



**Report of the Seventh Meeting of the
Scientific Committee of the
Southern Indian Ocean Fisheries Agreement
(SIOFA SC7)**

Held via Zoom Videoconferences on 21-25 March 2022

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Agenda item 1 – Opening

Agenda item 1.1 Opening statement

1. The seventh meeting of the SIOFA SC was opened by the Chair, Mr Alistair Dunn, at 6:00 am (UTC) on 21 March 2022.
2. The SC Chair welcomed the participants to the 7th meeting of the SIOFA SC, and also welcomed the Secretariat Science Officer, Dr. Marco Milardi, to SIOFA and to his first meeting of the SC.
3. The SC Chair noted that the Chairs of the scientific Working Groups had been very busy over the past year. A committee comprising the Secretariat, the SC Chair and Vice-Chair, and the Chairs of the science Working Groups had met regularly and had held more than 30 ‘Scientific Chair’ meetings to develop funding applications for future scientific work, and manage and monitor the scientific committee’s workplan that comprised over 50 ongoing projects and workstreams.
4. The SC Chair extended his thanks to the Secretariat, the SC Vice-Chair, and the Chairs of the PAEWG and SERAWG for their commitment and work over the past year to enable the successful delivery of the annual activities of the SC workplan.
5. The SC Chair noted that the new Science Officer position has already improved the ability of the Secretariat to deliver on the SC workplan but cautioned the SC that the scientific workload had increased, and that the SC will need to carefully prioritise its work over the coming year.

Agenda item 1.2 Introduction of participants

6. The list of registered participants is attached (**Annex A**).

Agenda item 2 – Administrative arrangements

Agenda item 2.1 Adoption of the agenda

7. The agenda was adopted (**Annex B**).

Agenda item 2.2 Confirmation of meeting documents

8. The table of meeting documents and related items (**Annex C**) was confirmed. A request was made that in future annual reports get designated an “AR” number to separate them from the working documents and that a zip drive be added to the meeting webpage to facilitate easy downloading of documents prior to the meeting.

Agenda item 2.3 Appointment of rapporteur

9. Mr Alexander Meyer (Urban Connections, Tokyo) was appointed to act as rapporteur, with assistance from delegations.

Agenda item 3 – Fisheries Reports

Agenda item 3.1. Discussion and questions for each CCP annual national report

10. Annual national reports were submitted by Australia, China, the Cook Islands, the European Union (EU), France (Overseas Territories), Japan, Korea, Seychelles,

Chinese Taipei, Thailand and Comoros. No annual national report was submitted by Mauritius.

Australia Annual National Report: SC-07-14 rev1

11. Australia presented its annual national report. The report provided an update on Australia's fishing activities in the SIOFA Area. Australian operators are currently authorised by the Australian Government to target various species with midwater trawl, demersal trawl, demersal line, and potting gears. Five trips were undertaken by four vessels using line, trawl, and pot fishing methods in 2021. Three vessels conducted line operations and recorded 109769 demersal longline hooks (100 sets). One vessel conducted potting and trawling operations and recorded 51 set pots and 1.5 hours' midwater trawling. Most of the catch was comprised of *Polyprion* species. All catch and effort data for fishing operations during 2021 will be submitted to SIOFA in accordance with Conservation and Management Measure (CMM) 2021/02 (Data Standards). All data presented in this report comply with Australia's domestic policy associated with the dissemination of fisheries data and this report does not disclose any non-public domain data within the meaning of SIOFA CMM 2016/03 (Data Confidentiality).
12. The SC clarified that the lobster pot fishery falls under the competence of SIOFA (as crustaceans) when in the SIOFA Area.

China Annual National Report: SC-07-11

13. China presented its annual national report. In the SIOFA Area, China operated three different types of fisheries intermittently from 2000 to 2017: Light seining targeting mackerel and *Bramidae* family, bottom longlining targeting ruby snapper etc., and demersal trawling targeting dories and orange roughy. Since 2018, China has not operated any SIOFA fisheries. Based on accumulated data and statistics, the report summarised fishing activities by Chinese-flagged vessels not targeting highly migratory fish stocks in the SIOFA Area. It noted that China has been authorising squid jigging since 2003 in the Indian Ocean, but there have been no squid jigging vessels fishing in the SIOFA Area. Hence squid jigging was not included in the report. Since 2019, China has been a Contracting Party to SIOFA.

The Cook Islands Annual National Report: SC-07-17

14. The Cook Islands presented its annual national report. In 2021 the Cook Islands authorised two vessels to fish in the SIOFA Area. These vessels targeted deepwater finfish species, primarily alfonsino (*Beryx splendens*) and orange roughy (*Hoplostethus atlanticus*) using bottom and midwater trawls. The report noted the catch and effort data, fisheries data collection, research activities, vulnerable marine ecosystem (VME) thresholds for bottom fishing activities, biological sampling and length/age composition of catches, the observer programme, the port sampling and inspection programme, the vessel monitoring system, and interactions with sharks. Appendices were also provided on the translation between Cook Islands and FAO species codes, and a list of the Benthic Protected Areas (BPAs) closed to Cook Island flagged vessels was provided.

EU Annual National Report: SC-07-16

15. The EU presented its annual national report. The report presented an overview of the fishery data available from the EU fleet operating in the SIOFA Area, and updated previous reports to the end of 2021. Information about catch, bycatch, catch per unit effort (CPUE), fishing footprint, data collection, VME, biological sampling and other data of interest were included. The report noted that the EU would submit all catch and effort data for fishing operations during 2021 to SIOFA in accordance with CMM 2021/02 (Data Standards). One active EU bottom longline vessel flagged to Spain conducted operations in three fishing grounds, namely Walter Shoals (Subarea 2),

Southwest Indian Ridge (Subarea 3b and 3a) and more recently in the SE Indian Ocean (Subarea 7). No VME indicator thresholds were triggered during 2021.

France (Overseas Territories) Annual National Report: SC-07-12

16. France (Overseas Territories) presented its annual national report. The report summarised and updated fishing activity by France for French Overseas Territories-flagged vessels in the SIOFA Area for 2021. The fishing activity was very low in 2021, with only one longline vessel being operated in the SIOFA Area during two trips for a total of 12 days. All catch and effort data for fishing operations during 2021 will be submitted to SIOFA in accordance with CMM 2021/02 (Data Standards). No VME indicator thresholds were triggered during 2021. The document also provided an overview of the French (Overseas Territories) observer program implemented on the bottom longline fishery. The observer coverage was 100%, meaning that observers were on board vessels for every fishing event. Data (including both from observer and skipper) were entered daily in an electronic logbook and their consistency was checked on a daily basis by observers at sea and on a weekly basis by the French Muséum National d'Histoire Naturelle (MNHN).

Japan Annual National Report: SC-07-13 rev1

17. Japan presented its annual national report. The report described Japan's fisheries; catch, effort and CPUE; fisheries data collection and research activities; VME interactions; biological sampling and length/age composition of catches; data verification mechanisms; and the observer program. In the SIOFA Area, Japan has operated two different types of fisheries discontinuously for 46 years (1977-2021). These were trawl fisheries targeting splendid alfonsino and bottom longline fisheries targeting Patagonian toothfish. Based on available information, the report described the information for trawl and bottom longline fisheries respectively, highlighting the most recent seven years (2015-2021).

Korea Annual National Report: SC-07-19

18. Korea presented its annual national report. There were no Korean flagged vessels fishing in the SIOFA Area from 2014 to 2021. Bottom longline fishing vessels had targeted Patagonian toothfish (*Dissostichus eleginoides*) and hapuka (*Polyprion* spp, Family *Polyprionidae*) and a trawl vessel targeting splendid alfonsino (*Beryx splendens*) and pelagic armorhead (*Pseudopentaceros richardsoni*) operated in the SIOFA Area until 2013. Catch and effort data for those seasons fished were previously submitted to the SIOFA Secretariat.

Mauritius Annual National Report

19. No national report from Mauritius was received.
20. The SC encouraged the Secretariat to work with Mauritius to enable future submission of national reports and fishery data to future meetings.

Seychelles Annual National Report: SC-07-15

21. Seychelles presented its annual national report. The report described Seychelles' fishing activities within the SIOFA Area. The Seychelles had no locally flagged vessels operating in the SIOFA Area in 2021. Seychelles flagged vessels operating on the high seas consisted of mostly purse seiners and longliners that target tuna and tuna-like species and are therefore operating in the Indian Ocean Tuna Commission (IOTC) area of competence. The majority of local vessels operated within the Seychelles exclusive economic zone (EEZ) and targeted mostly demersal and pelagic species using a range of fishing gear such as traps, handline, dropline and pelagic longlines.

Chinese Taipei Annual National Report: SC-07-10 rev1

22. Chinese Taipei presented its annual national report. Oilfish, including *Ruvettus pretiosus* and *Lepidocybium flavobrunneum*, were identified as bycatch of large-scale Taiwanese tuna longline fleets prior to 2005. Parts of tuna longliners shifted to the southwest Indian Ocean to fish oilfish after 2005 to obtain extra earnings. The numbers of longliners that fished for oilfish were between 9 to 51 from 2000 to 2020, and there were 49 authorised vessels fishing for oilfish within the SIOFA Area in 2021. The average catch in the recent 5 years (2017 to 2021) was at around 5818 t.
23. In response to a question on the reporting of oilfish catch to both SIOFA and the IOTC, Chinese Taipei clarified that it reports the same oilfish catch information to SIOFA and IOTC, but that in the case of the IOTC, reporting of oilfish catch is combined with reporting of catch of other species.
24. The Secretariat asked whether it was possible to distinguish the 2 species of oilfish (*Ruvettus pretiosus* and *Lepidocybium flavobrunneum*) in the next data report instead of having them grouped as one group. Chinese Taipei responded that it could be done.
25. The SC asked whether seabirds' bycatch events are collected by observers for the pelagic longline fishery. Chinese Taipei replied that seabird bycatch events are collected by observers.

Thailand Annual National Report: SC-07-18

26. Thailand presented its annual national report. The report summarised and updated fishing activities of Thai flagged fishing vessels that operated in the SIOFA Area in 2021. There were three fishing vessels that operated in the area. Fishing grounds were found between latitude 9.500 to 11.000° S and longitude 60.500 to 62.000° E. The fishing gears used were otter board trawl as the main gear and handline as an alternative. The fishing activities had increased from the previous year. The total trawl fishing effort was 1003 hauls with 2922.31 t caught and a CPUE of 727.85 kg/hr, whereas handline fishing drastically decreased to 52 days of fishing with 38.34 t caught and a CPUE of 737.31 kg/day. The trawl catch composition resembled the previous year, which was dominated by round scads, lizardfishes, and threadfin breams. Handline catch was slightly different, with trevallies found less often compared to the previous year and other demersal fish (e.g., coral groupers, red snappers, emperor fish) increased due to domestic demand.
27. A surveillance and monitoring scheme has been implemented to monitor every activity at sea, along with the implementation of onboard observers according to CMM 2021/02 (Data Standards). In 2021, the annual observer coverage of trawl and handline was 100% and 96.15% respectively. Onboard observers collected scientific data and observed incidental bycatch in fishing operations. There was 687.7 kg of non-target species reported as incidental bycatch in 2021, with no seabirds or marine mammals caught. Moreover, VME thresholds and a move-on rule were set for Thai vessels in order to prevent negative effects on the bottom habitat. The majority of trawl fishing caught no VMEs. Only a few numbers of trawls contained VMEs and only in small amounts. There was a total of 710.7 kg of sponges and a total of 21.0 kg of corals reported in 2021.
28. The Deep Sea Conservation Coalition (DSCC) expressed concern about Thailand's increased fishing effort in the Saya de Malha area resulting in an increased level of corals and sponge bycatch recorded, and noted this area has been designated as an ecologically or biologically significant area by the Convention on Biological Diversity.

Comoros Annual National Report: SC-07-30

29. Comoros presented its annual national report. In previous years, Comoros has operated only one vessel in the SIOFA Area. However, during 2021, no vessels fished

in the SIOFA Area because of COVID-19. Comoros's catch data from previous years have been submitted to the SIOFA Secretariat.

Discussion on national reports

30. The SC **NOTED** the heterogeneity in the information presented in the annual national reports submitted by CCPs and **RECOMMENDED** that there be a greater consistency of the information presented in them (e.g., years of reporting, standard tables, and maps of fishing activities).
31. The Secretariat clarified that under the SIOFA Agreement. The Agreement covers fishery resources including fish, molluscs, crustaceans and other sedentary species within the area. Highly migratory species (Annex I of UNCLOS) and sedentary species subject to the fishery jurisdiction of coastal states (Article 77(4) of UNCLOS) are excluded.
32. The SC discussed other information that could be included to enhance the utility of annual reports, including the possible inclusion of finer-scale data and related data confidentiality issues. The SC Chair clarified that, in accordance with the Guidelines for the Submission of Annual National Reports to the SIOFA SC, the purpose of the reports is to keep the SC informed, in a concise format, of CCPs' fishing, research and management activities over the previous year, and that the reports do not replace CCPs' annual data submissions to the Secretariat that include fine-scale data. The SC **NOTED** that the Secretariat could be tasked with updating the annual national report templates with examples to assist CCPs provide the annual national reports and encouraged CCPs to provide input on the updated templates, including what additional information should be included.
33. The SC **RECOMMENDED** that the Meeting of the Parties (MoP) task the Secretariat with developing an updated template for annual national reports in consultation with CCPs.
34. The SC **NOTED** that Mauritius had once again not submitted an annual report and referred this matter to the Compliance Committee.

Agenda item 3.2 Draft overview of SIOFA fisheries

35. The SIOFA Data Officer presented a draft Overview of SIOFA fisheries in 2021 (SC-07-20 rev1), which summarised recent years' fishing activities, main species catch and other aspects of scientific interest. Part of this information was presented at the fourth meeting of the Stock and Ecological Risk Assessment Working Group (SERAWG) as paper SERAWG-04-12, update of the fisheries. It has since been updated based on the comments of the SERAWG. The information was compiled from the national reports (as of 07 March 2022) and with data extracted from the Secretariat databases.
36. The SC reviewed, further updated, and finalised the Overview of SIOFA fisheries in 2021 (**Annex D**).
37. The SC thanked the Secretariat for the revised update and suggested additional improvements to be incorporated in the Overview of SIOFA fisheries in 2022 as follows:
 - Inclusion of catch/bycatch data by SIOFA subarea and management unit. In the case that this would result in the creation of figures/tables displaying confidential data, two versions of the Overview of SIOFA fisheries should be created: a restricted version including figures/tables displaying confidential data and a public version with said figures/tables removed.
 - Inclusion of information on toothfish tag releases and captures by SIOFA subarea.

- Inclusion of the catch and effort data for the most recent year (including information from national reports if available), even if they are preliminary data.
 - Inclusion of measurements as a proportion of the total number of catches by species.
 - Inclusion of benthic activities in Protected Areas.
 - Inclusion of actual observer coverage in relation to the reporting of bycatch (seabirds, benthos, discards) and other biological information.
 - The data source (by year) for information tabulated and plotted be described either in captions or footnotes.
38. The SC held further discussions on the importance of including catch and effort data for the most recent year in the overview but recognised practical difficulties that need to be resolved before this can be achieved. The SC **NOTED** that while CCPs are requested to report total catch (in kg) for each species in the SIOFA Area, the ratio of catch by species for each subarea can be provided in national reports, as allowed for in the guidelines (Annex F: Guidelines for Submission of National Reports in the report of SC02, 2017). The SC **REQUESTED** the Secretariat update the Guidelines for Submission of National Reports to request CCPs report the catch (in kg) of individual species caught in the most recent year for each subarea provided it does not conflict with data confidentiality or commercial sensitivity requirements, as it relates to the application of relevant national legislation.
39. The SC discussed the issue posed by the fact that the deadline for CCPs' annual data submission to the Secretariat is the end of May, which is after the meeting of the SC and its working groups. As potential solutions, the SC discussed the possibility of increasing the frequency of data submissions or moving the annual data submission deadline earlier. However, these options posed practical difficulties for some CCPs and the Secretariat. The SC **REQUESTED** the MoP consider mechanisms to enable CCPs to submit data on a more frequent basis (e.g., monthly or quarterly reporting) where CCPs were able to.
40. The Secretariat recalled that the Overview of SIOFA fisheries is provided as an Annex to the SC report and therefore will be publicly available.
41. The SC discussed the addition of further information in the overview and **NOTED** that the proposed fisheries and ecosystem summary reports will also contain some of this information (e.g., information on birds and incidental bycatch).
42. The SC **RECOMMENDED** that the allocation of information presented between the Overview of SIOFA fisheries, and the fishery and ecosystem summary reports should be considered at its next meeting.

Agenda item 3.3 Fisheries Summaries (Project SEC2021-07)

43. The SC **ENDORSED** the SERAWG's request that the Secretariat and the SC Chair work in consultation with CCPs over the intersessional period to further develop the fishery report template and present draft fisheries summaries at SERAWG5, with particular emphasis on toothfish, alfonsino, orange roughy, oilfish (*Ruvettus pretiosus* (OIL) and *Lepidocybium flavobrunneum* (LEC)), *Nemadactylus macropterus* (TAK), *Polyprion americanus* (WRF) and *Polyprion oxygeneios* (WHA).
44. The SC **ENDORSED** the Protected Areas and Ecosystems Working Group's (PAEWG's) request that the Secretariat and the SC Chair work in consultation with CCPs over the intersessional period to further develop the ecosystem report template and present a draft ecosystem summary at PAEWG5.

45. The SC **REQUESTED** that the MoP **ENDORSE** the development of the fisheries and ecosystem summary reports.

Agenda item 3.4. Data Access and Dissemination (Projects SEC2021-05 & SEC2021-06)

Summary of paper

46. The consultant, Ross Analytics, presented report SC-07-08, which provided the outcomes of the SIOFA independent audit of data security covering access, dissemination, and presentation of data.
47. The report noted the importance of data in the SIOFA Secretariat, and that the Secretariat requires information security processes that ensure data providers trust that the levels of protection afforded to their data are appropriate and effective. SIOFA is a relatively new organisation with a small Secretariat. However, in terms of its data management processes it has the same responsibilities as much larger organisations given the importance of the data that it manages. Shared documentation that provides a common understanding and expectation of data management policies and practices are central to this objective.
48. The report noted that CMM 2016/03 (Data Confidentiality) provides an overarching structure for access and use of data and provides definitions of data confidentiality. However, the current definitions may restrict the delivery of fishery reporting as requested by the MoP. The format for data presentation is use-case specific and requires clarity in the processes for data dissemination and use, which include the data owners and users, rather than pre-determined data aggregation formats.
49. The report included a proposed work plan that included defining the operational objectives of SIOFA for consideration and review by the MoP and the SC, and those that relate to internal work practices in the Secretariat.
50. The consultant recommended that SIOFA:
- revise CMM 2016/03, especially paragraph 2, and provide documentation and guidelines on how the CMM is to be operationalised, including by adopting the standard operating procedure for data use and data requests.
 - develop a separate document for the technical instructions for collection of catch and effort data, and observer data, which can be cross-referenced in CMM 2021/02 (Data Standards), to allow greater agility in the development of detailed instructions for data collection without the need for the CMM to be revised.
51. The consultant recommended that the Secretariat:
- transition from separate ‘topic-based’ databases to a corporate data domain structure in which the subject areas are all housed together to provide a more robust and scalable data model for the future.
 - implement consistent documentation including data naming standards, data dictionary and change registries and clear procedures for data dissemination for both database extracts and derived data products including procedure to be followed when changes are required.
 - provide shared documentation that provides a common understanding and expectation of data management policies and practices to all CCPs.
52. Regarding future reviews, the consultant recommended that SIOFA undertake a review of its management of unstructured data and content management systems, including the management and version control of meeting papers and reports.

SC discussion

53. The SC **NOTED** the report.
54. The SC discussed data confidentiality in relation to finer-scale data and how to interpret and operationalise paragraph 2, subparagraphs c), e), f) and g) of CMM 2016/03 (Data Confidentiality).
55. The SC **AGREED** that finer scale data should be made available for purposes of scientific analysis.
56. The SC could not reach consensus on whether confidential and fine-scale data should be made available to the SC in submitted papers to the SC. Some CCPs were of the view that CMM 2016/03 allowed for data to be presented and displayed in reports submitted to the SC and that the presentation of fine-scale data was essential for facilitating the scientific discussions of the SC, assessing key assumptions and verifying the quality of scientific analyses like in some regional fisheries management organisations (RFMOs). Other CCPs were of the view that paragraph 2g) of CMM2016/03 indicates that data are to be released only for use in the specified research projects and as such data should only be made available for use in specified research projects and with the written authorisation of the CCP that submitted the data. The presentation and display of such data are not necessary for assessing data quality nor the impact of the data on a particular scientific analysis, which is routinely done through assessing the model diagnostics, residual fits and through sensitivity analysis, a practice commonly done in some other RFMOs.
57. The SC discussed the report and:
- **NOTED** that the consultant had highlighted discrepancies regarding public domain data within CMM 2016/03, particularly paragraph 2c.
 - **RECOMMENDED** that the MoP could consider revising CMM 2016/03, particularly paragraph 2, to provide clarification on the definition of public domain data.
 - **RECOMMENDED** that the MoP consider providing documentation and guidelines on how CMM 2016/03 should be operationalised, including the implementation of standard operating procedures for data use and data requests provided in SC-07-08.
 - **RECOMMENDED** that the MoP task the SC Chair to work intersessionally with CCPs to prepare a paper for SC8 that would clarify and provide operational processes for the use and presentation of data within meetings and include case studies from other RFMOs.
 - **RECOMMENDED** the development of a separate document for the technical instructions for collection requirements of catch and effort data and observer data, which could be cross-referenced in CMM 2021/02 (Data Standards), and **NOTED** that this would allow greater agility in the development of detailed instructions for data collection without the need for the CMM to be revised by MoP.
 - **RECOMMENDED** that the MoP task the Secretariat to conduct the following, **NOTING** that this may require additional resource considerations:
 - i. transition from separate ‘topic-based’ databases to a corporate data domain structure in which the subject areas are all housed together to provide a more robust and scalable data model for the future.
 - ii. implement consistent documentation including data naming standards, data dictionary and change registries and clear procedures for data dissemination for both database extracts and derived data products including procedure to be followed when changes are required.

- iii. provide shared documentation that provides a common understanding and expectation of data management policies and practices to all CCPs.
- **RECOMMENDED** that, as part of future reviews, the Secretariat create a catalogue of its unstructured data and review the management of those data and the data and content management systems, including the management and version control of meeting papers and reports.
- **RECOMMENDED** that any changes to data management, both for structured and unstructured data, and the security arrangements for those data are carried out in an integrated manner.

Summary of paper

58. Information papers SC-07-INFO-03 and SC-07-INFO-04 relating to the SIOFA cybersecurity audit (Project SEC2021-06) were submitted to the SC meeting for the SC's reference. These papers will be presented at MoP9.

Summary of paper

59. The SC Chair presented SC-07-31 rev. 1, which proposed a process for reviewing and distributing SC meeting documents. The process was developed by the SIOFA SC Chair and Vice-Chair, and the Chairs of the SERAWG and the PAEWG, in response to concerns on the lack of an agreed procedure. The procedure included review forms and details on the process flow (which should also be reflected in the information provided to consultants and documented in the consultant recruitment procedures), clarified the role of Secretariat, Project Managers and SC Heads of Delegation (HoDs), as well as proposing a confidentiality agreement that observers must sign before being granted access to restricted documents. SC-07-31 rev. 1 also proposed that the titles, authors, and abstracts (that contain no confidential data) of restricted documents be made available on the public part of the SIOFA website. Further work is envisioned for the Secretariat to develop document templates and reorganise the access system to meeting documents.
60. The SC discussed the report and the proposed process in SC-07-31 rev. 1 and thanked the SC Chair, Vice-Chair, and Chairs of PAEWG and SERAWG for providing the document.
61. The SC:
- **ADOPTED** the revised procedures detailed in Annex A of SC-07-31 rev. 1 for the submission of documents to the SC and its working groups.
 - **ADOPTED** the report review form for SIOFA commissioned scientific consultant reports and associated presentations to the SC or its working groups, given in Annex B of SC-07-31 rev. 1.
 - **ADOPTED** the Confidentiality agreement to access restricted and confidential papers, given in Annex C of SC-07-31 rev. 1.
 - **REQUESTED** the Secretariat develop:
 - i. a standard template for consultant reports so that they are consistent with the report format required for reports submitted to SIOFA Scientific Working Groups.
 - ii. a template for communications when circulating draft consultant reports that may contain confidential data to the appropriate CCPs for review and approval (i.e., where the report shows or presents confidential data, commercially sensitive information, or financial matters that have not been approved by SIOFA and the relevant CCPs).

- iii. a template for communications that distribute draft consultant reports to SC HoDs that request review and including appropriate confidentiality requirements.
 - iv. a proposal for a classification system for restricted and confidential documents and regulation of access by meeting participants.
 - **RECOMMENDED** to the MoP that the recruitment procedures for consultants be revised to include the report review form, given in Annex B of SC-07-31 rev. 1.
62. The SC encouraged the Secretariat to include technical experts from the SC membership as part of the project teams to assist where necessary.

Agenda item 3.5. Advice to the MoP

63. With regard to the annual national reports, the SC **RECOMMENDED** the MoP:
- **NOTE** the heterogeneity in the information presented in the annual national reports submitted by CCPs and **RECOMMEND** that there be a greater consistency of the information presented in them (e.g., years of reporting, vessel descriptions, standard tables, and maps of fishing activities).
 - **NOTE** that the Secretariat could be tasked with updating the annual national report templates with examples to assist CCPs provide the annual national reports and encouraged CCPs to provide input on the updated templates, including what additional information should be included.
 - **RECOMMEND** the Secretariat be tasked with developing an updated template for annual national reports in consultation with CCPs.
 - **NOTE** that Mauritius had once again not submitted an annual report and **NOTE** that this matter was referred by SC to the Compliance Committee.
64. With regard to the Overview of SIOFA fisheries and the fishery and ecosystem summary reports, the SC **RECOMMENDED** the MoP:
- **NOTE** that the SC **REQUESTED** the Secretariat update the Guidelines for Submission of National Reports to request CCPs report retained and discarded catch (in kg) of individual species in the most recent year for each subarea where possible under national legislation and CMM requirements. Where this is not possible, the Guidelines should continue to require reporting of catch ratios.
 - **REQUEST** the MoP consider mechanisms to enable CCPs to submit data on a more frequent basis (e.g., monthly or quarterly reporting) where CCPs were able to.
 - **NOTE** that the SC **RECOMMENDED** that the allocation of information presented between the Overview of SIOFA fisheries, and the fishery and ecosystem summary reports should be considered at the SCs next meeting.
 - **ENDORSE** the SERAWG's request that the Secretariat and the SC Chair will work in consultation with CCPs over the intersessional period to further develop the fishery report template and present draft fisheries summaries at SERAWG5, with particular emphasis on toothfish, alfonsino, orange roughy, oilfish (*Ruvettus pretiosus* (OIL) and *Lepidocybium flavobrunneum* (LEC)), *Nemadactylus macropterus* (TAK), *Polyprion americanus* (WRF) and *Polyprion oxygeneios* (WHA).

- **ENDORSE** the PAEWG’s request that the Secretariat and the SC Chair work in consultation with CCPs over the intersessional period to further develop the ecosystem report template and present a draft ecosystem summary at PAEWG5.
 - **ENDORSE** the continued development of the fisheries and ecosystem summary reports by SC.
65. With regard to the independent audit of data security covering access, dissemination, and presentation of data, the SC **RECOMMENDED** the MoP:
- **NOTE** report SC-07-08.
 - **AGREE** that finer scale data should be made available for purposes of scientific analysis.
 - **NOTE** that the consultant had highlighted discrepancies regarding public domain data within CMM 2016/03, particularly paragraph 2c.
 - **CONSIDER** revising CMM 2016/03, particularly paragraph 2, to provide clarification on the definition of public domain data.
 - **CONSIDER** providing documentation and guidelines on how CMM 2016/03 is to be operationalised, including by adopting the standard operating procedure for data use and data requests.
 - **REQUEST** the SC Chair to work intersessionally to prepare a paper for SC8 that would clarify and provide operational processes for the use and presentation of data within meetings, incorporating input from CCPs such as case studies from other RFMOs.
 - **RECOMMEND** the development of a separate document for the technical instructions for collection of catch and effort data, and observer data, which could be cross-referenced in CMM 2021/02, and **NOTE** that this would allow greater agility in the development of detailed instructions for data collection without the need for the CMM to be revised.
 - **REQUEST** the Secretariat to conduct the following, **NOTING** that this may require additional resource considerations:
 - i. transition from separate ‘topic-based’ databases to a corporate data domain structure in which the subject areas are all housed together to provide a more robust and scalable data model for the future.
 - ii. implement consistent documentation including data naming standards, data dictionary and change registries and clear procedures for data dissemination for both database extracts and derived data products including procedure to be followed when changes are required.
 - iii. provide shared documentation that provides a common understanding and expectation of data management policies and practices to all CCPs.
 - **REQUEST** that the Secretariat create a catalogue of its unstructured data and review the management of those data and the data and content management systems, including the management and version control of meeting papers and reports.
 - **NOTE** that any changes to data and content management systems should be carried out in an integrated manner.
66. With regard to the proposed process for assessing and distributing SC meeting documents (SC-07-31 rev. 1), the SC **RECOMMENDED** the MoP:

- **NOTE** that the SC has **ADOPTED** the revised procedures detailed in Annex A for the submission of documents to the SC and its working groups.
- **NOTE** that the SC has **ADOPTED** the report review form for SIOFA commissioned scientific consultant reports and associated presentations to the SC or its working groups, given in Annex B.
- **NOTE** that the SC has **ADOPTED** the Confidentiality agreement to access restricted and confidential papers, given in Annex C.
- **NOTE** that the SC has **REQUESTED** the Secretariat develop:
 - i. a standard template for consultant reports so that they are consistent with the report format required for reports submitted to SIOFA Scientific Working Groups.
 - ii. a template for communications when circulating draft consultant reports that may contain confidential data to the appropriate CCPs for review and approval (i.e., where the report shows or presents confidential data, commercially sensitive information, or financial matters that have not been approved by SIOFA and the relevant CCPs).
 - iii. a template for communications that distribute draft consultant reports to SC HoDs that request review, and including appropriate confidentiality requirements.
 - iv. a proposal for a classification system for restricted and confidential documents and regulation of access by meeting participants.
- **RECOMMENDED** to the MoP that the recruitment procedures for consultants be revised to include the report review form, given in Annex B.

Agenda item 4 – Orange roughy

Agenda item 4.1 Review of advice from the SERAWG

67. The SERAWG Chair, Dr Tom Nishida (Japan), summarised the discussions and advice of the SERAWG related to the orange roughy otolith-based age estimation work, the orange roughy growth, length-at-age, and maturity estimates, and the orange roughy acoustic data processing project.
68. With regard to the otolith-based age estimation work, the SC **ENDORSED** the following SERAWG recommendations:
 - if future ageing work is to be done on orange roughy in the Southern Indian Ocean, it is recommended that reference sets specific to the area be developed.
 - for future studies, it is recommended that otoliths be stored in vials rather than taped to paper or envelopes to prevent breakage.
 - to use the age data presented in report SERAWG-04-08, excluding the outliers identified by NIWA, to update the orange roughy growth curve for the Southern Indian Ocean.
69. With regard to the growth, length-at-age, and maturity estimates, the SC **ENDORSED** the following SERAWG recommendations:

- that a sensitivity analysis be conducted to assess the impact of age and the size-at-maturity estimates on the stock assessment results, given the potential bias in sampling.
 - that in future, a stratified sampling selection should be employed for otolith collection to ensure more representative samples are collected across the size range of fish and between areas.
 - that the sampling protocols should be revised to prioritise biological data collection in tows made on the Southern Rise, Western Rise and areas to the East within the SIOFA Area.
 - that if the assessment is sex separated, estimating sex and age specific mortality should be considered.
70. The SC **ENDORSED** the recommendation by the SERAWG that the growth and maturity estimates from Walters Shoal should have been used in the 2022 SIOFA orange roughy assessment of that region, while **NOTING** that they were not used.
71. The SC **RECOMMENDED** that age and growth estimation for areas relevant to a stock assessment should be undertaken prior to the assessment and that this be included in the pre-assessment discussions.
72. With regard to the acoustic data processing project, the SC **ENDORSED** the following SERAWG recommendations:
- that more structured collection and recording of acoustic and ancillary data, such as date and time of the start and end of surveys and survey-specific binned length frequencies, would significantly decrease the time/cost to process future datasets.
 - to note that there are several significant sources of uncertainty that will need addressing at some point: region-specific target strength, target identification and use of multiple frequencies, survey-specific length frequencies, and ad-hoc survey design.
 - to note that several otherwise suitable surveys were discarded because of the use of uncalibrated echosounder or incorrect echosounder settings.
 - that designed surveys could give increased comparability between surveys/years and reduce some error sources.
 - to include a budget line for a consultancy to review the acoustic survey protocols in the SC budget request to the MoP.

Summary of paper

73. The consultants, Dr Rubén Roa-Ureta, Dr Rodrigo Wiff, and Dr Andrés Flores, presented report SC-07-35 rev. 4, which provided a stock assessment update of the orange roughy captured in the SIOFA Area. The stock assessment update was conducted using the following data: time series of fishing effort (number of hauls) and catch (kg) from 2000 to 2020 from logbook records, annually aggregated length frequency data from 2011 to 2020, acoustic biomass indices from 2004 to 2018, and age composition data from the catch of 2017. 45. The assessment updated a previous assessment done with data up to 2017 (SAWG (2018)-01-05 and SAWG (2018)-01-06) using code in the CASAL system for stock assessment for the WSR management unit (MU). The consultants updated the age structured model developed for the stock in the WSR, both with migration among features (sub-localities) of the MU as done previously, and by aggregating features inside the WSR as suggested by the spatial analysis.
74. For a larger aggregation of MUs connected spatially to the WSR, namely North Walter's, West Walter's, Walter's Shoal Ridge, Seamounts and Meeting (collectively

'the Long WSR'), the consultants also presented a stock assessment using the generalised depletion family of models with the R package CatDyn. This was applied to the MUs North Ridge, Middle Ridge and South Ridge (collectively 'the Long Eastern Ridge'). Predictions of annual biomass using the generalised depletion models were estimated from surplus production models to the Long WSR and the Long Eastern Ridge with code implemented in AD Model Builder.

75. The spatial analysis suggested that the MUs could be aggregated into two larger spatial units, the Long WSR and the Long Eastern Ridge, leaving only the Outside MU (i.e., the area to the west of Western Australia) outside the scope of the assessments.
76. The age structure data and acoustic indices of biomass indicated that the available information was not sufficient to model migration among features inside the WSR without introducing large degrees of subjectivity. The consultants recommended that the age-structured model be continued but with the features aggregated into a single WSR MU, and migration among features be ignored. The model of this area showed high sensitivity to prior distributions of the acoustic catchability coefficient. Nevertheless, results with a target biological reference point (BRP) of $0.5 \times B_0$ and steepness $h = 0.57$ suggested that the target BRP would be achieved with a constant exploitation rate of 3%. The model showed that the exploitation rate of the stock in the WSR was currently sustainable, with a low probability ($p = 0.25$) of the stock being overfished. Stock projections from 2021 to 2040 considered nine scenarios of constant catch using different multipliers of the 2020 catch level. All projected scenarios had zero probability ($p = 0.0$) that the exploitation rate would be higher than the BRP exploitation rate at the end of the projected period.
77. Generalised depletion models combined with Pella-Tomlinson surplus production models for Long WSR and Long Eastern Ridge showed that the stock was more productive in Long WSR. This assessment for Long WSR was consistent with the age structured assessment in showing the stock as being harvested at sustainable rates, with annual catches well below the maximum sustainable yield (MSY). The MSY in the Long WSR was estimated at 3276 tonnes but with very poor precision ($CV=215.7\%$). The MSY estimated for the Long Eastern Ridge was much lower, at 616 tonnes, but with much better precision ($CV=88.8\%$). In the Long Eastern Ridge the stock was found to be being harvested close to the MSY with frequent annual catches much higher than the MSY.
78. Projections from the surplus production model from 2021 to 2040 were carried out for the Long WSR and the Long Eastern Ridge under three scenarios of constant catch: catch equal to the MSY, 75% of the MSY, and 50% of the MSY. In the Long Eastern Ridge annual catches at MSY led to a slow decay of biomass and high probability ($p \approx 0.6$) of failing to keep the stock at a biomass equal or higher than the biomass producing the MSY (BMSY) and failing to keep fishing mortality at less than the fishing mortality at the MSY (FMSY). Catches aimed at 75% of the MSY led to a slight increase and the stability of biomass with a moderately low probability ($p \approx 0.3$) of biomass lower than BMSY and fishing mortality higher than FMSY. Finally, catches aiming for 50% the MSY led to a stronger rise in biomass and subsequent stability with a low probability ($p \approx 0.1$) of biomass lower than BMSY and even lower probability ($p < 0.1$) of fishing mortality higher than FMSY. 51. In the Long WSR all scenarios for future annual catches led to falls in biomass but the rate of decline was substantially different. Aiming for the MSY led to a 3-times decline in biomass with high probability ($p \approx 0.8$) of biomass being below the BMSY and fishing mortality above FMSY. Aiming for annual catches at 75% of the MSY led to biomass dropping by about 30%, with a moderate probability ($p \approx 0.3$) of biomass below BMSY and fishing mortality being higher than FMSY ($p \approx 0.4$). Catches around 50% of the MSY led to a slight decrease in biomass with a low probability of biomass being less than BMSY ($p \approx 0.1$) and of fishing mortality being higher than FMSY ($p < 0.1$).

79. The consultants recommended that SIOFA consider a simplified spatial split of areas, reducing the current MUs to just two, the Long WSR and the Long Eastern Ridge.
80. The consultants recommended the continued use of both the age structured model implemented in CASAL (though without migration among features) for the Walter's Shoal Ridge MU and the generalised depletion model combined with surplus production models for the Long WSR and the Long Eastern Ridge.
81. The consultants concluded that the exploitation rates in the WSR and the larger Long WSR were within sustainability limits, while the exploitation rates on Long Eastern Ridge were too close to limit harvest rates (MSY) and should be considered for a biomass rebuilding program.

SC discussion

82. The SERAWG Chair summarised the discussions and advice of the SERAWG related to the orange roughy stock assessment.
83. The SC had concerns about whether aggregating management units into just two larger spatial units, the Long WSR and the Long Eastern Ridge, fit the biological and ecological reality of the orange roughy population.
84. The SC **RECOMMENDED** exploring alternative model structures, for example separating or combining different parts of the SIOFA Area to assess the sensitivity of the stock assessment to those changes.
85. The SC **ENDORSED** the SERAWG recommendation that for future stock assessments, a pre-assessment meeting to discuss key stock assessment decisions and data inputs should be held virtually with the participation of the stock assessment scientists, the SC Chair, the Secretariat, and any interested CCPs or observers.
86. The SC **RECOMMENDED** that the MoP note the summary of management quantities for the WSR produced using the age-structured model (CASAL) considering steepness $h = 0.57$ and reported against an interim reference point of $0.5 B_0$ (Table 1).

Table 1: Summary of management quantities for the WSR using an Age-structured model (CASAL). In brackets is the 95% percentile, B refers to spawning biomass and U is exploitation rate (source: SC-07-35 rev. 4).

Management quantities	WSR CASAL
Current data period	2000-2020
Current catch (t)	174
Mean Catch Over last 5 Year (t)	434
$U_{current}$ (%)	0.9 (0.56-1.7)
Catch to achieve $0.5B_0$ (t)	399 (235-692)
U_{BRP} (%)	3.0
$B_{current}/B_{0.5B_0}$	1.24 (0.67-2.066)
$U_{current}/U_{0.5B_0}$	0.31 (0.19-0.57)
$B_{current}/B_0$	0.62 (0.34-1.03)

87. The SC **RECOMMENDED** that the MoP note the phases diagram (Kobe plot) constructed for an interim reference point of target $0.5B_0$ and steepness $h = 0.57$ (Figure 1).

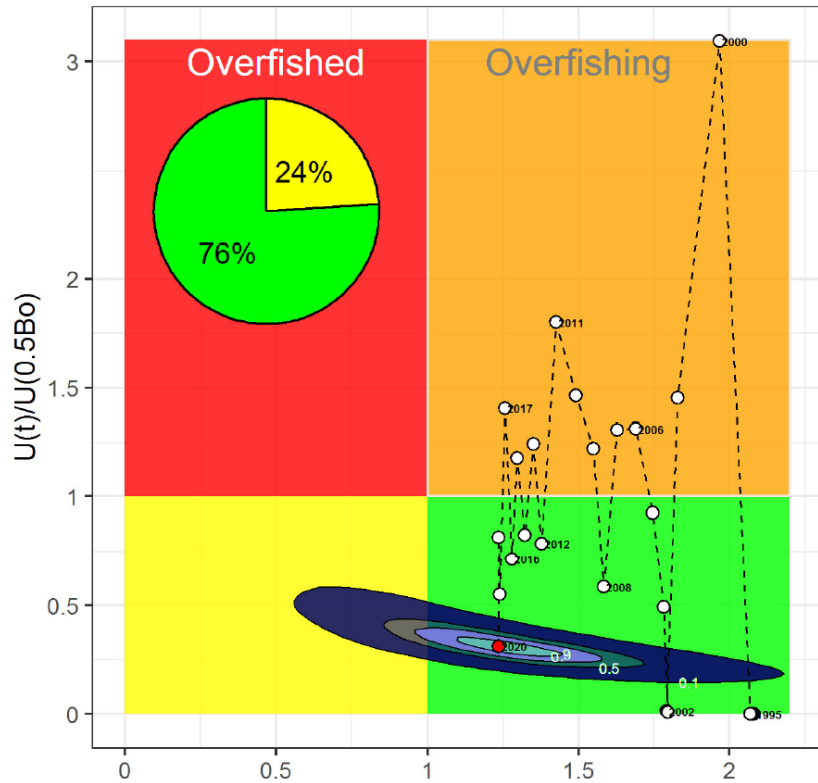


Figure 1: Phases diagram (Kobe Plot) for $h = 0.57$ with target $0.5B_0$. The shaded area indicates the probability of 0.1, 0.5 and 0.9 of the current year (2020). The pie chart indicates the percentage (probability) of the current year of being on each phase (source: SC-07-35 rev. 4).

88. The SC **NOTED** that the projections, while highly uncertain, indicate that the current (6-year average) catch level in the WSR region would not result in any significant change in the stock exploitation rate (Figure 2 and 3).

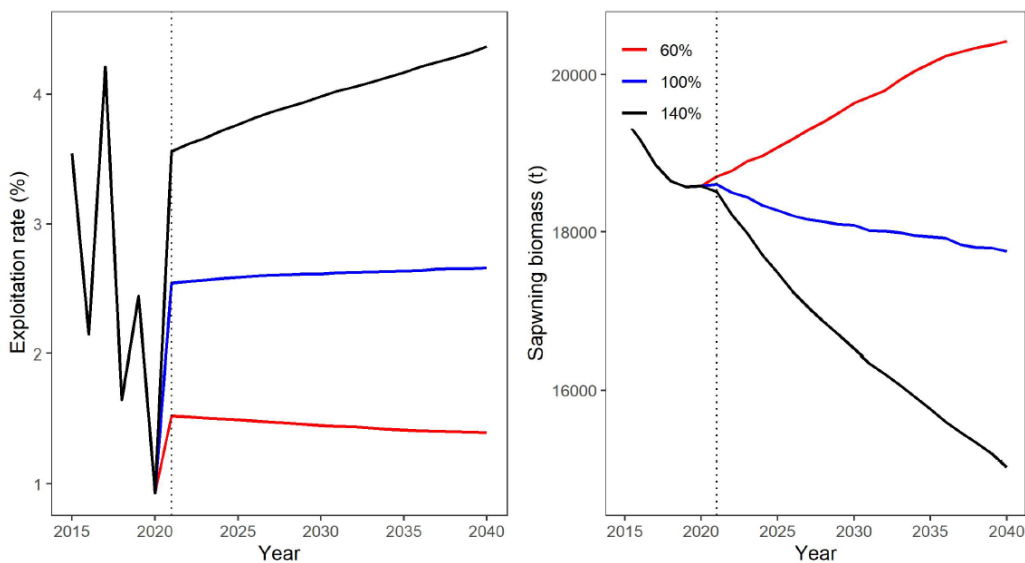


Figure 2: Projection of the median catch rates and the spawning biomass for three different percentages of the average catch of the last 6 years (479 t) (source: SC-07-35 rev. 4).

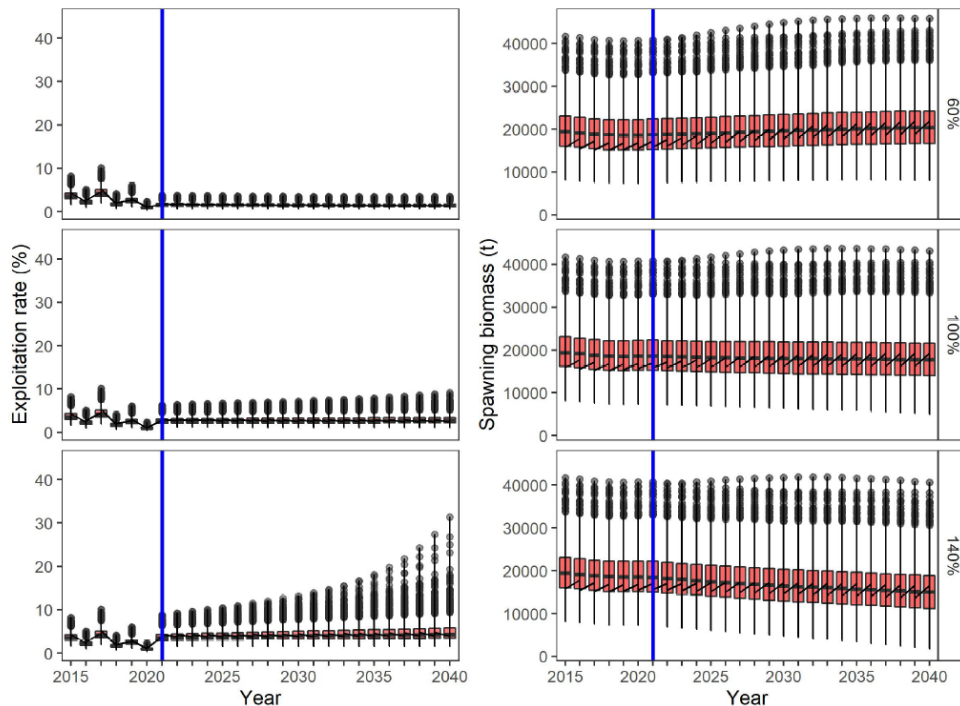


Figure 3: Projection with uncertainty for the catch rates and the spawning biomass across percentages of the average catch of the last 6 years (479 t) (source: SC-07-35 rev. 4).

89. While recognising that the SC did not accept the surplus production model that was carried out on the Long Eastern Ridge, as a precautionary measure, the SC **NOTED** that the MoP could consider in the interim maintaining fishing levels consistent with the recent average for that area, until such time as a reliable stock estimate could be obtained for this region.
90. The SC **NOTED** that, in accordance with CMM 2021/15 (Management of Demersal Stocks), full stock assessments for orange roughy are to be conducted every three to five years and the next stock assessment can therefore be expected between 2025 and 2027.
91. The SC **NOTED** that, in accordance with CMM 2021/15 (Management of Demersal Stocks), full stock assessments for orange roughy are to be conducted every three to five years and the next stock assessment can therefore be expected in 2025-2027.

Agenda item 4.2 Advice to MoP

92. The SC requested the MoP **NOTE** with respect to the WSR:
 - that there is a high probability (76%) that the stock was not overfished and no overfishing was taking place in 2020, suggesting that the stock status is safe.
 - that, while highly uncertain, the risk assessment results indicated that fishing at the recent average levels (last six years, 479t), would not result in notable declines in the stock biomass. This indicates that these fishing levels are sustainable because the probabilities of violating MSY levels (F and B) for the next 20 years are less than 50%.
93. With regard to the orange roughy stock assessments, the SC requested that the MoP **NOTE**:
 - An alternative was explored for the Long Eastern Ridge and the SC had **RECOMMENDED** exploring alternative model structures, for example

separating or combining different parts of the SIOFA Area to assess the sensitivity of the stock assessment to those changes.

- The SC had **ENDORSED** the SERAWG recommendation that for future stock assessments, a pre-assessment meeting to discuss key stock assessment decisions and data inputs should be held virtually with the participation of the stock assessment scientists, the SC Chair, the Secretariat, and any interested CCPs or observers.
 - The summary of management quantities for the WSR were produced using the age-structured model (CASAL) considering steepness of 0.57 and reported against an interim reference point of $0.5 B_0$ (Table 1).
 - The phases diagram (Kobe plot) was constructed for an interim reference point of target $0.5B_0$ and steepness of 0.57 (Figure 1).
 - The projections, while highly uncertain, indicate that the current catch level in the WSR region would not result in change in the stock exploitation rate (Figures 2 and 3).
 - That, while recognising that the assessment was not accepted, the MoP may need to consider constraining fishing levels in line with the recent average for the Long Eastern Ridge region.
 - That, in accordance with CMM 2021/15 (Management of Demersal Stocks, full stock assessments for orange roughy are to be conducted every three to five years and the next stock assessment can therefore be expected between 2025 and 2027.
94. With regard to the orange roughy otolith-based age estimation work, the SC requested the MoP **NOTE**:
- that if future ageing work is to be done on orange roughy in the Southern Indian Ocean, reference sets specific to the area should be developed.
 - for future studies, otoliths should be stored in vials rather than taped to paper or envelopes to prevent breakage.
 - to use the age data presented in report SERAWG-04-08, excluding the outliers identified by NIWA, to update the orange roughy growth curve for the Southern Indian Ocean.
95. With regard to the orange roughy growth, length-at-age, and maturity estimates, the SC requested the MoP **NOTE**:
- The SC had **RECOMMENDED** that a sensitivity analysis be conducted to assess the impact of age and the size-at-maturity estimates on the stock assessment results, given the potential bias in sampling.
 - The SC had **RECOMMENDED** that in future, a stratified sampling selection should be employed for otolith collection to ensure more representative samples are collected across the size range of fish and between areas.
 - The SC had **RECOMMENDED** that the sampling protocols should be revised to prioritise biological data collection in tows made on the Southern Rise, Western Rise and areas to the East within the SIOFA Area.
 - The SC had **RECOMMENDED** that if the assessment is sex separated, estimating sex and age specific mortality should be considered.
 - The SC had **ENDORSED** the recommendation by the SERAWG that the growth and maturity estimates from Walters Shoal should have been used in

the 2022 SIOFA orange roughy assessment of that region, while **NOTING** that they were not used.

- The SC had **RECOMMENDED** that age and growth estimation for areas relevant to a stock assessment should be undertaken prior to the assessment and that this be included in the pre-assessment discussions.
96. With regard to the orange roughy acoustic data processing project, the SC requested that the MoP **NOTE**:
- The SC had **RECOMMENDED** that more structured collection and recording of acoustic and ancillary data, such as date and time of the start and end of surveys and survey-specific binned length frequencies, would significantly decrease the time/cost to process future datasets.
 - The SC had **NOTED** that there are several significant sources of uncertainty that will need addressing at some point: region-specific target strength, target identification and use of multiple frequencies, survey-specific length frequencies, and ad-hoc survey design.
 - The SC had **NOTED** that several otherwise suitable surveys were discarded because of the use of uncalibrated echosounder or incorrect echosounder settings.
 - The SC had **RECOMMENDED** that designed surveys could give increased comparability between surveys/years and reduce some error sources.
 - that a budget line is included in the SC budget request to the MoP for a consultancy to review the acoustic survey protocols.

Agenda item 5 – Patagonian toothfish

Agenda item 5.1 Review of advice from SERAWG

97. The SC reviewed the related discussions and advice of the SERAWG.

Agenda item 5.2. Review of CMM 2021/15 demersal stock

98. With regard to the William's Ridge (WR) toothfish fishery, the SC **ENDORSED** the following SERAWG recommendations:
- that the current management arrangements should be maintained.
 - that data holders should submit all available biological and tagging data to SIOFA Secretariat.
 - that the Secretariat and data holder should verify the validity of all data records from fishing trip 164.
 - that set start and end locations of hauls and set and haul dates should be provided to the Secretariat and in data requests, so that fishing cells and soak time can be determined.
 - that unique identifiers to unambiguously link operational and observer data should be provided in data requests.
99. The SC **NOTED** and welcomed the collaboration and sharing of data among CCPs for the study of fishery trends for Patagonian toothfish on WR (SERAWG-04-20).
100. The SC **NOTED** that only 29 of the 200 15' x 15' cells designated as WR have been fished since 2019.

101. The SC **NOTED** that no updated analyses have been provided for the populations of *Dissostichus* spp. occurring in the SIOFA portion of Del Cano Rise but **NOTED** that with EU funding (SERAWG-04-INFO-02) it would be able to address various questions related to toothfish, such as potential distribution, spatial abundance, ecological importance of different subareas, and toothfish caught outside the Del Cano Rise management area, at future meetings.
102. The SC **NOTED** that the current management arrangements for the Del Cano Rise management area should be maintained.
103. The SC **NOTED** that there is an area of toothfish fishing that is outside the Del Cano Rise management area.
104. The SC **NOTED** that it would consider the management arrangements for toothfish at SC8 with a view to improving the scientific data collection from these regions.
105. The DSCC expressed concern about the expansion of effort beyond the area where a catch limit is currently applied in the Del Cano Rise management area. The DSCC supported the maintenance of current arrangements until additional CMMs are in place and proposed that areas where there is currently no total allowable catch (TAC) should be closed in the interim.

Agenda item 5.3. Tagging procedure (project SEC2021-08)

106. With regard to the CCAMLR-SIOFA workshop on the exchange of scientific Patagonian toothfish data, the SC **ENDORSED** the following SERAWG recommendations:
 - to note the conveners report (SC-07-33) and endorse its recommendations.
 - to request the MoP to **ENDORSE** the process given in the paper for the exchange of scientific toothfish data between SIOFA and CCAMLR as described in Annex A and Annex B of SC-07-33.
107. With regard to the SIOFA toothfish tagging process, the SC **ENDORSED** the SERAWG recommendation to adopt the draft SIOFA toothfish tagging instructions (SERAWG-04-16-SIOFA-Toothfish-Tagging-Instructions_rev1).

Agenda item 5.4 Advice to the MoP

108. With regard to the WR toothfish fishery, the SC **RECOMMENDED** the MoP:
 - Maintain the current management arrangements.
 - **REQUEST** that data holders submit all available biological and tagging data to SIOFA Secretariat
 - That the Secretariat and data holder verify the validity of all data records from fishing trip 164.
 - That set start and end locations of hauls and set and haul dates should be provided to the Secretariat and in data requests, so that fishing cells and soak time can be determined.
 - **REQUEST** that unique identifiers to unambiguously link operational and observer data should be provided in data requests.
 - **NOTE** and welcome the collaboration and sharing of data among CCPs for the study of fishery trends for Patagonian toothfish on WR (SERAWG-04-20).
 - **NOTE** that only 29 of the 200 15' x 15' cells designated as WR have been fished since 2019.

109. With regard to Del Cano Rise, the SC **RECOMMENDED** the MoP **NOTE**:
- that no updated analyses have been provided for the populations of *Dissostichus* spp. occurring in the SIOFA portion of Del Cano Rise but the SC **NOTED** that with EU funding (SERAWG-04-INFO-02 it would be able to address various questions related to toothfish, such as potential distribution, spatial abundance, ecological importance of different subareas, and toothfish caught outside the Del Cano Rise management area, at future meetings.
 - that the current management arrangements for the Del Cano Rise management area should be maintained.
 - that there is an area of toothfish fishing that is outside the Del Cano Rise management area.
110. The SC **RECOMMENDED** the MoP **NOTE** that the SC would consider the management arrangements for toothfish at SC8 with a view to improving the scientific data collection from these regions.
111. With regard to the CCAMLR-SIOFA workshop on the exchange of scientific Patagonian toothfish data, the SC **REQUESTED** the MoP:
- **NOTE** the conveners report (SC-07-33) and **ENDORSE** its recommendations.
 - **REQUEST** the MoP **ENDORSE** the process given in the paper for the exchange of scientific toothfish data between SIOFA and CCAMLR as described in Annex A and Annex B of SC-07-33.
112. The SC **RECOMMENDED** that the MoP **ENDORSE** the draft SIOFA toothfish tagging instructions (SERAWG-04-16-SIOFA-Toothfish-Tagging-Instructions_rev1).

Agenda item 6 – Alfonsino

Agenda item 6.1 Review of advice from the SERAWG

113. No papers on alfonsino were submitted to the SERAWG and the SERAWG therefore did not have any advice to provide.

Agenda item 6.2 Advice to the MoP

114. The SC requested the MoP **NOTE**:
- that alfonsino catch increased from 3148 tons (all areas) in 2018 (the last year included in the 2020 stock assessment) to over 4500 tons in 2020, an increase of over 42%. This represented an increase from a historical low to an average historical level. During the same period, effort has declined. (SC-07-20 rev 2, Fig. 4.2.1)
 - that the SC **RECOMMENDED** that relative changes in unstandardised CPUEs be included in the fisheries summaries templates that are being developed.
 - that, in the coming year, the SC expects to develop a SIOFA alfonsino fishery summary, conduct the harvest strategy pre-assessment workshop, and conduct the next alfonsino stock assessment at SC8.

Agenda item 7 – Other species, bycatch, harvest strategies, management units

Agenda item 7.1 Consultant report of the harvest strategies: ToR2 Roadmap (Project SER2021-05)

115. The SERAWG Chair summarised the related discussions and advice of the SERAWG.
116. The consultant, Marine Resource Assessment and Management Group (MARAM), University of Cape Town, summarised the outcomes of SC-07-27 (ToR1 of Project SER2021-05), which provided the initial results for comparing three approaches to set total allowable catches (TACs) for the alfonsino, orange roughy and toothfish fisheries in the SIOFA Area:
- The key findings were that certain control parameter value choices would be likely to need to vary substantially from stock to stock, requiring stock-specific as well as generic analyses to proceed further.
 - Consequently, the prospects for developing entirely generic approaches/harvest strategies able to cover the major resources in the SIOFA region do not appear promising at this time.
 - The roadmap to be produced under ToR2 of the project would provide suggestions about how SIOFA might best move towards adopting such strategies in these circumstances.

Summary of paper

117. The consultant, MARAM presented SC-07-INFO-12 rev 1, which provided advice on the development of a roadmap for new formal harvest strategies for SIOFA. The consultant explained that, from past experiences with conducting assessments of, and/or providing management advice for, SIOFA fish stocks, a key problem has been the lack of background information on the data available and how they relate to the way the fishery operates. That missing information is a key input to the assessment process, and its ability to provide reliable results.
118. For SIOFA's reference, the consultant conducted a review of the International Whaling Commission's (IWC's) "harvest strategy roadmap". The consultant suggested that the IWC's first step for any stock, conducting a "pre-assessment" process, should be an essential component of any similar SIOFA roadmap. This process would summarise the available data and related information, and provide an initial evaluation aimed at determining whether there is sufficient information available to warrant initiating the development of a harvest strategy for the stock and agreeing a set of basic hypotheses concerning how the information available is to be interpreted in developing stock assessment models.
119. This process should be put into practice by the appointment, for any stock for which a harvest strategy is to be developed, of a Technical Sub-Committee which would meet separately from the SIOFA SC and report back to it. This Sub-Committee would include persons with the relevant expertise about the stock to provide this missing information and to develop ToRs for the basis on which the harvest strategy development should proceed.
120. An important decision to be made is whether the harvest strategy for a specific stock is to be based on the "best assessment plus harvest control rule" approach or on Management Strategy Evaluation (MSE).
121. The consultant suggested that the initial stage of a recommended harvest strategy roadmap for SIOFA, focussing on the suggested pre-assessment process, could include the following elements:

- Step 1: The SC selects a stock for the potential development of a harvest strategy. Note that at any one time, probably no more than two stocks should be in process towards such development (this in the light of likely resource limitations in terms of “person-power”).
- Step 2: The SC appoints a Technical Sub-Committee to initiate the harvest strategy development process for that stock through what is termed a “Pre-assessment”. In broad terms, the role of that Sub-Committee is to oversee the compilation of the data to be used in that process, and to comment on how they are to be interpreted in developing stock assessment models and the basic hypotheses on which those models are to be based (this may extend beyond single interpretations of components of that information and include alternatives for which sensitivities will need to be investigated).
- Step 3: The Technical Sub-Committee is to be comprised of persons with the appropriate expertise to advise on the data available for the stock and how they are to be interpreted. They are to be drawn both from SC members and from outside persons with relevant expertise.
- Step 4: At the start of the process, the SC should appoint likely analysts, but at that stage “preliminarily”, i.e., for participation in the activities of the Technical Sub-Committee only.
- Step 5: A primary role of the Technical Sub-Committee is to report back to the SC when they consider that the pre-assessment process has been successfully completed to the stage that they would be prepared to recommend to the SC that the quantitative assessment analyses by the analysts previously “provisionally” appointed can commence.
- Step 6: The Technical Sub-Committee must also advise the SC on:
 - a. Likely timelines for completion of the harvest strategy development.
 - b. If pertinent, broad indications of likely appropriate values for target and limit reference points.
 - c. ToR for the analysts who will be developing the harvest strategy.
 - d. Whether to aim for a “best assessment plus harvest control rule approach” or for a full MSE harvest strategy, with the addition of further details desirably specified immediately for whichever option is preferred.
- Step 7: The SC then considers the recommendations/advice provided by the Technical Sub-Committee, and decides whether the harvest strategy development for the stock under consideration is to proceed, together with specifying the ToR for the analysts.

122. Based on the paper the consultant recommended that:

- the SC specify a pre-assessment process involving the appointment of a Technical Sub-Committee to oversee the collection of relevant data and to provide the interpretations of those data that are necessary before the assessment of and harvest strategy development for any stock can proceed.
- subsequent harvest strategy development would be highly dependent on the reports from such Technical Sub-Committees so it would be premature at this time to get into more details about the later stages of a harvest strategy roadmap for SIOFA.

SC discussion

123. One CCP expressed concern that the lengthy nature of the proposed pre-assessment process could delay the development of management measures, for example in the case of a fishery that may require urgent management action, and suggested that, in such cases, SIOFA should consider adopting interim measures until the pre-assessment process is complete. The consultant explained that the proposed pre-assessment process is flexible and that the objectives and timelines could be adapted to provide interim advice more quickly for such urgent situations. Furthermore, the consultant emphasised the value of the pre-assessment process, even if it is shortened and expedited, and cautioned against providing management advice before developing an understanding, even if it is basic, of the dynamics of a resource and what data are available.
124. The SC **ENDORSED** the recommendation in SC-07-INFO-12 rev 1:
- to specify a pre-assessment process involving the appointment of a Technical Sub-Committee to oversee the collection of relevant data and to provide the interpretations of those data that are necessary before the assessment of and harvest strategy development for any stock can proceed.
 - that subsequent harvest strategy development would be highly dependent on the reports from such Technical Sub-Committees, so it would be premature at this time to get into more details about the later stages of a harvest strategy roadmap for SIOFA.
125. As the next steps, the SC **RECOMMENDED**:
- that the Secretariat work intersessionally to prepare as much information as possible for understanding the data available on the alfonsino, orange roughy and toothfish fisheries and any potential trends in the data.
 - that a two-day harvest strategy pre-assessment workshop be held in 2023 prior to SC8, with the participation of scientists, managers, industry representatives, and observers, to:
 - i. discuss the planning and implementation of the harvest strategy development roadmap.
 - ii. interpret the data.
 - iii. identify data gaps for informing a stock assessment.
 - iv. discuss which stocks are to be assessed.
 - that the outcomes of the workshop be presented to the SC and its working groups for further discussion.
126. The SC encouraged CCPs to conduct characterisations of their alfonsino, orange roughy and toothfish fisheries, and to present this information to the abovementioned workshop.
127. The Southern Indian Ocean Deepsea Fishers Association (SIODFA) pointed out that the benthopelagic alfonsino fishery is highly dependent on oceanographic conditions and suggested that the pre-assessment process include a review of skippers' experiences with oceanographic variations.
128. The DSCC welcomed the work being done on developing harvest strategies but noted that the development of harvest strategies could take many years and expressed concern about the management of fisheries in the meantime without catch limits, which could cause unsustainable fishing and impacts on bycatch. The DSCC therefore called for the establishment of interim precautionary catch limits and controls on new and exploratory fisheries.

129. One CCP requested clarification on why the consultant was provided with data until 2018 for alfonsino and until 2017 for orange roughy. The Secretariat noted that, because of time constraints, the consultant did not require the most up-to-date data available for the study. This CCP expressed concern that this may have been the result of structural issues with SIOFA's processes and that it may have impacted the outcomes of the study.
130. The consultant explained that the purpose of the study was to conduct a generic evaluation of alternative approaches to set TACs for the major SIOFA resources and to provide a basis to choose between them, not to recommend any specific approach. In such a generic evaluation, even if more up-to-date data had been used, that would have been unlikely to have affected the conclusions.
131. The SERAWG Chair noted two factors that delay the process of making data available for consultants. The first is the time it takes to collate all the relevant and available data as SIOFA does not have any form of data catalogue. The development of species summaries should help address this issue. The second is the time it takes to obtain confidential data.
132. The SC discussed ways to improve internal processes to ensure that consultants are provided with more up-to-date data and more time to conduct their work and **RECOMMENDED** the following:
 - to determine the level of priority of each scientific project.
 - to consider longer timelines for the process of recruiting and employing consultants and for the consultants to conduct their work.
 - to include confidentiality agreements in project proposals that would enable the release of confidential data as part of the MoP's project approval process.
 - in future develop the ToRs prior to the SC for consideration and approval at that meeting.

Agenda item 7.2 Consultant report of the Saya de Malha fisheries (Project SER2021-03)

133. The SC reviewed the related discussions and advice of the PAEWG and the SERAWG.
134. The SC **ENDORSED** the PAEWG recommendation that, in order to better understand the bottom trawl fisheries interactions with VME species of Saya de Malha, SIOFA should prioritise efforts to document species and fisheries effort distributions more precisely both historically and in future. This would serve to improve confidence in the assessment of impacts from ongoing fisheries and allow for evidence-based management decision-making and the formulation and implementation of appropriate management actions if required.
135. The DSCC reiterated its concern, as expressed at PAEWG4, that the consultant report (PAEWG-04-11) seemed not to consider some of the best available data from VME experts on defining VME indicator species and determining their distribution, including MoP-08-INFO-09, which included a number of very up-to-date habitat maps. The DSCC proposed that these data should be updated prior to the completion of the impact assessment, and also noted that as many impacted species are slow growing and slow to recolonise damaged areas, it was essential that the impact assessment be based on all years of fishing.
136. The SC **ENDORSED** the SERAWG recommendations:
 - to **NOTE** the need to foster engagement and improve cooperation between SIOFA and key contracting and non-contracting parties.

- to **NOTE** the need to improve the understanding of key elements of the ongoing fishing operations e.g., gear use, target species and CPUE, to underpin informed decision making and effective management actions.

Agenda Item 7.3 Consultant report on seabirds, mammals, and bycatch ERA (project PAE 2021-02)

Summary of papers

137. The consultant, Ross Analytics, presented report SC-07-28, which described the ongoing work to document the seabird and mammal species that commonly interact with fishing activity in the SIOFA Area and to undertake Ecological Risk Assessments for the Effects of Fishing (ERAEF) on those species, and report SC-07-37, which provided a review of mitigation measures to reduce the impacts of fishing on high-risk non-target species taken during fishing operations within the SIOFA Area.
138. The highest risk seabird species include Critically Endangered albatrosses, and they have an important overlap with the pelagic longline fishery in SIOFA subareas 1, 2, 3b. The highest risk marine mammals are previously over-exploited species and they face additional risk of negative interactions with depredations
139. Based on the ERAs for seabirds and marine mammals, the consultant identified SIOFA subareas 1, 2 and 3b (west of 40° E) as an area where high risk species have the greatest likelihood of interacting with SIOFA fisheries and recommended that:
 - The greatest risk for seabirds appears to be from interaction with the pelagic longline fishery and it is recommended that CMM 2019/13 be revised to address all fishing gear used in SIOFA and include specific mitigation measures for seabird bycatch consistent with Agreement on the Conservation of Albatrosses and Petrels (ACAP) best practice advice.
 - To address potential impacts on marine mammals, SIOFA should provide an annual report on all lost gear reported under CMM 2021/02. Annex A. Observations of marine mammals interacting with fishing gear should be reported under CMM 2021/02 Annex B.
 - SIOFA should engage with the Important Marine Mammal Area (IMMA) designation process in order to ensure that fishing in areas of particular importance to marine mammals is managed accordingly.

SC discussion

140. Some CCPs pointed out that the Level 1-2 tiered approach of the SIOFA ERA is designed to "sort out potentially high-risk species and lead to more quantitative detailed analysis and assessment," thus, the development of management measures directly from the recommendations in such a study should not be considered before further numerical analysis and assessment is done. The CCPs also highlighted some uncertainty in the results of the ERA, including problems with species identifications, the use of limited data from only a number of CCPs, ambiguous results produced based on very coarse-scale resolutions (5-degree squares), and false positives and false negatives in the results due to the aforementioned data uncertainty. Furthermore, the results based on coarse scale resolutions cannot specify fine-scale areas that would enable the SC to identify which fisheries should consider which specific IMMAs.
141. The SC **RECOMMENDED** that pelagic longliners operating in the SIOFA Area follow IOTC Resolution 12/06 on reducing the incidental bycatch of seabirds in longline fisheries and **REQUESTED** that the Secretariat prepare a paper, for submission to the MoP, on how the provisions of IOTC Resolution 12/06 might be incorporated in the SIOFA CMMs.

142. The SC **REQUESTED** the SIOFA Secretariat to provide a report on lost gear under CMM 2021/02 Annex A and a report on observations of marine mammals interacting with fishing gear under CMM 2021/02 Annex B and Annex E at SC8.
143. The SC **RECOMMENDED** that SIOFA should engage with the IMMA designation process, which concerns organisational-level cooperation between SIOFA and IUCN.
144. If the **MoP** agrees that SIOFA should engage with the IMMA designation process, the SC **RECOMMENDED** that the MoP **REQUEST** the Secretariat to obtain shape files for the IMMA regions and to summarise catch and effort (main target species and effort by gear type) and the IMMA management that might be recommended for SIOFA. The shape files should be distributed to CCPs for their consideration as well.
145. The DSCC expressed its support for ACAP best practices, which were developed and improved in cooperation with skippers and crews. The DSCC also pointed out the need to take into account the high level of unreported or unidentified seabird bycatch and called for mitigation measures to be taken for all SIOFA fisheries.

Agenda Item 7.4 Seabird data collection and bycatch mitigation measures (Review of CMM 2019-13)

Summary of paper

146. ACAP introduced information papers SC-07-INFO-09 rev1, which provided a review of seabird data collection and bycatch mitigation measures stipulated in CMM 2019/13 and CMM 2021/02 against ACAP best practices, while taking into consideration SC-03-06.2 (05); and SC-07-INFO-10, which provided a summary of the status and current trends of 18 seabird species (14 species of albatross and 4 species of petrel that breed or forage in the SIOFA Area) as well as an update on ACAP resources relevant to seabird bycatch mitigation in trawl and longline fisheries.

SC discussion

147. Based on SC-07-37, some CCPs recommended extending the seabird bycatch mitigation measures to all fishing gear.
148. The SC **RECOMMENDED** holding a 1-2-day workshop with scientists, managers, industry representatives and observers to consider how seabird bycatch mitigation measures may be progressed further.

Agenda Item 7.5 Definition of main species

149. The SC **ENDORSED** the following SERAWG recommendations:
 - to note the need to hold further discussions defining fisheries and target species as this would provide clarification of bycatch species.
 - to hold a half-day virtual workshop for such discussions and review the existing literature on the subject.
150. The SC **RECOMMENDED** that the workshop include considering biological removals as well as distinguishing between retained bycatch and discarded bycatch.
151. The SC developed interim definitions to prioritise species for work including primary, secondary and endangered, threatened and protected (ETP) species as follows:
 - Primary species: Species for which management tools and measures are in place and the achievement of stock management objectives is expected.
 - Secondary species: All other species that comprise 5 per cent or more of the total catch (determined using a 3-5 year average) or, for 'less resilient' species (most sharks etc., based on ERA), 2 per cent or more of the total catch.

- ETP: Species defined as endangered, threatened or predicted by a CCP's national legislation, international agreements, or relevant international instruments (e.g., IUCN Red List as vulnerable, endangered or critically endangered).

152. The SC **RECOMMENDED** that the above definitions of primary, secondary and ETP species be used on an interim basis and that the workshop on defining fisheries, target species and target species consider these definitions and how to refine them further.

Agenda item 7.6 Review of the level of mortality of deep-water sharks

Summary of paper

153. The consultant, Ross Analytics, presented SC-07-37, which provided a review of mitigation measures to reduce the impacts of fishing on high-risk non-target species taken during fishing operations within the SIOFA Area.
154. Tuna taken in pelagic longline fisheries constituted the greatest bycatch by weight. Deepwater sharks taken in demersal longline fisheries included the greatest number of high-risk species. Conducting a level 2 ERA of important bycatch in SIOFA fisheries would require clarity on the target species in a fishery and improved taxonomic resolution in catch reporting.
155. Based on the paper, the consultant recommended that:
- In the interim of the adoption of additional measures, including bycatch limits for relevant deep-sea shark species (see CMM 2019/12 Annex 1), SIOFA should introduce measures to reduce/avoid demersal longline fishing in SIOFA Subarea 2.
 - Leafscale gulper shark *Centrophorus squamosus* (GUQ) should be considered a 'key species of concern'
 - SIOFA should review the implementation of the reporting requirements for Intended Target species in the Haul Information section of CMM 2021/02.
 - In order to improve the understanding of, and ability to address, ecological risks the taxonomic level of reporting in Vessel Catch and Effort Data section of CMM 2021/02 should be improved. This could potentially be achieved through insertion of the following paragraph:
 "4 bis. CCPs shall ensure that fishing vessels flying their flag record and submit all catch reporting requirements as per Annex 1 to the lowest taxonomical level possible when caught in SIOFA fisheries".

SC discussion

156. Some CCPs pointed out that, with regard to deepwater shark bycatch, the study and its recommendations were limited to the longline fishery in Subarea 2 and did not consider other areas or gear types for which such bycatch have been recorded noting the document SERAWG-03-INFO-03 showing shark bycatches during two benthopelagic trawl surveys in 2012 and 2014, which occurred prior to the prohibition on targeting sharks. The consultant clarified that the analysis included an evaluation of available demersal and pelagic longline as well as some trawl data from multiple subareas. Other CCPs pointed out that the extremely high level of deepwater shark bycatch, that makes up almost 60% of the retained catch, for this area is far higher than for other similar fisheries and that this fishery may need to urgently reduce the level of shark bycatch as a high priority. One CCP noted that there appears to be deliberate targeting of sharks in this fishery.

157. The SC **ENDORSED** the SERAWG's recommendation to support the holding of a 2-day workshop in Tenerife (Spain) in 2023 to:
- carry out an assessment of the stock status of the shark species involved in the SIOFA fisheries.
 - discuss potential measures to reduce shark bycatch further.
158. The SC further **RECOMMENDED** that the workshop:
- investigate potential shark bycatch mitigation measures considering all fishing methods across the whole SIOFA Area.
 - consider as a priority the key areas and methods for which sharks are caught.
 - review the list of species of concern in CMM 2019/12 (Sharks) with respect to sharks.
 - develop identification guides to assist the recording of species by the vessel crew and observers.
159. The SC **NOTED** that, to be able to develop further scientific advice on shark bycatch mitigation, it is important to have access to all CCPs' shark bycatch data.
160. The SC **RECOMMENDED** that a data call be made in preparation for the shark-related workshop to gather all available data.
161. The SC **RECOMMENDED** that, in areas where vessels are experiencing high shark bycatch, CCPs consider interim voluntary guidelines to reduce that bycatch.
162. The SC **ENDORSED** the following SERAWG recommendations:
- to hold more detailed discussions on potential gear modifications that could mitigate shark bycatch, including information on the survival rates of sharks hooked by such gear.
 - regarding the voluntary EU measure of releasing all shark species listed as a "high risk" in Annex 1 of the CMM 2019/12 (Sharks) that are alive and in good condition, "in good condition" is ambiguous and open to interpretation and the measure should be modified to require the release of all the aforementioned shark species that "are alive".
163. The Cook Islands informed the SC that it intends to submit a characterisation of its fisheries to the next SC meeting. The SC encouraged the Cook Islands to endeavour to provide a draft at the shark-related workshop if time allowed.
164. While noting that there was some uncertainty in the ERA results, the SC suggested that the MoP consider including Leafscale gulper shark *Centrophorus squamosus* (GUQ) as a 'key species of concern' in CMM 2019/12.
165. The SC encouraged CCPs to report catch, effort and observer data at the finest taxonomic resolution possible, as required under CMM 2021/02 (Data Standards) to all gear having shark bycatch.
166. The DSCC reiterated its concern, as expressed at SERAWG4, at the level of shark bycatch especially in Subarea 2, where it seems that a very high level of effort involved the requirement to move-on, and supported the use of shark mitigation measures which involve replacing wire traces with nylon close to the hook.
167. The United Nations Food and Agriculture Organization (FAO) drew the SC's attention to two papers on deepwater shark species by the Areas Beyond National Jurisdiction (ABNJ) Deep-Sea Fisheries under the Ecosystem Approach (DSF) Project: 'Regional summaries of current work on shark bycatch assessment' and 'Deep sea RFMO measures in force in 2021 relating to sharks, skates and rays'.

Agenda item 7.7 Review of advice from the SERAWG and PAEWG

168. The SC reviewed any other discussions and advice from the SERAWG and the PAEWG related to other species, bycatch, harvest strategies, and management units.
169. The SC **ENDORSED** the following SERAWG recommendations:
- that improved species identification for teleosts would reduce uncertainty and improve future assessments and efforts should be made to improve species identification by observers, particularly for the *Polyprion* genus.
 - to note the importance of improving species identification before conducting ERAs, as recommended by both SERAWG-04-14 and SERAWG-04-15.
 - to conduct spatio-temporal analyses of bycatch, such as analyses by SIOFA subarea, and comparisons of the periods before and after 2019, when CMM 2019/12 (Sharks) entered into force.

Agenda item 7.8 Advice to the MoP

170. With regard to the development of a harvest strategy roadmap, the SC **RECOMMENDED** the MoP:
- **ENDORSE** the specification a pre-assessment process involving the appointment of a Technical Sub-Committee to oversee the collection of relevant data and to provide the interpretations of those data that are necessary before the assessment of and harvest strategy development for any stock can proceed.
 - **NOTE** that subsequent harvest strategy development would be highly dependent on the reports from such Technical Sub-Committees so it would be premature at this time to get into more details about the later stages of a harvest strategy roadmap for SIOFA.
 - task the Secretariat to work intersessionally to prepare as much information as possible for understanding the data available on the alfonsino, orange roughy and toothfish fisheries and any potential trends in the data.
 - **ENDORSE** that a two-day harvest strategy pre-assessment workshop be held, with the participation of scientists, managers, industry representatives, and observers, to:
 - i. discuss the planning and implementation of the harvest strategy development roadmap.
 - ii. interpret the data collected intersessionally.
 - iii. identify data gaps for informing a stock assessment.
 - iv. discuss which stocks are to be assessed.
 - v. develop identification guides to assist the recording of species by the vessel crew and observers.
 - that the outcomes of the workshop be presented to the SC and its working groups for further discussion.
171. The SC requested that the MoP **NOTE** that the SC discussed ways to improve internal processes to ensure that consultants are provided with more up-to-date data and more time to conduct their work and that the SC **RECOMMENDED** the following:
- to determine the level of priority of each scientific project.

- to consider longer timelines for the process of recruiting and employing consultants and for the consultants to conduct their work.
 - to include confidentiality agreements in project proposals that would enable the release of confidential data as part of the MoP's project approval process.
 - in future develop the ToRs prior to the SC for consideration and approval at that meeting.
172. With regard to Saya de Malha, the SC requested the MoP **NOTE**:
- that, in order to better understand the bottom trawl fisheries interactions with VME species, SIOFA should prioritise efforts to document species and fisheries effort distributions more precisely both historically and in future. This would serve to improve confidence in the assessment of impacts from ongoing fisheries and allow for evidence-based management decision-making and the formulation and implementation of appropriate management actions if required.
 - the need to foster engagement and improve cooperation between SIOFA and key contracting and non-contracting parties.
 - the need to improve the understanding of key elements of the ongoing fishing operations e.g., gear use, target species and CPUE, to underpin informed decision making and effective management actions.
173. With regard to seabird bycatch, the SC **RECOMMENDED** that the MoP:
- **RECOMMEND** that pelagic longliners operating in the SIOFA Area follow IOTC Resolution 12/06 on reducing the incidental bycatch of seabirds in longline fisheries and **REQUEST** that the Secretariat prepare a paper, for submission to the MoP, on how the provisions of IOTC Resolution 12/06 might be incorporated in the SIOFA CMMs.
 - **NOTE** that the SC has **REQUESTED** the SIOFA Secretariat to provide a report on lost gear under CMM 2021/02 Annex A and a report on observations of marine mammals interacting with fishing gear under CMM 2021/02 Annex B and Annex E at SC8.
 - **ENDORSE** the holding of a 1-2-day workshop with scientists, managers, industry representatives and observers to consider how seabird mitigation measures may be progressed further.
174. The SC requested the MoP to **CONSIDER** the SC's **RECOMMENDATION** that SIOFA should engage with the IMMA designation process, which concerns organisational-level cooperation between SIOFA and IUCN.
175. The SC **RECOMMENDED** the MoP, if it agrees to engage with the IMMA designation process, to **REQUEST** the Secretariat to obtain shape files for the IMMA regions and to summarise catch and effort (main target species and effort by gear type) and the IMMA management that might be recommended for SIOFA. The shape files should be distributed to CCPs for their consideration as well.
176. With regard to defining fisheries, target species and bycatch species, the SC **RECOMMENDED** that the MoP:
- **NOTE** the need to hold further discussions defining fisheries and target species as this would provide clarification of bycatch species.
 - **ENDORSE** the holding of a half-day virtual workshop for such discussions and review the existing literature on the subject, including considering biological

removals as well as distinguishing between retained bycatch and discarded bycatch

- **ENDORSE** the interim definitions to prioritise species for work including primary, secondary and ETP species as follows:
 - i. Primary species: Species for which management tools and measures are in place and the achievement of stock management objectives is expected.
 - ii. Secondary species: All other species that comprise 5 per cent or more of the total catch (determined using a 3-5 year average) or, for 'less resilient' species (most sharks etc., based on ERA), 2 per cent or more of the total catch.
 - iii. ETP: Species defined as endangered, threatened or predicted by a CCP's national legislation, international agreements, or relevant international instruments (e.g., IUCN Red List as vulnerable, endangered or critically endangered).
- **NOTE** that the SC **RECOMMENDED** that the workshop consider these definitions and how to refine them further.

177. With regard to deep-water sharks, the SC **RECOMMENDED** that the MoP:

- **ENDORSE** the holding of a 2-day workshop in Tenerife (Spain) in 2023 to:
 - i. carry out an assessment of the stock status of the shark species involved in the SIOFA fisheries.
 - ii. discuss potential measures to reduce shark bycatch further.
 - iii. investigate potential shark bycatch mitigation measures considering all fishing methods across the whole SIOFA Area and considering as a priority the key areas and methods for which sharks are caught.
 - iv. review the list of species of concern in CMM 2019/12 (Sharks) with respect to sharks.
 - v. develop identification guides to assist the recording of species by the vessel crew and observers.
- **NOTE** that, to be able to develop further scientific advice on shark bycatch mitigation, it is important to have access to all CCPs' shark bycatch data.
- **NOTE** that the SC **RECOMMENDED** that a data call be made in preparation for the shark-related workshop to gather all available data.
- **RECOMMEND** that, in areas where vessels are experiencing high shark bycatch, CCPs consider interim voluntary guidelines to reduce that bycatch.
- **NOTE** the need to hold more detailed discussions on potential gear modifications that could mitigate shark bycatch, including information on the survival rates of sharks hooked by such gear.
- **NOTE** that, regarding the voluntary EU measure of releasing all shark species listed as a "high risk" in Annex 1 of the CMM 2019/12 (Sharks) that are alive and in good condition, "in good condition" is ambiguous and open to interpretation and the measure should be modified to require the release of all the aforementioned shark species that "are alive".

178. With regard to ERAs, the SC recommended that the MoP **NOTE**:

- that improved species identification for teleosts would reduce uncertainty and improve future assessments and efforts should be made to improve species identification by observers, particularly for the *Polyprion* genus.

- the importance of improving species identification before conducting ERAs, as recommended by both SERAWG-04-14 and SERAWG-04-15.
- that the SC **RECOMMENDED** conducting spatio-temporal analyses of bycatch, such as analyses by SIOFA subarea, and comparisons of the periods before and after 2019, when CMM 2019/12 (Sharks) entered into force.

Agenda item 8 – SIOFA Bottom Fishing Footprint

Agenda item 8.1. Presentation of a hybrid footprint map

Agenda item 8.2 Review of advice from the PAEWG

179. The PAEWG Chair, Dr Patrice Pruvost (France Overseas Territories), summarised the related discussions and advice of the PAEWG.
180. The SC **ENDORSED** the PAEWG recommendation that, in the interim, the historical and recent footprint at 20' + 30' square resolution should be used (Figure 4).

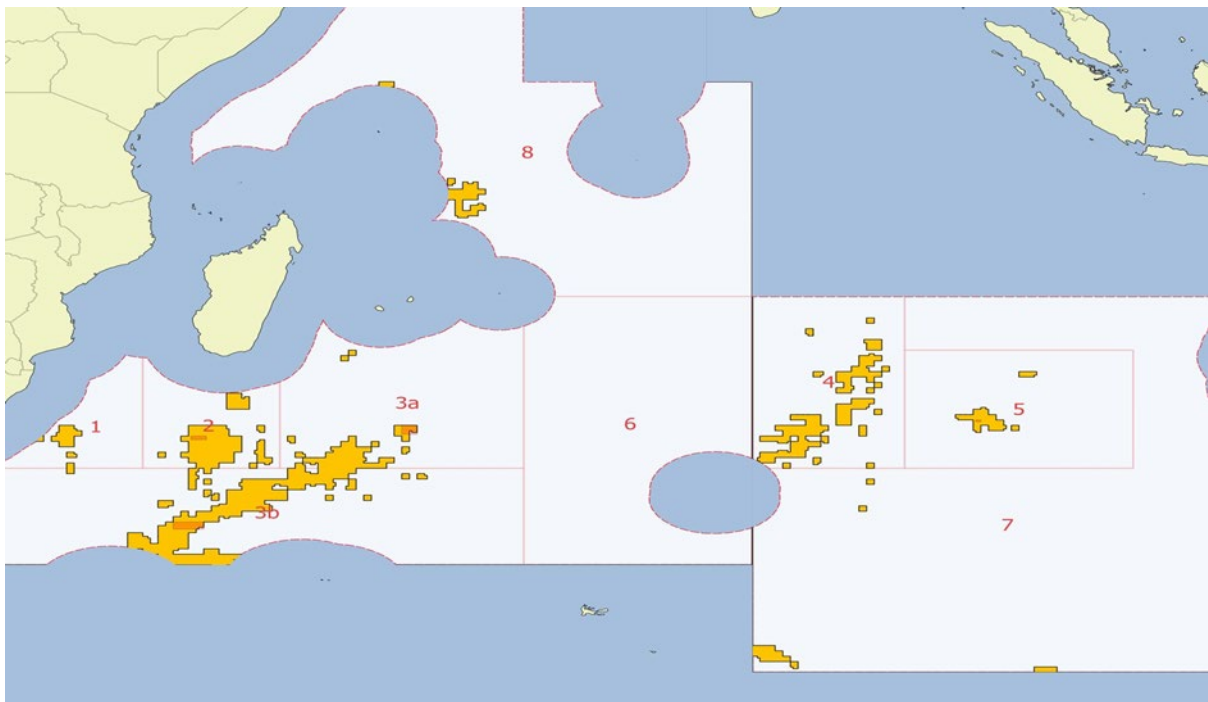


Figure 4: SIOFA Recent and Historical fishing footprints mapped from set level fishing data up to year 2020 mapped at a hybrid 20' and 30' square resolution (source: PAEWG-04-12).

181. The SC encouraged CCPs to submit to the Secretariat a copy of the shapefile of their bottom fishing footprint at a 20' resolution (or finer scale), to verify that their fishing footprints are encompassed by the fishing footprints generated by the Secretariat.
- For data falling outside the footprint proposed by the Secretariat, the Secretariat will notify CCPs of outlying data, and the CCPs and the Secretariat would resolve those discrepancies.
182. The SC **RECOMMENDED** the MoP consider how new fishing should be considered once a bottom fishing footprint is agreed.

Agenda item 8.3 Advice to MoP

183. The SC **RECOMMENDED** the MoP **ENDORSE** the historical and recent footprint at 20' + 30' square resolution for use in the interim.
184. The SC **RECOMMENDED** the MoP **CONSIDER** how new fishing should be considered once a bottom fishing footprint is agreed.

Agenda item 9 – VMEs

Agenda item 9.1 Updating of the Draft VME taxa list (Review of the CMM2020-01)

185. The VME taxa list is available in Annex1 of CMM 2020/01 (interim management of bottom fishing) and the VME taxa guide was updated in 2020. The SC did not propose any updates to the VME taxa list.

Agenda item 9.2 Review of the process to agree thresholds

186. The SC **NOTED** that the PAEWG had not been able to conduct an intersessional review of the VME encounter thresholds adopted by other RFMOs as requested by the MoP (para 100, MoP8 Report). The SC **NOTED** that this work is included in the PAEWG workplan and will be discussed at the next PAEWG and SC meetings.
187. The DSCC suggested that there is a need for better data reporting on VME taxa caught in SIOFA Area and better taxa identification, and that SIOFA needs to take a precautionary approach until the relevant data are gathered and analysed.

Summary of paper

188. SIODFA introduced information paper SC-07-INFO-01 on the setting of thresholds of sessile benthos bycatch from benthopelagic trawling, which uses gear both in continuous contact with the seafloor and off-bottom 'midwater' trawling that usually is not touching the bottom. SIODFA stated that the decision of threshold values is not a scientific one but rather a managerial one. SIODFA also pointed out that different fisheries and areas will have different shapes of their cumulative distributions of benthic bycatch and that if bycatch from the two types of gear used in the SIOFA benthopelagic fishery are combined into a single cumulative distribution function, the high frequency of low or zero benthic bycatch from the off-bottom fishery will reduce the point that the threshold occurs and disproportionately affect the demersal fishery.

Agenda item 9.3 Review of advice from the PAEWG

189. The PAEWG Chair summarised the related discussions and advice of the PAEWG.
190. With regard to the VME mapping consultancy (project PAE2020-02), the SC **ENDORSED** the following PAEWG recommendations:
 - The data scarcity in the Indian Ocean calls for urgent research exploration in areas beyond national jurisdiction.
 - The taxonomic level of observer data is too broad for biodiversity analysis, and it was not included for the modelled maps, although it would be useful to model effort data and validate habitat suitability for certain groups. It is recommended that SIOFA develop an image catalogue of encountered VME indicator taxa that may evolve into a resource that could be used as a formal *in situ* guide for observers to use for identification during trips. To validate the models' predictions further, research campaigns should be organised.

- Interpretation of the resulting maps must be exerted with caution. For instance, the species-level bioregionalisation was subject to over-prediction. It is of paramount importance to understand limitations and characteristics of any modelled outputs.
 - Only when the aforementioned limitations are resolved could these maps be used for conservation planning.
191. In addition to developing an image catalogue for use by observers, the SC **NOTED** the potential value of compiling a VME image database.
192. The SC **NOTED** the importance of leveraging the knowledge of observers and fishing companies and developing a mechanism for receiving feedback on the maps developed by the consultant and **ENDORSED** the PAEWG recommendation that the reviewed and finalised VME maps be uploaded to the website and made available for feedback.

Agenda item 9.4 Advice to MoP

193. With regard to VME encounter thresholds, the SC **RECOMMENDED** that the MoP **NOTE**:
- that the PAEWG had not been able to conduct an intersessional review of the VME encounter thresholds adopted by other RFMOs as requested by the MoP (para 100, MoP8 Report).
 - that this work is included in the PAEWG workplan and will be discussed at the next PAEWG and SC meetings.
194. With regard to the VME mapping consultancy (project PAE2020-02), the SC **RECOMMENDED** that the MoP **NOTE**:
- that the data scarcity in the Indian Ocean calls for urgent research exploration in areas beyond national jurisdiction.
 - that the taxonomic level of observer data is too broad for biodiversity analysis, and it was not included for the modelled maps, although it would be useful to model effort data and validate habitat suitability for certain groups. It is recommended that SIOFA develop an image catalogue of encountered VME indicator taxa that may evolve into a resource that could be used as a formal *in situ* guide for observers to use for identification during trips. To validate the models' predictions further, research campaigns should be organised.
 - that the interpretation of the resulting maps must be exerted with caution. For instance, the species-level bioregionalisation was subject to over-prediction. It is of paramount importance to understand limitations and characteristics of any modelled outputs.
 - that only when the aforementioned limitations are resolved could these maps be used for conservation planning.
 - the potential value of compiling a VME image database.
 - that the SC **NOTED** the importance of leveraging the knowledge of observers and fishing companies and developing a mechanism for receiving feedback on the maps developed by the consultant and **RECOMMENDED** that the reviewed and finalised VME maps be uploaded to the website and made available for feedback.

Agenda item 10 – Bottom fishing impact assessment and bottom protected areas

Agenda item 10.1 Presentation of final report regarding the trawl and longline cumulative BFIA

195. The final report regarding the trawl and longline cumulative BFIA (SC-07-32/PAEWG-04-05) was presented at the PAEWG and was taken as read.
196. The SC **ENDORSED** the following PAEWG recommendations:
- that VME characteristics, in particular sensitivity to fishing gear, recovery rates and likely stock recruit relationship be discussed, and values agreed.
 - that the population status of a range of VME indicator taxa in the SIOFA area be calculated once spatial distribution maps are available.
 - that all future fishing effort continue to be recorded on a haul-by-haul basis, including start and end positions, distance trawled, trawl width and longline length.

Agenda item 10.2 Review of advice from the PAEWG

197. The PAEWG Chair summarised the related discussions and advice of the PAEWG.
198. The SC **REQUESTED** advice from the PAEWG on how to consolidate the advice derived from the different BFIA's submitted to the PAEWG and work on VME mapping / bio-regionalisation.

Agenda item 10.3 Advice to MoP

199. With regard to the final report regarding the trawl and longline cumulative BFIA, the SC **RECOMMENDED** that the MoP **NOTE**:
- that VME characteristics, in particular sensitivity to fishing gear, recovery rates and likely stock recruit relationship be discussed, and values agreed.
 - that the population status of a range of VME indicator taxa in the SIOFA area be calculated once spatial distribution maps are available.
 - that all future fishing effort continue to be recorded on a haul-by-haul basis, including start and end positions, distance trawled, trawl width and longline length.
 - The SC requested that the MoP **NOTE** that the SC **REQUESTED** advice from the PAEWG on how to consolidate the advice derived from the different BFIA's submitted to the PAEWG and work on VME mapping / bio-regionalisation.

Agenda item 11 – Data standards

Agenda item 11.1. Annual catch and effort data submission (Secretariat)

Summary of paper

200. The Data Officer introduced information paper SC-07-INFO-05 rev1, which summarised the 2020 catch and effort data submitted by CCPs to the SIOFA Secretariat under the requirements of CMM 2019/02 (Data Standards). The data quality has improved overall, but species identification is still a challenge, and there are still a few CCPs which have not been submitting data according to the MoP requirements.

SC discussion

201. FR-OT noted that some scores attributed to its dataset due to inconsistency between captain and observer data are not indicative of the quality of the data. Rare individual species are set aside for the observer and are measured, which increases the accuracy of the data collected, as requested by the CMM, and thus the reporting of the data observed, but lowers the score from 10/10 to 7/10. The report should contextualise the scoring to allow comparison of information.
202. The SC **REQUESTED** the Secretariat to make the following improvements to next year's report:
 - include a description of the methodology used to determine ratings.
 - include explanations of how CCPs could have improved their ratings.
 - present ratings on a fishery-by-fishery basis.

Agenda item 11.2. E-monitoring scheme

Summary of paper

203. The SC Vice-Chair, Dr Sebastián Rodríguez Alfaro, presented SC-07-INFO-11 rev1, which was prepared by the SC Vice-Chair, Australia and Japan and summarised the e-monitoring processes underway at the North East Atlantic Fisheries Commission (NEAFC), CCAMLR, and the IOTC.
204. The SC Vice-Chair recommended that the SC:
 - note the outcomes on e-monitoring in other RFMOs, and
 - agree to present summaries of the development of CCPs' electronic monitoring programs at the 2023 SC meeting as per paragraph 44 of the Workshop on the Harmonisation of Scientific Observers Programmes (WHSOP) Report.

SC discussion

205. The SC **NOTED** the outcomes on e-monitoring in other RFMOs.
206. The SC **ENDORSED** the recommendation to agree to present summaries of the development of CCPs' electronic monitoring programs at the 2023 SC meeting as per paragraph 44 of WHSOP Report.
207. FAO informed the SC that the DSF Project plans to study how to support RFMOs with better e-monitoring schemes and share that information with SIOFA.

Agenda item 11.3. Role of scientific observers and harmonization (workshop informal notes)

208. The WHSOP Report (SC-07-INFO-07) was taken as read.

Summary of paper

209. The SC Chair presented SC-07-INFO-08, which summarised the key principles for the development of a SIOFA Observer Code of Conduct, including requirements for independence, managing conflicts of interest, and health and safety considerations for Scientific Observers.
210. The SC Chair recommended that the SC request the MoP to:
 - task the SC Chair and the Secretariat to undertake intersessional discussions with CCPs on SC and MoP on a potential code of conduct that specifies Scientific Observer, CCPs, and vessel responsibilities under a SIOFA Code of

Conduct, including requirements for independence, managing conflicts of interest, and health and safety considerations for Scientific Observers.

- task the SC Chair to prepare, based on the intersessional discussions, a draft paper with options for a SIOFA Scientific Observer Code of Conduct to be considered by the SC and MoP in 2023.

SC discussion

211. The SC **ENDORSED** the recommendations to request the MoP to:

- task the SC Chair and the Secretariat to undertake intersessional discussions with CCPs on SC and MoP on a potential code of conduct that specifies Scientific Observer, CCPs, and vessel responsibilities under a SIOFA Code of Conduct, including requirements for independence, managing conflicts of interest, and health and safety considerations for Scientific Observers.
- task the SC Chair to prepare, based on the intersessional discussions, a draft paper with options for a SIOFA Scientific Observer Code of Conduct to be considered by the SC and MoP in 2023.

Summary of paper

212. The SC Vice-Chair presented SC-07-24, which provided a workplan for the harmonisation of scientific observers' programmes.

213. The SC Vice-Chair recommended that the SC:

- note the outcomes of the intersessional WHSOP.
- endorse the Workplan on the harmonisation of scientific observers' programmes as agreed in the WHSOP.
- recommend supporting the Secretariat on the implementation of the Workplan by hiring a consultant.

SC discussion

214. The SC **NOTED** the outcomes of the intersessional WHSOP.

215. The SC **ENDORSED** the Workplan on the harmonisation of scientific observers' programmes as agreed in the WHSOP.

216. The SC **ENDORSED** the recommendation to support the Secretariat on the implementation of the Workplan by hiring a consultant.

Agenda item 11.4. Review of CMM 2021/02 on Data Standards (Project SEC 2021-09)

217. ACAP reported the results of the review of the current provisions of CMM 2021/02 (Data Standards) against the ACAP guidelines (as described in SC-07-INFO-09). ACAP recommended that CCPs also report vessel length, details of other mitigation measures, whether vessels use a net monitoring cable and if so where the cable enters the water in relation to warps, the number of bird scaring lines used, and aerial coverage achieved (m).

218. The Data Officer pointed out that information on vessel length can be obtained from the SIOFA vessel registry.

219. The SC **RECOMMENDED** that further discussions of data reporting related to seabird bycatch mitigation measures be held at the proposed seabird data collection and bycatch mitigation measures workshop.

Agenda item 11.5. Advice to the MoP

220. With regard to the summary of annual catch and effort data submission, the SC requested the MoP **NOTE** that the SC **REQUESTED** the Secretariat to make the following improvements to next year's report:
- include a description of the methodology used to determine ratings.
 - include explanations of how CCPs could have improved their ratings.
 - present ratings on a fishery-by-fishery basis.
221. With regard to e-monitoring, requested the MoP **NOTE**:
- that the SC **NOTED** the outcomes on e-monitoring in other RFMOs.
 - that the SC **AGREED** to present summaries of the development of CCPs' electronic monitoring programs at the 2023 SC meeting as per paragraph 44 of WHSOP Report.
222. With regard to the development of a SIOFA Observer Code of Conduct, the SC **REQUESTED** the MoP to:
- task the SC Chair and the Secretariat to undertake intersessional discussions with CCPs on SC and MoP on a potential code of conduct that specifies Scientific Observer, CCPs, and vessel responsibilities under a SIOFA Code of Conduct, including requirements for independence, managing conflicts of interest, and health and safety considerations for Scientific Observers.
 - task the SC Chair to prepare, based on the intersessional discussions, a draft paper with options for a SIOFA Scientific Observer Code of Conduct to be considered by the SC and MoP in 2023.
223. With regard to the workplan for the harmonisation of scientific observers' programmes, the SC requested the MoP to **NOTE**:
- that the SC **NOTED** the outcomes of the intersessional WHSOP.
 - that the SC **ENDORSED** the Workplan on the harmonisation of scientific observers' programmes as agreed in the WHSOP.
 - that the SC **RECOMMENDED** to support the Secretariat on the implementation of the Workplan by hiring a consultant.
224. With regard to the review of CMM 2021/02 on Data Standards, the SC requested the MoP to **NOTE** that the SC **RECOMMENDED** that further discussions of data reporting related to seabird bycatch mitigation measures be held at the proposed seabird data collection and bycatch mitigation measures workshop.

Agenda item 12 – Cooperation with external bodies

Agenda item 12.1 ABNJ Deep Sea Project

225. FAO informed the SC that the DSF Project Document is currently going through the final stages of approval with the Global Environmental Facility (GEF) Secretariat and FAO. Final approval is expected in the coming weeks. A DSF Inception Workshop will then be held around May 2022 to identify the work with partners during the first year or so. This is most likely to concentrate on methods to improve data collection for data-limited stocks, deepwater sharks, VME indicators, and discards. This will support ongoing work by many RFMOs and provide a sound basis for future project and

partner work. FAO looks forward to working with SIOFA and other RFMOs, as well as SIODFA and other industry partners, over the coming years.

226. The Science Officer informed the SC that the Secretariat recently sent a letter for in-kind contribution to the DSF Project.

Agenda item 12.2 CCAMLR

227. The Science Officer summarised the recent cooperation between SIOFA and CCAMLR. The two organisations held a toothfish data exchange workshop in November/December 2021 and are operating the CCAMLR/SIOFA joint toothfish tagging program.

Agenda item 12.3 ACAP

228. The SC welcomed ACAP's continued cooperation with SIOFA and its participation and contribution at the meetings of the SC, its working groups, and the Workshop on the Harmonisation of Scientific Observers Programmes.
229. ACAP informed the SC that it will hold its triennial Meeting of the Parties in 2022 and its next technical meetings in 2023. ACAP will develop and publish new and updated advice following those technical meetings.

Agenda item 12.4 Monaco Exploration

Summary of paper

230. Monaco Explorations presented SC-07-INFO-14, which provided an overview of the scientific expedition planned in late 2022 on the Saya De Malha Bank by Mauritius and Seychelles, and to be undertaken by Monaco Explorations. The expedition addresses specific themes relevant to the whole area and aims to conduct three-dimensional mapping of the Saya de Malha Bank, a characterisation of the nature of the seabed, a study of the properties of the water column and circulation on the bank and slopes of Saya de Malha, and an inventory of the benthic biodiversity. It is also expected to provide capacity building and training for students and junior scientists from Mauritius and Seychelles on project operations. Input from, and collaboration with, SIOFA CCPs would be welcome.

SC discussion

231. The SC **REQUESTED** that the MoP **NOTE** that:
 - (i) the SC considered only the scientific aspects of the proposed scientific expedition
 - (ii) the SC supported the proposed expedition as it would improve the scientific knowledge on VMEs and benthic species in the area.
232. The SC **REQUESTED** that the Secretariat initiate the process to share with Monaco Explorations the maps and final reports produced by the consultant in Project SER2021-03, following CMM 2016/03 (Data Confidentiality) and the procedures included in the Transparency and distribution of meeting documents SC-07-31 rev. 1.
233. The DSCC expressed its support for the research expedition covering Saya de Malha, which is a highly important and sensitive area, and believed that the research from the expedition would be highly relevant to SIOFA.

Agenda item 12.5 Other Organisations

234. The Science Officer summarised the recent cooperation between SIOFA and other organisations.
235. The SIOFA Secretariat has held an initial meeting with the South Pacific Regional Fisheries Management Organisation (SPRFMO) Secretariat on common scientific

issues. SIOFA is also participating in SPRFMO's new CMM03 (Bottom Fishing in the SPRFMO Convention Area) intersessional process as an observer.

236. With the IOTC, SIOFA is making advancements on the basis of the Letter of Intent and has held a bilateral meeting. Potential areas of scientific collaboration have been identified. It is crucial to define species of interest for each organisation in order to activate appropriate data exchanges. Data exchange protocols are already in place, and the data flow will soon be restored to previous levels.
237. With regard to the Fisheries and Resources Monitoring System (FIRMS), the SIOFA Secretariat has participated in meetings of the FIRMS technical working groups and Steering Committee.
238. With Southwest Indian Ocean Fisheries Commission (SWIOFC), the SIOFA Secretariat has contacted the responsible person and a first meeting is pending.
239. With South East Atlantic Fisheries Organisation (SEAFO), the SIOFA Secretariat has contacted the SEAFO Secretariat and held a first meeting last week. At the meeting, interest areas and species overlap and potential scientific collaboration were discussed.

Agenda item 13 – SC Work Plan

Agenda item 13.1 Consideration of external grants

240. The Science Officer presented SC-07-INFO-06, which provided the status of all current and planned projects being undertaken under the existing funding Agreement with the EU. Progress on individual projects has generally been on schedule. The management of the projects is being transitioned from Dr Gary Morgan, the Science Manager in charge of overseeing the implementation and monitoring of EU-funded projects, to the Science Officer.
241. The Science Officer reported that the SC and working group Chairs and the Secretariat have submitted a proposal to the EU's European Maritime, Fisheries and Aquaculture Fund (EMFAF) to fund several scientific studies aimed mainly at assessing Protected Areas in SIOFA, improving scientific understanding of Patagonian toothfish population spatial structure, and establishing a framework for scientific observation of fisheries. In addition, the Secretariat has submitted another proposal to EMFAF to fund the organisation and running of the SC8 meeting.
242. The SC expressed its appreciation to the European Union for bringing the EMFAF call for funding proposals to SIOFA's attention, and to the Secretariat for the extensive work it has undertaken to prepare said proposals.

Agenda item 13.2 Review and update of the SC workplan and budget (Project SEC2021-11)

243. The Science Officer presented the draft SC workplan for 2021-2023 (SC-07-INFO-15).
244. The Executive Secretary presented the draft budget for SC research activities 2023-2025 (SC-07-INFO-13 rev1).
245. The SC reviewed and revised the draft SC work plan for 2021-2023 (**Annex G**).
246. The SC reviewed and revised the list of proposed research activities with estimated budgets and potential funding sources (**Annex H**).
247. With regard to activities for which EU grant funding is being sought, the SC **RECOMMENDED** that, if the funding application for the EU grant is not successful or if no decision has been received by MoP9, the Secretariat should prepare a supplement

to the budget that would outline the additional funding request that the SC would make to the MoP.

248. The SC **AGREED** to assign levels of priority to each of the proposed research activities. The prioritisation process will be done according to Table 2 below, adapted from the Western and Central Pacific Fisheries Commission (WCPFC).

Table 2: SC workplan project priority scoring table. Colours represent priority rankings (6,9 = High; 3,4 = Medium; 1,2 = Low).

		Importance to SIOFA Management Outcomes or to the functioning of the SC		
		Rank	Low	Moderate
Feasibility: Likelihood of Success	Low	1	2	3
	Moderate	2	4	6
	High	3	6	9

Notes:

Importance criteria evaluate the significance of the outcomes of the proposal in contributing to the successful management of the SIOFA stocks or the functioning of the SC (e.g., is the proposal aligned with the SIOFA research and/or management priorities; does the proposal contribute to the effective planning and functioning of the SC; are the intended outputs/benefits well-defined and relevant; what is the level of impact and likelihood that the proposal outputs will be adopted; is the proposal cost effective). High= Essential; Moderate=Important but not essential; Low=Not Important.

Feasibility criteria evaluate the proposal's potential for success i.e., how likely is the proposal to achieve its stated objectives (e.g., are the objectives clearly stated, is the methodology sound, are the project objectives realistic and likely to be achieved, does the research team [if identified] have the ability, capacity and track record to deliver the outputs).

249. Due to time constraints, the SC **AGREED** to circulate the SC workplan to SC HoDs by email following the close of the SC meeting, and request that SC HoDs provide their score for each project using the scoring system in Table 2 above. The Secretariat will present the SC workplan, along with the scorings from SC HoDs, to the MoP for their consideration. Projects will be ranked according to their **average** score provided by CCPs.
250. The work plans for the SERAWG and the PAEWG are attached as **Annex E** and **Annex F**, respectively.

Agenda item 13.3 Tasks and responsibilities of the Science Officer

251. The SC **NOTED** and welcomed the recruitment of the Science Officer, and that his key roles and responsibilities were included in MoP Circular 2021/27. The SC **NOTED** that the Science Officer has been engaged in several tasks since his recruitment, and has made a substantive contribution to the Secretariat's capabilities.
252. The SC **NOTED** that the Science Officer is available to provide support for CCPs and assist them with achieving their scientific commitments to SIOFA.

Agenda item 14 – Future meeting arrangement

Summary of paper

253. The EU presented SC-07-INFO-02, which outlined the practical and operational aspects of the SC8 meeting to be held in the Canary Islands, Spain.

SC discussion

254. The SC **NOTED** and welcomed the EU's offer to host the SC and related meetings.

255. The SC discussed the possible meeting schedule and suggested the following options:

- Option 1:
 - i. 14-16 March: PAEWG5
 - ii. 17-18 March: Workshop on deepwater sharks in the SIOFA area
 - iii. 20-21 March: Joint MoP-SC workshop on harvest strategy pre-assessment
 - iv. 22-25 March: SERAWG5
 - v. 27-31 March: SC8
- Option 2: A similar schedule to option 1 but with the joint MoP-SC workshop on harvest strategy pre-assessment not being held in conjunction the SC meetings.

Agenda item 15 – Other business

Agenda item 15.1 Elections of SC Chairperson and Vice Chairperson

256. The SC Vice-Chair noted that the term of the SC Chair would come to an end following MoP8.
257. As there were no nominations for a new SC Chair from among CCPs and recognising the hard work and leadership he has demonstrated, the SC **RECOMMENDED** that the MoP extend the term of the current SC Chair for one year. The SC Chair thanked the SC and looked forward to being considered for a further term.
258. The SC Vice-Chair noted that the term of the SERAWG Chair would come to an end following MoP8.
259. There were no nominations for the position of SERAWG Chair. The SC suggested that if no nominations are received by the MoP meeting, one option may be to have the SC Chair chair the SERAWG meetings and to hire a consultant to progress the SERAWG work.
260. The SC thanked Dr Tom Nishida, Chair of the SERAWG, for his many years of contribution to SIOFA as a member of the SC and the SERAWG Chair.
261. There were no nominations for the positions of PAEWG Vice-Chair.
262. The SC thanked Alistair Dunn, the SC Chair, for facilitating the meeting and making it run smoothly.
263. The SC thanked Alex Meyer for his role as rapporteur of the meeting.

Agenda item 15.2 Other business

264. Mauritius informed the SC that it has submitted a letter dated 23 March 2022 expressing its concern regarding bottom trawling on the Saya de Malha Bank.

Agenda item 16 – Adoption of Meeting Report

265. The report of the seventh meeting of the SIOFA SC was adopted at 09:49 a.m. (UTC), 25 March 2022.

Agenda item 17 – Close of meeting

266. The meeting was closed at 09:49 a.m. (UTC), 25 March 2022.

ANNEX A: LIST OF REGISTERED PARTICIPANTS

Delegation	Title	Name	Function	Contact
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ANNEX B: AGENDA

1. Opening

- 1.1 Opening statement
- 1.2 Introduction of participants

2. Administrative arrangements

- 2.1 Adoption of the agenda
- 2.2 Confirmation of meeting documents
- 2.3 Appointment of rapporteur

3. Fisheries Reports

- 3.1. Discussion and questions for each CCP annual national report
- 3.2. Draft overview of SIOFA fisheries
- 3.3. Fisheries Summaries (Project SEC2021-07)
- 3.4. Data Access and Dissemination (Projects SEC2021-05 & SEC2021-06)
- 3.5. Advice to the MoP

4. Orange roughy

- 4.1 Review of advice from the SERAWG
- 4.2. Advice to MoP

5. Patagonian toothfish

- 5.1 Review of advice from SERAWG
- 5.2. Review of CMM 2021/15 demersal stock
- 5.3. Tagging procedure (project SEC2021-08)
- 5.4. Advice to the MoP

6. Alfonsino

- 6.1 Review of advice from the SERAWG
- 6.3 Advice to the MoP

7. Other species, bycatch, harvest strategies, management units

- 7.1 Consultant report of the harvest strategies: ToR2 Roadmap (Project SER2021-05)
- 7.2 Consultant report of the Saya de Malha fisheries (Project SER2021-03)
- 7.3 Consultant report on seabirds, mammals, and bycatch ERA (project PAE 2021-02)
- 7.4 Seabird data collection and bycatch mitigation measures (Review of CMM 2019-13)
- 7.5 Definition of main species
- 7.6 Review of the level of mortality of deep-water sharks
- 7.7 Review of advice from the SERAWG and PAEWG
- 7.8 Advice to MoP

8. SIOFA Bottom Fishing Footprint

- 8.1. Presentation of a hybrid footprint map
- 8.2 Review of advice from the PAEWG
- 8.3. Advice to MoP

- 9. VMEs**
 - 9.1 Updating of the Draft VME taxa list (Review of the CMM2020-01)
 - 9.2 Review of the process to agree thresholds
 - 9.2 Review of advice from the PAEWG
 - 9.3 Advice to MoP

- 10. Bottom fishing impact assessment and bottom protected areas**
 - 10.1 Presentation of final report regarding the trawl and longline cumulative BFIA
 - 10.2 Review of advice from the PAEWG
 - 10.3 Advice to MoP

- 11. Data Standards**
 - 11.1. Annual catch and effort data submission (Secretariat)
 - 11.2. E-monitoring scheme
 - 11.3. Role of scientific observers and harmonization (workshop informal notes)
 - 11.4. Review of CMM 2021/02 on Data Standards (Project SEC 2021-09)
 - 11.5. Advice to the MoP

- 12. Cooperation with external bodies**
 - 12.1. ABNJ Deep Sea Project
 - 12.2. CCAMLR (including Data exchange Workshop)
 - 12.3. ACAP
 - 12.4. Monaco Exploration
 - 12.5. Other Organisations

- 13. Scientific Committee Workplan**
 - 13.1. Consideration of external grants
 - 13.2. Review and update of the Scientific Committee workplan and budget 2022–2024 (Project SEC2021-11)
 - 13.3. Tasks and responsibilities of the Science Officer

- 14. Future meeting arrangement**

- 15. Other business**
 - 15.1. Elections of SC chairperson and vice chairperson
 - 15.2. Other business

- 16. Adoption of Meeting Report**

- 17. Close of Meeting**

ANNEX C: TABLE OF AGENDA ITEMS AND RELATED PAPERS (rev12)

Agenda Item	Related Papers	R*
<p>1. Opening</p> <p>1.1 Opening statement</p> <p>1.2 Introduction of participants</p>		
<p>2. Administrative arrangements</p> <p>2.1 Adoption of the agenda</p> <p>2.2 Confirmation of meeting documents</p> <p>2.3 Appointment of rapporteur</p>	<p>SC-07-02 Revised Provisional Agenda rev1</p> <p>SC-07-04 Table of agenda items and related papers rev12 (this)</p> <p>SC-07-05 List of registered participants</p>	<p>8</p> <p>12</p>
<p>3. Fisheries Reports</p> <p>3.1. Discussion and questions for each CCP annual national report</p> <p>3.2. Draft overview of SIOFA fisheries</p> <p>3.3. Fisheries Summaries (Project SEC2021-07)</p> <p>3.4. Data Access and Dissemination (Projects SEC2021-05 & SEC2021-06)</p> <p>3.5. Advice to the MoP</p>	<p>SC-07-14 Annual national reports Australia rev1</p> <p>SC-07-11 Annual national reports China</p> <p>SC-07-30 Annual National Report Comoros</p> <p>SC-07-17 Annual National Report the Cook Islands</p> <p>SC-07-16 Annual National Report EU</p> <p>SC-07-12 Annual national reports France OT</p> <p>SC-07-13 Annual national reports Japan rev1</p> <p>SC-07-19 Annual National Report Korea</p> <p>SC-07-15 Annual National Report Seychelles</p> <p>SC-07-10 Annual national reports Chinese Taipei rev1</p> <p>SC-07-18 Annual National Report Thailand</p> <p>SC-07-20 Overview of SIOFA Fisheries rev2 (restricted)</p> <p>SC-07-08 SIOFA data audit: access, dissemination, and presentation of data (SEC 2021-05, restricted)</p> <p>SC-07-INFO-03 OCD-SIOFA Cybersecurity-audit restitution (SEC 2021-06, conf)</p> <p>SC-07-INFO-04 Cybersecurity Audit Report (SEC2021-06, conf)</p> <p>SC-07-31 Transparency and distribution of meeting documents</p>	<p>11</p> <p>10</p> <p>11</p>
<p>4. Orange roughy</p>	<p>SC-07-21 ORY Acoustic data processing (ToR1 collation of data, restricted)</p> <p>SC-07-22 ORY Acoustic Data processing (ToR2 data quality control, restricted)</p>	

Agenda Item	Related Papers	R*
<p>4.1 Review of advice from the SERAWG</p> <p>4.2 Advice to MoP</p>	<p>SC-07-23 ORY Acoustic Data Processing (ToR3 Estimation of biomass, restricted)</p> <p>SC-07-25 Orange Roughy otolith ageing (project SER2021-02, consultant report, restricted)</p> <p>SC-07-35 Orange Roughy Stock Assessment 2021 v4 (consultant report, restricted)</p> <p>SC-07-38 SERAWG4 final report</p>	
<p>5. Patagonian toothfish</p> <p>5.1 Review of advice from SERAWG</p> <p>5.2. Review of CMM 2021/15 demersal stock</p> <p>5.3. Tagging procedure (project SEC2021-08)</p> <p>5.4. Advice to the MoP</p>	<p>SC-07-33 Toothfish data exchange workshop summary</p> <p>SC-07-38 SERAWG4 final report</p> <p>SC-07-06-SIOFA-toothfish-tagging-instructions-rev1</p>	
<p>6. Alfonsino</p> <p>6.1 Review of advice from the SERAWG</p> <p>6.3 Advice to the MoP and Future workplan</p>	<p>SC-07-38 SERAWG4 final report</p>	
<p>7. Other species, bycatch, harvest strategies, management units</p> <p>7.1 Consultant report of the harvest strategies: ToR2 Roadmap (Project SER2021-05)</p> <p>7.2 Consultant report of the Saya de Malha fisheries (Project SER2021-03)</p> <p>7.3 Consultant report on seabirds, mammals, and bycatch ERA (project PAE 2021-02)</p> <p>7.4 Seabird data collection and bycatch mitigation measures (Review of CMM 2019-13)</p>	<p>SC-07-07-SIOFA-teleost-ERA-FINAL</p> <p>SC-07-27 Initial results for comparing 3 approaches to set TACs (consultant report, restricted)</p> <p>SC-07-INFO-12 SER2021-05 ToR2 HS-roadmap-report rev1 (consultant report, restricted)</p> <p>SC-07-26 Saya de Malha Fisheries Scoping Study (consultant report, restricted)</p> <p>SC-07-28 PAE202102 ToR1 seabird and mammal ERAEF rev1 (consultant report, restricted)</p> <p>SC-07-29 PAE202102 ToR2 fish bycatch ERAEF (consultant report, restricted)</p> <p>SC-07-37 PAE202102 ToR3 bycatch-mitigations-recommendations (consultant report, restricted)</p> <p>SC-07-INFO-09 Review of SIOFA Seabird Bycatch and Data Standard CMMs against ACAP advice rev1</p>	8

Agenda Item	Related Papers	R*
<p>7.5 Definition of main species</p> <p>7.6 Review of the level of mortality of deep-water sharks</p> <p>7.7 Review of advice from the SERAWG and PAEWG</p> <p>7.8 Advice to MoP</p>	<p>SC-07-INFO-10 ACAP-spp-summary-and-mitigation-BPA</p> <p>SC-07-38 SERAWG4 final report</p> <p>SC-07-39 PAEWG4 final report</p>	8
<p>8. SIOFA Bottom Fishing Footprint</p> <p>8.1. Presentation of a hybrid footprint map</p> <p>8.2. Review of advice from the PAEWG</p> <p>8.3. Advice to MoP</p>	<p>SC-07-39 PAEWG4 final report</p>	8
<p>9. VMEs</p> <p>9.1 Updating of the Draft VME taxa list (Review of the CMM2020-01)</p> <p>9.2 Review of the process to agree thresholds</p> <p>9.3 Review of advice from the PAEWG</p> <p>9.4 Advice to MoP</p>	<p>SC-07-36 VME mapping progress report (consultant report, restricted)</p> <p>SC-07-INFO-01 Bycatch thresholds settings SIODFA</p> <p>SC-07-39 PAEWG4 final report</p>	8
<p>10. Bottom fishing impact assessment and bottom protected areas</p> <p>10.1 Presentation of final report regarding the trawl and longline cumulative BFIA</p> <p>10.2 Review of advice from the PAEWG</p> <p>10.3 Advice to MoP</p>	<p>SC-07-32 BFIA trawl longline (consultant report, restricted)</p> <p>SC-07-34 Saya-De-Malha ToR2 Bottom Impact Assessment rev1 (consultant report, restricted)</p> <p>SC-07-39 PAEWG4 final report</p>	8
<p>11. Data Standards</p> <p>11.1. Annual catch and effort data submission (Secretariat)</p> <p>11.2. E-monitoring scheme</p> <p>11.3. Role of scientific observers and harmonization (workshop informal notes)</p>	<p>SC-07-INFO-05 Annual Data Submission report 2021 rev1 (restricted)</p> <p>SC-07-INFO-11 E-Monitoring in some RFMOs rev1</p> <p>SC-07-INFO-07 Report of the Harmonisation of Scientific Observers Programmes workshop</p> <p>SC-07-INFO-08 SIOFA Observer code of conduct final</p>	12 6

Agenda Item	Related Papers	R*
11.4. Review of CMM 2021/02 on Data Standards (Project SEC 2021-09) 11.5. Advice to the MoP	SC-07-24 Workplan for the harmonisation of scientific observers' programmes. SC-07-INFO-09 Review of SIOFA Seabird Bycatch and Data Standard CMMs against ACAP advice rev1	8
12. Cooperation with external bodies 12.1. ABNJ Deep Sea Project 12.2. CCAMLR (including Data exchange Workshop) 12.3. ACAP 12.4. Monaco Exploration 12.5. Other Organisations	SC-07-INFO-14 Monaco-Explorations Saya-de-Malha Expedition	7
13. Scientific Committee Workplan 13.1. Consideration of external grants 13.2. Review and update of the Scientific Committee workplan and budget (Project SEC2021-11)	SC-07-INFO-06 EU-Funded Projects Progress Report SC-07-INFO-13 SIOFA-SC-Draft-Budget-2023-2025 rev2 + annex SC-07-INFO-15 SC Workplan 2021-2023 XLS	12 12
14. Future meeting arrangement	SC-07-INFO-02 Hosting the 2023 meetings of the SC	
15. Other Business 15.1. Elections of SC chairperson and vice chairperson 15.2 Other business		
16. Adoption of the meeting report		
17. Close of meeting		

ANNEX D: OVERVIEW OF SIOFA FISHERIES 2021

The information presented below has been extracted from the National Reports submitted to Scientific Committees. Where fisheries statistical information from the national reports is insufficient, data has been extracted from SIOFA databases.

The figures are incomplete as one CCP did not provide a National Report about their fishing activities in 2021. In addition, final 2021 catch, effort and observers' data are scheduled to be submitted by 31 May 2022.

1. Active Fleet Composition

Table 1: Summary of active vessels operating by flag/gear and by year in the SIOFA area (source National Reports)

		Year						
CCP*	Gear	2015	2016	2017	2018	2019	2020	2021
AUS	Multipurpose	1	1	0	0	1	1	1
	Longlines	0	0	0	1	0	0	2
	Trawls	0	0	0	0	0	0	0
CHN	Longlines	0	0	0	0	0	0	0
	Seine nets	6	8	5	0	0	0	0
COOK	Trawls	2	2	2	2	2	2	2
COM	Handlines	?	?	?	2	1	1	0
EUF	Longlines	0	1	1	0	0	0	0
EUS	Gillnets	1	0	0	0	0	0	0
	Longlines	1	1	1	2	1	1	1
FR-OT	Pots/Traps	0	1	0	1	0	0	0
	Longlines	2	0	2	0	1	2	1
JPN	Longlines	0	0	1	0	0	0	0
	Trawls	2	2	2	1	1	1	1
KOR	Longlines	0	0	0	0	0	0	0
	Trawls	0	0	0	0	0	0	0
MUS		?	?	?	?	?	?	?
SYC		0	0	0	0	0	0	0
CT	Pel. Longlines	21	40	45	35	42	51	49
THA	Pots/Traps	1	2	0	0	0	0	0
	Multipurpose (trawl/handline)	56	60	13	0	2	3	3
	Total	93	118	72	44	51	62	61

*CCP stands for Contracting Parties, Cooperating Non-Contracting Parties and Participating Fishing Entities
 ? no information provided.

Notes: Thailand fleet was mainly composed of small tonnage vessels. Chinese Taipei fleet are tuna longliners fishing also for oilfish. Korea has no active vessels since 2014.

2. Main fisheries operating in the SIOFA area

Table 2: Main SIOFA fisheries

Key species	Gear	Participants (reported in national reports between 2000 and 2019)	Area
Patagonian toothfish	Demersal longline Traps	Australia, EU-Spain, France (Territories), Japan, Korea	SIOFA subareas 3b, 7
Orange roughy	Demersal trawl	Australia, Cook Islands, China (2000-02)	Associated with seafloor features
Alfonsino	Midwater trawl	Australia, Cook Islands, Japan, Korea	Associated with seafloor features
Saurida and scads	Otter board trawl	Thailand	SIOFA subarea 8, Saya de Malha Bank
Shallow-water (<200m) snappers, emperors and groupers	Demersal longline, Hook and line Demersal trawl Traps	EU-France, Mauritius (?) Thailand, Comoros	SIOFA subarea 8, Saya de Malha Bank
Deeper water snappers, lutjanids, Hapuku	Demersal longline Dropline	Australia China EU	
Oilfish	Pelagic longline	Chinese Taipei	south-west Indian Ocean

3. Fishing Effort

Table 3: Summary of fishing effort by CCP, main gear and year (source National Reports).

Flag	Gear	Effort unit	Year						
			2015	2016	2017	2018	2019	2020	2021
AUS	Trawl	hours	15	26	0	0	0	0	0
	Longline/Vertical line	x1000 hooks	2	40	0	28	54.2	173	109.7
CHN	Seine net	hours	10000	4000	300	0	0	0	0
	Longline	x1000 hooks	0	0	0	0	0	0	0
COK	Trawl (mid)	shots	2050	1409	1534	897	1026	1549	1084
	Trawl (Bottom)	shots	679	565	451	672	589	381	336
EU-ESP	Gillnet	Km	1200	0	0	0	0	0	
	Longline	x1000 hooks	2300	3200	3200	5432	3435	2551	2691
EU-FRA	Longline	x1000 hooks	0	np	np	0	0	0	0
FR-OT	Longline/Vertical line	sets	66	13	33	30	40	46	54
	Longline	x1000 hooks	443.5	1.2	150.7	2.6	200	127	145
	Pot/Trap	number		40		50	0	0	0
JPN	Trawl	hours	2250	2500	3250	1091	1512	689	?
	Longline	x1000 hooks			64	0	0	0	0
KOR	Longline	hooks	0	0	0	0	0	0	0
	Trawl	hours	0	0	0	0	0	0	0
MUS			?	?	?	?	?	?	?
SYC	<i>no fishing</i>		0	0	0	0	0	0	0
CT	Longline	x1000 hooks	11501	22083	26557	20773	23145	21830	19506
THA	Trawl	shots	4090	4552	795	0	176	464	1003
	Handline	days					110	133	52
	Pot/Trap	number	0	8	10	0	0	0	0

COM	Handline	days	?	?	?	?	?	64	0
TOTAL	longline *	hooks (x1000)	14244	25324	29940	26204	26840	24683	22451
	trawl **	shots	9084	9063	6275	1667	1644	464	[2373]
		hours	2265	2526	3250		1512	689	

* does not include potential hooks number from sets

** total trawl effort should consider shots number and hours.

? no information provided to date.

Note: 2021 fishing efforts are incomplete as some information has not yet been provided by 2 CCPs. Handline effort is not reported by hooks number but by day.

4. Catches

4.1. Total catches

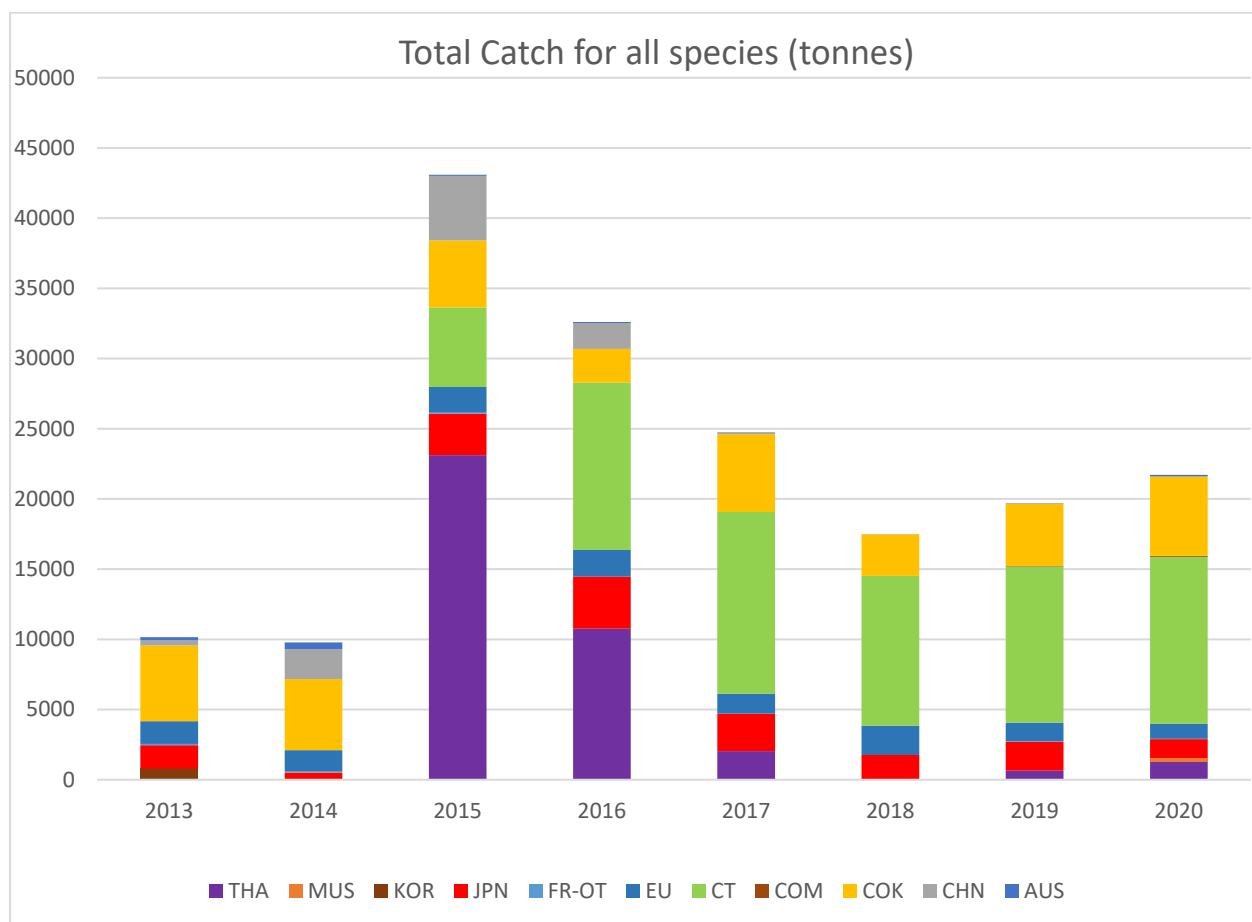


Figure 1: total yearly catch (tonnes) in SIOFA area (source SIOFA databases)

The increase in reported catch since 2015 was contributed by the catch from Thailand (THA) (2015-17) and Chinese Taipei (CT) catches. Thailand catches were mostly made from squads (*Decapterus sp.*) and lizardfish (*Saurida sp.*) and Chinese Taipei catches are oilfish from its tuna fishery. The 2021 catch is not displayed as the complete data is not available at the date the report was prepared.

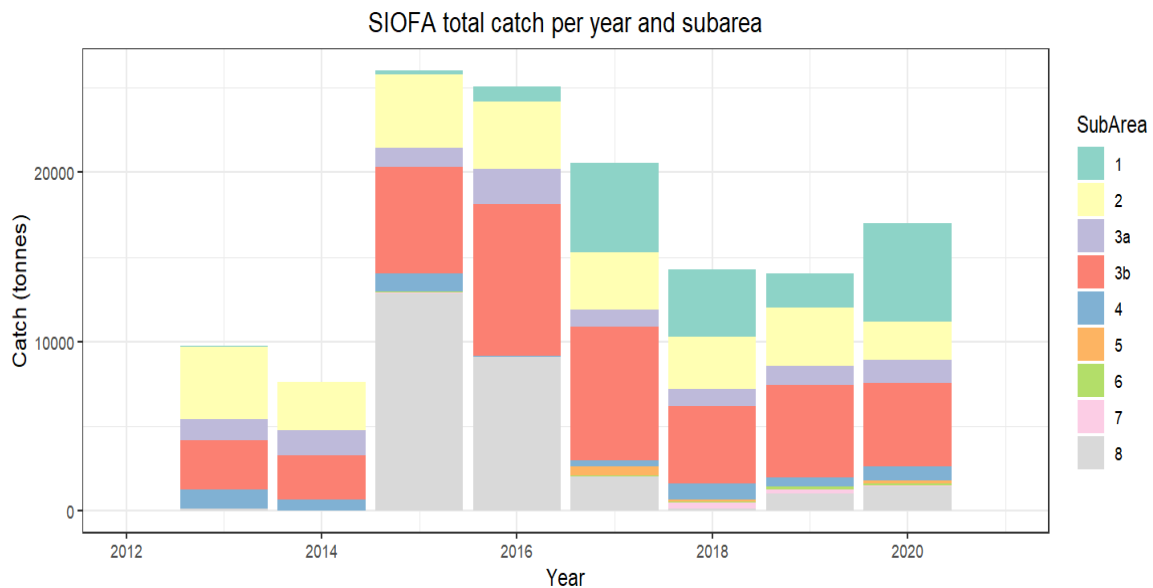


Figure 2: Catch reported by SIOFA subareas. Catch without spatial information are not included (source SIOFA databases)

4.2 Main species catch and effort

The catch of trawl vessels is predominantly alfonsino (4.2.1) and orange roughy (4.2.2). Species also caught by trawling include pelagic armourhead, bluenose warehou, violet warehou, ocean blue-eye trevalla and oreo dories, cardinal fish, hapuku wreckfish.

The addition of Thailand's fishery added Lizardfish and scads as a major catch from small trawlers since 2015.

The catch of longline vessels differs between three groups. There are longline vessels (reported by EU, Japan, Korea and France Overseas Territories) that catch Patagonian toothfish (4.2.3) and associated species, such as blue antimora. The second group catch hapuku wreckfish (4.2.4), ocean blue-eye trevalla, pelagic armourhead, rubyfish, common mora and, historically, deep-water sharks (4.2.5). The third group is the Chinese Taipei tuna longline fleet that catch oilfish (4.2.6).

The catch of the historical gillnet fisheries was predominantly deep-water sharks (4.2.5).

China's light seining fishery targeted mackerel and *Brama* species (such as *Brama japonica*) and its bottom longline fishery targeted ruby snapper and other species in the Lutjanid family.

4.2.1. Alfonsinos (*Beryx sp.*)

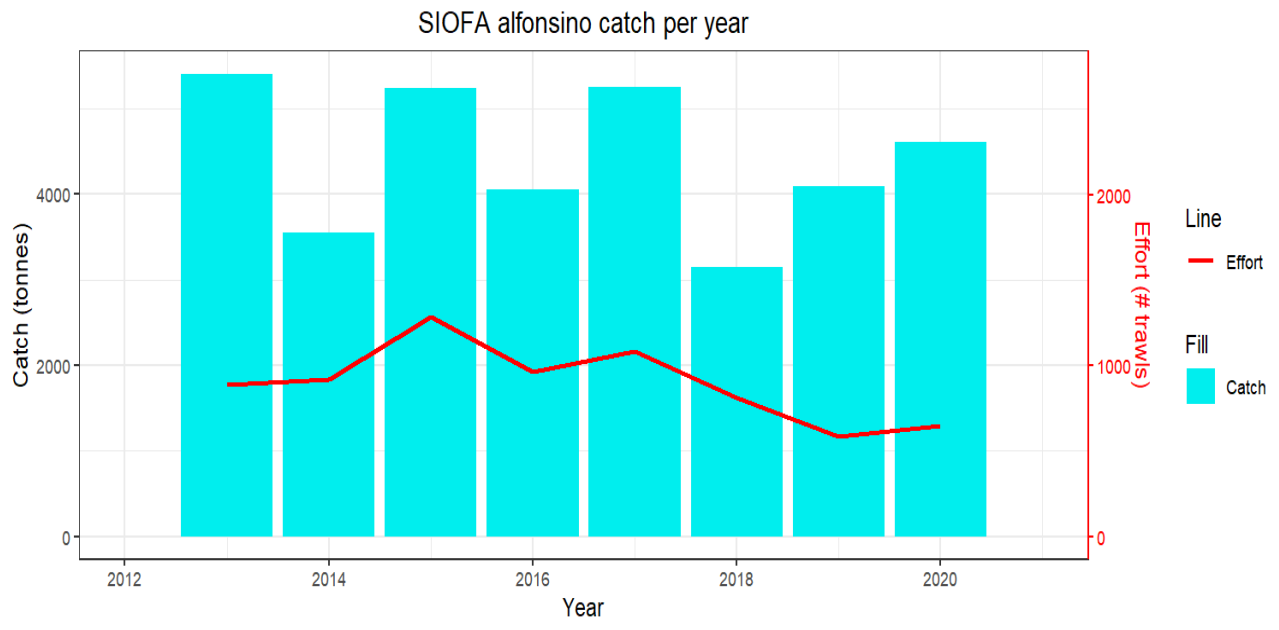


Figure 3: Total annual catch of alfonsinos (tonnes) and effort (source SIOFA databases)

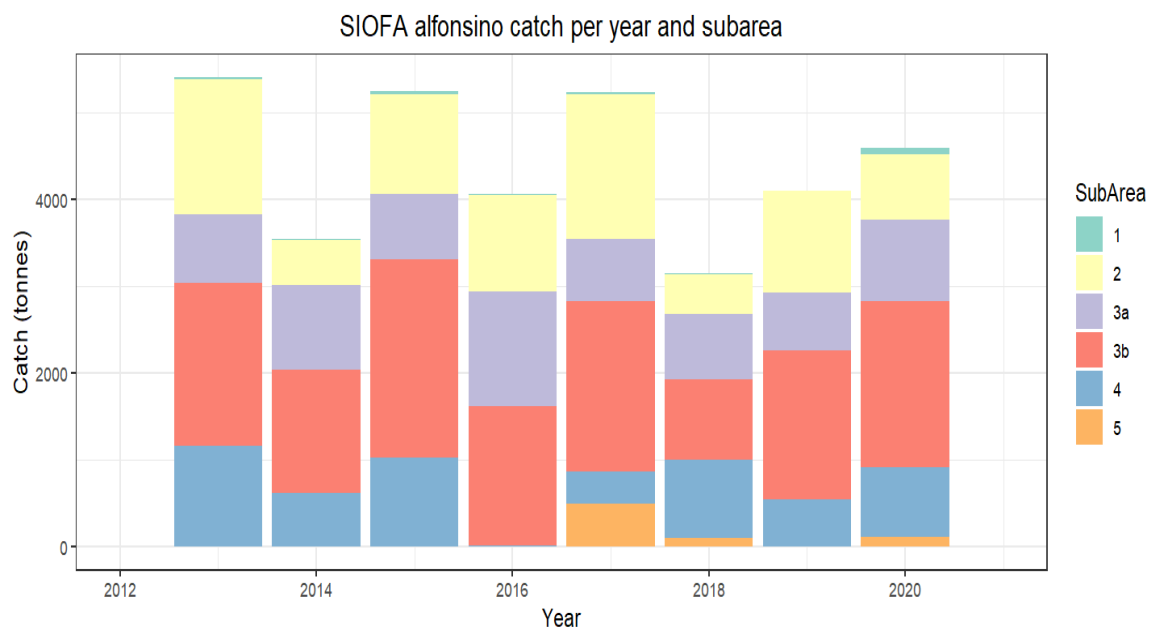


Figure 4: Annual catch of Alfonsino per SIOFA subarea (source SIOFA databases)

4.2.2. Orange roughy (*Hoplostethus atlanticus*)

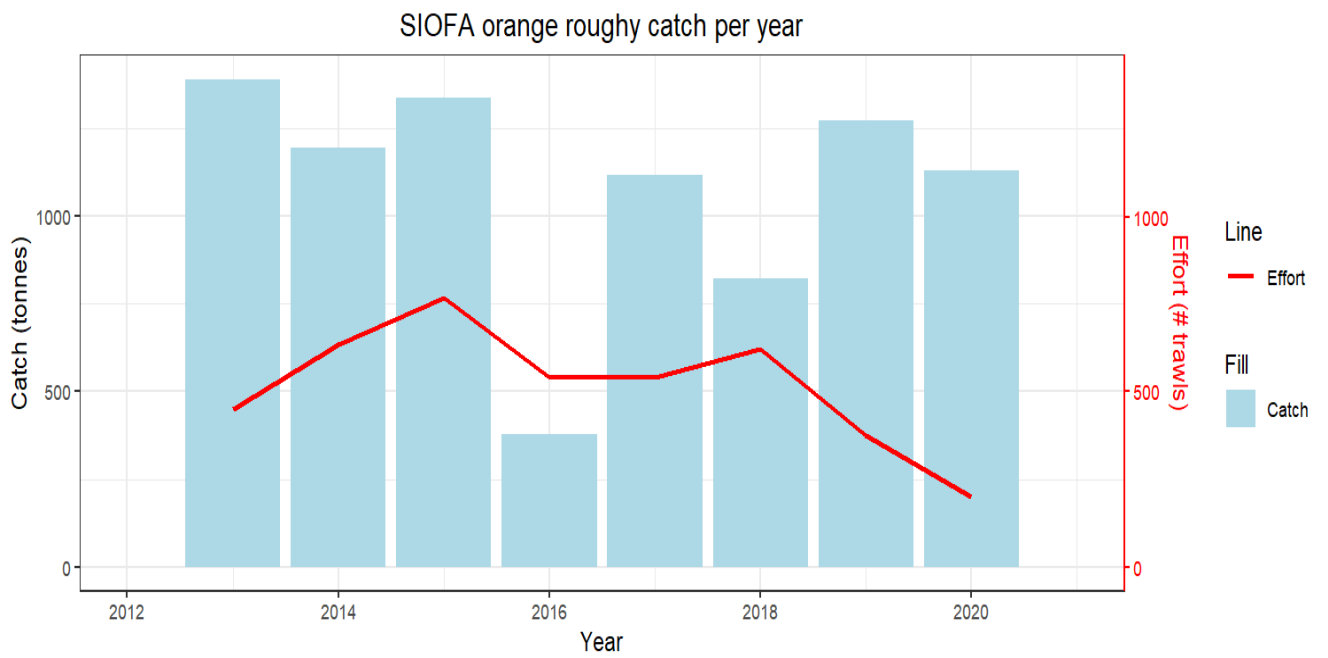


Figure 5: Total annual catch of orange roughy (tonnes) and effort (source SIOFA databases)

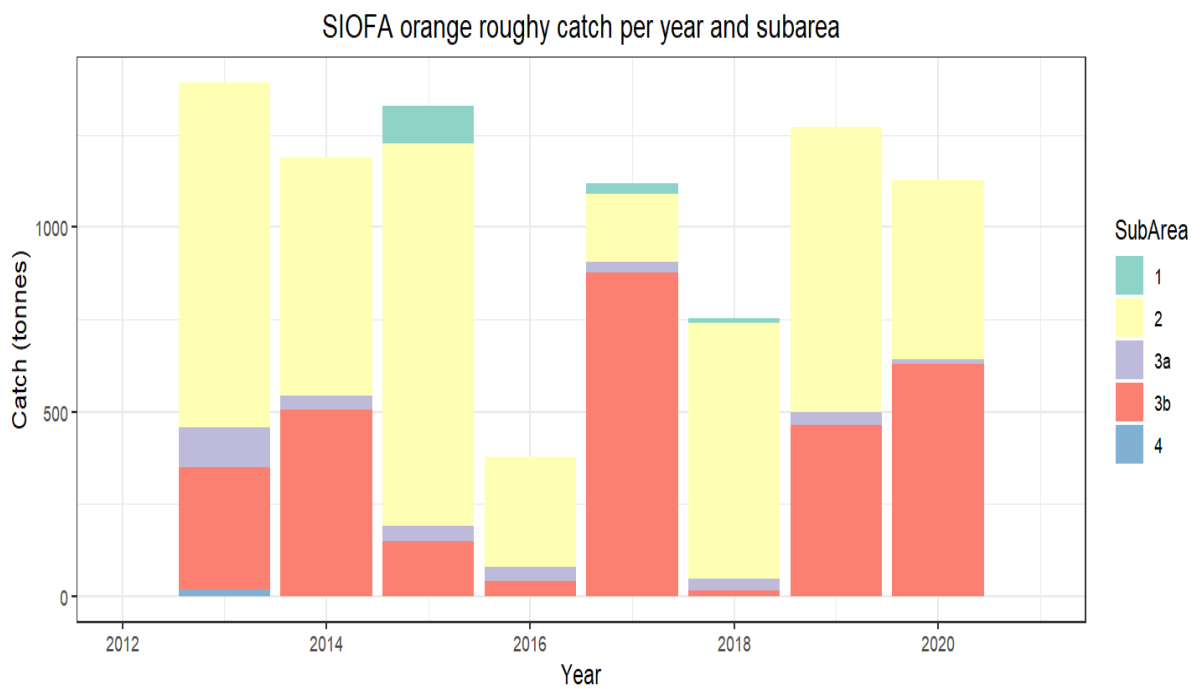


Figure 6: Annual catch of Orange Roughy per SIOFA subarea (source SIOFA databases)

4.2.3. Patagonian toothfish (*Dissostichus eleginoides*)

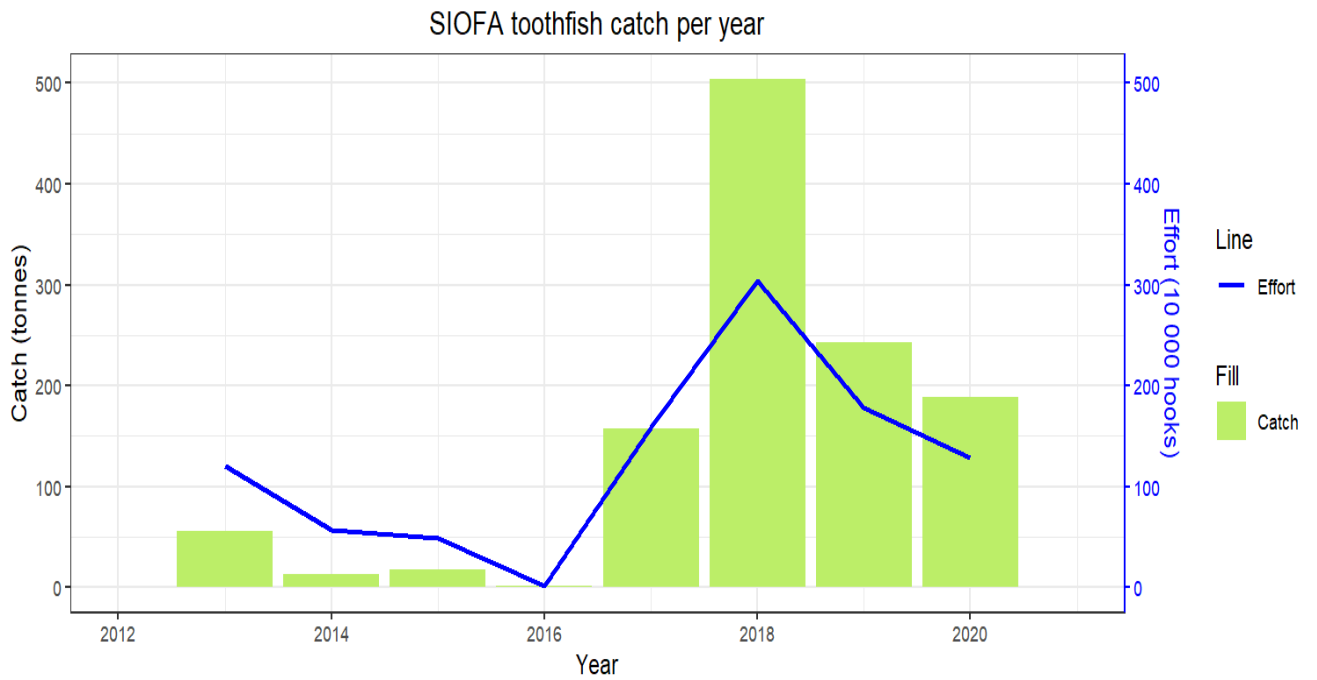


Figure 7: Total annual catch of Patagonian toothfish (tonnes) and effort (source SIOFA databases)

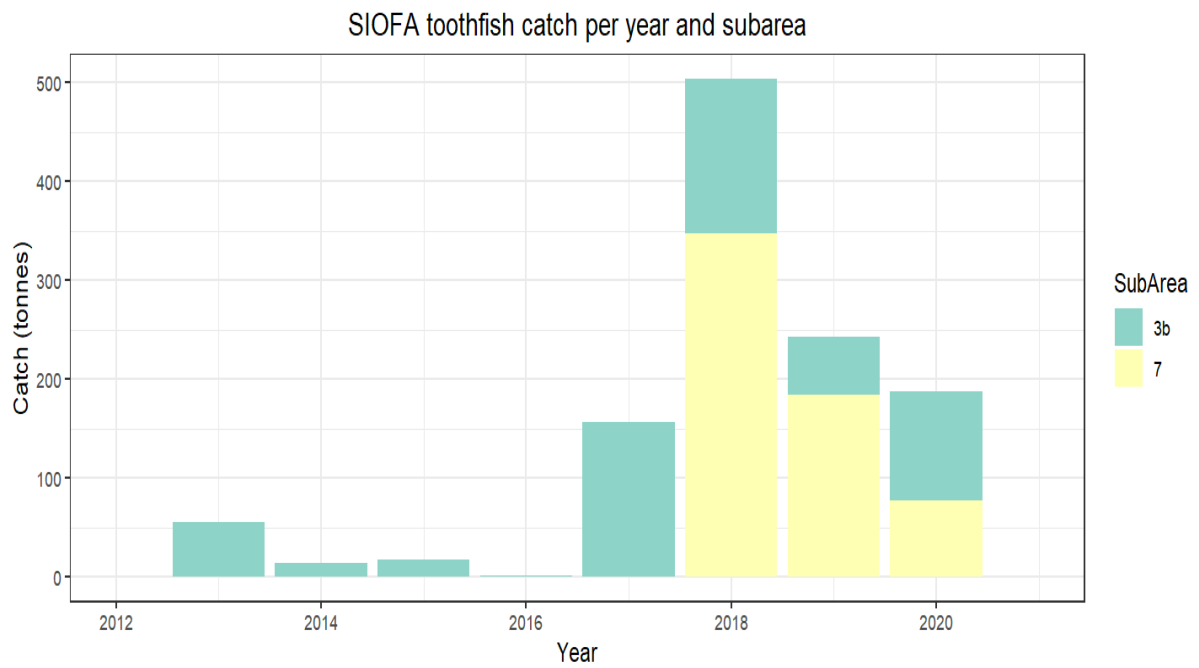


Figure 8: Annual catch of Patagonian Toothfish per SIOFA subarea (source SIOFA databases)

4.2.4. Wreckfish (HAU-*Polyprion* spp, WHA-*Polyprion oxygeneios*, WRF-*Polyprion americanus*)

SIOFA wreckfishes catch per year

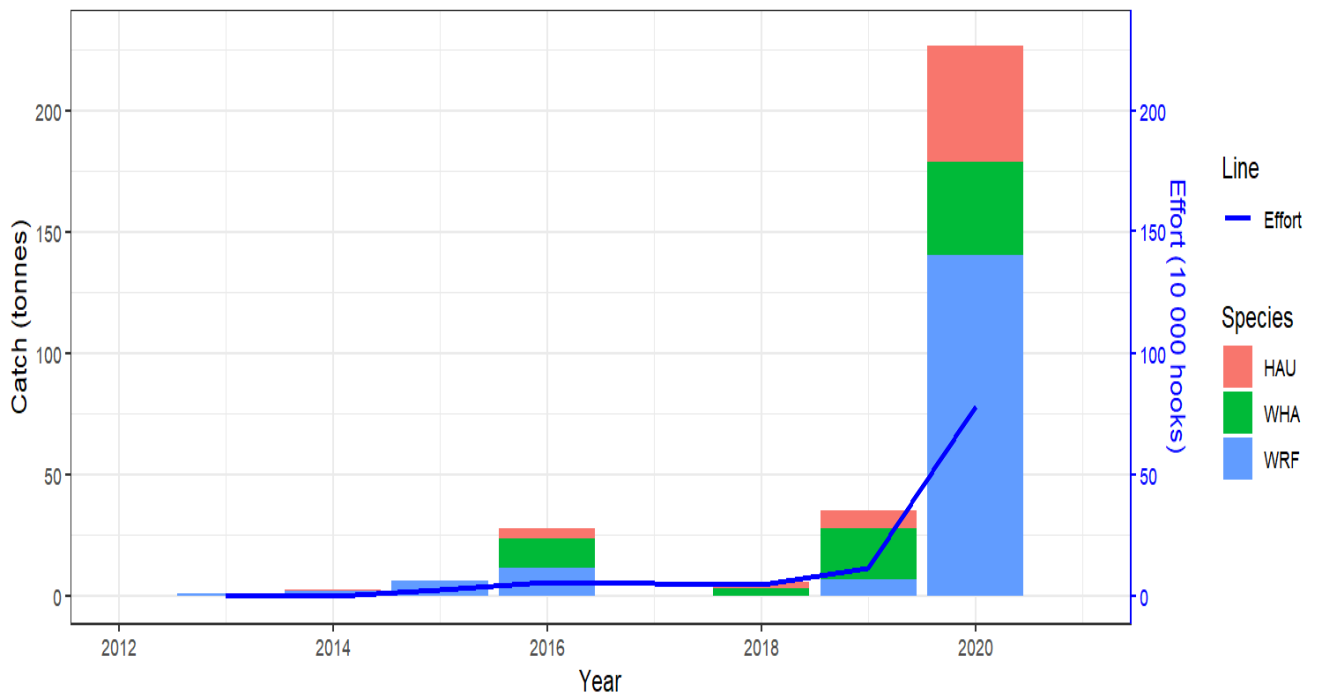


Figure 9: Annual total catch (tonne) of Polyprion species (source SIOFA databases)

SIOFA wreckfishes catch per year and subarea

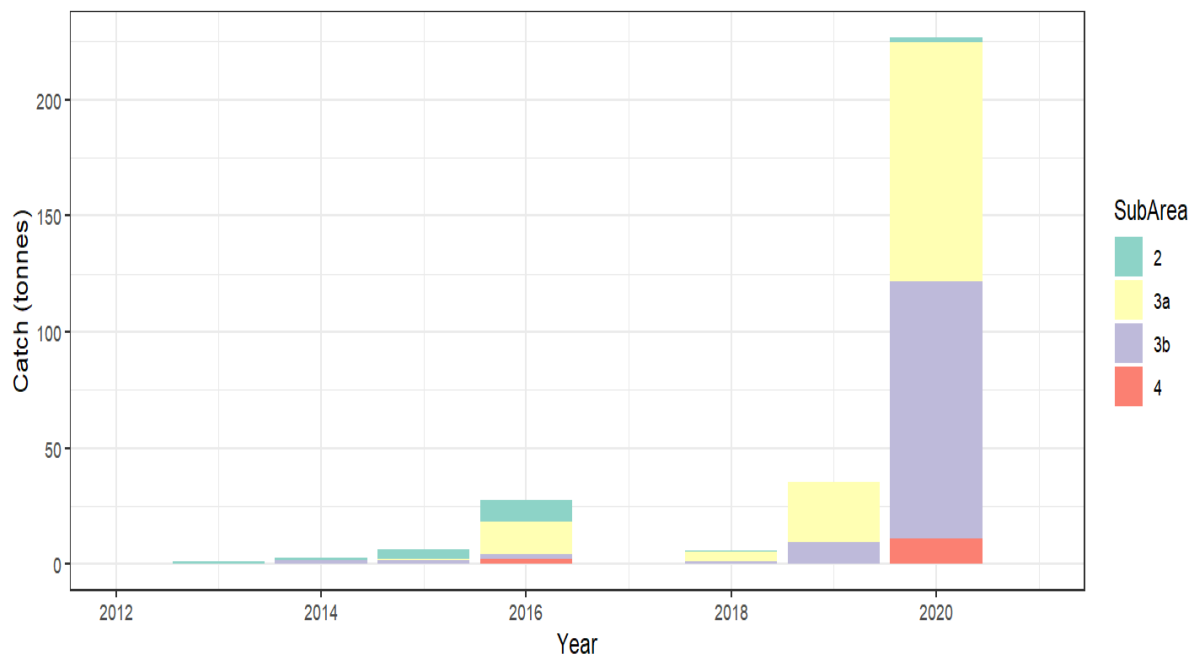


Figure 10: Annual catch of Polyprion species (tonnes) per SIOFA subarea (source SIOFA databases)

4.2.5. Deep-water sharks

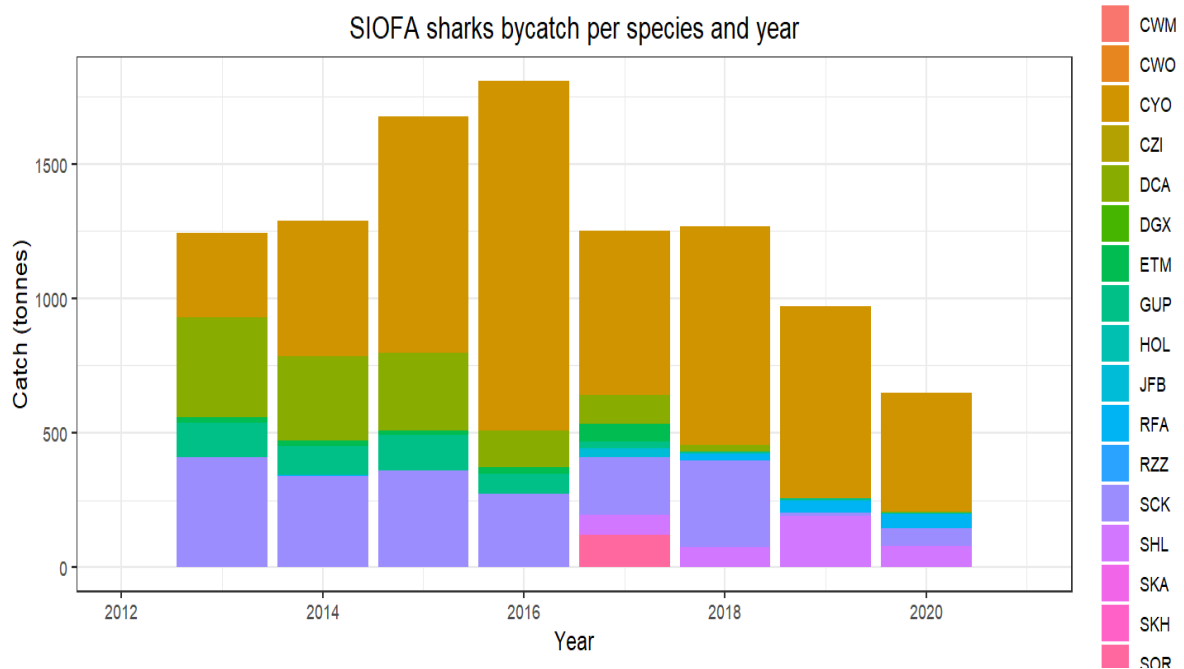


Figure 11: Total annual catch/bycatch of deep-water sharks' species (source SIOFA databases).

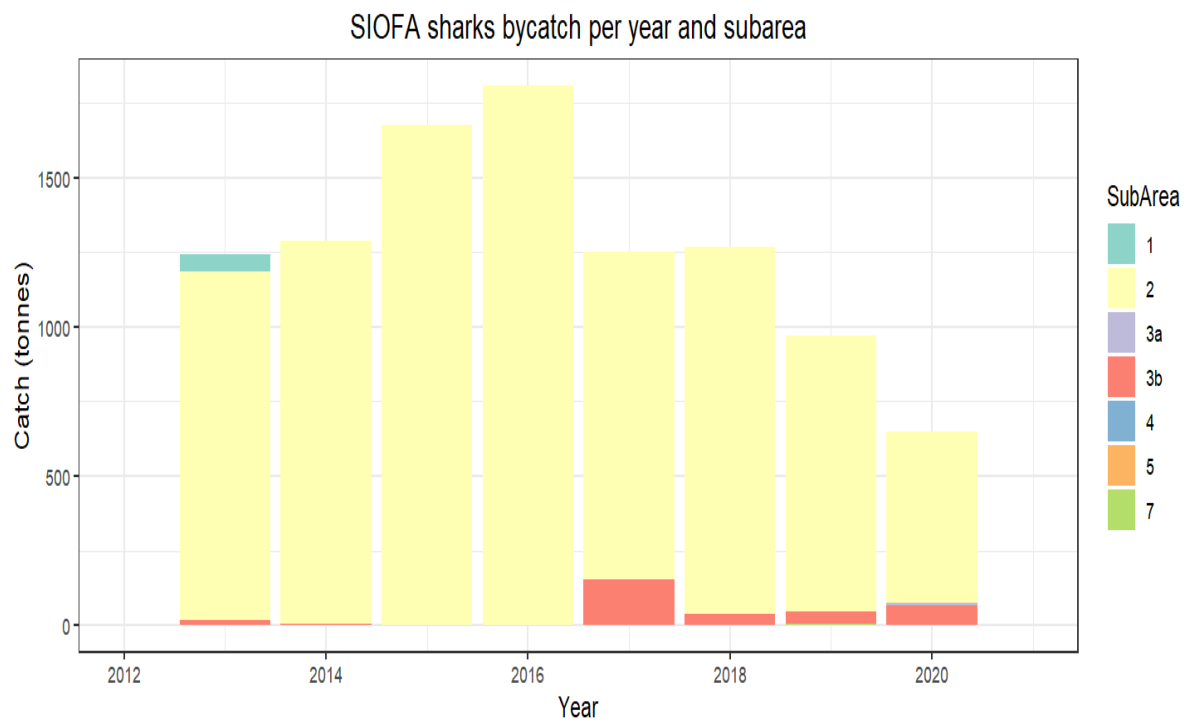


Figure 12: Annual catch/bycatch of deep-water sharks per SIOFA subarea (source SIOFA databases)

Note: Since the entry into force of CMM 2019/12, deep-water sharks are bycatch.

4.2.6. Oilfish (*Ruvettus pretiosus* and *Lepidocybium flavobrunneum*)

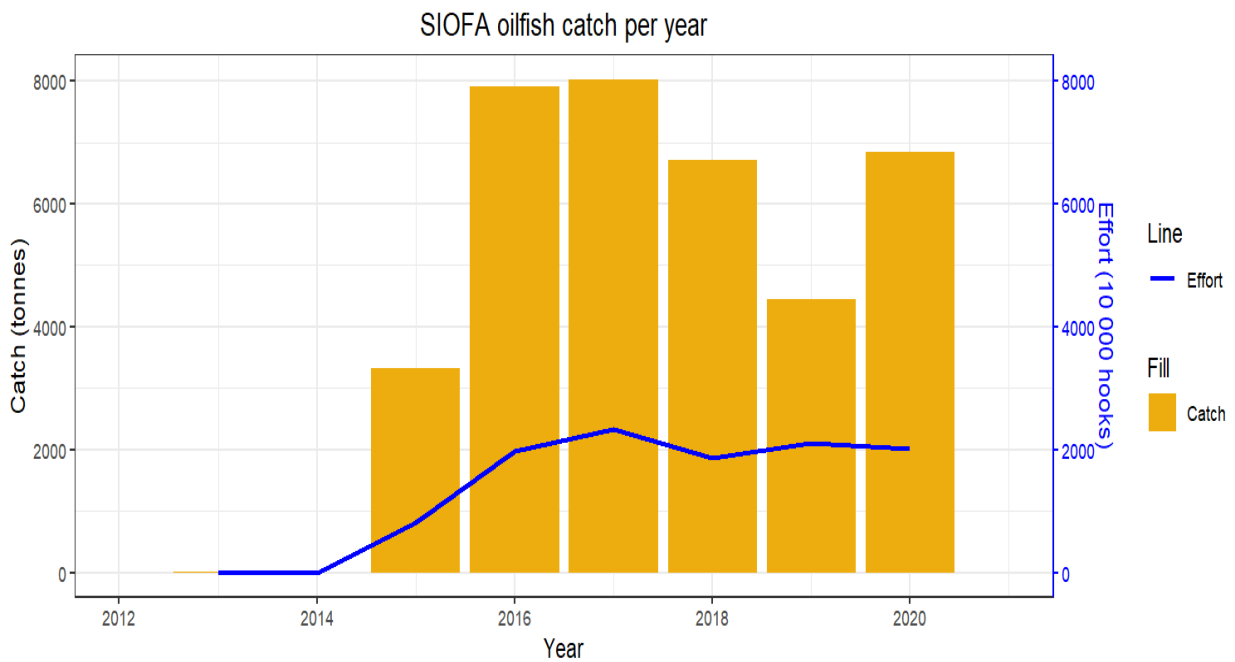


Figure 13: Total annual catch of Oilfish (tonnes, source SIOFA databases)

Note almost all catch and effort is produced by Chinese Taipei from its pelagic longline fishery, but a small amount of bycatch is also reported by other CCPs from other gears.

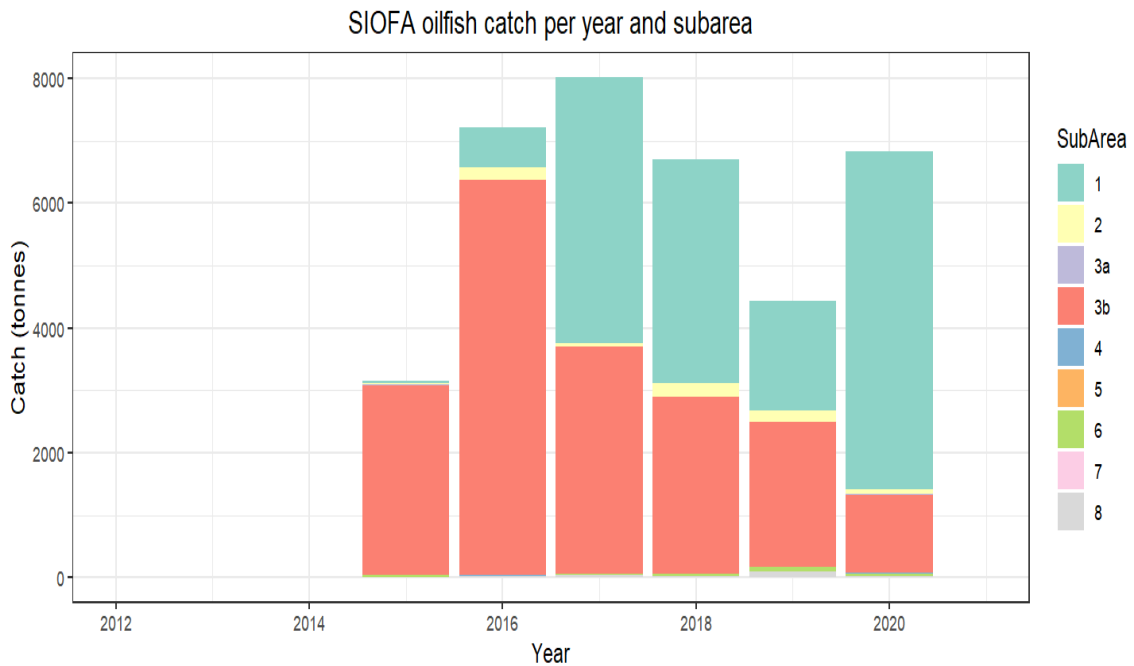


Figure 14: Annual oilfish catch (tonne) per SIOFA subarea (source SIOFA databases)

5. Vulnerable Marine Ecosystems (VMEs)

5.1. Benthos organisms bycatch summary

The table below summarizes the weight of benthos organisms' bycatch reported to the Secretariat in the catch and efforts data and observer's data submission in 2020.

Table 4: Total weight (kg) of benthic bycatch reported, 2020 (source SIOFA observer database)

Code	Scientific Name	Weight (Kg)								
		AUS	COK*	COM	EU-ES	FR-OT	JPN	MUS	THA	Totals
ADQ	Antipathes dichotoma								0.02	0.02
AJZ	Alcyonacea				1.01	0.84				1.85
AQZ	Antipatharia	0.8			5.64	0.01				6.45
ATX	Actiniaria	8.19			2.33	0.02				10.54
AXT	Stylasteridae	6.46			4.27	0.11				10.84
AZN	Anthoathecatae				0.147					0.147
BVH	Brachiopoda				0.28					0.28
BWY	Bathylasmatidae				0.06					0.06
BZN	Bryozoa				1.305					1.305
CNI	Cnidaria					0.1				0.1
CRU	Crustacea				0.27					0.27
CSS	Scleractinia	50.96			19.82					70.78
CWD	Crinoidea	2.24			0.12	0.09				2.45
DMO	Demospongiae	14.67			2.815			83		100.485
GGW	Gorgoniidae	14.13			24.37	4.54				43.04
HXY	Hexactinellida	0.13			2.44					2.57
INV	Invertebrata	7.63								7.63
KQM	Acropora formosa							10		10
NTW	Pennatulacea				0.53	0.13				0.66
OEQ	Euryalida	3.57			3.16					6.73
OOY	Ophiurida					1.28				1.28
PFR	Porifera	2.31			0.01	0.3		240		242.62
SSX	Ascidiacea	0.5				0.1				0.6
WBX	Holothuria spp				0.4					0.4
ZOT	Zoanthidea				1.005					1.005
Total		111			70	7.5			333	522

* Observer data from Cook Islands are not processed yet

5.2. VME management rules

One of the tools SIOFA implements to manage impacts on Vulnerable Marine Ecosystems (VME) from fishing is the application of move-on rules when thresholds of VME indicators are reached. These measures are described in CMM 2020/01 (interim bottom fishing measures). The table below summarises the thresholds and move-on rules applied by each CCP, and if any encounter occurred.

Table 5: Summary of VME thresholds and move-on rules, from National Reports

Flag	Threshold	Response and Management	Encounter
AUS	Australian-flagged vessels observe the thresholds and move-on rules specified in CMM 2020/01. Australian-flagged vessels are required to record any evidence of a Vulnerable Marine Ecosystem (VME) such as coral or sponges encountered in a fishing shot in logbooks.	Australian-flagged vessels observe the thresholds and move-on rules specified in CMM 2019/01. Australian-flagged vessels are required to record any evidence of a Vulnerable Marine Ecosystem (VME) such as coral or sponges encountered in a fishing shot in logbooks.	No thresholds were triggered by any Australian-flagged vessels in 2021.
COK	In 2021, flagged vessels adhered to the VME encounter threshold established in CMM 20/01 Interim Bottom Fishing Measures section 12(b)	In 2021, flagged vessels adhered to the VME encounter threshold established in CMM 20/01 Interim Bottom Fishing Measures section 12(b)	No shots breached the VME threshold in 2021
EU	From 2019, the EU bottom longline fleet is applying the protocols adopted by SIOFA in the CMM 2019-01. Previously the fishing vessels followed the rules adopted by the Fishing Administration, similar to those applied in SEAFO and CCAMLR in the definition of the VME encounter and thresholds (see SC-06-21 for details).	From 2019, the EU bottom longline fleet is applying the protocols adopted by SIOFA in the CMM 2019-01.	The threshold of 10 or more VME indicator units by segment has never been reached
JPN	From the middle of 2019 fishing season, Japanese fishing vessels have applied Article 12, CMM 2019/01, which establishes thresholds for bycatches of VME indicator species and move-on-rule in the encounter protocol, i.e., for trawl fisheries, 60 kg of live corals and 300 kg of sponges and for bottom longline fisheries, 10 or more VME-indicator units.	If by-catch amount of VME indicator species reach the threshold level, Japanese fishing vessels will follow the protocols stipulated in Article 12 to 19, CMM 2019/01, i.e. fishing vessels move away 2 and 1 nm for trawl and longline fisheries respectively then report it to the Secretariat.	No VME bycatch in 2021
FR-OT	Crew must collect and retain all benthic organisms for each segment in numbered buckets, those buckets will be made available for observers. The observers record benthic organisms' composition and abundance for each set. This information is also recorded in a digital logbook and transferred to the MNHN fishing database "PECHEKER".	No VME indicator thresholds were triggered for the period 2011-2021. The move-on protocol didn't need to be applied.	No interactions with threatened, endangered and protected species were reported in 2021.
KOR	Korea established a procedure to protect Vulnerable Marine Ecosystems from bottom fishing in the high seas, in accordance with UNGA Resolution 61/105, adopted in 2006, and 64/72, adopted in 2009. Korean domestic laws request all Korean bottom fishing vessels clearly mark the start and end of each haul on each fishery, and monitor all hauls to record the quantity of VME indicator organisms recovered during that haul. The fishing vessel, during its operation, shall submit the information with regard to its operation (e.g. position, date) to NIFS if it was confirmed that the vessel encountered VMEs. The threshold of the encounter of VMEs is over 60kg of coral per set or over 800kg of sponges per set.	If the amount of VME that exceeds the weight specified in the criteria, the vessel shall apply a 2 nmiles move-on rule to resume its fishing operation. Furthermore, the vessel shall relocate its fishing position until it reaches a point where no VMEs are confirmed.	no fishing in 2021

Flag	Threshold	Response and Management	Encounter
MUS	no information provided	no information provided	no information provided
SEY	no fishing in SIOFA area		no fishing in SIOFA area
CT	no bottom fishing in SIOFA area		no bottom fishing in SIOFA area
THA	<p>Trawls corals > 60 kg sponges > 300 kg</p> <p>Longlines corals or sponges > 10 units per 1,000 hooks or per mainline of 1,200 meters, whichever is the shorter</p> <p>Traps corals or sponges > more than thresholds to be assigned by SIOFA secretariat</p> <p>Other bottom fishing gears corals or sponges > more than thresholds to be assigned by SIOFA secretariat</p>	<p>Trawls: move at least 2 nautical miles area .</p> <p>Longlines: move at least 1 nautical mile.</p> <p>Traps: move at least 1 nautical mile.</p> <p>Other bottom fishing gears: move at least 1 nautical mile</p>	

6. Observers and port sampling programs

CMM 2020/01 require CCPs to implement scientific observer programs. Table 6 provides a summary of the observer programs implemented by each CCP and information on port sampling.

Table 6. Summary of Observers and Ports Sampling programs in 2020 (sources: CCPs' National Reports).

Flag	Item	Description
Australia	Coverage	Since 2010, Australian permit conditions for bottom fishing in the SIOFA area have required 100% observer coverage on all vessels permitted to use trawl gear, with this coverage being expressed as the percentage of hauls observed. A target of 20% observer coverage is required for vessels using non-trawl fishing methods, with this coverage being expressed as the number of hooks observed. Observer coverage requirements were met in 2021.
	Training	AFMA recruits and trains the observers. Observers have a scientific background and/or experience in the fishing industry or other maritime industries and must demonstrate skills in collecting biological data at sea, fisheries research methodologies and collection of associated scientific data. Observers also hold a sea safety certificate and medical certificate, and have completed an AFMA observer training course. Some observers hold a marine radio operators certificate of proficiency (or similar qualifications).
	Collection	Observers collect a range of data on vessel characteristics, fishing activity, catch composition, discarding and bycatch. Observer data are provided to the SIOFA Secretariat in accordance with CMM 2021/02.
	Port sampling	Australia does not have a port sampling program for vessels that fish in the SIOFA area. The landings are monitored through catch disposal records where the catch is verified by an AFMA-approved fish receiver.
China	Coverage	China did not conduct an observer program for demersal trawling from 2000 to 2002 in the Indian Ocean. Neither did China for Light seining fishery from 2014 to 2017. Since 2005 China has been conducting an observer program for bottom longlining.
	Training	
	Collection	
	Port sampling	China does not have a regular port sampling program for the vessels operating in the Indian Ocean except for tuna fishing. However from 2015 to 2019, China has sampled the catch by light seining.
Comoros*		Since the Diego Star 2 is a mother boat, it is difficult to take an observer on board and to find reliable data therefore it is the small motorized boats which carry out the fishing activities. The main difficulty arises in making observers available for each boat, of which there are 19 today.
Cook is.	Coverage	In 2021, The Cook Islands National Observer Programme (CINOP) experienced issues and restrictions caused by COVID -19. As a result of the COVID-19 outbreak, CINOP was unable to maintain 100% observer trip coverage. and we continued to request an extention of the derogation of

Flag	Item	Description
		paragraph 39(A) of CMM 2020/01 (interim Bottom Fishing Measures). The Cook Island has in addition, requested an extension of this derogation to March 2022.
	Training	In 2019 MMR had trained two additional Observers from the Pacific Islands Regional Fisheries Observers (PIRFO) Programme to carry out placements on Cook Island vessels.
	Collection	
	Port sampling	Cook Islands vessels unload in either Cape Town or Port Louis. Entry and unloading at port is governed by the relevant Port State authorities under their domestic legislation. The Cook Islands does not have a port sampling programme as sampling is conducted onboard the vessel by the observer.
EU France	Coverage	<i>No fishing in 2021</i>
	Training	
	Collection	
	Port sampling	The EU has no port sampling program for vessels fishing within the SIOFA CA.
EU Spain	Coverage	In 2021 a total of two trips out of three have been covered by an on-board observer corresponding 100% of the TOP targeted fishing days and 43% of the fishing days targeting other species from a total of 307 fishing days.
	Training	The scientific observers (Biologist or Marine Science degree) are trained at the Instituto Español de Oceanografía, specific training is also adapted for all fleets that are monitored.
	Collection	
	Port sampling	The EU has no port sampling program for vessels fishing within the SIOFA CA.
France Oversea Territories	Coverage	100% trip coverage (100% coverage within hauls, 25% coverage for birds)
	Training	The FR-OT observer program is described in info-paper (WHSOP1-INFO-06-French-Observer-program.pdf). This document describes the French observer program, current update is October 2021 according to the SIOFA's CMM. This report include summary sections covering: observer training, program design and coverage, type of data collected. During the previous calendar year, no problems are encountered in the of the observer program implementation report. All the data collecting by the observer program are provide to the secretariat following the CMM 2021-02. Biological sampling and length composition of catches is provide to the secretariat through the annual data submission. No specific analyse is conduct in this report.
	Collection	

Flag	Item	Description
		The observation programme follows the guidelines in Annex 4, on 'Function and tasks of the scientific observer' and Annex 5, on 'Protocol for documenting whale interaction in deep-sea demersal longline fisheries'.
	Port sampling	In order to keep track of the catch: species and area where the fish were caught are reported on every single box containing the fish to be landed for commercial purposes. An independent company of experts based in La Réunion island is tasked to weigh a second time (the first time being on the factory of the ship at sea) all the fish boxes and report the exact weight for each combination of area, species and product. Those data are then used to correct the weights collected at sea. For Patagonian toothfish, an official DCD (Dissostichus Catch Document) from CCAMLR is produced at the scale of each trip and contains all needed information on species, products and areas including SIOFA.
Japan	Training	In accordance with Article 30, CMM 2016/01 (SIOFA interim observer program), Japan started the observer program from January 2017 (for details, see National Report of Japan in 2017, SIOFA-2017-SC02-04 (05)). This program is based on the Japanese scientific observer program for bottom trawl fisheries in North Pacific Fisheries Commission (NPFC) CA. The scientific observers collect items listed in Annex B, CMM2017/02, CMM2018/02, CMM2019/02, and CMM 2021/02, i.e., catch by species, effort, biological data, bycatch information by species including VME indicator species, non-target species (sharks, seabird, marine mammals, reptiles and other species of concern) and other requested information.
	Collection	
	Coverage	The observers are deployed to all operating vessels, and they cover all activities in fishing operations (100% coverage) since 2017.
	Port sampling	There are no port sampling programs in Japan.
Korea*	Training	Korean scientific observer program for distant water fisheries started in 2002. National Institute of Fisheries Science (NIFS) is responsible for implementing and developing the observer program. The qualification for a person to be an observer is: a person who is a college graduate whose major field is nature science, or else, a fisheries high school graduate who accompanies at least 2-year experience on board having a certificate of qualification to deck officer. Candidates for observer who have passed the paper review (including medical check-up) and oral interview have to take training programs for 3 weeks. Observer training programs include basic safety training for seafaring, operations of navigation devices, biological information training for target and non-target species and data collection method for fishing activities. During the training program they have two types of test. One is the test on a technical term of fisheries and biology, and the other is the test on species identification. The person who scored above 70 in both tests and attended 100% of the course timetable can be qualified and deployed on board as a scientific observer. NIFS trains observers again before dispatching them to each RFMO area. The training includes the conservation and management measure of each RFMO, how to collect the data and sample, specific task needs to be done and more.
	Coverage	No fishing in 2021
Mauritius		<i>no information provided</i>
Seychelles		<i>no fishing</i>

Flag	Item	Description
Chinese Taipei	Training	For purposes of collecting fisheries data and bycatch data, Taiwan launched the pilot observer program in 2001 and deployed observers on vessels fishing in the Indian Ocean commenced in 2002. Our observer program had received interim authorization in 2009 and received full authorization after auditing in November 2011 and October 2017, respectively. The forms used in our observer program are fully conformed to the standards set by WCPFC which include the fishing activities, catch number and weight, species identification, bycatch species and status. In addition, length frequency of major species and the sighting and incidental catch of ecological species were recorded, and biological samplings were collected for biological research. To fulfil the obligation of distant waters fishing state, the observer data has been provided to t-RFMOs, including CCSBT, IATTC, ICCAT and WCPFC, per their requirements, and the trip reports of individual observer of the Indian Ocean has been submitted to IOTC per its resolution on regional observer program.
	Collection	
	Coverage	In 2021, there were 6,921 fishing day observed by 43 observers dispatched to Taiwanese tuna longline vessels operating in the Indian Ocean. The observer coverage rate of Taiwanese oilfish longline fishery from 2017 to 2021 were summarised in Table 6 which ranges between 5.94% to 15.49% and it should be noted that the observer coverage rate of 2021 is still in preliminary.
	Port sampling	A port sampling program has conducted in domestic ports to collect the size data of tuna and tuna-like species.
Thailand	Training	The training course for observer contained 11 modules of essential fisheries observer principle based on the FAO Guidelines for Developing an at Sea Fisheries Observer Program. These included the Basic Training of Seaman, Fisheries Management, Legal and Policy Framework, Health and Safety, Code of Conduct for Observers, Fishing Vessels and Gears, Data Collection, Recording Forms and Documents, Navigation, Radio Communication and Shipboard Training.
	Coverage	<ul style="list-style-type: none"> - Vessels using trawl gear must have onboard observer coverage for the entire duration of the trip (100% coverage). - Vessels using any other bottom fishing gear types must have onboard observer for 20% of operation in any calendar year. - 100% transhipment observer coverage.
	Collection	<p>Duties of observer:</p> <ul style="list-style-type: none"> - Observe and collect biological information, including catch composition sampling of the transhipped aquatic animal, and other activities such as sorting, processing, or observe several parts onboard the vessel, fish hold, wheel house and technology of fishing gears. - Record biological information or data related to the conduct of the conservation and management measures in the format defined by the Department of Fisheries, composition, number of bycatch or discard, type of fishing gear, mesh size, fishing logbook, transhipment, etc. as well as co-signing in the transhipment report by observer, fishing vessel and transhipment vessel
	Port sampling	Port inspector will inspect the documentation and physical checks on board for port in –port out permission and the video recorded by the EM will be inspected by port inspector prior to authorize to unloading. Besides, the Thai authorities will also carry out the catch landing inspection when

Flag	Item	Description
		porting in for reliability and accuracy of information on landed fish before entering the supply chain. During this process, catch weight is verified with landing declaration documents, such as fishing logbook, fishing gears and Marine Catch Transshipment Document (MCTD) in the case of transshipments.

*Sourced from 2020 National Report

7. Summary of biological samplings

7.1. Length measurements for main species

Table 6: Summary of the number of fish that have been measured by scientific observers for SIOFA main species (source SIOFA observer database, Cook Island 2020 data, and Chinese Taipei National Report)

year	Alfonsinos	Deep water sharks	Oilfish	Orange roughies	Toothfish
2012	4496	1027	5	1384	
2013	990	12		32	
2014	792	11		283	
2015	500		14		
2016	9608		10		
2017	39863	189	12558		792
2018	24014	7	87933	9727	254
2019	32245	8882	59919	9605	4955
2020	22923	6214	75990	11626	5564

7.2. Length measurements for other species

Table 7: Summary of the number of fish that have been measured (length) by species by scientific observers in 2020. Only species where at least 40 individuals have been measured are showing (source SIOFA observer database, Chinese Taipei and Cook Islands National Reports)

Species Code	English Name	Scientific Name	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
ALL	Warty dory	Allocyttus verrucosus	68								12	80
ANT	Blue antimora	Antimora rostrata						316		658	1162	2648
AVR	Green jobfish	Aprion virescens								515	171	686
BAR	Barracudas nei	Sphyraena spp								73	4	77
BRF	Blackbelly rosefish	Helicolenus dactylopterus								105	350	455
BWA	Bluenose warehou	Hyperoglyphe antarctica	48	61	34		5		1	9	141	299
BYR	Kerguelen sandpaper skate	Bathyraja irrasa						6		22	18	468
CDL	Cardinal fishes nei	Epigonus spp	148									148
CGZ	Conger eels nei	Conger spp									292	292
COX	Conger eels, etc. nei	Congridae								99		111
CVY	Grenadiers, whiptails nei	Coryphaenoides spp	574							1	37	612
DCC	Shortfin scad	Decapterus macrosoma								3052	1014	4066
DCK	Redtail scad	Decapterus kurroides								606	109	715
DOP	Shortnose spurdog	Squalus megalops									81	81
EDR	Pelagic armourhead	Pseudopentaceros richardsoni	737	42	56		338	1650	13		87	2923
EMN	Marbled coralgroup	Plectropomus punctatus								96	65	161
EMT	Bonnetmouths, rubyfishes nei	Emmelichthyidae	55								4	59
EPI	Black cardinal fish	Epigonus telescopus	372	68	210						16	666

Species Code	English Name	Scientific Name	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
FIT	Flutemouth	Fistularia spp								202	161	363
GEP	Snake mackerels, escolars nei	Gempylidae					50					50
GES	Snake mackerel	Gempylus serpens	522									522
GOX	Goatfishes	Upeneus spp								420		420
GRV	Grenadiers nei	Macrourus spp	170					279	27	12	517	1005
GUQ	Leafscale gulper shark	Centrophorus squamosus	1							272	346	795
HYD	Ratfishes nei	Hydrolagus spp								58	212	270
IWX	Coralgroupers nei	Plectropomus spp								120	52	172
JAX	Jack and horse mackerels nei	Trachurus spp			110		50					160
KZJ	Delagoa threadfin bream	Nemipterus bipunctatus								5803	8558	14361
LEN	Smalltooth emperor	Lethrinus microdon									110	110
LIB	Brushtooth lizardfish	Saurida undosquamis								6056	5327	11383
LJB	Two-spot red snapper	Lutjanus bohar								205	225	430
LJG	Humpback red snapper	Lutjanus gibbus								198	259	457
LUB	Emperor red snapper	Lutjanus sebae								13	105	118
LZX	(blank)	Lethrinus spp								196	44	240
MAX	Mackerels nei	Scombridae	66									66
MCH	Bigeye grenadier	Macrourus holotrachys						150	60	1183	1339	3263
MOR	Moras nei	Moridae	61								6	67
MSN	Bathypelagic rattail	Mesobius antipodum	54									54
NGU	Yellowspotted trevally	Carangoides fulvoguttatus								231	3306	3537

Species Code	English Name	Scientific Name	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
NGX	(blank)	Carangoides spp								1851	490	2341
ONV	Spiky oreo	Neocyttus rhomboidalis	520	43	427							990
OPH	Cusk-eels, brotulas nei	Ophidiidae	4								107	111
QMC	Caml grenadier	Macrourus caml									63	63
QUK	Shortspine spurdog	Squalus mitsukurii								13	65	78
RIB	Common mora	Mora moro	337		51			20	8	687	701	2501
ROK	Rosefishes nei	Helicolenus spp	32					20	26	1	180	259
RUS	Indian scad	Decapterus russelli								8457	13511	21968
RYG	Rubyfish	Plagiogeneion rubiginosum	484	20	353		50			1		908
SDC	Basketwork eel	Diastobranchus capensis	15					73			3	91
SDU	Arrowhead dogfish	Deania profundorum									112	112
SEY	Violet warehou	Schedophilus velaini	717	616	560	89	519		1	59	160	2721
SFS	Silver scabbardfish	Lepidopus caudatus	126									126
SSO	Smooth oreo dory	Pseudocyttus maculatus	67		82							149
SVY	Cutthroat eels nei	Synphobranchidae								90	325	415
SYW	Variegated lizardfish	Synodus variegatus								101	85	186
TBE	Terebellum conch	Terebellum terebellum	68									68
WGR	Whitson's grenadier	Macrourus whitsoni									159	159
WHA	Hapuku wreckfish	Polyprion oxygeneios	107	10	6		136		10	24	527	820
WRF	Wreckfish	Polyprion americanus		1			96		32	111	1951	2195
YTC	Yellowtail amberjack	Seriola lalandi	15	8			20				23	66

7.3. Biological samplings performed in 2020

The table below display the number of biological samplings conducted in 2020.

Table 8: Summary of the number of fish that have been sampled (weight, maturity, sex, etc.) by scientific observers in 2020 (source SIOFA observer database)

Species code	English Name	Scientific Name	Maturity (n)	Sex (n)	Weight (n)
ALL	Warty dory	Allocyttus verrucosus			12
ANT	Blue antimora	Antimora rostrata	5	285	763
API	Deep-water catsharks	Apristurus spp	14	14	16
AVR	Green jobfish	Aprion virescens			171
BEA	Eaton's skate	Bathyraja eatonii	4	12	12
BGX	(blank)	Pomadasys spp			21
BIG	Bigeyes nei	Priacanthus spp			21
BIS	Bigeye scad	Selar crumenophthalmus			88
BRF	Blackbelly rosefish	Helicolenus dactylopterus			350
BWA	Bluenose warehou	Hyperoglyphe antarctica		94	131
BXD	Alfonsino	Beryx decadactylus	16	60	398
BYR	Kerguelen sandpaper skate	Bathyraja irrasa	13	18	18
CGZ	Conger eels nei	Conger spp			292
CLD	Sliteye shark	Loxodon macrorhinus			22
COE	European conger	Conger conger			16
CRS	Portunus swimcrabs nei	Portunus spp			40
CVY	Grenadiers, whiptails nei	Coryphaenoides spp	6	22	22
CWZ	Carcharhinus sharks nei	Carcharhinus spp	8	9	14
CYO	Portuguese dogfish	Centroscymnus coelolepis	2453	2454	2454
CYP	Longnose velvet dogfish	Centroscymnus crepidater	36	36	36
CZL	(blank)	Coryphaenoides lecointei	12	12	12
DCA	Birdbeak dogfish	Deania calcea	292	292	292
DGZ	Dogfishes nei	Squalus spp	26	26	26
DOP	Shortnose spurdog	Squalus megalops	81	81	81
EDR	Pelagic armourhead	Pseudopentaceros richardsoni		10	87
EMN	Marbled coralgrouper	Plectropomus punctatus			65
EMU	Roving coralgrouper	Plectropomus pessuliferus			12
ENE	Cape armourhead	Pentaceros capensis			19

Species code	English Name	Scientific Name	Maturity (n)	Sex (n)	Weight (n)
EPI	Black cardinal fish	Epigonus telescopus			16
FIP	Red cornetfish	Fistularia petimba			23
FIT	Flutemouth	Fistularia spp			59
GER	Chaceon geryons nei	Chaceon spp		14	14
GOX	Goatfishes	Upeneus spp			49
GRV	Grenadiers nei	Macrourus spp	5	356	143
GUP	Gulper shark	Centrophorus granulosus	197	197	197
GUQ	Leafscale gulper shark	Centrophorus squamosus	346	346	346
GUX	Gurnards, searobins nei	Triglidae			16
HXT	Sharpnose sevengill shark	Heptanchias perlo	39	39	39
HYD	Ratfishes nei	Hydrolagus spp	188	212	212
IAX	Cuttlefishes nei	Sepia spp			17
IWX	Coralgroupers nei	Plectropomus spp			52
KCZ	King crabs nei	Lithodes spp	5	17	17
LEF	Lefteye flounders nei	Bothidae			31
LEN	Smalltooth emperor	Lethrinus microdon			112
LFX	(blank)	Lagocephalus spp			10
LHO	Longface emperor	Lethrinus olivaceus			23
LJB	Two-spot red snapper	Lutjanus bohar			225
LJG	Humpback red snapper	Lutjanus gibbus			259
LLV	Lunartail puffer	Lagocephalus lunaris			10
LUB	Emperor red snapper	Lutjanus sebae			108
LZX	(blank)	Lethrinus spp			54
MCH	Bigeye grenadier	Macrourus holotrachys	110	110	1339
NGU	Yellowspotted trevally	Carangoides fulvoguttatus			3309
NGX	(blank)	Carangoides spp			514
NGY	Bludger	Carangoides gymnostethus			49
OPH	Cusk-eels, brotulas nei	Ophidiidae			107
PQY	Purple-spotted bigeye	Priacanthus tayenus			68
PRP	Roudi escolar	Promethichthys prometheus			12
PUX	Puffers nei	Tetraodontidae			23
QMC	Caml grenadier	Macrourus caml	63	63	63

Species code	English Name	Scientific Name	Maturity (n)	Sex (n)	Weight (n)
QUK	Shortspine spurdog	Squalus mitsukurii	65	65	65
RAG	Indian mackerel	Rastrelliger kanagurta			51
RFA	Whiteleg skate	Amblyraja taaf		846	650
RIB	Common mora	Mora moro			701
ROK	Rosefishes nei	Helicolenus spp		13	180
RUS	Indian scad	Decapterus russelli			19
SCK	Kitefin shark	Dalatias licha	275	275	275
SCO	Scorpionfishes nei	Scorpaenidae			15
SDU	Arrowhead dogfish	Deania profundorum	112	112	112
SEY	Violet warehou	Schedophilus velaini		89	125
SHL	Lanternsharks nei	Etmopterus spp	1976	1976	1976
SKA	Raja rays nei	Raja spp		130	130
SQZ	Inshore squids nei	Loliginidae			11
SVY	Cutthroat eels nei	Synaphobranchidae			325
TOA	Antarctic toothfish	Dissostichus mawsoni	12	12	12
TOP	Patagonian toothfish	Dissostichus eleginoides	5422	5430	5307
UAZ	Thorny flathead	Rogadius pristiger			28
UPM	Goldband goatfish	Upeneus moluccensis			72
URA	Stargazers	Uranoscopus spp			27
VRL	Yellow-edged lyretail	Variola louti			11
WGR	Whitson's grenadier	Macrourus whitsoni	159	159	159
WHA	Hapuku wreckfish	Polyprion oxygeneios	94	321	435
WRF	Wreckfish	Polyprion americanus	777	1226	1865
YBS	Bigeye barracuda	Sphyaena forsteri			33
YRB	Obtuse barracuda	Sphyaena obtusata			46
YTC	Yellowtail amberjack	Seriola lalandi		20	13

Note that 95 other species have been sampled but account for less than 10 individuals in total.

7.4. Patagonian Toothfish Tags releases

Table 9: Summary of Patagonian Toothfish tag release

Zone	2020	2021*	Total
Subarea 3b		83	83
Subarea 7	175		175

*Temporary figure (2021 data not submitted yet).

7.5. Biological sampling of deep-water sharks' species

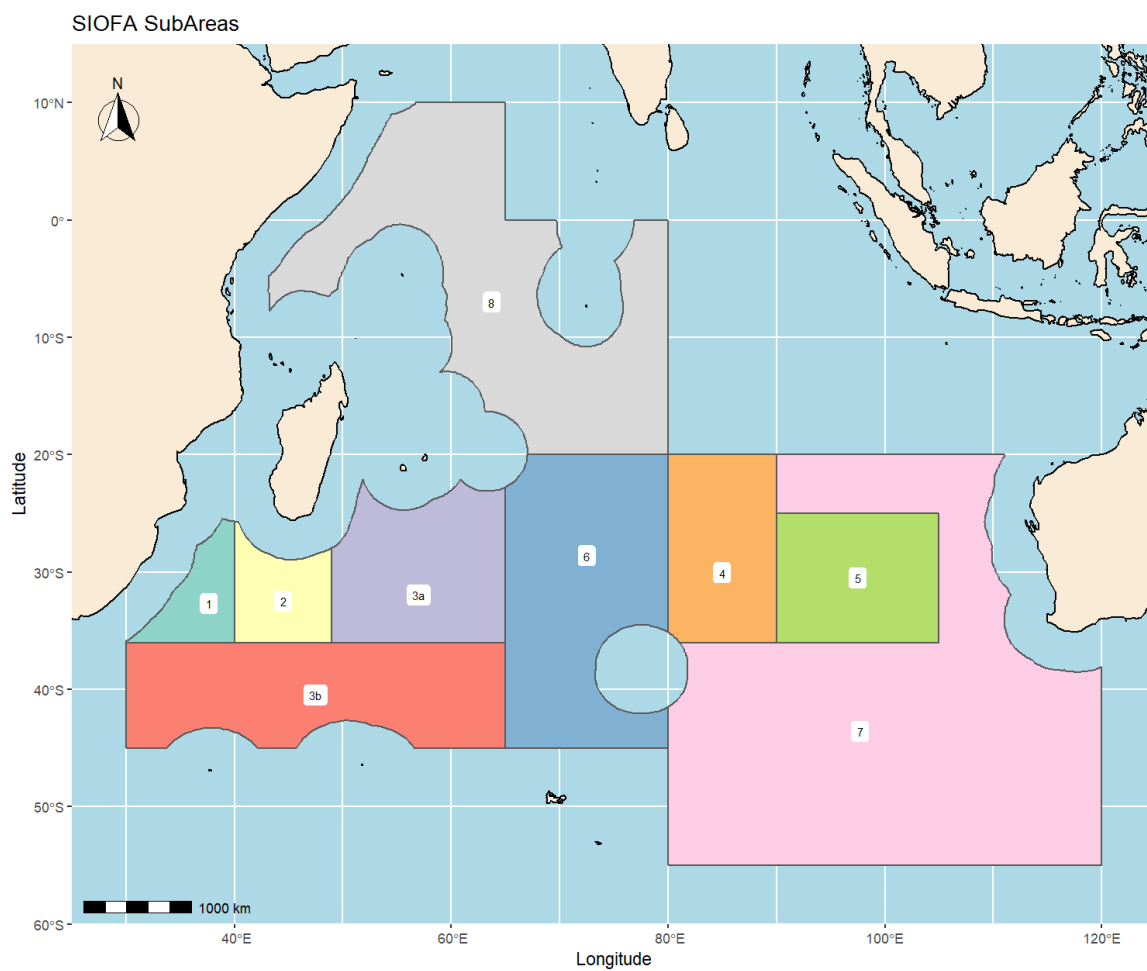
The table below focuses on the number of deep-water sharks' species that have been sampled in 2020.

Table 10: Number of Deep-water sharks' species that have been sampled by scientific observers in 2019 (top) and in 2020 (bottom) (source SIOFA observer database)

2019					
Species code	English Name	Scientific Name	Maturity (n)	Sex (n)	Weight (n)
CYO	Portuguese dogfish	Centroscymnus coelolepis	4000	4000	3999
CYP	Longnose velvet dogfish	Centroscymnus crepidater	8	8	8
CYU	Plunket shark	Centroscymnus plunketi	1	1	1
DCA	Birdbeak dogfish	Deania calcea	27	27	27
ETM	Southern lanternshark(Lucifer)	Etmopterus granulosus	2399	2399	2399
GUP	Gulper shark	Centrophorus granulosus	162	162	162
HOL	Chimaeras, etc. nei	Chimaeriformes	42	42	42
RFA	Whiteleg skate	Amblyraja taaf	56	95	505
SCK	Kitefin shark	Dalatias licha	26	26	26
SHL	Lanternsharks nei	Etmopterus spp	1653	1654	1654
SKA	Raja rays nei	Raja spp			19
SSQ	Velvet dogfish	Scymnodon squamulosus	2	2	2
2020					
Species code	English Name	Scientific Name	Maturity (n)	Sex (n)	Weight (n)
CYO	Portuguese dogfish	Centroscymnus coelolepis	2453	2454	2454
CYP	Longnose velvet dogfish	Centroscymnus crepidater	36	36	36
DCA	Birdbeak dogfish	Deania calcea	292	292	292
ETP	Smooth lanternshark	Etmopterus pusillus		1	1

2019					
Species code	English Name	Scientific Name	Maturity (n)	Sex (n)	Weight (n)
GUP	Gulper shark	Centrophorus granulosus	197	197	197
RFA	Whiteleg skate	Amblyraja taaf		846	650
SCK	Kitefin shark	Dalatias licha	275	275	275
SHL	Lanternsharks nei	Etmopterus spp	1976	1976	1976
SKA	Raja rays nei	Raja spp		130	130
SOR	Little sleeper shark	Somniosus rostratus	5	5	5
SSQ	Velvet dogfish	Scymnodon squamulosus	2	2	2

Appendix A: SIOFA subareas



Appendix B

FAO species codes and common names

FAO common name	FAO code	Scientific name	Alternative common name
Alfonsinos	ALF	<i>Beryx</i> spp.	Alfonsino
Splendid alfonsino	BYS	<i>Beryx splendens</i>	Alfonsino
Bluenose warehou	BWA	<i>Hyperoglyphe antarctica</i>	Blue-eye trevalla, Antarctic butterfish
Orange roughy	ORY	<i>Hoplostethus atlanticus</i>	
Violet warehou	SEY	<i>Schedophilus velaini</i>	Indian Ocean trevalla
Pelagic armourhead	EDR	<i>Pentaceros richardsoni</i>	Southern boarfish
Patagonian toothfish	TOP	<i>Dissostichus eleginoides</i>	
Common mora	RIB	<i>Mora moro</i>	Ribaldo
Wreckfish	WRF	<i>Polyprion americanus</i>	
Portuguese dogfish	CYO	<i>Centroscymnus coelolepis</i>	
Hapuka	HAU	<i>Polyprion</i> spp.	
Rubyfish	RYG	<i>Plagiogeneion rubiginosum</i>	
Smooth oreo dory	SSO	<i>Pseudocyttus maculatus</i>	
Spiky oreo	ONV	<i>Neocyttus rhomboidalis</i>	
Blue antimora	ANT		
Hapuku wreckfish	WHA	<i>Polyprion oxygeneios</i>	Hapuku
Cardinalfishes nei	APO	<i>Apogonidae</i>	
Cardinal fishes nei	CDL	<i>Epigonus</i> spp	Deepwater cardinalfishes
Oreo dories nei	ORD	<i>Oreosomatidae</i>	
Black bellied rosefish	BRF	<i>Helicolenus dactylopterus</i> (fam. Sebastidae)	
Lizardfish	SZX	<i>Saurida</i> spp. <i>Saurida undosquamis</i> (fam. Synodontidae)	
Scads	SDX	<i>Decapterus russelli</i>	Round scad
Ruby snapper	ETC	<i>Etelis coruscan</i>	
Oilfish	OIL	<i>Ruvettus pretiosus</i>	
	LEC	<i>Lepidocybium flavobrunneum</i>	Escolar

ANNEX E: SERAWG WORKPLAN

Workplan and budget (1,000 EURO) (2022-2023) (draft)				Activities with light marker are subject to decisions made by SC7 and/or MoP9 (2022)									
Year		2022									2023		
Month		4	5	6	7	8	9	10	11	12	1	2	3
Annual meetings					MoP9							SERA & PAE WGS and SC8	
Orange roughy	Stock structure	Consultant(8.3 K) (EU grant: GO1.2)											
	Otolith	Development of the otolith reference set for the SIOFA area											
Alfonsino	Estimation of the growth equation (WEST)	National scientists : Aged data by otolith (Fish Ageing Services) are available & not yet analyzed (n=250 each ♂ & ♀)											
	Age validation using bomb calorimetry	Consultant(15K) (EU grant: GO1.3)											
	Stock assessment							Consultant (25K) (EU grant: GO1.1)					
								Pre-assessment web meeting with the Consultant					
	Acoustic abundance index	Consultant(15K) (SIOFA budget) subject to the decisions made by SC (small WG)											
Stock structure	Consultant(8.3 K) (EU grant: GO1.2)												
Patagonian toothfish	Tagging	National scientists and CCAMLR											
	Stock structure (molecular analysis)	(1) SIOFA(Del Cano) and CCAMLR (Crozet, Kerguelen & Prince Edward) (2) SIOFA (William's Ridge)+CCAMLR(Kerguelen's and Heard & McDonald's) (EU, France Territories, Japan & Australia) (Japan's cooperation is subject to the tissue sampling protocol) (3) Consultant (8.3K) (EU grant: GO1.2)											
	(1) Collection of otolith (2) Growth equation	(1) Collection of otolith(Del Cano Rise and William's Ridge) (EU, France Territories, Japan & Australia) (Japan will provide aged data by otolith) (2) Growth equation to be estimated by national scientists											
Common issues	ERA	Teleost (AUS) and National scientist (others)											
	Definition of bycatch	A half day intersessional web meeting subject to decisions made by SC7											
	Biological data collection protocol										Draft paper by Cook Islands will be discussed in SERA-WG5		
	Acoustic data protocol	Small WG to develop the protocol subject to decisions by SC7									Repository for acoustic data will be discussed		
	Harvest strategies (roadmap)	Tri party WS (scientists, managers & industry) subject to decisions by SC7											
	Monaco Exploration (Saya de Malha Bank)								Subject to decisions made by MoP				

ANNEX F: PAEWG WORKPLAN

Year	Project code	Lead	Project Status	Summary Title	Provider	Date ToR published	Consultant Recrutement	Draft report submission date	Date final report due	WG/SC meeting
2020/21	-	PAEWG	Complete	VME indicator species	Secretariat	N/A	N/A	-	01-03-2021	PAEWG3
2020/21	-	PAEWG	Complete	SIOFA Fishing Footprint	Secretariat	N/A	N/A	-	01-01-2021	SC6
2020/21	PAE2020-01	PAEWG	Complete	BFIA trawl & longline	Consultant	05-10-2020	05-11-2020	31-01-2021	01-06-2021	PAEWG4
2020/21	PAE2020-02a	PAEWG	Complete	VME mapping (year 1)	Consultant	Completed	Completed	30-01-2021	01-03-2021	PAEWG3
2021/22	-	PAEWG	-	VME indicator species	SC Delegations	N/A	N/A	05-01-2022	05-02-2022	PAEWG4
2021/22	PAE2020-02b	PAEWG	In development	VME mapping (year 2)	Consultant	Completed	Completed	05-02-2022	01-03-2022	PAEWG4
2021/22	PAE2021-01a	PAEWG	In development	Bioregionalisation for smaller spatial entities within a larger area using a range of environmental information	Consultant	04-08-2021	13-09-2021	05-01-2022	05-02-2022	PAEWG4
2021/22	PAE2021-01b	PAEWG	In development	Representative protected areas (ToR1)	Consultant	04-08-2021	13-09-2021	05-02-2022	30-11-2022	PAEWG4 (Draft report); PAEWG5 (Final report)
2021/22	PAE2021-01c	PAEWG	In development	Representative protected areas (ToR2)	Consultant	04-08-2021	13-09-2021	05-02-2022	30-11-2022	PAEWG4 (Draft report); PAEWG5 (Final report)
2021/22	PAE2021-01d	PAEWG	In development	Holistic framework for VMEs (ToR4)	Consultant	04-08-2021	13-09-2021	05-02-2022	30-11-2022	PAEWG4 (Draft report); PAEWG5 (Final report)
2021/22	PAE2021-01e	PAEWG	In development	Holistic framework for VMEs (ToR5)	Consultant	04-08-2021	13-09-2021	05-02-2022	30-11-2022	PAEWG4 (Draft report); PAEWG5 (Final report)
2021/22	PAE2021-01f	PAEWG	In development	Support work on benthic bioregionalization (underway) and (future) investigate possible habitat suitability modelling	Consultant	04-08-2021	13-09-2021	05-02-2022	30-11-2022	PAEWG4 (Draft report); PAEWG5 (Final report)
2021/22	PAE2021-02	PAEWG	In development	Updates to the ERA work - Considering seabirds & mammals	Consultant	25-10-2021	01-10-2021	05-01-2022	05-02-2022	PAEWG4
2021/22	PAE2021-03a	PAEWG	-	VME indicator species threshold development plan	Intersessional WG	TBD	TBD	TBD	TBD	PAEWG5
2021/22	PAE2021-03b	PAEWG	-	VME indicator species thresholds	Intersessional WG	TBD	TBD	TBD	TBD	PAEWG5
2021/22	PAE2021-04	PAEWG	-	SIOFA Fishing Footprint (update)	Secretariat	N/A	N/A	19-01-2022	19-02-2022	SC7

Year	Project code	Lead	Project Status	Summary Title	Provider	Date ToR published	Consultant Recrutement	Draft report submission date	Date final report due	WG/SC meeting
2021/22	PAE2021-05	PAEWG	-	Review seabird bycatch mitigation (CMM2021/02, 2019/13, ACAP)	SC Delegations	N/A	N/A	N/A	05-02-2022	PAEWG4
2022/23	PAE2022-03	PAEWG	-	Development of research and monitoring plans for protected areas	TBD	TBD	TBD	TBD	31-01-2023	PAEWG5
2022/23	PAE2022-02	PAEWG	-	Annual review of VME encounters	Secretariat	TBD	TBD	TBD	31-01-2023	PAEWG5
2022/23	SEC2021-06	PAEWG	-	Work on the PAEWG-04-08-SIOFA-ecosystem-summary-report.docx	Secretariat	N/A	N/A	N/A	31-01-2023	PAEWG5
2022/23	PAE2022-04	PAEWG	-	CCPs footprints checked against Secretariat footprint	Secretariat	N/A	N/A	N/A	N/A	PAEWG5
2022/23	PAE2022-05	PAEWG	-	Further ERA for benthic species on the Saya de Malha bank	TBD	TBD	TBD	TBD	TBD	PAEWG5
2022/23	PAE2022-01	PAEWG	-	Review of VME indicator species	TBD	TBD	TBD	TBD	TBD	PAEWG5

ANNEX G: SC WORKPLAN

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
2020/21	SER2019-01	SERAWG	ALF ageing	Consultant		Fish Ageing Services Pty Ltd (Krusic-Golub and Robertson)		xx-09-2019	18-10-2019	30 April 2020	01-06-2020	SERAWG4	16,000 €		Completed			SERAWG-04-INFO-01	Report submitted as info paper to SERAWG4
2020/21	PAE2020-01	PAEWG	BFIA trawl & longline	Consultant		SoFish Consulting (Mormede)		05-10-2020	05-11-2020	31-01-2021	01-06-2021	PAEWG4	57,870 €	MoP; Australia	Completed	MoP5		PAEWG-03-08 (interim) PAEWG-04-05 (final)	Final report submitted as working paper to SERAWG4
2020/21	SER2020-01	SERAWG	Harvest strategies	Consultant		CT university (Butterworth)		25-11-2020	11-12-2020	04-02-2021	01-03-2021	SERAWG3	15,000 €	MoP6	Completed	MoP6		SERAWG-03-10	
2020/21	PAE2020-02a	PAEWG	VME mapping (year 1)	Consultant		BOREA Laboratory (2020-2021)		Completed	Completed	30-01-2021	01-03-2021	PAEWG3	-	MoP	Completed	MoP5		PAEWG-03-06	report was submitted to PAEWG3
2020/21	-	PAEWG	VME indicator species	Secretariat		SIOFA Secretariat (2021)		N/A	N/A	-	01-03-2021	PAEWG3	-	MoP	Completed	SC5 Annex I		PAEWG-03-07	report was submitted to PAEWG3
2020/21	-	PAEWG	SIOFA Fishing Footprint	Secretariat		Secretariat (2021)		N/A	N/A	-	01-01-2021	SC6	-	MoP	Completed	MoP5		SC-06-28	
2020/21	SCM2021-01	SC/SEC	Science Manager for EU projects	Consultant		Gary Morgan		15-01-2021	10-02-2021	19-01-2022	19-02-2022	SC7; SC8	15,000 €	EU Grant (GO5)	Ongoing	EUG 2020 GO5			Interim report to be delivered to SC7
2021/21	SER2021-01	SERAWG	ORY collation of additional acoustic data (ToR 1)	Consultant		Aqualyd (Macaulay)		30-04-2021	24-05-2021	29-12-2021	29-01-2022	SERAWG4	3,800 €	MoP7	Completed	SC6 Annex G		SERAWG-04-05	Final report to be presented to SERAWG4 (final payment to be done after validation by Chair)
2021/21	SER2021-01	SERAWG	ORY acoustic data quality control (ToR 2)	Consultant		Aqualyd (Macaulay)		30-04-2021	24-05-2021	29-12-2021	29-01-2022	SERAWG4	8,550 €	MoP7	Completed	SC6 Annex G		SERAWG-04-06	Final report to be presented to SERAWG4 (final payment)

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
																			to be done after validation by Chair)
2021/21	SER2021-01	SERAWG	ORY acoustic biomass estimation (ToR 3)	Consultant		Aqualyd (Macaulay)		30-04-2021	24-05-2021	29-12-2021	29-01-2022	SERAWG4	6,650 €	MoP7	Completed	SC6 Annex G		SERAWG-04-07	Final report to be presented to SERAWG4 (final payment to be done after validation by Chair)
2021/22	SER2021-02	SERAWG	ORY ageing + growth	Consultant		NIWA (Saunders)		29-06-2021	16-07-2021	15-10-2021	29-01-2022	SERAWG4	10,000 €	EU Grant (GO1.3)	Completed	SC6 Annex G	SER2021-01	SERAWG-04-08	Final report to be presented to SERAWG4 (final payment to be done after validation by Chair)
2021/22	SEC2021-10	SC/SEC	SIOFA Science Officer Recruitment	Secretariat				15-08-2021	15-10-2021	N/A	N/A	N/A	-	MoP8	Completed	MoP8 para 192		SIOFA circular 2021-42	In place on 1st February 2022
2021/22	SER2021-03	SERAWG	Saya de Maya Bank Scoping Study	Consultant		MRAG (Temple)		15-08-2021	15-09-2021	29-12-2021	29-01-2022	SERAWG4	15,000 €	EU Grant (GO1.4)	Completed	MoP8 para 145		SERAWG-04-10	Initially scheduled for SC8, but was brought forward to SC7 by MoP8. Final report submitted to SERAWG4 as restricted document
2021/22	PAE2021-02	PAEWG	Seabirds & mammals ERAEF (PAE202102-ToR1)	Consultant		Ross Analytics (Keith Reid)		25-10-2021	01-10-2021	05-01-2022	05-02-2022	PAEWG4	10,000 €	EU Grant (GO3)	Completed	SC6 Annex G		PAEWG-04-06	report submitted to PAEWG4 (late)
2021/22	PAE2021-04	PAEWG	SIOFA Fishing Footprint (update)	Secretariat		Secretariat		N/A	N/A	19-01-2022	19-02-2022	PAEWG/SC 7	-	-	Completed	MoP8 para 110	PAE2020-01	PAEWG-04-12	

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
2021/22	SEC2021-03	SC/SEC	Joint SIOFA-CCAMLR SC meeting of toothfish data exchange	SC Chairs committee				N/A	N/A	N/A	05-02-2022	SC7	-	-	Completed	MoP8 para 201-203; SC6 para 156		SERAWG-04-INFO-04	report of the meeting submitted to SERAWG4
2021/22	SEC2021-07	SC/SEC	Fisheries summaries	Secretariat				N/A	N/A	19-01-2022	19-02-2022	SERAWG4/SC7	-	-	Completed	MoP8 para 115; SC6 para 142-146		SERAWG-04-18	submitted to SERAWG4 as a restricted paper
2021/22	SEC2021-08	SC/SEC	Toothfish tagging programme	Secretariat				N/A	N/A	29-12-2021	29-01-2022	SERAWG4	-	-	Completed	MoP8 para 97		SERAWG-04-16	submitted to SERAWG4
2021/22	-	SERAWG	Monitoring, Management and Impact Mitigation in the shark bycatch	SC Delegations		EU delegation		N/A	N/A	29-12-2021	29-01-2022	SERAWG4	-	-	Completed	CC6 para 17		SERAWG-04-13	submitted to SERAWG4 by the EU delegation
2021/22	SER2021-07	SERAWG	ERA Teleosts	SC Delegations		Australia		N/A	N/A	N/A	31-01-2023	SERAWG5	-	EU Grant (GO2.4)	Completed	SC5 Annex I		SERAWG-04-14	submitted to SERAWG4 by the Australian delegation
2021/22	SER2021-05	SERAWG	Development of Harvest Strategy - Evaluation of Three Provisional Harvest Strategies (ToR1)	Consultant		MARAM consultants (Brandao, Butterworth, Johnston)		15-10-2021	15-11-2021	29-12-2021	29-01-2022	SERAWG4	7,500 €	MoP5; MoP6 (remaining budgeted funds)	Completed	MoP5 para 53 & 132		SERAWG-04-11	report submitted and reviewed by the Secretariat, still needs PM review
2021/22	SEC2021-01	SC/SEC	Harmonisation of Scientific Observer programmes	Intersessional WG		Sebastian		08-10-2021	N/A	N/A	05-02-2022	SERAWG4; PAEWG4	-	-	Ongoing	SC6 para 70		Not yet defined	SC Circular 2021-6,7,9 - Presentation to be done at SC7 and SC8- SC Circular 2022 + Rapporteur report

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
2021/22	SER2021-04	SERAWG	ORY Acoustic Stock Assessment	Consultant		R. Ureta		01-09-2021	01-11-2021	29-12-2021	29-01-2022	SERAWG4	25,000 €	MoP7	Ongoing	SC6 Annex G	SER2021-02	Not yet defined	report under revision and about to be submitted to SERAWG4 (late)
2021/22	SER2021-05	SERAWG	Development of Harvest Strategy - Roadmap (ToR2)	Consultant		CT university (Butterworth)		15-10-2021	15-11-2021	29-12-2021	29-01-2022	SERAWG4	7,500 €	MoP5; MoP6 (remaining budgeted funds)	Ongoing	MoP5 para 53 & 133		Not yet defined	report under revision and about to be submitted to SERAWG4 (late)
2021/22	PAE2021-01a	PAEWG	Classification of key biological, geological and oceanographic data (ToR1)	Consultant		Muséum National d'Histoire Naturelle (Leroy, Ramiro-Sanchez)		04-08-2021	13-09-2021	05-01-2022	30-04-2022	PAEWG4	15,000 €	MoP8	Ongoing	SC6 Annex G		PAEWG-04-10	Projects PAE2021abcde are combined into a single overall consultancy for a TOTAL Cost of 60000€ (15K€ MoP + 45K€ EU Grant). Progress report submitted to PAEWG4
2021/22	PAE2020-02b	PAEWG	VME mapping (year 2)	Consultant		BOREA Laboratory (Leroy, Ramiro-Sanchez, Martin)		Completed	Completed	05-02-2022	01-03-2022	PAEWG4	96,000 €	EU Grant (2020-2022); MoP6; MoP7	Ongoing	MoP5	PAE2020-02a	PAEWG-04-09	This consultancy is paid by an EU Grant signed in 2019 and MoP,
2021/22	SER2021-06	SERAWG	Alfonsino acoustics feasibility	Consultant				To be reviewed	To be decided at SERAWG 4	15-01-2022	29-01-2022	SERAWG4	5,000 €	MoP7	Outstanding	SC6 Annex G			SERAWG decided to address this through an intersessional workshop

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
2021/22	-	SERAWG	Review of CMM 2019/12 (Shark)	SC				N/A	N/A	N/A	29-01-2022	SERAWG4	-	-	Outstanding	MoP8 para 53; CC5 para 17			Code to be decided and project to be confirmed during the SERAWG4
2021/22	PAE2021-05	PAEWG	Review seabird bycatch mitigation (CMM2021/02, 2019/13, ACAP)	SC				N/A	N/A	N/A	05-02-2022	PAEWG4	-	-	Outstanding	MoP8 para 114; SC6 para 133	PAE2021-02		To be considered at PAEWG4
2021/22	SEC2021-12	SC/SEC	Annual report of VME encounters	SC				N/A	N/A	N/A	25/02/2022	SC7			Completed	CMM2020/01 para 13			No encounters in 2021
2021/22	PAE2022-01	PAEWG	Annual review of VME encounters	SC				TBD	TBD	TBD	31-01-2023	PAEWG5	-	-	TBD				No encounters in 2021
2021/22	SEC2021-05	SC/SEC	Data & information systems	Consultant		Keith Reid (Ross Analytics)		20-08-2021	01-10-2021	19-01-2022	19-02-2022	SC7	15,000 €	MoP7 (Reserve fund)	Ongoing	MoP8 para 94-95		Not yet defined	Draft report submitted to SC7 (Secretariat review done)
2021/22	SEC2021-06	SC/SEC	Security audit: Physical security	Consultant		Orange Cyberdefense (Reunion)		20-08-2021	01-10-2021	19-01-2022	19-02-2022	SC7	20,000 €	MoP7 (Reserve fund)	Ongoing	MoP8 para 94-95; MoP8 Annex O			
2021/22	SEC2021-02	SC/SEC	SC Chair position	Consultant		Alistair Dunn		N/A	30-07-2021	N/A	04-06-2022	MoP9	37,575 €	MoP8 Item 9.2	Ongoing	MoP8 para 122		No report	Contract signed, until MoP 8
2021/22	PAE2021-03b	PAEWG	VME indicator species thresholds	Intersessional WG/PAEWG4				TBD	N/A	05-01-2022	05-02-2022	PAEWG4	-	-	TBD	MoP8 para 100; SC6 para 90	PAE2021-03a		To be organised in intersession and presented to MoP9.

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
2021/22	SEC2021-11	SC/SEC	Development of 3-5 yr. Scientific Committee budget	SC Chairs committee				N/A	N/A	29-12-2021	29-01-2022	SEAWG4; PAEWG4; SC7	-	-	Ongoing	MoP8 para 194			
2021/22	SEC2021-09	SC/SEC	Review of CMM [2021/02] Data standards	Secretariat				N/A	N/A	N/A	18-08-2022	SC7	-	-	Ongoing	MoP8 para 155			No update expected in 2022 at SC7
2021/22		SERAWG	Update BYS maturity staging classification	SC			2022/1/5	N/A	N/A	31-12-2021	30-01-2022	SERAWG5	-	-	Outstanding	SC6 para 107			Code to be decided and project to be confirmed during the SERAWG4
2021/22		SERAWG	Review progress under CMM 2019/12 (Sharks)	SC			2022/1/6	N/A	N/A	31-12-2021	30-01-2022	SERAWG5	-	-	Outstanding	SC6 para 131			Code to be decided and project to be confirmed during the SERAWG4
2021/22	SEC2021-04	SC/SEC	E-monitoring schemes	Intersessional WG			2022/1/7	N/A	N/A	31-12-2021	30-01-2022	SERAWG4; PAEWG4	-	-	TBD	SC6 para 66			Will be combined with SEC2021-01
2021/22	PAE2021-01f ?	PAEWG	Support work on benthic bioregionalization (underway) and (future) investigate possible habitat suitability modelling	Consultant			2022/1/8	N/A	N/A			PAEWG5 (Final report)			TBD	SC6 Annex G			
2021/22		PAEWG	Review of VME indicator taxa list	SC Delegations			2022/1/9	N/A	N/A	05-01-2022	05-02-2022	PAEWG4	-	-	Outstanding	MoP8 para 99; SC6 para 89			Must be planned during the PAEWG4 to be done by the MoP9
2021/22		PAEWG	VME indicator species threshold development plan	Intersessional WG/Consultant			2022/1/8	N/A	N/A	05-01-2022	05-02-2022	PAEWG4	-	-	Outstanding	MoP8 para 100			Must be planned during the PAEWG4 to be done by the MoP9

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments	
2021/22		PAEWG	VME indicator species threshold	Intersessional WG			2022/1/8	N/A	N/A											
2021/22		SC/SEC	VME management	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								
2021/22		SC/SEC	Ecosystem summaries and fisheries overview workshop	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								
2021/22		SC/SEC	Seabird mitigation options	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								
2021/22		SC/SEC	Alfonsino acoustic surveys feasibility	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								
2021/22		SC/SEC	Monitoring of alfonsino, toothfish, orange roughy	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								
2021/22		PAEWG	Review seabird bycatch mitigation (CMM2021/02, 2019/13, ACAP)	SC Delegations			2022/1/8	N/A	N/A	N/A		MoP9								
2021/22		SC/SEC	Biological data collection protocol	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								
2021/22		SC/SEC	Acoustic data protocol	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								Small WG to develop the protocol subject to decisions by SC7
2021/22		SC/SEC	Harvest strategies (roadmap)	Intersessional WG			2022/1/8	N/A	N/A	N/A		MoP9								Tri party WS (scientists, managers & industry) subject to decisions by SC7

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
2022/23	PAE2021-01b	PAEWG	Identification of representative protected areas within SIOFA (ToR2)	Consultant		Muséum National d'Histoire Naturelle (Leroy, Ramiro-Sanchez)		04-08-2021	13-09-2021	05-01-2023	30-03-2023	PAEWG4 (Draft report); PAEWG5 (Final report)	10,000 €	EU Grant (GO2)	Ongoing	SC6 Annex G		Not yet defined	Projects PAE2021abcde are combined into a single overall consultancy. Marco 23/02/2022: progress report submitted to PAEWG4
2022/23	PAE2021-01c	PAEWG	Investigate and advise on the use of habitat suitability modelling in predicting benthic species diversity and distribution in SIOFA (ToR3)	Consultant		Muséum National d'Histoire Naturelle (Leroy, Ramiro-Sanchez)		04-08-2021	13-09-2021	05-01-2022	30-03-2023	PAEWG4 (Draft report); PAEWG5 (Final report)	10,000 €	EU Grant (GO2)	Ongoing	SC6 Annex G	PAE2020-01a	Not yet defined	Projects PAE2021abcde are combined into a single overall consultancy. Marco 23/02/2022: progress report submitted to PAEWG4
2022/23	PAE2021-01d	PAEWG	Holistic framework for assessing and preventing Significant Adverse Impacts (SAIs) on VMEs (ToR4)	Consultant		Muséum National d'Histoire Naturelle (Leroy, Ramiro-Sanchez)		04-08-2021	13-09-2021	05-02-2023	30-04-2023	PAEWG4 (Draft report); PAEWG5 (Final report)	10,000 €	EU Grant (2021-2023) (GO2)	Ongoing	SC6 Annex G			Projects PAE2021abcde are combined into a single overall consultancy.
2022/23	PAE2021-01e	PAEWG	Identify and update existing and potential SAIs within the SIOFA management area (ToR5)	Consultant		Muséum National d'Histoire Naturelle (Leroy, Ramiro-Sanchez)		04-08-2021	13-09-2021	05-02-2023	30-04-2023	PAEWG5 (Final report)	5,000 €	EU Grant (2021-2023) (GO2)	Ongoing	SC6 Annex G	PAE2020-01d		Projects PAE2021abcde are combined into a single overall consultancy.
2022/23		PAEWG	Development of research and monitoring plans for protected areas	TBD			2023/1/3	01-09-2023	N/A	N/A		MoP9							

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
2022/23		PAEWG	Further ERA for benthic species on the Saya de Malha bank	TBD			2023/1/3	01-09-2023	N/A	N/A		MoP10							
2022/23		SERAWG	Review toothfish data collection requirements	SC			2023/1/3	01-09-2023	N/A	N/A	31-01-2023	SERAWG5	-	-	TBD	CMM2021/15 para 31			To be agreed during SERAWG4.
2022/23		SERAWG	Development of stock structure ToRs (ORH, BYS, TOT)	Intersessional WG			2023/1/3	01-09-2023	N/A	31-12-2022	31-01-2023	SERAWG4	-	-	TBD	SC6 Annex G; SC6 para 140			
2022/23		SERAWG	Orange roughy stock structure	Consultant			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG5	8,334 €	EU Grant (2021-2023) (GO1.2)	TBD	SC6 Annex G			
2022/23		SERAWG	Alfonsino stock structure	Consultant			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG5	8,333 €	EU Grant (2021-2023) (GO1.2)	TBD	SC6 Annex G			
2022/23		SERAWG	Toothfish stock structure	Consultant			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG5	8,333 €	EU Grant (2021-2023) (GO1.2)	TBD	SC6 Annex G			
2022/23		SERAWG	Alfonsino acoustic abundance index	Consultant			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG5	15,000 €	MoP8	TBD	SC6 Annex G	SER2021-05		To be confirmed depending on the outcome of Project SER2021-05
2022/23		SERAWG	Alfonsino stock assessment	Consultant			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG5	25,000 €	EU Grant (2021-2023) (GO1.1)	TBD	SC6 Annex G	SER2021-03; SER2021-05; SER2021-07; BYS growth curve		

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments	
2022/23		SERAWG	Alfonsino growth curve	CCPs			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG5								
2022/23		SERAWG	Alfonsino age validation (bomb radiometry)	Consultant			2023/1/3	01-09-2023	N/A	N/A	31-12-2021	SERAWG5	5,000 €	EU grant: GO1.3	Outstanding					Note that only 5 000 euro are currently available from the EU grant under this budget line
2022/23		SERAWG	Standardised data collection protocols for BYS	SC			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG6	-	-	Outstanding	SC6 para 106				Code to be decided and project to be confirmed during the SERAWG4
2022/23		SERAWG	Toothfish growth curve (+ otolith collection)	CCPs			2023/1/3	01-09-2023	TBD	31-12-2022	31-01-2023	SERAWG5	2,500 €	EU Grant (2021-2023) (G01.3)	TBD	SC6 Annex G				
2022/23		SERAWG	Toothfish stock structure (molecular analysis)	CCPs/Consultant			2023/1/3	01-09-2023	N/A	31-12-2022	30-01-2023	SERAWG5	8,300 €	EU grant: GO1.2	Outstanding					(1) SIOFA(Del Cano) and CCAMLR (Crozet, Kerguelen & Prince Edward) (2) SIOFA (William's Ridge)+CCAMLR(Kerguelen's and Heard & McDonald's) (EU, France Territories, Japan & Australia) (Japan's cooperation is subject to the tissue sampling protocol)

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
																			(3) Consultant (8.3K) (EU grant: GO1.2)
2022/23		SERAWG	Monaco Exploration of the Saya de Malha Bank	Monaco Exploration								SC8							Subject to decisions made by MoP
2022/23		SERAWG	Harvest Strategies pre-assessment workshop (involving managers, industry, scientists)	Intersessional WG			2023/1/1	03-01-2023				SC8							
2022/23		SERAWG	Deepwater sharks management workshop	Intersessional WG			2023/1/2	04-01-2023				SC8							
2022/23		PAEWG	Review of VME indicator taxa list	SC Delegations				N/A	N/A	N/A	30-01-2023	PAEWG5	-	-	Outstanding	MoP8 para 99; SC6 para 89			Must be planned during the PAEWG4 to be done by the MoP9
2022/23		PAEWG	Annual review of VME encounters	SC				N/A	N/A	N/A	31-01-2023	PAEWG5	-	-	TBD	CMM2020/01 para 16			
2022/23		SERAWG	Teleosts ERA update	AUS/CCPs				N/A	N/A	N/A	N/A	SERAWG5?							
2022/23		SC/SEC	Summary of SIOFA data	Secretariat				N/A	N/A	N/A	25/02/2023	SC8			TBD	CMM2020/01 para 13			Secretariat will summarize the available data at SIOFA
2022/23		SC/SEC	Fisheries overview	Secretariat				N/A	N/A	N/A	25/02/2023	SC8			TBD	CMM2020/01 para 13			Secretariat will report on relevant SIOFA fisheries (oilfish, toothfish, alfonsino, roughy,

Year	Project code	Lead	Summary Title	Provider	Priority	Report author	Date ToR drafted	Date ToR published	Consultant Recruitment	Draft report submission date	Date final report due	WG/SC meeting	Funding (Euro)	Funding source	Project Status	Requirement reference	Pre-requisite projects	Meeting paper reference	Comments
																			tarakihi, 2 wreckfishes)
2022/23		SC/SEC	Ecosystem summary	Secretariat				N/A	N/A	N/A	25/02/2023	SC8			TBD	CMM2020/01 para 13			Secretariat will report on ecosystem status
2022/23		SC/SEC	Annual report of VME encounters	Secretariat				N/A	N/A	N/A	25/02/2023	SC8			TBD	CMM2020/01 para 13			Secretariat will report if any VME encounters have been submitted by CCPs
2022/23		SC/SEC	Fisheries footprint (including coherence with CCPs footprints)	Secretariat				N/A	N/A	N/A	25/02/2023	SC8			TBD	CMM2020/01 para 13			
2022/23		SC/SEC	SIOFA data transformation strategy	Secretariat				N/A	N/A	N/A	25/02/2023	SC8			TBD				Pending SC7 recommendations
2022/23		SC/SEC	Develop Data Base system and analyses	Consultant				TBD	TBD	TBD	31-01-2023	SC8	20,000 €	EU Grant (2021-2023) (GO4)	TBD	EUG 2020 GO4	SEC2021-05 and SEC2021-06		Must to be planned in 2022-2023 considering the outcome of the SEC2021-05 and SEC2021-06

ANNEX H: SC BUDGET

Project Manager	CODE		REVISION ON ACTIVITY BUDGETS SC7						
			2020-2022 Activities	2020-2021 MoP Budget	UE Grant or CCP Voluntary funds	Priority level at SC5	Funded by	Situation of the Project	Comment
SERAWG	SER2020-XX		Development of T + L Reference points and Harvest strategies Year 1 (2 years total 30,000) (MoP 6 approved)	15,000		High	MoP6	Completed (Payment done)	Report presented and adopted to SC6 (Doug Butterworth)
PAEWG	PAE2020-01		BFIA Trawl and Longline consultancy - [3 months trawl, 2 months longline]	25,900	34,143	High	MoP + AUS	Completed (Payment done)	Report presented and adopted to PAEWG4 and SC7 (PAE2020-01)
PAEWG	PAE2020-02		VME Habitat Mapping	5620 +12000	79000	High	EU S12.815850 + MoP6 & 7	Completed (Payment in progress, balance required to EU)	Report presented and adopted to PAEWG4 and SC7 (PAE2020-02)
SERAWG	SER2021-01		Orange roughy (ORY) acoustic data process (2018-2020) (Consultant)	20,000		High	MoP7	Completed (Last payment in progress)	Report presented and adopted to SERAWG4 and SC7 (SER2021-01)
SERAWG	SER2021-04		Orange roughy stock assessment	25,000		High	MoP7	Completed (Last payment in progress)	Report presented and adopted to SERAWG4 and SC7 (SER2021-04)
SERAWG	SER2021-05		Development of T + L Reference points and Harvest strategies Phase 2	15000		High	Remained Funds	Completed (Last payment in progress)	Report presented and adopted to SERAWG4 and SC7 (2021-05)
SERAWG	SER2021-06		Alfonsino Investigation of the acoustic data	5,000		High	MoP7	TOR in progress (April 2022)	Postponed to be realised in 2022-2023

			2022-2023 Activities	2021-2022 Budget		Priority level at SC6		Situation of the Project	Comment
SERAWG	SER2021-02		Orange Roughy (<i>Hoplostethus atlanticus</i>) Age Estimation by Otolith		10,000	High	EU S12.837681 GO 1.3	Completed (Last payment in progress)	Report presented and adopted to SERAWG4 and SC7 (2021-01)
SERAWG	SER2021-03		Saya de Malha Bank Fisheries		15000	High	EU S12.837681 GO 1.4	Completed (Last payment in progress)	Report presented and adopted to SERAWG4 and SC7 (2021-03)
SERAWG	SER2021-07		Updates to the ERA work - update the Telecosts ERAs with better and more recent input data	-	-	High	AUS	Completed	Report presented to SERAWG4 (SERAWG 04-14) by AUS delegation
PAEWG	PAE2021-02		Updates to the ERA work - Considering seabirds & mammals		10000		EU S12.837681 GO 3.1	In progress	
SC + SEC	SCM2021-01		Coordinate, plan and assist Implementation of Science Consultancy to support the SC Working Plan		15000		EU S12.837681 GO 4.1	In progress	
PAEWG	PAE2021-01a		Bioregionalisation searches for smaller spatial entities within a larger area using a range of environmental information.		15,000		Mop8	In progress	
PAEWG	PAE2021-01b&c		Investigation of representative protected areas (relevant to the bioregionalization work)		15000		EU S12.837681 GO 2.3	In progress	
PAEWG	PAE2021-01d&e		Investigation of a holistic framework for assessing and preventing Significant Adverse Impacts on VMEs		15000		EU S12.837681 GO 2.2	In progress	
PAEWG			Support work on benthic bioregionalization (underway) and (future) investigate possible habitat suitability modelling	TBD				TBD	PAE2021-01f ?

SC + SEC			Develop the database system and analyses.		20000		EU SI2.837681 GO 4.1	TOR to be done (April 2022)	
SERAWG			BYS Stock Assessment (Acoustic survey data)		25000		EU SI2.837681 - GO.1-1 (25 k€)	TOR to be done (April 2022)	
SERAWG			Alfonsino Acoustic abundance index	15000					To be confirmed depending on the outcome of Project SER2021-05
SERAWG			ORY Stock structure studies		25000		EU SI2.837681 - GO.1-2 (25k€/3=8.3k€)	TOR to be done (April 2022)	
SERAWG			TOT Stock structure Molecular analysis				EU SI2.837681 - GO.1-2 (25k€/3=8.3k€)	TOR to be done (April 2022)	
SERAWG			BYS stock structure				EU SI2.837681 - GO.1-2 (25k€/3=8.3k€)	TOR to be done (April 2022)	
SC + SEC			Travel and accommodation for Expert				EU SI2.837681 - GO.4.2 & 4.3 (15 k€)		To be provisioned/included within each ToR and included as a specific (optional) line in the Contract value

SC RESEARCH ACTIVITIES PROPOSALS TO MOP9

		<u>Priority</u>	2023-2024-2025 Activities	2023 budget MoP9 [Item 9.1]	2024 budget MoP10 [Item 9.1]	2025 budget MoP10 [Item 9.1]	Budget validated or required from EU Grant		COMMENTS
SERAWG			ORY Development of the otolith reference set for the SIOFA Area						
SERAWG			BSY Estimation of the growth equation (Additional otolith ageing - Growth equation for all ages)						National Scientists : Aged data by otolith (Fish Ageing Services) are available and not yet analysed
SERAWG			BSY (Acoustic abundance index)	15000					
SERAWG			BSY Additional otolith ageing Age validation using bomb calorimetry	10000			EU SI2.837681 - GO.1-3 (Remained funds 5 k€)	TOR to be done (April 2022)	15k€ are planned for Additional otolith ageing - Growth equation [10 k€ have been expensed by ORY otolith ageing (SER2021-02)
SERAWG			TOT Tagging						National Scientist, Secretariat and CCAMLR
SERAWG			TOT Collection of otolith and Growth equation						Reference : SERAWG Work Plan
PAEWG			Review of VME indicator taxa list						(PAE 2022-01) To be done and presented by PAEWG5

		<u>Priority</u>	2023-2024-2025 Activities	2023 budget MoP9 [Item 9.1]	2024 budget MoP10 [Item 9.1]	2025 budget MoP10 [Item 9.1]	Budget validated or required from EU Grant		COMMENTS
PAEWG			Annual review of VME encounters						(PAE 2022-02) To be done by Secretariat and presented by PAEWG5 (Consultant ?)
PAEWG			Development of research and monitoring plans for protected areas	TBD					(PAE 2022-03) To be done and presented by PAEWG5
PAEWG			CCPs footprints checked against Secretariat Footprint						(PAE 2022-04) To be done and presented by PAEWG6
PAEWG			Further ERA for benthic species on Saya de Malha bank	TBD					(PAE 2022-05) To be done and presented by PAEWG7
SERAWG			Biologically appropriate catch limits for Patagonian Toothfish in Del Cano Rise and Williams Ridge	TBD					Not budgeted. To be confirmed if to be taken in charge by CCPs concerned
SERAWG			Patagonian Toothfish tagging program						Should be covered by vessel Flag states (~2000 €/year)
SERAWG			ERA						<i>Teleost (AUS) and National Report</i>

		<u>Priority</u>	2023-2024-2025 Activities	2023 budget MoP9 [Item 9.1]	2024 budget MoP10 [Item 9.1]	2025 budget MoP10 [Item 9.1]	Budget validated or required from EU Grant		COMMENTS
SERAWG			Definition of bycatch						<i>1/2 day of an intersessional Workshop</i>
SERAWG			Biological data collection protocol	TBD					<i>Draft paper by Cook Islands to be discussed to next SERAWG5</i>
SERAWG			Acoustic Data protocol	TBD					<i>small WG to develop the protocol subject to decision by SC7</i>
SERAWG			Harvest strategies (Roadmap)	TBD					<i>Trilateral Workshop (Scientists, Managers and Industry) subject to decision by SC7</i>
SERAWG			Monaco Exploration (Saya de Malha Bank)						<i>Subject to decision made by MoP9</i>
PAEWG			VME Indicator taxa thresholds development plan						<i>Intersessional Workshop</i>
PAEWG			SIOFA Fishing Footprint (Update)						To be done by Secretariat and presented to SC8

		<u>Priority</u>	2023-2024-2025 Activities	2023 budget MoP9 [Item 9.1]	2024 budget MoP10 [Item 9.1]	2025 budget MoP10 [Item 9.1]	Budget validated or required from EU Grant		COMMENTS
SC + SEC			Strengthening the Scientific basis for decision-making in the SIOFA area				EU 101078892 (100k€)		Waiting for the outcome of SIOFA proposal. If success, funds should be repartited in a) assessment of Protected Areas in SIOFA, b) improvement of scientific understanding of Patagonian toothfish population spatial structure c) establishment of a framework for scientific observation of fisheries.
SC + SEC			SIOFA SC8 Project Application				EU 101086714 (120k€)		Waiting for the outcome of SIOFA proposal. If success, funds should be used in organisation of 2 Workshops, of the SC 8 and its WG.
SC + SEC			The Secretariat requires 10,000€ to pay for expert short consultancies and other incidental associated cost to complete the work required.	10,000	10,000	10,000			
			Balance suggested for the 2023-2024-2025 Budget line Contract for Specific Service-Sub-Item 9.1	35,000	(TBC)	(TBC)			

Color code legend		
		Completed
		In progress
		Activity proposed, but no budget defined
		Activity budgeted, planned to begin in 2022 (ToR to be done or in progress)
		Activity budgeted planned to begin in 2023
		Activity planned, no budget required

Prioritisation process will be done according to the following table, adapted from the Western and Central Pacific Fisheries Commission (WCPFC).

SC project scoring table.				
Colours represent priority rankings (6,9 = High; 3,4 = Medium; 1,2 = Low):				
Importance to SIOFA Management Outcomes or to the functioning of the SC				
	Rank	Low	Moderate	High
Feasibility: Likelihood of Success	Low	1	2	3
	Moderate	2	4	6
	High	3	6	9
Notes:				
<p>Importance criteria evaluate the significance of the outcomes of the proposal in contributing to the successful management of the SIOFA stocks or the functioning of the SC (e.g. is the proposal aligned with the SIOFA research and/or management priorities; does the proposal contribute to the effective planning and functioning of the SC; are the intended outputs/benefits well-defined and relevant; what is the level of impact and likelihood that the proposal outputs will be adopted; is the proposal cost effective). High= Essential; Moderate=Important but not essential; Low=Not Important.</p>				
<p>Feasibility criteria evaluate the proposal's potential for success i.e., how likely is the proposal to achieve its stated objectives (e.g., are the objectives clearly stated, is the methodology sound, are the project objectives realistic and likely to be achieved, does the research team [if identified] have the ability, capacity and track record to deliver the outputs).</p>				