During the early years of the time series (2015–2016), the highest catches were primarily located in international waters adjacent to Peru and near the eastern end of the study area. Subsequently, between 2017 and 2021, the areas of highest catches expanded toward oceanic sectors farther from the South American continental margin, with important catch hotspots observed in the north-central portion of the operational area, particularly between 90°W and 110°W. Finally, between 2022 and 2024, the highest catches were again predominantly located toward the eastern sector of the operational area, although the fleet maintained broad spatial coverage and catches were also recorded in remote oceanic sectors.

Regarding the Salas y Gómez and Nazca EBSA, Figure 3 shows a recurrent presence of catches both within and in areas adjacent to the EBSA, particularly around the Nazca Ridge. However, the highest catches tended to occur predominantly outside the EBSA boundaries, mainly in the north-central oceanic sectors of the operational area and in international waters adjacent to Peru. This is consistent with the information presented in Table 2, where catches taken by the Chinese fleet within the EBSA represented a relatively small fraction of its total high-seas catch, reaching maximum values of approximately 14% in some years.

The Chinese Taipei fleet exhibited less spatial extent and variability than the Chinese fleet, with its activity concentrated mainly in the eastern sector of the operational area (Figure 19). Throughout the study period (2016–2021), the highest catches were consistently located in international waters adjacent to Peru and near the eastern end of the Salas y Gómez and Nazca EBSA, particularly around the Nazca Ridge. According to Table 2, between 2016 and 2019, catches taken by Chinese Taipei within the EBSA represented between 33% and 74% of its total reported high-seas catches. In contrast, catches in oceanic sectors farther from the South American continental margin were considerably lower and more spatially dispersed. A progressive decline in catch magnitude was also observed toward the end of the study period, with the lowest levels recorded for this fleet occurring in 2021.

The Korean fleet exhibited a spatial distribution extending farther south in latitude, although it was relatively more restricted longitudinally (Figure 20). Nevertheless, as observed for Chinese Taipei, the highest catches were consistently located in international waters adjacent to Peru and near the eastern end of the Salas y Gómez and Nazca EBSA, particularly around the Nazca Ridge. This is also consistent with the information reported in Table 2, where catches originating from the area represented between 19% and 89% of Korea's total high-seas catches. Finally, in 2024, a marked spatial contraction of fishing activity was observed, with almost all catches concentrated in a localised area off Peru. This contraction was also accompanied by a substantial decline in catch magnitude compared with previous years. It should be noted that, for 2013 and 2014, it was not possible to conduct a robust spatial interpolation for the production of heat maps because of the low number of georeferenced catch records available for those years.

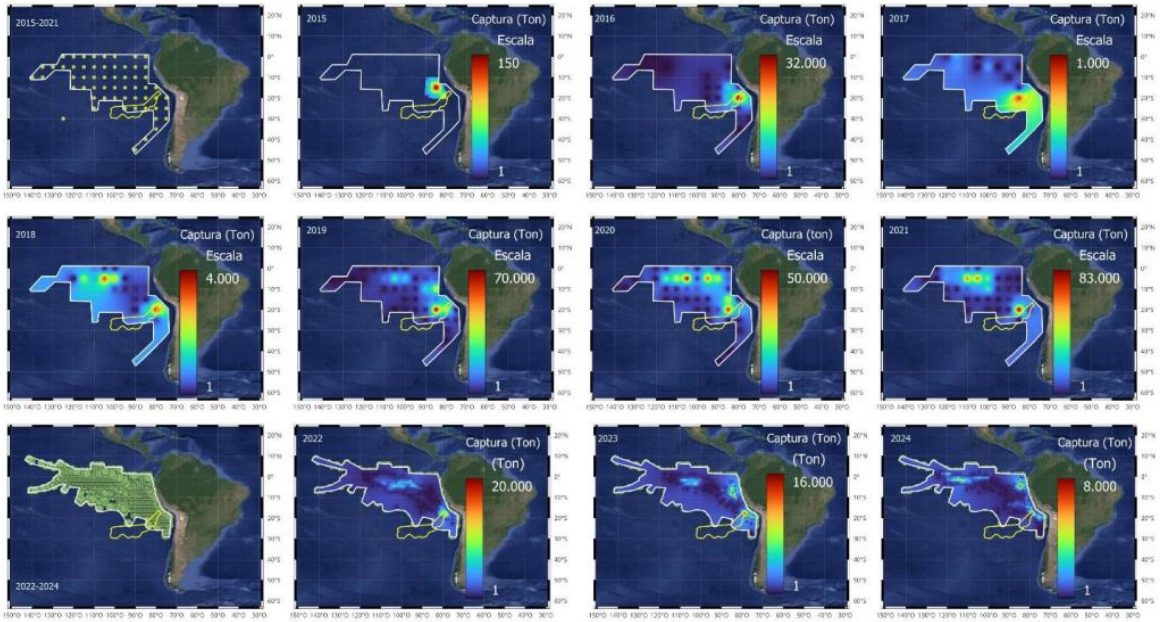


Figure 18 Spatial distribution and intensity of jumbo flying squid (*Dosidicus gigas*) catches by the Chinese fleet in the southeastern Pacific during the 2015–2024 period. The polygon outlined in yellow corresponds to the Salas y Gómez and Nazca EBSA (Figure taken from: Sánchez-Espinoza et al., 2026. Data from SPRFMO).

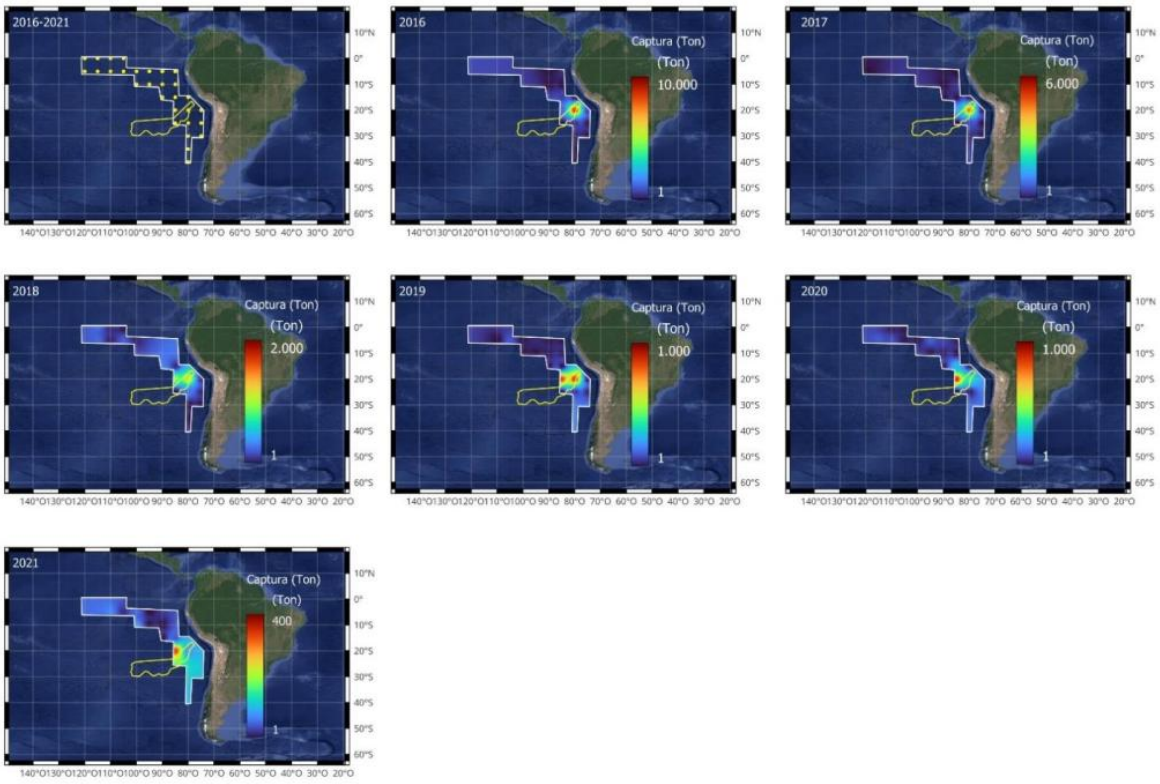


Figure 19 Spatial distribution and intensity of jumbo flying squid (*Dosidicus gigas*) catches by the Chinese Taipei fleet in the southeastern Pacific during the 2016–2021 period. The polygon outlined in yellow corresponds to the Salas y Gómez and Nazca EBSA (Figure taken from: Sánchez-Espinoza et al., 2026. Data from SPRFMO).

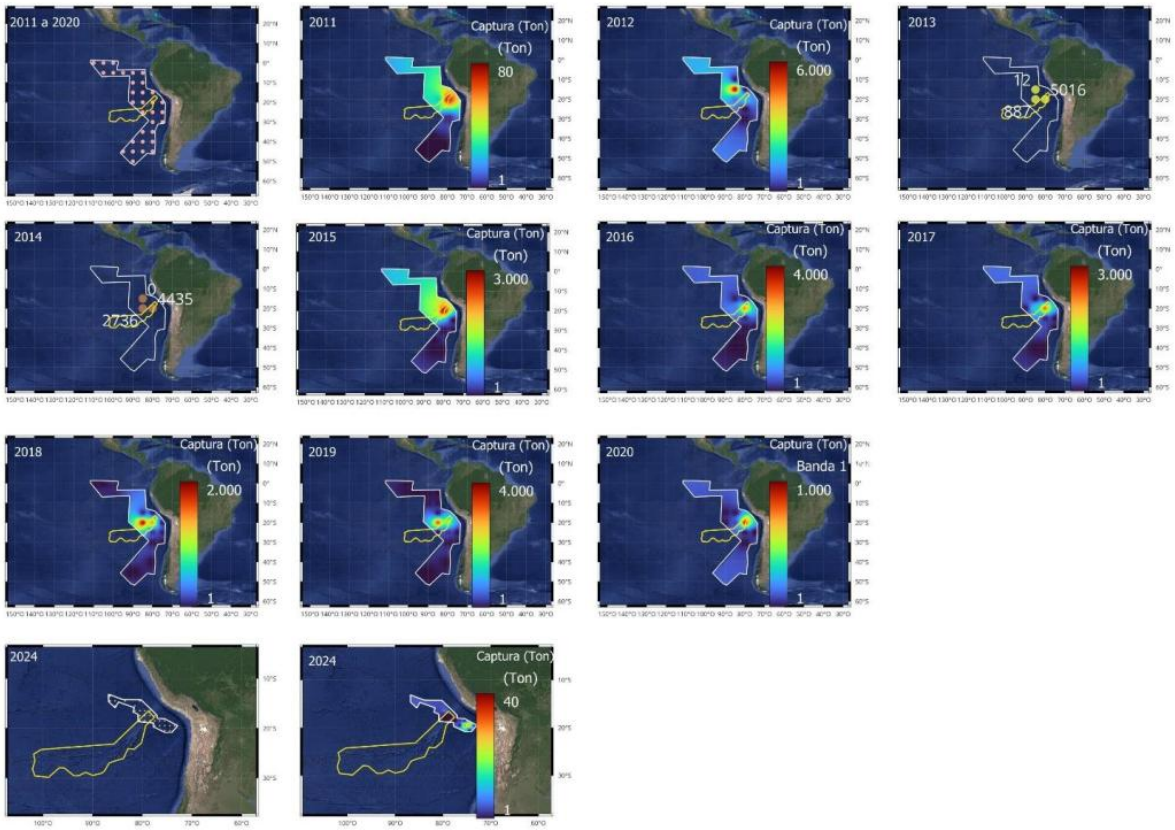


Figure 20 Spatial distribution and intensity of jumbo flying squid (*Dosidicus gigas*) catches by the Korean fleet in the southeastern Pacific during the 2011–2024 period. The polygon outlined in yellow corresponds to the Salas y Gómez and Nazca EBSA (Figure taken from: Sánchez-Espinoza et al., 2026. Data from SPRFMO).

Evaluation of fishing impacts

Fishing in the Salas y Gómez and Nazca (SGN) EBSA has historically been dominated by pelagic fisheries targeting jumbo flying squid (*Dosidicus gigas*), tuna species (i.e., *Katsuwonus pelamis*, *Thunnus obesus*, *T. albacares*), and swordfish (*Xiphias gladius*), along with smaller-scale demersal fisheries targeting species such as orange roughy (*Hoplostethus atlanticus*), alfonsino (*Beryx splendens*), jagged lobster (*Projasus bahamondei*), and golden crab (*Chaceon chilensis*) (SPRFMO, 2024). At present, effort associated with SPRFMO fisheries is primarily concentrated in the eastern part of the Nazca Ridge, adjacent to Peruvian waters, where jigging for jumbo flying squid represents the predominant activity, while bottom longlining, potting, purse seining, and trawling occur at lower levels and in other parts of the ridges (SPRFMO, 2024; 2026). Although overall fishing across the part of the EBSA that falls within the high seas remains relatively low compared to the broader southeastern Pacific, different fishing methods generate distinct ecological impacts (SPRFMO, 2024).

Pelagic fishing, by directly removing biomass (available organic matter), can disrupt the natural cycle of transport of organic matter to the deep sea by reducing the amount of fish and invertebrate biomass, and faecal material, that may otherwise eventually sink to the seafloor, thereby potentially altering the vertical transfer of carbon from surface waters (Aksnes et al., 2023). This natural process is important in oligotrophic and ultra-oligotrophic environments such as those found in parts of the Salas y Gómez and Nazca Ridges (Cornejo, 2026). This reduction in carbon availability can have significant consequences for the stability and functioning of deep-sea ecosystems, which may rely on a continuous supply of organic matter to sustain biological communities (Smith et al., 2009). There is

however no localised quantification of this hypothetical impact across the Salas y Gómez and Nazca Ridges, and studies from the Peruvian coast suggest that pelagic fish biomass is mostly remineralised in the water column and is unlikely to drive deep-sea carbon budgets (SC12-Doc37; SC13-SGN01_rev1).

Fishing impacts vary fundamentally depending on the specific gear utilised and the vulnerability, fragility, recovery rate, and conservation status of the affected species and habitats (Clark et al., 2010). In the Salas y Gómez and Nazca Ridges Area , within the context of SPRFMO, the current fishery is dominated by pelagic jigging for jumbo flying squid, which accounts for approximately 89% of active vessels. Scientific evidence indicates that jumbo flying squid (*Dosidicus gigas*) targeted by the high-seas jig fishery undertake diel vertical migrations and concentrate in the upper pelagic layer at night, typically within the upper 0-200 m of the water column, where they are harvested using jigging gear (SC9-WP02_rev1). Habitat impacts are likely to be minimal, given that the fishery mainly utilises highly selective jigging methods, which are associated with limited habitat disturbance. Potential ecosystem effects of industrial squid jigging are more likely to arise from vessel lighting than from physical gear impacts. Artificial lights used to attract squid have been documented in other areas as attracting and disorienting seabirds, increasing the risk of collisions and other vessel-related interactions (SC5-Doc29). While the SPRFMO Scientific Committee has “recognised the potential for seabirds to interact with squid jig fishing activity at levels that may pose conservation concern for some seabird species” (SC05-Report_Final), there is a lack of evidence of this potential impact within the Salas y Gómez and Nazca Ridges Area .

In contrast, benthic habitat degradation in this region is a legacy of historical bottom trawling activities, which ceased entirely when the orange roughy fishery was closed in 2006. Currently, bottom-contact fishing is limited to localised, small-scale exploratory trap and bottom long line fisheries, which have a lower and more restricted physical footprint than mobile bottom-contact fishing methods such as bottom trawling (SC11-DW01_rev1).

6.1 Materials and methods

2.4 6.1.1 SPRFMO

By-catch data were obtained from the SPRFMO observer database (SPRFMO, 2026a), comprising all georeferenced incidental capture records reported between 2008 and 2024 for the southeastern Pacific. Records included fishing method, year, species identity, geographic position, and the number of incidental captures. Fishing methods reported were bottom longline (BL), jigging (J), purse seine (PS), potting (PT), and trawling (TR).

Heatmaps were produced to visualise the temporal distribution of by-catch among fishing methods and species, with a colour palette to indicate bycatch intensity, representing the number of reported individuals. Relative species composition was calculated annually as the proportion of total reported by-catch contributed by each taxonomic group. Because the South American sea lion (*Otaria byronia*) represented most reported incidental captures during some years, an additional analysis excluding this species was conducted to better illustrate temporal variation in the remaining by-catch assemblage.

The conservation status of each recorded species was assigned according to the IUCN Red List of Threatened Species, and annual by-catch composition was summarised by IUCN category. Furthermore, the ten most frequently reported by-catch species were also identified to evaluate the conservation relevance of the incidental catches.

All records were mapped using their reported geographic coordinates to describe the spatial distribution of by-catch across the southeastern Pacific and within the SGN EBSA using ArcGIS Pro 3.3.0.

For the environmental impacts of bottom-contact fishing, see section 6.3.

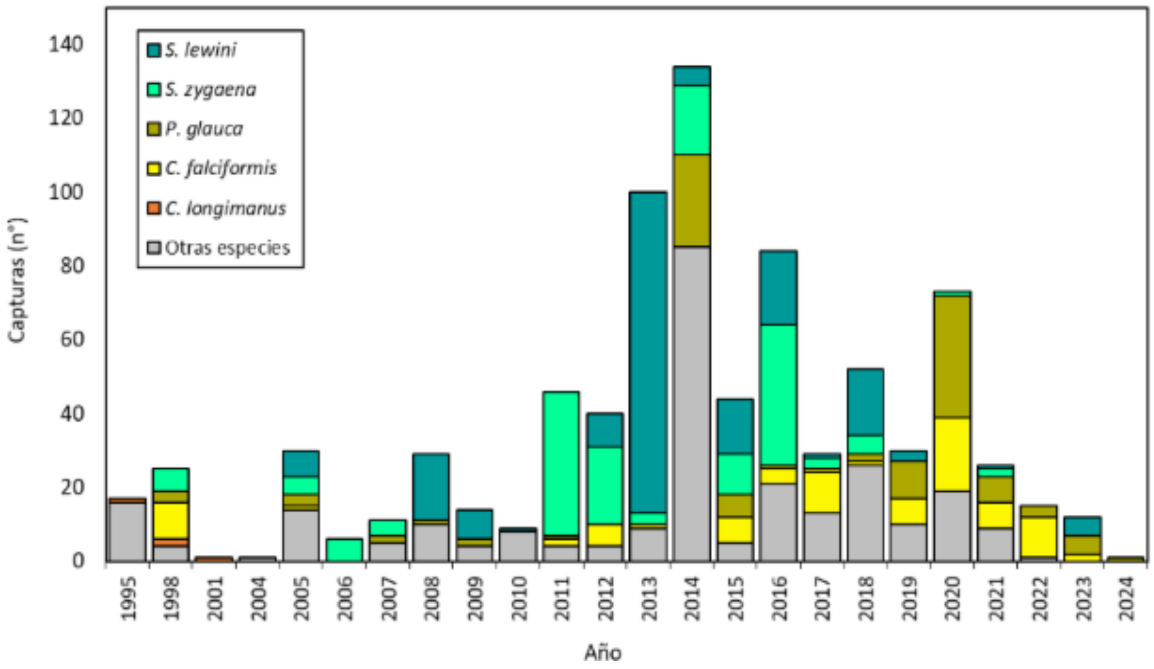
2.5 6.1.2 Inter-American Tropical Tuna Commission (IATTC)

Georeferenced shark by-catch data were obtained from the IATTC for the period 1995–2024 (Sánchez-Espinoza et al. 2026). The dataset comprised spatially aggregated fishing events associated with tuna purse seine and swordfish long line fisheries, reported on regular spatial grids of 1° × 1° and 5° × 5°, respectively. Only fishing events located within the SGN EBSA (A0) and the four surrounding reference areas (A1–A4) were retained for analysis. Catch per unit effort (CPUE) was calculated separately for each fishing gear according to the corresponding effort metric. For long line fisheries, CPUE was expressed as the number of sharks captured per hook, whereas for purse seine fisheries it was calculated as the number of sharks captured per set.

All maps generated for assessing georeferenced shark by-catch data were built in QGIS software.

6.2 Results

Pelagic purse-seine and longline fishing have historically been conducted in the area by fisheries regulated under the IATTC, primarily targeting tuna and swordfish. These fisheries have reported relatively high levels of by-catch, consisting predominantly of sharks, such as *Sphyrna lewini*, *Sphyrna zygaena*, *Prionace glauca*, *Carcharhinus falciformis*, *Carcharhinus longimanus*, and *Isurus oxyrinchus* (Vega et al., 2009; Gálvez, 2012; IATTC, 2025) (Figure 21). Spatial analyses indicate that the highest probabilities of shark encounters occur predominantly outside the high seas portion of the Salas Salas y Gómez and Nazca Ridges Area , although the distribution differs between purse-seine and longline fisheries (Sánchez-Espinoza et al., 2026) (Figure 22).



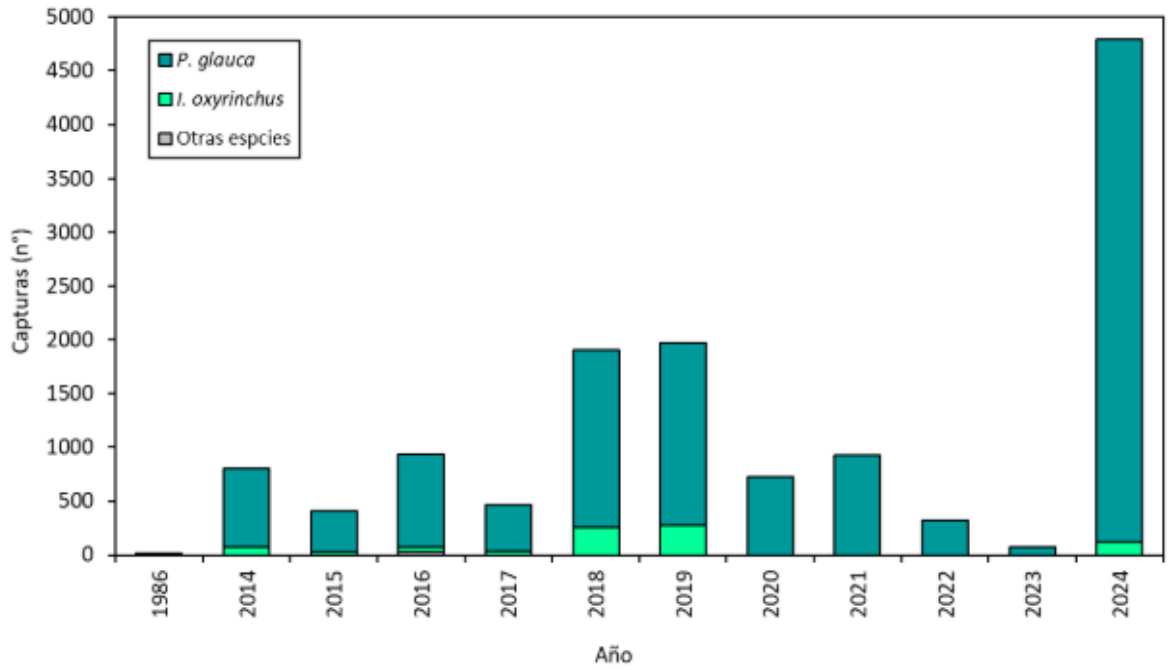


Figure 21 Inter-American Tropical Tuna Commission (IATTC) by-catch reported in the Salas y Gómez and Nazca ridges by purse seine (1995-2024, upper panel) and longline (1986-2024, lower panel). The major non-target species were S. lewini, S. zygaena, P. glauca, C. falciformis, and C. longimanus for purse seine and blue (Prionace glauca) and mako (Isurus oxyrinchus) sharks for long line. Data sourced from IATTC.

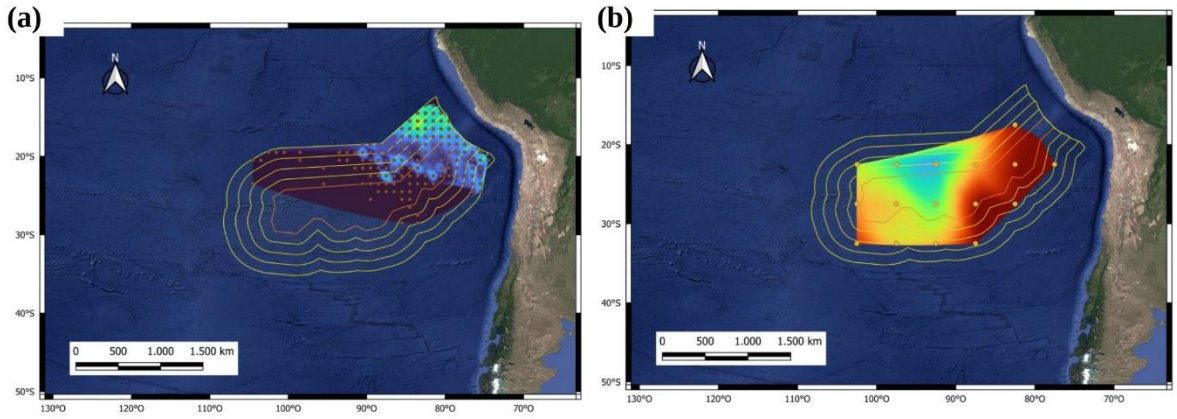


Figure 22 Spatial distribution of the estimated probability of shark encounters in the Salas y Gómez and Nazca EBSA (A0) and the surrounding reference areas (A1–A4) for (a) purse-seine and (b) longline fisheries. Warmer colours indicate higher encounter probabilities, whereas cooler colours indicate lower probabilities. Points represent the centroids of spatial grid cells with available fishing records. The red polygon delineates the high seas portion of the Salas y Gómez and Nazca Ridges Area , and the surrounding polygons correspond to the four reference areas.

Information provided by SPRFMO (2026) showed bottom longline (BL), jigging (J), purse seine (PS), potting (PT) and trawling (TR) are the most common used fishing methods in the area, being jigging the predominant one as the jumbo flying squid (*Dosidiscus gigas*) fishery- led by the Chinese fleet- is the biggest fishery operating in the area, although geographically restricted to the eastern-most portion of the Nazca Ridge.

By-catch data associated to these fishing methods, as reported by SPRFMO in the southeast Pacific (not only within the Salas y Gómez and Nazca Ridges Area) indicate that PS presents the highest value of by-catch dominated by marine mammals, seabirds, and turtles, primarily occurring in the EEZ of

Chile, and secondly east of Desventuradas Islands within the high seas. Trawling showed a high number of the porbeagle sharks, seabirds, and marine mammals; the BL was mainly associated with seabirds; and the J had the lowest bycatch reported with one loggerhead turtle (*Caretta caretta*) (Figure 23). It is noteworthy that even though by-catch report started in 2008, incidental catches associated to the *D. gigas* fishery, 2021 is the only year reporting incidental captures.

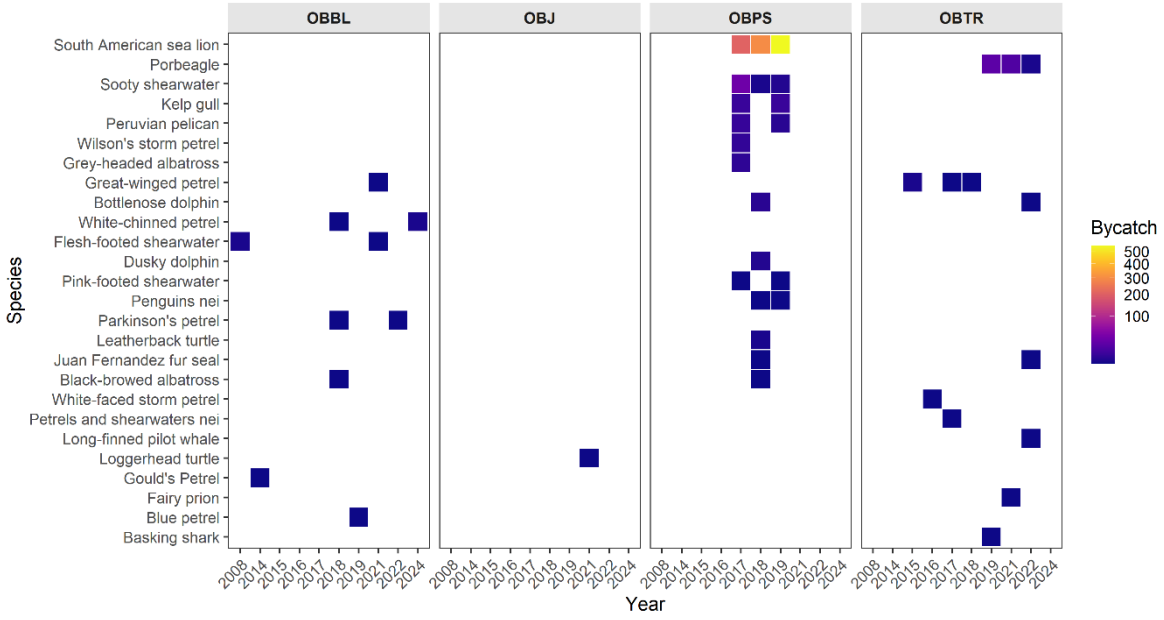


Figure 23 Observed by-catch by species, year and fishing method. Colour intensity represents the number of incidental captures according to the obtained SPRFMO observer data (SPRFMO, 2026a). Bycatch recorded by observer is presented by gear: bottom line (OBBL), jigging (OBJ), purse seine (OBPS), trawling (OBTR).

SPRFMO by-catch data disaggregated by year show that the highest levels of incidental catch occurred between 2017 and 2021. The relative composition of the total reported by-catch indicates that, in most years, non-target species consisted primarily of seabirds and sharks, with marine mammals representing a smaller proportion. However, this pattern differed between 2017 and 2019, when the South American sea lion (*Otaria byronia*) accounted for approximately 75% of total reported by-catch in 2017 and nearly 90% in both 2018 and 2019, all within the EEZ of Chile (SPRFMO, 2026a). To account for this anomaly, *Otaria byronia* was excluded (Figure 24).

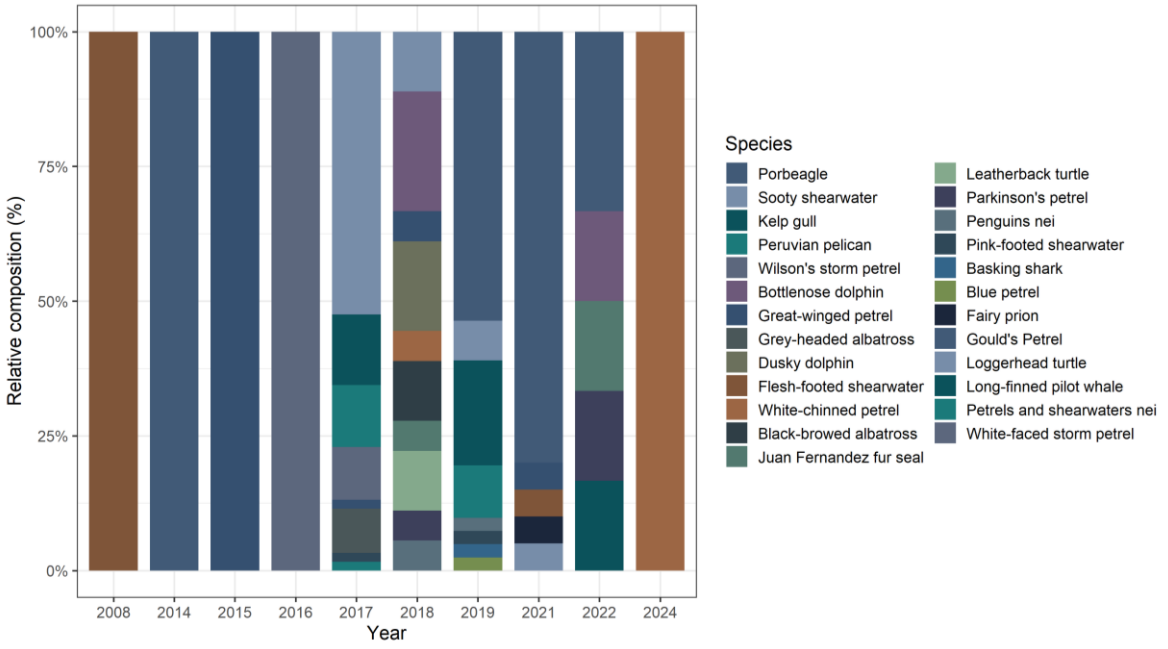


Figure 24 Total relative by-catch species composition from data obtained from SPRFMO, excluding the South American sea lion according to the obtained SPRFMO observer data (SPRFMO, 2026a).

The composition of reported SPRFMO by-catch, categorised according to IUCN conservation status, ranges from Not Evaluated (NE) to Endangered (EN). Vulnerable species dominated the by-catch most of the years (Figure 25). Among the ten most frequently recorded by-catch species, 50% are classified as Near Threatened or threatened (NT–EN) according to the IUCN Red List of Threatened Species. Specifically, one species is listed as Endangered (EN; *Thalassarche chrysostoma*), two species as Vulnerable (*Lamna nasus* and *Procellaria aequinoctialis*), and two species as Near Threatened. The remaining five species (50%) are classified as Least Concern. These findings highlight that several of the most frequently reported by-catch species are of conservation concern, underscoring the importance of continued monitoring and mitigation measures within the fishery (Table 7).

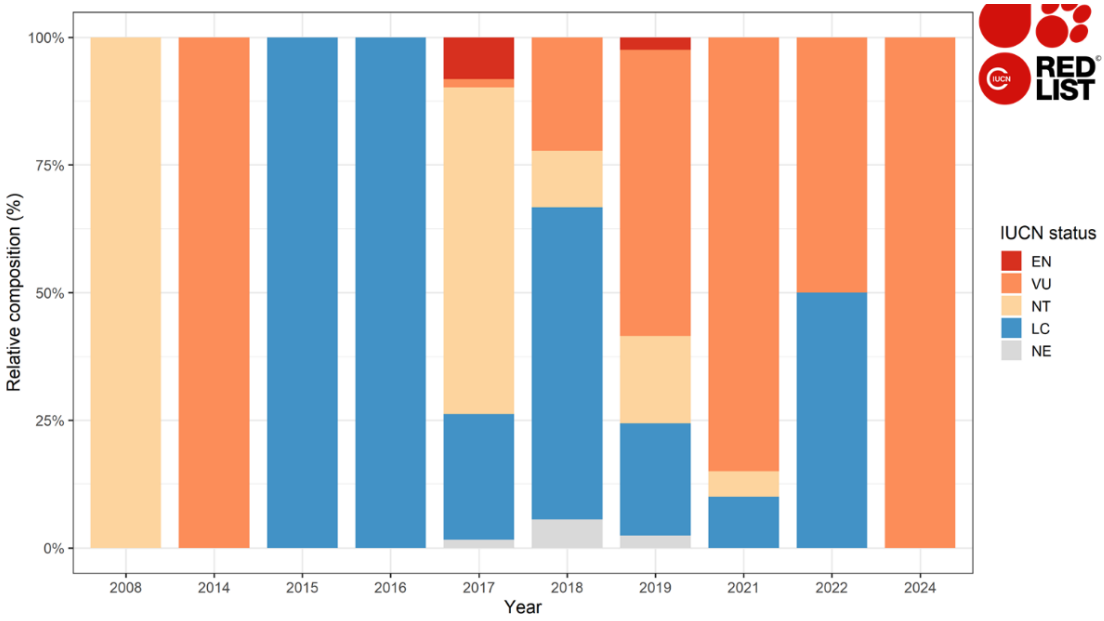


Figure 25 Relative by-catch composition by year reported by SPRFMO, according to IUCN species status, excluding South American sea lion according to the obtained SPRFMO observer data (SPRFMO, 2026a).

Table 7 Most recent conservation status of by-catch species reported by SPRFMO according to the obtained SPRFMO observer data (SPRFMO, 2026a), and according to the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

Rank	Species Code	Scientific name	Common name	Number of reported individuals	IUCN status
1	SEL	*Otaria byronia*	South American sea lion	1057	LC
2	POR	*Lamna nasus*	Porbeagle	40	VU
3	PFG	*Puffinus griseus*	Sooty shearwater	37	NT
4	LDO	*Larus dominicanus*	Kelp gull	16	LC
5	TWH	*Pelecanus thagus*	Peruvian pelican	11	NT
6	OCO	*Oceanites oceanicus*	Wilson's storm petrel	6	LC
7	DBO	*Tursiops truncatus*	Bottlenose dolphin	5	LC
8	PDM	*Pterodroma macroptera*	Great-winged petrel	5	LC
9	DIC	*Thalassarche chrysostoma*	Grey-headed albatross	5	EN
10	PRO	*Procellaria aequinoctialis*	White-chinned petrel	3	VU

SPRFMO by-catch data for the Salas y Gómez and Nazca Ridges EBSA, indicates that the eastern portion of the area, adjacent to Peru's jurisdictional waters, is the only area were by-catch has been reported. In 2022, a total of seven individuals representing four species were reported as by-catch: three blue sharks (*Prionace glauca*), two ocean sunfish (*Mola mola*), one bottlenose dolphin (*Tursiops truncatus*), and one long-finned pilot whale (*Globicephala melas*). All these reports corresponded to trawling (TR) fishing method. When considering only by-catch records reported for the High Seas by

SPRFMO, excluding the EEZ of the coastal states, a different spatial pattern emerges as by-catch is concentrated between the Desventuradas EEZ and the continental Chile EEZ, and in the previously mentioned eastern portion of the Nazca ridge, adjacent to the Peruvian jurisdictional waters, and corresponds mainly to Trawling, Potting, Bottom Longline and Jigging (Figure 26).



Figure 26 Georeferenced By-catch spots in the Southeast Pacific, from 2008 to 2024, as provided by SPRFMO 2026.

It is important to note that, although only a few bycatch events have been officially reported along the SGN ridges, there is a degree of uncertainty associated to the diverging levels of observer coverage among fleets and fisheries. The same fishing methods used in areas where bycatch has been documented by SPRFMO, but also by IATTC, operate along the SGN ridges, where some species and similar assemblages are also present. Given the current low levels of fishing activity under SPRFMO, by-catch numbers are also low, but could potentially increase if fishing effort is to increase in the area. Improving the collection and reporting of bycatch information is essential to an accurate and realistic evaluation of fishing impacts in the SGN ridges. Similarly, projection of bycatch estimates proportional to the fishery-specific levels of coverage is also lacking.

6.3 Impacts of demersal fishing

Mobile bottom contact fishing methods can cause widespread degradation of benthic habitats and significant damage to non-target species (Althaus et al., 2009; Clark et al., 2010; Koslow et al., 2001; Petit et al., 2026) (Figure 27). These impacts are particularly pronounced in highly vulnerable marine ecosystems (VMEs), such as seamounts, which are dominated by some of the longest-lived species on the planet (Petit et al., 2026).

These habitat forming species provide spawning grounds, nursery areas, feeding spots and refuge for commercial and non-commercial important demersal species (Cañete & Häussermann, 2012; Watling & Auster, 2017; Stevens, 2021). In particular, habitat degradation from bottom trawl fishing in these sensitive environments is linked to a significant decrease in species richness, cover, and abundance, leading to a reduction or complete loss of habitat complexity (e.g., three-dimensionality, functional role redundancy) and species functional roles (Watling & Auster, 2017; Hiddink et al., 2020; Petit et al., 2026).

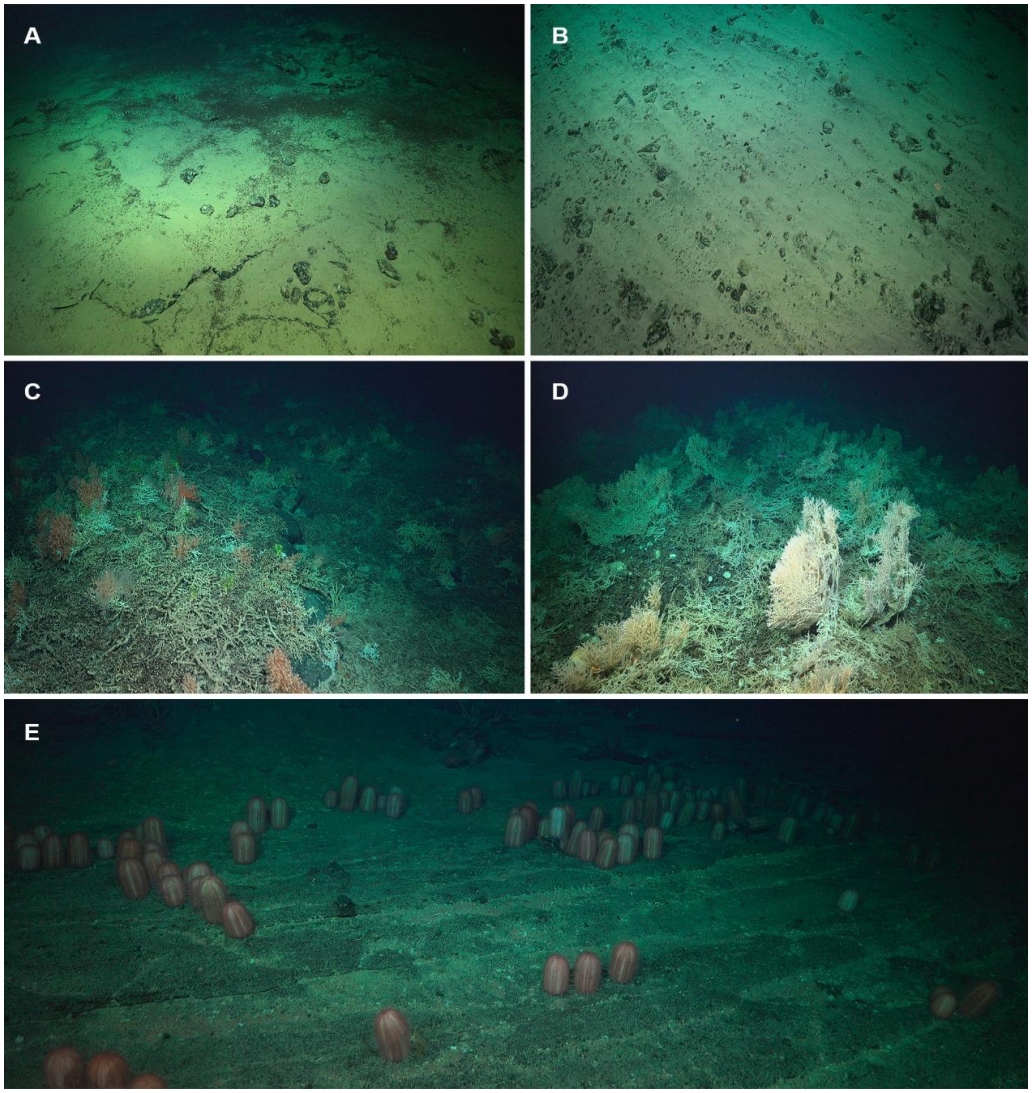


Figure 27 (A) Habitat disturbed by bottom trawl fishing with coarse sand, flattened rocky slabs, coral rubble, and trawl scars. (B) Sandy plain displaying linear drag marks consistent with intensive bottom trawl fishing. (C-D) High-relief rocky habitat in non-trawled seamounts. (E) Degraded benthic environment after 25 years of bottom trawl fishing dominated by the sea urchin *Dermechinus horridus*. Credits: Schmidt Ocean Institute/ESMOI. Adapted from Petit et al. (2026).

Bottom trawl fishing not only causes the immediate mechanical degradation of benthic habitats but also leads to long term ecological impacts by altering species composition (Figure 28) and modifying ecological succession patterns (Petit et al., 2026). Severe habitat damage may facilitate the proliferation of certain taxon such as echinoderms, which at the same time might increase predation pressure on a wide variety of prey, including millenary and slow recovery deep-sea corals (e.g., Keratoisididae branched) (Figure 29)

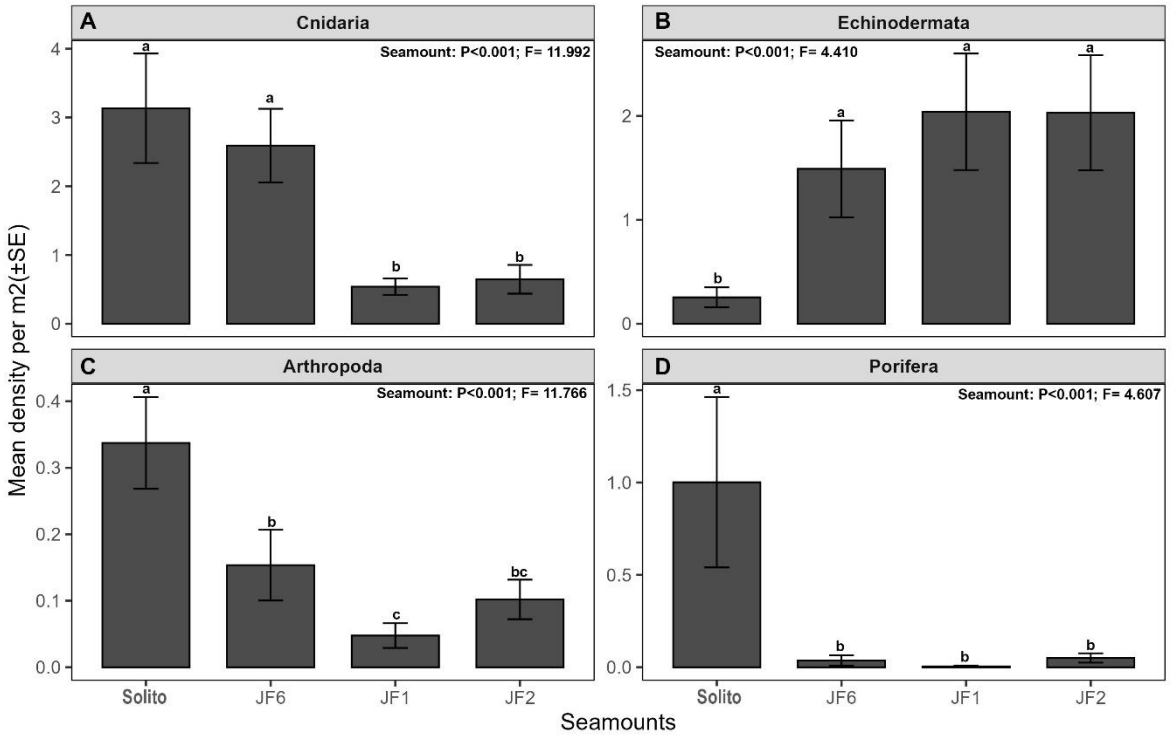


Figure 28 Species density at different trawled and non-trawled seamounts (see Petit et al., 2026). Solito seamount has no bottom-contact trawling evidence, being considered a pristine habitat (Tapia-Guerra et al., 2026). In contrast, JF1, JF2, and JF6 are seamounts that were bottom trawl fished for orange roughy and alfonsino more than 25 y ago. The four major phyla Arthropoda, Cnidaria, Echinodermata, and Porifera were considered based on their dominance across all study sites. Bars with the same letter were not significantly different (ANOVA, $p > 0.05$). Image adapted from Petit et al. (2026).



Figure 29 Several *Dermechinus horridus* potentially feeding on a bamboo coral (Keratoisididae branched) near a trawled area at 490 m depth in the Juan Fernández ridge. Credits: Schmidt Ocean Institute/ESMOI. Adapted from Petit et al. (2026).

Undersea features in both the Salas y Gómez Ridge and the southern portion of Nazca Ridge were trawled for orange roughy and alfonsino more than 26 years ago (Figure 30). Evidences of this past activity were recorded during the Falkor *too* expeditions in 2024 (Figure 31).

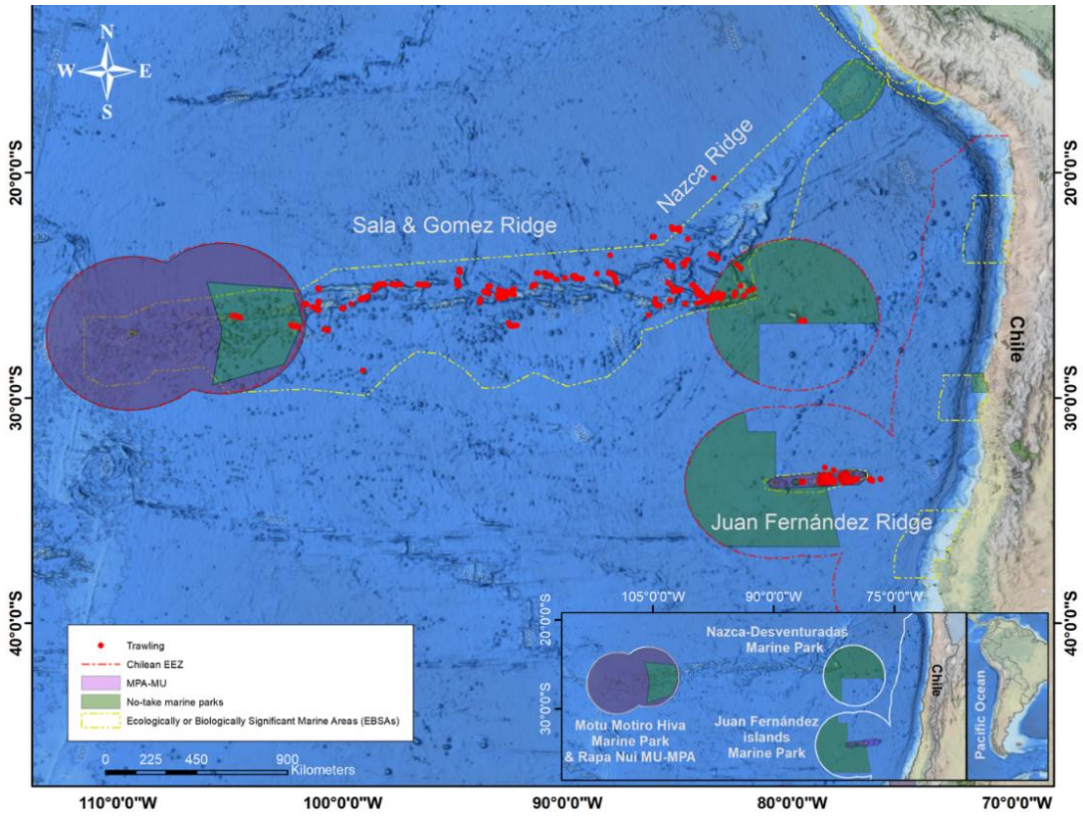


Figure 30 Trawled spots in the Salas y Gómez and Nazca ridges more than 26 years ago. Source: Captain A. Smith, personal record.



Figure 31 Lost fishing gear in a trawled area from the Nazca Ridge, as recorded by a Falkor too expedition in 2024. Credits: Schmidt Ocean Institute/ESMOI.

Another benthic fishing method used in the Salas y Gómez and Nazca Ridges Area is crustacean fishing traps, which primarily target the jagged lobster (*Projasus bahamondei*) along the Nazca Ridge (Arana, 2014). Trap fishing commonly involves setting multiple traps connected by groundlines, which can drag across the seafloor during deployment or retrieval, causing damage to benthic habitats dominated by habitat-forming species such as corals and sponges (Stevens, 2021). Lost or abandoned fishing gear (Figure 32) can further degrade these habitats, particularly when currents or storms move the gear across the seabed, extending its impacts over larger areas and longer time periods (Stevens, 2021). In addition, multiple vertical trap lines may cause the entanglement and death of pelagic fauna (e.g., marine mammals) (Hamilton & Baker, 2019).



Figure 32 Examples of lost crustaceans fishing traps found at 285-294 m depth within the high seas portion of the Nazca Ridge, as recorded during Falkor too expeditions in 2024. Credits: Schmidt Ocean Institute/ESMOI.

In 2025, as part of their trap and dropline exploratory fisheries, the Cook Islands undertook one trip that fished within the Salas y Gómez and Nazca Ridges area (SPRFMO, 2026b). The Cook Islands vessel fished in four discrete areas with droplines and one area with traps where 10 traps were deployed. The Cook Islands vessel found areas with high fish abundance on echo sounder surveys on seamounts within the Salas y Gómez and Nazca Ridges Area. These echo sounder marks matched those of hapuka in the Foundation Seamount Chain, but dropline fishing caught mostly unidentified sharks and dogfish

(all were released), as well as some terakihi. The Cook Islands vessel deployed 10 traps, but no target species were caught. On retrieval, 50% were empty, 20% contained non-target crabs which were released, and 30% contained sea urchins and/or starfish (all were released). In 2022 the Cook Islands vessel deployed traps in two other areas within the Salas y Gómez and Nazca area landing 140kg of golden crabs (*Chaceon* sp.) On both dropline and trap deployments no VME indicator taxa were accidentally caught.

Recommendations

The Salas y Gómez and Nazca Task Team (SGNTT) recommends that the Scientific Committee (SC):

1. Notes:

    - That the SGNTT have provided a compilation and review of available relevant scientific information and data about the Salas y Gómez and Nazca Ridges (SGN) area, as requested by the Commission in Decision 17-2024.

    - That the SGNTT have completed an assessment of the compiled available relevant scientific information and data against the SC's 2025 Evaluation Criteria as a basis for assessing possible measures for the SGN area.

2. Agrees:

    - That the SGNTT highlighted the critical importance of strengthening scientific data collection (including bycatch) within the SGN area, and encourages the SC to review whether current data reporting formats and collection standards are fully optimised in scale, resolution, and quality to support robust, ecosystem approach to fishing assessments.

    - That the compilation and review of available relevant scientific information and data presented by the SGNTT provides a sound basis for the SC to formulate advice to the Commission, as requested by the Commission in Decision 17-2024.

    - That the results of the SGNTT assessment of information against the Evaluation Criteria indicate that overall, the Evaluation Criteria for the SGN area have been met, and said assessment provides a sound, evidence-based basis for consideration of proposed measures.

    - The SC encourages members and CNCPs continue strengthening scientific data collection, observer coverage and/or electronic monitoring, bycatch reporting, habitat mapping, ecosystem monitoring, and research within and adjacent to the assessed area.

3. Recommends:

    - Given the multiple criteria met regarding benthic habitats within the SGN area, including occurrence of vulnerable marine ecosystems, their vulnerability to disturbance, and their ecological importance (criteria 1.a, 1.b, 2.a, 2.b, 3.1, 3.b, 4.a, 5.a, 7.b), and

    - given that bottom trawling and midwater trawling targeting bentho-pelagic species (e.g., alfonsino) are not currently permitted within the SGN area,

1. The SC recommends that SPRFMO not authorise bottom and midwater trawling (as defined in para 2.a and para 2.b of CMM03-2025, respectively) to fish in the SGN area until measures for the area are established.

- And given that other bottom-contact fishing activities (e.g., bottom longlining, potting) could present a risk of disturbance to those benthic habitats, and noting that the level of risk to benthic habitats from bottom longline and trap fisheries is yet to be fully evaluated in the SGN area.

2. The SC recommends that SPRFMO not authorise other new bottom-contact fishing methods to fish in the SGN area, with the exception of existing Cook Islands exploratory fisheries (CMM 14d and CMM 14g), including any possible renewals of these Cook Islands exploratory fisheries or their possible progression to established fisheries.

- And given that additional data collection and reporting of bycatch information within the SGN area could improve the assessment of current and future fishing impacts in the area,

3. The SC recommends that the Commission task the SC to periodically evaluate the monitoring information to assess the effectiveness of any measures developed for the SGN area and be used to inform future scientific advice to the Commission.

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Annex A – Evaluation Criteria for assessing spatial management proposals

Objectives

The objective/s for the area must be clearly stated and the proposal clearly demonstrates which of the criteria are met.

The proposal should state which of the evaluation criteria meet the objectives by completing the table below and noting that the evaluation criteria list has no particular ranking of importance.

Evaluation Criteria

1. Bioregional representation
    a. Area is known to contain unique, rare or distinct habitats or ecosystems that fishing operations will disturb.
    b. Areas with a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity.
2. Geographic and/or geomorphological representation
    a. The area provides for important or desirable geographic representation within the SPRFMO area.
    b. The area proposed is known to contain unique or unusual geomorphological features that fishing operations may damage.
3. Biodiversity representation
    a. The area is known to contain unique or rare (occurring in only a few locations) species, populations or communities.
    b. The area is known to contain a high diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.
    c. The area is known to contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.
4. Uniqueness and rarity
    a. The area warrants conservation and preservation due to their unique features, resources, and/or characteristics.
5. Vulnerability, fragility, sensitivity, or slow recovery/resilience
    a. Area contains either (i) unique (“the only one of its kind”), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.
6. Area is of special significance for threatened or important species and/or ecosystem properties
    a. There is evidence that the area is of special importance for life history stages of species and/or threatened species.

   b. There is evidence that the area contains habitat for the survival and recovery of endangered, threatened, declining species or is an area with significant assemblages of such species.

7. VMEs are known to occur and/or triggering of VME indicator taxa thresholds reported for the area proposed

   a. Known or consistent triggering of VME indicator thresholds occurs.

   b. VMEs have been observed through non-fishing operations.

8. Cultural Significance

   a. The area has an exceptionally rich and long history and cultural significance

9. Scientific interest

The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SPRFMO region.

Annex B – Summary of available information

Table 8 Summary of evidence provided to Members (ref. G24-2026) to complete the assessment against the Evaluation Criteria (Annex A). Throughout the summary table, references to the "area" refer to the entire area of the 'Salas y Gómez and Nazca Ridges'. Acknowledging that there are multiple nomenclatures for both ridges which may have arisen from differences in language, culture and/or history, for simplicity purposes the summary document refers to the 'Salas y Gómez Ridge' and the 'Nazca Ridge' individually, where needed.

Criteria	Summary
1. Bioregional Representation	a. Area is known to contain unique, rare or distinct habitats or ecosystems that fishing operations will disturb. Vulnerable Marine Ecosystems (VMEs), including structurally complex deep-sea corals and sponges, which have been documented at multiple surveyed sites within the area (Georgian et al., 2021) are globally rare and highly susceptible to physical disturbance (Wagner et al., 2021; Gaymer et al., 2025). b. Areas with a comparatively higher degree of naturalness due to zero or a low level of human-induced disturbance or degradation from, for example, historical fishing activity Large portions of the area remain relatively undisturbed by historical fishing, retaining intact benthic communities, high predator diversity, with ongoing discoveries of suspected new species indicative of high ecological integrity (Wagner et al., 2021; Easton et al., 2024; Sellanes et al., 2024; Petit et al., in review).
2. Geographic and Geomorphological Representation	a. The area provides for important or desirable geographic representation within the SPRFMO area. The region comprises two interconnected but distinct geomorphological and oceanographic systems: the Salas y Gómez Ridge and the Nazca Ridge, the latter having been classified as an oceanic plateau (Harris et al., 2014; Harris et al., 2023) in which morphologies corresponding to a contourite drift system have developed (Calvès et al., 2021). While both ridges exhibit physical continuity, the Nazca Ridge follows a northeast-southwest orientation extending over 1,200 km from the Peru-Chile trench off the coast of Peru, whereas the Salas y Gómez Ridge is a longitudinal ridge approximately extending 1,600 km from the East Pacific Rise to the Nazca Ridge (Woods & Okal, 1994; Gaymer et al., 2025; SPRFMO SC12-Doc 37). Both ridges are likely to encompass distinct oceanographic and ecological conditions, spanning multiple oceanographic and biogeographic zones, but together they can be considered a biogeographical area more closely related to the Indo-West Pacific than to the eastern Pacific (Parin et al., 1997). b. The area proposed is known to contain unique or unusual geomorphological features that fishing operations may damage The area is characterised by a high concentration of geomorphological features

	including more than 110 seamounts and guyots within a relatively small region, (94% of the Southeast Pacific and 11% of the Pacific Ocean (Kitchingman et al., 2008)), with summits ranging from 150m to 1,000m below the surface. This density of seamounts is significant (Harris et al., 2014) and contributes to the areas distinctive bathymetric profile, with depths ranging from >4,000 m to ~20 m below the surface (mean ~2,100 m) (Gálvez-Larach, 2009; Wagner et al., 2021; Gaymer et al., 2025). The area is under the influence of the oceanic section of the Humboldt Current, characterised by cold subsurface waters, low levels of oxygen and high nutrient content. Additionally, the Nazca Ridge is influenced by the Peruvian upwelling system and an oxygen minimum zone approximately 700 m thick (SPRFMO SC13-SGN01_rev1; SPRFMO SC12-Doc 37; Graco et al., 2007), making it act as a primary sink for energy and particulate organic carbon via the propagation of mesoscale eddies by trapping the upwelling waters (SPRFMO SC13-SGN01_rev1; SPRFMO SC13-ECO04). The combination of extreme depth gradients and distribution of underwater topographic features make the area unique and particularly vulnerable to threats, including those posed by fishing operations (particularly those that can significantly impact the benthos).

3. Biodiversity Representation	a. The area is known to contain unique or rare (occurring in only a few locations) species, populations or communities. Gaymer et al. (2025) reported the deepest known light-dependent coral and algal communities (>300 m), occurring on the seafloor of Salas y Gómez Ridge, enabled by exceptional water clarity, representing globally rare ecological formations. Past deep-sea surveys of seamounts across the area have documented species that are new to science (Wagner et al., 2024 and references in therein). Additionally, preliminary post-cruise reports from recent expeditions conducted along the Salas y Gómez Ridge, including areas adjacent to the Desventuradas Islands, have identified several taxa suspected to be new to science (Easton et al., 2024; Sellanes et al., 2024; Schmidt Ocean Institute, 2024). b. The area is known to contain a high diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity. The area supports highly diverse ecosystems, including seamount-associated pelagic and benthic habitats. Predictions of suitable habitat for vulnerable marine ecosystems indicator taxa such as sponges and stony corals indicate greatest occurrence on prominent features such as seamounts, guyots, ridges, and escarpments along the area (Georgian et al., 2021). The Nazca Ridge and the eastern end of Salas y Gómez Ridge are considered to be a nursery area for swordfish (Yañez et al., 2004, 2006). Nursery areas for sharks have been identified in the western Salas y Gómez Ridge, and recruitment areas for Chilean jack mackerel have been determined based on the observed latitudinal gradient in size composition (Arcos, 2001) with further scientific publications superimposing these biological data onto the area (Gaymer et al., 2025; Wagner et al., 2021). c. The area is known to contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery The seamounts found within the area support a high proportion of sensitive deep-sea corals, gorgonians, and sponge dominated communities, as well as associated species that form structurally complex habitats characteristic of Vulnerable Marine Ecosystems (VMEs). These benthic habitats, communities and species are functionally fragile, highly susceptible to disturbance from human activities, often millenary in age, and exhibit low recovery rates (Gaymer et al., 2025; Wagner et al., 2021).
4. Uniqueness and Rarity	a. The area warrants conservation and preservation due to their unique features, resources, and/or characteristics. The area harbours unique and rare species (Gaymer et al. 2025; Sellanes et al., 2024). Regional endemism estimates for fish and invertebrates range from 40% to 46.3% (Chavez-Molina et al., 2023), although these rates have not been validated for the Nazca Ridge and are based on previous surveys spatially biased towards the western part of the Salas y Gómez Ridge (Parin et al., 1991; Wagner et al., 2021). Previous

	studies, primarily around the Desventuradas Islands, have documented one of the highest levels of marine endemism on our planet (Friedlander et al., 2016; Sellanes et al., 2019). The western part of the Salas y Gómez Ridge is located near the centre of the South Pacific Gyre, a large-scale oceanographic feature characterised by extremely nutrient-poor waters, which creates unique conditions for species living here (e.g. enabling the presence of the deepest known light-dependent coral and alga communities (see Section 3a) (Gaymer et al. 2025). The eastern end of the Nazca Ridge acts as a primary sink for energy and particulate organic carbon exported from coastal upwelling via mesoscale eddies, exhibiting significant seasonal productivity which differs from the oligotrophic conditions of the central gyre (SPRFMO SC13-SGN01; SPRFMO SC12-Doc37).
5. Vulnerability, Fragility, Sensitivity, or Slow Recovery/Resilience	a. Area contains either (i) unique ("the only one of its kind"), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features. Unique and endemic species and communities, rare and distinct seamount and coral ecosystems, and unusual geomorphological and oceanographic features, have been observed in surveyed sites across the area (Gaymer et al., 2025). Oceanic seamounts and coral ecosystems, found throughout Areas Beyond National Jurisdiction (ABNJ), are considered among the most fragile environments to anthropogenic activities and climate change (Friedlander et al., 2021). Surveyed seamounts in the area are dominated by long-lived species, particularly deep-sea corals and sponges. These organisms are fragile, vulnerable to disturbances, and very slow to recover (Gaymer et al. 2025). These characteristics are further supported by documented high endemism (Section 4a), unique and rare ecosystems (Section 3a), and distinctive geomorphological and oceanographic features (Sections 2b and 4a).
6. Area is of Special Significance for Threatened or Important Species or Ecosystem Properties	a. There is evidence that the area is of special importance for life history stages of species and/or threatened species. The area hosts several sessile and low mobility taxa, including at least 16 species of corals and one species of sea cucumber. Species classified as endangered, near threatened, or vulnerable have been observed in the area, and include 25 species of sharks and rays, 21 species of birds (some of which breed at the neighbouring islands scattered around the different archipelagos present in the area), 7 species of marine mammals, 7 species of bony fishes and 5 species of marine turtles (Wagner et at., 2021; Gaymer et al., 2025). However, there is not enough evidence to assert that the area is of special importance for the life-history stages of most of these species. The area has received several international recognitions regarding their importance to threatened species and to the critical ecosystem functions they indirectly provide (Wagner et al., 2021), including being designated as an Ecologically or Biologically Significant Area (EBSA) under the Convention on Biological Diversity (CBD) (Gálvez-Larach, 2012). The designation reflects rates of high endemism in some parts of the

	area (Parin, 1991), unique seamount and deep vulnerable marine ecosystems susceptible to physical disturbance, and likely routes for pelagic species (including shark, marine turtles and cetaceans) (CBD, 2020). b. There is evidence that the area contains habitat for the survival and recovery of endangered, threatened, declining species or is an area with significant assemblages of such species. The structural complexity provided by the seamounts and associated algal and coral communities referenced in Section 3(c) constitutes essential habitat for diverse benthic assemblages, including deep-sea corals, gorgonians, and sponge-dominated communities characteristic of vulnerable marine ecosystems (Nat. Geo. & Oceana, 2013).
7. VMEs are Known to Occur and/or Triggering of VME Indicator Thresholds Reported for the Area Proposed	a. Known or consistent triggering of VME indicator thresholds occurs. Scientific expeditions have shown that the Area host multiple VME indicator taxa, including deep-sea corals such as *Lophelia pertusa*, *Solenosmilia variabilis*, antipatharians (black corals), stylasterid hydrocorals, and large hexactinellid sponges, which meet FAO Deep-sea Fisheries Guidelines VME criteria for structurally complex and fragile benthic communities (FAO, 2009; SPRFMO CMM03-2025 Annex 5). VME indicator taxa has been caught in the past by bottom trawl, but bottom fishing measures in SPRFMO, including the encounter protocol and the move-on rule, were introduced after bottom and mid-water trawling for bentho-pelagic species stopped in this area. b. VMEs have been observed through non-fishing operations Scientific expeditions using ROVs and other non-fishing survey methods have directly observed structurally complex deep-sea coral, gorgonian, and sponge assemblages characteristic of VMEs across the area (Easton et al., 2024; Sellanes et al., 2024; Schmidt Ocean Institute, 2024; Gaymer et al. 2025).
8. Cultural Significance	a. The area has an exceptionally rich and long history and cultural significance The area has an exceptionally rich and long history of seafaring and cultural significance. These ridges have been key for voyaging, fishing and transportation of commodities. The Salas y Gómez Ridge is culturally significant to the Rapanui people, forming part of their ancestral seascape and traditional voyaging routes (~1000 years ago). Genetic and botanical evidence (specifically the dispersal of the sweet potato, *Ipomoea batatas*) suggests that these maritime corridors allowed prehistoric contact between Polynesians and Amerindians predating the arrival of Europeans in the area (Delgado et al., 2022; Gaymer et al. 2025).
9. Scientific Interest	a. The area has scientific research interest associated with understanding ecosystem, biological, geological and biodiversity processes in the SPRFMO region Seamounts along the area host highly distinct, endemic communities with species new to science, making the region a key system for studying speciation, connectivity, and deep-sea biodiversity processes (Wagner et al., 2021; SPRFMO SC13-SGN 01_rev1; Gaymer et al., 2025). Large un-surveyed areas and documented discovery

	potential further reinforce its importance for advancing ecological research in the SPRFMO region (Wagner et al., 2021; Gaymer et al., 2025).

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Annex C – Salas y Gómez and Nazca Ridges area

Table D1 List of coordinates for each of the points depicted in Figure 1, demarcating the Salas y Gómez and Nazca Ridges area referred to in this report.

Point	Longitude	Latitude
1	-101.933915	-25.211512
2	-100.384911	-24.277359
3	-85.748889	-23.171855
4	-78.789679	-16.534979
5	-77.574806	-17.807870
6	-79.326597	-19.471695
7	-80.166460	-22.940783
8	-81.624576	-23.242129
9	-82.896111	-24.104733
10	-83.816938	-26.088117
11	-85.244218	-26.471023
12	-86.687409	-27.001524
13	-87.628621	-28.593028
14	-88.263112	-29.069173
15	-90.027482	-29.484802
16	-91.453560	-28.857328
17	-92.794074	-29.541845
18	-93.792329	-29.570367
19	-95.702721	-28.009486
20	-96.727198	-27.944638
21	-98.923359	-29.884104
22	-101.657308	-29.590651
23	-104.719284	-29.771170
24	-102.161216	-28.215516
25	-101.642708	-26.434649

SC14 Meeting Report
Annex 21: Proposed Objectives for the Salas y Gomez and Nazca Ridges area

Overall Objective:

The overall objective of the SPRFMO Salas y Gómez and Nazca Task Team is to assess and advice the Scientific Committee on the proposals for possible measures for the Salas y Gómez and Nazca Ridges area (hereafter referred to as the 'area') and whether they are adequate to preserve marine biodiversity, vulnerable marine ecosystems, and ecosystem structure and function in the area, while ensuring the long-term conservation and sustainable use of fishery resources, consistent with the objectives of the SPRFMO Convention.

Objective 1 - Biodiversity and Ecosystem Conservation

To identify and assess whether any proposed measures would effectively maintain and enhance the biodiversity, ecosystem integrity, and ecological processes of the area, including:

- Protection of endemic species, populations, communities, and ecosystems.
- Maintaining ecosystem structure and function across pelagic, mesopelagic, and benthic zones.
- Protection of unique oceanographic and geomorphological features/processes found in the area that support productivity and biodiversity.
- Maintenance of scientifically validated ecological connectivity throughout the area.

Objective 2 - Conservation of fishery resources in the area

To identify and assess whether any proposed measures effectively maintain and enhance the productivity of fish stocks, and essential biological processes under an ecosystem approach to fisheries management within the area, including:

- Protection of important biological and ecological processes such as reproduction and recruitment that are important in the area.

Objective 3 - Protection of vulnerable marine ecosystems

To determine whether any proposed measures prevent significant adverse impacts on vulnerable marine ecosystems (VMEs), consistent with CMM 03 and the FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas, by:

- Avoiding excessive physical disturbance to seamounts which host deep-sea VME indicator taxa communities (e.g., deep-sea corals and sponges) which may result in significant adverse impacts.
- Incorporating precautionary protection for VMEs.
- Ensuring long-term persistence of slow-growing, fragile, and functionally important benthic species.

Objective 4 - Protection of Endangered and Threatened Species

To assess whether any proposed measures support the survival, recovery, and ecological function of threatened and endangered species, including:

- endangered, near threatened, or vulnerable species, for which the area has been scientifically documented as critical habitat (demonstrated functional ecological dependence).
- Protection of critical habitats those waters and substrates are necessary for spawning, breeding, or growth to maturity.

Objective 5 - Support the application of an ecosystem approach to fisheries management and ecosystem protection

To evaluate whether any proposed measures are consistent with the precautionary approach and ecosystem approaches to fisheries management, ensuring that:

- Vulnerability to physical disturbance and slow recovery of benthic communities is appropriately addressed.
- Potential cumulative impacts from fishing, climate change, marine debris, and other cross-sectoral pressures are included.

Objective 6 - Compatibility and connectivity with National Conservation Measures

To assess whether the proposed measures ensure compatibility with national measures adopted by Chile and Peru in adjacent waters within their respective national jurisdictions, and do not undermine the effectiveness of existing conservation and management measures established by the aforementioned members, in accordance with Article 4 of the Convention.

Objective 7 – Sustainable Use

To ensure that utilisation of fishery resources within the area is done in a sustainable manner.

SC14 Meeting Report
Annex 22: Terms of Reference for the Salas y Gomez and Nazca Task Team

Summary

At its 2024 annual meeting, the Commission adopted Decision 17-2024 that tasked the Scientific Committee (SC) to include Salas y Gómez and Nazca Ridges as an agenda item for its meeting in 2024 and annually thereafter. Within this agenda item, the SC — taking into consideration its priorities and available resources during its first year — will compile and review all relevant scientific information and data about the area and recommend possible measures to the Commission at its following regular meeting, based on an ecosystem-based approach that aims at preserving its biodiversity and SPRFMO fishing resources as well as a sustainable use of marine resources.

The Multi Annual Workplan of the SC considers the Salas y Gomez and Nazca Ridges as a cross-cutting task. In line with that tasking and to support the effective and efficient preparation of scientific advice for the Commission, the SC agreed to create a Salas y Gómez and Nazca Ridges Task Team with these terms of reference.

Terms of Reference

a. Objective

The objective of the Task Team, in line with Decision 17-2024, shall be to continue to review relevant scientific information and data about the area, including relevant information provided by Members and Observers, and to provide advice to the SC possible measures based on the ecosystem approach that aims at preserving the biodiversity in the Salas y Gomez and Nazca Ridges and SPRFMO fishing resources, as well as sustainable use of marine resources.

All activities carried out by the Task Team will refer to the Area of Application of the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean, as specified in its Article 5.

b. Structure

The Task Team is open to all interested Members, CNCPs and observers who may nominate one or more suitably qualified representatives to the Secretariat before 15 November on an annual basis.

Ideally, all meetings should allow the virtual participation so as not to unfairly discriminate against small delegations with limited ability to travel. In addition, the meeting calendar of this Task team shall consider the overlap with other RFMOs meeting dates to avoid clashes with SIOFA and WCPFC meetings, or any other relevant RFMOs.

c. Responsibilities

1) Complements the information previously presented to the SC14 (SC14-WP03) that reviews and summarises relevant scientific information relating to the Salas y Gomez and Nazca Ridges (here after called “area”), including:
    a. geological, oceanographic, biogeochemical (including carbon exportation), biodiversity, ecology, cultural, connectivity, potential bentho-pelagic coupling and conservation information.
    b. data regarding SPRFMO’s benthic and pelagic resources fished within the area, as well as possible threats to those resources and the marine ecosystems in which they occur
    c. current levels of fishing effort by gear including fishing activities from the most recent year and its possible impacts within the area
    d. cross-sectoral pressures and impacts identified in the SC12- Doc 36;

2) Provide possible measures based on the ecosystem approach that aims at preserving the biodiversity in the Salas y Gomez and Nazca Ridges and SPRFMO fishing resources, and based on identified causal risks, for the SC to consider; and

3) Propose a monitoring and evaluation scheme for future work:

a. Propose a monitoring and evaluation scheme for any proposed measure.

a. Chile's opening statement

Mr. Chair, Dr. Ricardo Oliveros-Ramos, distinguished Heads of Delegation, esteemed scientific colleagues, and members of the Secretariat:

Chile opens its participation in the fourteenth meeting of the Scientific Committee of the South Pacific Regional Fisheries Management Organisation by reaffirming its firm commitment to the management of straddling fish stocks in the South Pacific, grounded in the best available scientific evidence and in strict adherence to the Convention. Our agenda in Tórshavn addresses technical challenges of principal importance for the governance of our resources:

1. Following the roadmap to finalize the Jack Mackerel (Trachurus murphyi) Management Strategy Evaluation (MSE), adopted by the Commission in Panama, and building upon the outcomes of the SC17 workshop that evaluated candidate management procedures, it is now incumbent upon us to resolve the outstanding issues and finalize the recommended procedure for consideration by the Commission at its upcoming meeting in Brussels (2027).

2. It is essential to consolidate progress on the stock assessment for Jumbo Flying Squid (Dosidicus gigas) to deliver a robust diagnosis following this meeting, thereby strengthening management measures and ensuring the long-term sustainability of this fishery.

3. We must advance the criteria for transitioning exploratory fisheries to established fisheries, validate protection indicators for Vulnerable Marine Ecosystems (VMEs), and maintain continuity in the scientific characterization supporting the protection initiative for the Salas, Gómez and Nazca ridges.

However, the achievement of these objectives rests upon an indispensable pillar: multilateral scientific cooperation within a strictly technical forum such as this Committee. In this regard, irrespective of Chile´s position regarding the war between Russia and Ukraine, as expressed in others international meetings, our delegation emphasizes that scientific cooperation must be safeguarded above geopolitical circumstances, ensuring the technical rigor of data and the full participation of all members and Cooperating Non-Contracting parties (CNCP). The non-participation of a member actively fishing in the Convention Area—and which provides core data and key assessment models for Jack Mackerel and other species—undermines the quality of technical deliberations and creates data gaps that compromise the robustness of the scientific advice this Committee is mandated to submit to the Commission. Consequently, Chile calls for a practical solution to be found for this situation and invites the European Union to extend its good offices to this end.

Thank you very much.

b. Chile's statement on the 2026 status of Jack Mackerel

Chile express its disagreement with the 2026 stock status presented to SC14, particularly regarding the substantial change in stock perception: moving from a resource considered fully recovered and located in the green zone of the Kobe plot, to one whose trajectory is now estimated to drop within the red or yellow zones of the Kobe plot, depending on the BRP used.

For more than 10 years, successive assessments indicated a sustained recovery of the jack mackerel stock, from the historically low levels observed during 2010–2012, eventually reaching a consolidated status within the green zone.

In Chile's view, this new perception arises primarily from modifications in key input information introduced during the 2026 benchmark process, during which substantial effort was also directed toward developing an operating model for the Management Strategy Evaluation (MSE).

Given the limited time available and the intensity of the work undertaken during the 2026 Benchmark Workshop, additional review is required before such a drastic change in stock perception is consolidated. Consistent with best benchmark practices, it is advisable to incorporate independent external expert review to help resolve outstanding methodological questions, particularly those associated with shifts in input data, their relative weighting, and their influence on model fit and estimated stock status.

Specifically, further review should address:

The influence of the Peruvian abundance indices, including the transition from one standardized CPUE series to two separate nominal CPUE series for the artisanal and industrial fleets, and the consequences of these changes for model fit and stock trajectory.

The effect of the criterion used to introduce temporal variability through year blocks in the selectivity pattern of the northern Chile acoustic survey, and its subsequent influence on the historical and terminal biomass trajectories.

The appropriate balance among goodness-of-fit, model parsimony, stability, and biological plausibility, especially when alternative configurations lead to substantially different perceptions of stock status.

When a new model configuration produces a major revision of the historical biomass trajectory and substantially changes the estimated stock status, such a result warrants careful, comprehensive review before being adopted as the basis for management advice.

For these reasons, Chile recommends maintaining the stock status reported by SC13 for 2026, while undertaking a more comprehensive review of the stock status presented to SC14 and of the methodological changes driving the revised stock perception.

c. European Union's statement on the jack mackerel benchmark

Periodic benchmark review is a routine, necessary feature of stock assessment in every major international fisheries body: used precisely to ensure that model assumptions and data inputs reflect the best available science. Jack mackerel underwent exactly this process in 2026, in order to ensure the operating model defining population dynamics reflects current knowledge. This stock assessment is the basis on which the MSE and candidate MPs were tested for long-term management, with its associated risks and trade-offs properly characterized. A benchmark producing a materially different picture of the stock is evidence the process is working, not evidence that it should be discounted.

Revising input data is itself standard scientific practice. As methodologies improve, as our understanding of how data were collected deepens, and as reporting requirements change over time, historical data series are routinely revised, and this is true of every long-running stock assessment. This is not unique to jack mackerel: ICES benchmarks have produced comparably large revisions to stock status for other major stocks, including Northeast Atlantic mackerel, Western Baltic spring-spawning herring, and blue whiting underscoring that a revision of this scale, while significant, is a normal outcome of rigorous reassessment rather than a signal of a flawed process.

On the numbers themselves. The benchmark revised the terminal-year(-comparable) spawning stock biomass downward by 60%: from approximately 15.2 million tonnes in the SC13-adopted assessment to approximately 6.0 million tonnes in this year's model, compared at the same reference year. Of that total revision, roughly 91% originates in the benchmark itself and only about 9% (−803 kt) from this year's routine SC14 update cycle, which includes the addition of the 2026 data year exactly as has been done in every previous cycle.

Within the benchmark, the changes were not uniformly downward, and their individual scale. The downward revision came from three data sources, mainly data drive from data provided from Peru and Chile, in total 10.4 million tonnes. The remaining benchmark steps, taken together, added back roughly 2.1 million tonnes.

We would also highlight that the fisheries independent survey used in this assessment, the Chile Acoustic-North survey's showed in the SC13 model diagnostics that was the main driver for the increase in biomass. This survey is limited in time and space and, as the current assessment diagnostics show, has tracked different components of the population inconsistently across years; its treatment deserves continued attention, but that is an argument for refining it further, not for disregarding the benchmark that identified the issue or stopping a valuable independent survey.

It is very important that the scientific process must not be prejudged by a preferred outcome. Selecting or rejecting a model configuration based on which stock status it implies, would compromise the integrity of the assessment process. It is also difficult to reconcile accepting the SC14 model as the best available representation of stock dynamics in the MSE, while simultaneously declining to use it as the basis for management advice to the Commission. A model cannot simultaneously be the best available science and not fit for the purpose that science exists to serve.

The EU agrees that independent external review is valuable and should be a routine feature of the benchmark process. We note, however, that ample opportunity existed to request it, from the benchmark workshop in May 2025 through to the present SC meeting, and no such request was made during that window. The EU would have supported it. We would welcome building a standing external review step into future benchmarks, but that is a procedural improvement for next time, not grounds for setting aside the results of this one.

d. Ecuador's statement on jack mackerel *status quo*

Ecuador supports the continuation of the current management framework for jack mackerel during the next annual cycle, 2027. This position involves provisionally maintaining the quantitative parameters and allocation key of CMM 01-2026 (TAC), pending the implementation of the Management Strategy Evaluation (MSE) plan, which should provide the recommendation for 2028. We must consider the performance of the current year, 2026, in which we began with low catches; however, from the second half of the year onward, catches increased significantly.

e. Ecuador's statement on precautionary measures for jumbo flying squid

Considering that the Scientific Committee has not formulated explicit recommendations on precautionary measures applicable to the jumbo flying squid (Dosidicus gigas) fishery in the South Pacific; that the Working Group examined different management options and requested Members to submit duly substantiated proposals; and that, in response to that request, Ecuador submitted two proposals for precautionary measures to be applied in 2027, which have not been reflected in the report, the Delegation of Ecuador requests that the following measures suggested to the Scientific Committee be placed on record:

- Precautionary catch limit. Ecuador proposed recommending that the Commission consider establishing a precautionary catch limit for jumbo flying squid in the high seas portion of the Convention Area. The initial limit would be based on the maximum annual catch recorded in that area during the ten-year period from 2016 to 2025, covering all fishing gear types and expressed in live weight, which amounts to 520,407 tonnes.

- This level is proposed as an initial available ceiling of a provisional, precautionary and reviewable nature, intended to prevent uncontrolled growth in catches.

- Precautionary regulation of fishing effort. As a second option, Ecuador proposed establishing the catch limit together with a regulation of fishing effort. Under this measure, fishing days would be reduced to 70% of the average annual number of fishing days per operational vessel recorded during the preceding five years.

Both proposals should apply specifically to fishing activities conducted in the high seas portion of the Convention Area and without prejudice to the sovereign rights of coastal States over the resources within areas under their national jurisdiction.

Ecuador considers that maintaining the status quo does not constitute a sufficient precautionary response, as it allows catches and fishing effort to continue increasing without effective limits. Existing scientific uncertainty should not be used as a basis for postponing the adoption of measures intended to contain the growth of the fishery and reduce risks to the sustainability of the resource.

The Delegation of Ecuador requests that this statement and the proposed measures be included as an annex to the report of the Scientific Committee so that they may be formally transmitted to the Commission for its consideration.

f. China's statement on precautionary management advice for jumbo flying squid

China deems it appropriate to note the following:

China prefers to maintain the status quo rather than introduce additional measures, such as catch or effort limits, in the precautionary management advice on jumbo flying squid to be submitted to the Commission for consideration. China considers that the main participants in the jumbo flying squid fishery, including both coastal and high-seas Members, have already implemented a range of precautionary management measures, including catch limits[i] and seasonal closures, to support the long-term sustainable utilization of jumbo flying squid in the Southeast Pacific.

With regard to catch limits, China noted that catch limit advice is generally based on stock assessment results, with robust scientific evidence providing the basis for management advice. The SC is making significant progress in advancing the stock assessment work, China considers that it would be appropriate to allow the ongoing scientific work to further develop before considering a specific catch limit.

With regard to reducing fishing effort, China noted that the Commission adopted CMM 18-2026 last year, resulting in a 15% reduction in the number of registered vessels. China considers that the implementation and effects of this measure should be duly taken into account when considering any further effort-related measures. In this context, it is also important to take into account differences among Members in terms of fleet capacity and actual fishing activity, including the circumstances of Members with relatively few registered vessels and limited fishing days.

China noted that considerable uncertainty remains regarding the future development and strength of El Niño conditions into 2027. Moreover, preliminary analysis of the relationship between CPUEs and the Niño 1+2 index does not provide consistent evidence of a general decline in jumbo flying squid abundance associated with stronger El Niño conditions.

In this regard, China considers that any additional precautionary measures should be based on the best available scientific evidence, taking into account the measures already in place and the uncertainties surrounding future environmental conditions.

[1] Chile and Peru have implemented catch limits in their respective national jurisdictional waters for many years. China launched a pilot implementation of catch limits in the high seas of the Southeast Pacific on 1 April 2026. A catch quota of 281,000 tonnes was established for the period from April to September. For the period from October to December, the catch quota will be adjusted, taking due consideration of quota uptake, stock status, and environmental conditions.

g. Chile's statement on compatibility of measures for straddling jack mackerel – Minimum size and implementation in SPRFMO

Reports submitted to the SPRFMO Scientific Committee indicate additional challenges: some Members' fleets have been fishing on high seas areas adjacent to areas well-known as recurring juvenile jack mackerel grounds at sizes well below the minimum legal limits enforced by adjacent coastal states, Chile and Peru, in their jurisdictional waters. A similar situation has been documented in high seas areas near the Chilean oceanic islands known as "La Bota".

Under this scenario, significant catches of the juvenile fraction of the jack mackerel stock occur on the high seas without any minimum size requirement. This creates a severe regulatory asymmetry, as minimum sizes are strictly required in the jurisdictional waters of Chile and Peru, directly compromising resource sustainability, recruitment, and productivity while driving growth overfishing.

Regulatory asymmetry is relevant to this Scientific Committe because the disparity of measures within and beyond national jurisdictions, when catches below minimum sizes occur, creates distortions in the fishing mortality and recruitment projections and leads to growth overfishing, while it undermines national scientific and conservation efforts made by coastal countries.

Such disparity contradicts the foundational principles agreed upon by SPRFMO members. The 2012 SPRFMO Convention reaffirms in its Article 4 the Principle of Compatibility, which is also expressed in the Article 7 United Nations Fish Stocks Agreement (UNFSA), or simply the New York Agreement of 1995. Under such principle, SPRFMO Commission must avoid undermining existing coastal state measures, and ensure that the measures adopted by the Organization do not have a harmful effect on living marine resources in the SPRFMO area.

To prevent the ecological and economic damages, most global fisheries legislation, enforce complementary measures, such as minimum legal catch sizes and tolerance percentages. Biologically, these measures aim to:

Ensuring reproduction by allowing individuals of a species to reach sexual maturity. This involves capturing only specimens that have reached a size, in average, that guarantees the fish has reproduced at least once before being caught, thus allowing them to produce offspring.

Avoiding growth overfishing by limiting the capture of too many immature individuals, which prevents rapid population depletion by maintaining enough adults to complete the biological cycle and preserve the food chain balance. Growth overfishing drastically reduces both total reproductive biomass and fishery economic viability.

Securing the future of fishing by protecting the life cycle of fish, allowing populations to recover, safeguarding the recruitment of new generations for future seasons, thus ensuring long-term work and food for coastal communities.

Coastal SPRFMO members like Chile and Peru have long enforced standards on minimum size of jack mackerel and their respective tolerances.

In Chile, Decree No. 458 of 1981, issued by the Ministry of Economy, established a minimum catch size for the Chilean jack mackerel resource of 26 cm fork length (FL), reaffirmed in 2012, with a tolerance margin modified in 2020 to 25% per month, based on the critical size that maximizes weight yield. In Peru, Ministerial resolution No. 209-2001-PE set the minimum capture size at 31 cm total length (TL) with a maximum tolerance of 30%. According to SPRFMO conversion standards, 31 cm TL is roughly equivalent to 26 cm FL, meaning both regulations impose similar minimum requirements, differing only in their tolerance percentages.

While Chile implements good fishing practices protocols with “move on” rules, juvenile avoidance, and voluntary fleet moratoria to protect the stock, the lack of compatible measures with similar standards in high-seas areas heavily undermines such efforts.

Consequently, it is strongly recommended that the SPRFMO Scientific Committee analyze and establishes a minimum catch size and tolerance percentage for jack mackerel in the high seas that fully aligns with those enforced in the jurisdictional waters of coastal states, thereby controlling growth overfishing and contributing to restore true compatibility in the fishing activity.