Report of the
First Meeting of the Southern Indian Ocean Fisheries Agreement (SIOFA) Scientific Committee

21-24 March 2016, Fremantle, Australia

Agenda Item 1 – Opening

1. The first meeting of the SIOFA Scientific Committee was opened at 9.00am on 21 March 2016 by Dr Ilona Stobutzki, Chairperson of the Scientific Committee. Dr Stobutzki welcomed participants to the meeting (Annex A) and acknowledged the traditional land owners.

2. A list of Contracting Parties and Observers in attendance is at Annex B.

Agenda Item 2 - Administrative arrangements

3. The Scientific Committee adopted the agenda as presented in Annex C and agreed to discuss the items on the Scientific Committee Work Plan, long term research priorities plan and the 2016-18 work plan and budget as a group.

4. The full list of meeting documents is presented at Annex D and the table of agenda items with relevant papers at Annex E.

5. The Chairperson noted that Australia had provided two rapporteurs for the meeting and they were supported by the members of the Scientific Committee.

6. The Chairperson introduced the Scientific Committee Terms of Reference as adopted by the Meeting of the Parties (MoP). The Terms of Reference were taken as read.

7. Japan noted it did not participate in the decision making process in the first MoP as Japan was not a Contracting Party at that time. Thus Japan does not have any positions to support or reject on decisions made in the first MoP. But Japan will cooperate to discuss these issues in this first SC and would like to respect decisions made in this time.

8. Japan noted that the Scientific Committee is not the place to develop the CMM text. This should be conducted in the MoP. Japan considers that the primary role of the SC is to provide scientific advice for the MoP to develop CMMs.

9. The Scientific Committee noted that it could provide advice on the scientific aspects or content of draft CMMs that were tabled, or review CMMs as instructed by the MoP. Japan has a reservation on the second aspect – that is, to discuss content on the draft CMMs that were tabled.

Agenda Item 3 - Scientific Committee Work Plan

10. The Scientific Committee noted that the Scientific Committee Terms of Reference require it to develop a Scientific Committee Work Plan and present this to the MoP. The Scientific Committee noted the direction from the first MoP on what should be included in the Work Plan.

11. In addition to providing advice to the MoP, the Scientific Committee developed five themes for its first Work Plan. These themes reflect the directions received from the first MoP.

12. The Scientific Committee agreed that the Work Plan should have a three to five year timeframe.

13. The Scientific Committee agreed to recommend the Work Plan at Annex F to the MoP.

Agenda Item 4 - Development of SIOFA Scientific Committee long term Research Priorities Plan

14. The Scientific Committee developed a Research Priorities Plan. This plan is aligned with the Work Plan and provides more detail on its research activities. The timeframe of this plan was agreed to be three to five years with review at least every two years by the Scientific Committee.

15. The Scientific Committee adopted the Research Priorities Plan at Annex G and it is provided for information to the MoP.

Agenda Item 5 - Review of fisheries: summary of fishing activity

16. The Scientific Committee was advised that in Annex 12 of the Report of the first Extraordinary Meeting of the Parties, held October 2015, Contracting Parties were encouraged to make their respective scientists available, systemise and provide catch and fishing data (current and historical) for the SIOFA Area. The Scientific Committee also noted that the first MoP had agreed that the Scientific Committee's Work Plan should include the determination of the state of play of current fishing activities for both bottom and pelagic fisheries in the SIOFA Area. National reports were an important contribution to informing this and other Scientific Committee considerations.

17. Written national reports were provided by Australia, the Cook Islands, the European Union, France (Territories), the Republic of Korea, Japan and the Comoros; all of which have current fishing activities in the Area. All members of the Scientific Committee and Comoros presented verbal updates.

Australia (SC-01 -05 (01))

18. Australia presented an overview of their fishing activities covering operations since 2005. The total number of active vessels in the trawl fishery declined from three in 2005, to two in 2006 and one in 2007–15. There was no non-trawl effort by Australian-flagged vessels in the

SIOFA Area between 2009 and 2014. One multipurpose trawler-longliner vessel actively fished in the SIOFA Area in 2015 however catch and effort data for 2015 were not available at time of presentation. In line with Australian confidentiality restrictions that prevent the disclosure of fishing activity by fewer than five vessels within a particular fishery, catch data could not be presented for Australian operations in the SIOFA Area. Total effort for the trawl fishery fluctuates between years but has largely declined from 325 and 329 trawl hours in 2005 and 2007 respectively, to 62 trawl hours in 2013 and a single trip in 2015. Target species include rubyfish (*Plagiogeneion* spp.), ocean blue-eye trevalla (*Schedophilus labyrinthicus*), alfonsino (*Beryx* spp.), orange roughy (*Hoplostethus atlanticus*) and cardinalfish (Epigonidae).

Cook Islands (SC-01 -05 (04))

19. The Cook Islands has historically had up to five flagged vessels operating in the SIOFA Area, with two longstanding fishing vessels operating since 2001. These vessels target orange roughy (*Hoplostethus atlanticus*) and alfonsino (*Beryx* spp.) using bottom and mid-water trawl fishing methods. The data provided in the Cook Islands national report was compiled using logbook data and must be considered provisional as some data are not yet available. All vessel catch is unloaded in Mauritius and South Africa, and as such, no port sampling program by Cook Islands exists to monitor these unloads due to their location however landings are reported to and monitored by the port state fisheries agencies. There has been a range of comprehensive research programs undertaken by Cook Island vessels including development of guidelines around biological sampling and acoustic surveys. Some of these programs are described in SC-01-INFO-16, SC-01-INFO-17 and SC-01 -INFO-19, some of which will be presented under agenda item 7 on Vulnerable Marine Ecosystems. The Cook Islands also has an observer program with targeted observer coverage undertaken in recent years. Observer data are collected as a data verification tool for the vessel scientific data collection.

European Union (SC-01 -05 (02))

20. A general overview of historical and current EU fishing activities taking place in SIOFA was provided. Spanish trawl, bottom longline and gillnet fisheries have been identified and from the beginning of the time series no more than two vessels per year operating during part of the year were present in the region. From 2007 onwards some vessels started working during whole the year. Catches of the main marine commercial resources were also provided, but this information needs to be considered provisional, as some inconsistencies on species identifications were detected. The main species caught were the alfonsinos (*Beryx* spp.); orange roughy (*Hoplostethus atlanticus*); wreckfish (*Polyprion* spp.); Portuguese dogfish (*Centroscymnus coelolepis*); pelagic armourhead (*Pseudopentaceros richardsoni*); and Patagonian toothfish (*Dissostichus eleginoides*). The bluenose warehou (*Hyperoglyphe antarctica*); blackbelly rosefish (*Helicolenus dactylopterus*); common mora (*Mora moro*); roudi escolar (*Promethichthys prometheus*); violet warehou (*Schedophilus velaini*); oreo dories (*Oreosomatidae*) were the main by-catch species.

21. The European Union confirmed the levels of deepwater Portuguese dogfish (*Centroscymnus coelolepis)* caught by EU gillnet vessels but noted the uncertainty in species identification.

France (Territories) (SC-01 -05 (07))

22. France on behalf of its territories provided a report summarising their operations in the SIOFA Area and presented annual effort and catch of the main targeted species. Some French longliners operating in the Kerguelen and Crozet EEZ operate in the SIOFA Area and landed catch in Reunion Island.

Republic of Korea (SC-01 -05 (03))

23. Korean trawl fishery commenced in 1968 in the Indian Ocean, and it had focused in African EEZs. In SIOFA area, Korean trawl fishery started to operate in 2000 while longline fishery started in 1999. However, fishing data reported in an initial period, from 1999 to 2010, are currently under review for scientific verification. One vessel of Korean longline fishery operated in 2011-2012, and three vessels of the fishery operated in 2013. One vessel of Korean trawl fishery operated in 2011-2013. Korean longline and trawl fisheries have had no fishing records since 2014. Catch of longline and trawl fisheries maintained steady amounts of ca. 160 tons and 800 tons, respectively, in 2009-2013. From 2009 to 2011, Korean fishing vessels have caught less than 400 tons, and their main species was Patagonian toothfish, (*Dissostichus eleginoides*) in the SIOFA area. The catch showed a peak with about 1,000 tons in 2012 and 2013, respectively, due to the catch increase of Splendid Alfonsino (*Beryx splendens*) by trawl fishery.

Japan (SC-01 -05 (05))

24. The Japanese national report describes Japanese fisheries in the SIOFA area of the competence based on available logbook data and other data sources (1975-2014). Japan has two different types of fisheries, i.e., trawl and bottom longline fisheries. There are 10 years of trawl fishing operations in three separate periods composing of commercial and exploratory fishing operations. Target species in recent years (2001-2014) is alfonsino (*Beryx splendens,* 286-2,987 tons) by 1-2 vessels. There were eight years of Japanese bottom longline fishing operations in 2004-2010 and 2013. Target species is Patagonian toothfish (*Dissostichus eleginoides*, 4-72 tons) by one vessel.

Mauritius

25. Mauritius confirmed that it has an active small scale fishery, but these vessels do not target stocks that are the objective of this Agreement. Under Port State Control, Mauritius monitors local and foreign fishing vessels in Port Louis. Foreign vessels monitored in 2014 are mostly tuna longliners, however vessels targeting Patagonian toothfish (*Dissostichus eleginoides*) made a total of 13 calls to Port Louis in 2014. In 2014, 1727 tonnes of deepsea demersal fish were transhipped by 11 trawlers. Main species were alfonsino (*Beryx splendens*), orange roughy (*Hoplostethus atlanticus*), cardinalfishes, blue nose warehou (*Hyperoglyphe Antarctica)*, spiky dory (*Neocyttus rhomboidalis*), smooth dory (*Pseudocyttus maculatus*) and rubyfish (*Plagiogeneion* spp.)*.*

Seychelles

26. The Seychelles confirmed that it has no locally flagged vessels operating in the SIOFA area. Seychelles flagged vessels operating on the high seas are typically targeting tuna and tuna-like species and are therefore operating in the Indian Ocean Tuna Commission (IOTC) area of competence, while other vessels are active only within the EEZ.

Comoros

27. The Comoros delegation provided an overview of their domestic fishing operations. The Comorian fishing fleet is entirely artisanal, comprising vessels 3-9 m in length. There is currently little targeting of species relevant to SIOFA management.

28. The Scientific Committee considered SC-01-05 (09) prepared by the Secretariat which proposed guidelines for the submission of national reports to the Scientific Committee. The meeting noted that, if adopted, the proposed data standards (SC-01-06) would require Contracting Parties to provide a national report to the Scientific Committee. Following discussion regarding issues related to reporting units and reporting areas the guidelines for national reporting were amended and adopted (Annex H)

29. The Scientific Committee discussed the importance of providing an Overview of the Fisheries to the MoP and this is presented in Annex I. A table of scientific and common names is provided at Annex J

30. The Cook Islands advised that there had been work undertaken to consolidate a summary of the historic fishery in the SIOFA region.

Agenda Item 6 - Data Standards

31. The Chairperson noted that the first MoP has directed the Scientific Committee to develop scientific data standards for the collection, reporting, verification and exchange of data, using the SPRFMO scientific data standards as a model. The data standards provide a critical foundation instrument for the Scientific Committee.

32. Australia provided an overview of paper SC-01-06 (01). The data standards presented were structured under the following headers: Data on fishing activities and the impacts of fishing; Observer data; Vessel Monitoring System data; Historical data; Data verification; Data exchange; and Confidentiality. Australia suggested that the information could assist the Scientific Committee with developing data standards that are international best practice and harmonized with adjacent and overlapping RFMOs, or RFMOs that also have competence over demersal species which will allow for future cross RFMO scientific analyses (if required). Australia explained that all Contracting Parties currently fishing in the SIOFA Area were active fishing members, or Parties of SPRFMO and/or CCAMLR. Given that the presented standards comply with both SPRFMO and CCAMLR, Australia noted that these members were already collecting data consistent with the standards. Consequently, if these were adopted for SIOFA then there should be little argument about the ability of Contracting Parties to meet these standards.

33. The Scientific Committee discussed the details of the proposed standards with respect to the collection of data on fishing activities and the impacts of fishing. Given the protocols around confidentiality had yet to be agreed by the MoP, the discussion on the standards for scientific data collection was separated from reporting and exchange. In terms of data collection, discussion included details of the individual data components. The other elements of the proposed standards were redrafted.

34. The developed Scientific Data Standards for Vessel Catch and Effort Data, Landing and Transshipment Data, Annual Catch Data, and Observer data are provided in Annex K for consideration as the fields for Scientific Data Standards to be adopted by the MoP. This was agreed to by seven of the eight Contracting Parties. It was noted that Japan agreed to catch and effort data, annual catch data and observer data. However, Japan considered that landing data and transhipment data should be discussed in the MoP. The Scientific Committee also agreed that to account for all catch, verification of vessel Catch and Effort Data may be required. This verification could be undertaken using:

- Position verification through vessel monitoring systems;
- Scientific observer programmes (including Scientific Committee-approved e-monitoring systems) to collect verification data on catch, effort, catch composition (target and non-target), discards and other details of fishing operations. This only applies if the observer does not collect the data from the vessel captain or crew.
- Vessel trip, landing and transshipment reports; and
- Port sampling.

35. The Scientific Committee members also recommended that it is preferable that all Contracting Parties, CNCPs and PFEs report all data proposed in the data standards to the Secretariat in accordance with the specifications and format described in Annex K. It was noted that Japan agreed to catch and effort data, annual catch data and observer data. However, Japan considered data exchange and confidentiality should be discussed in the MoP.

36. The Scientific Committee noted that due to operational constraints, the earliest that data could be reported to the Secretariat for the previous calendar years activities would be 31 May of the following calendar year.

37. The Scientific Committee discussed the importance of establishing a database for this data and recommended the MoP direct the Secretariat (once appointed) to establish a database as soon as possible.

38. The description of Maintenance of Confidentiality as written in SC01-WP-06-(01) was agreed to by all Scientific Committee members, It was noted that Japan considered confidentiality should be discussed by the MoP.

39. The Scientific Committee recommended that the scientific data fields be revised on an “as needs” basis.

40. Australia presented SC-01-INFO-05 on Australia’s electronic monitoring program. The presentation outlined that electronic monitoring in Australia is a cost effective data collection and logbook verification tool that improves the accuracy and reliability of logbook data.

41. Discussion following the presentation focused on the costs associated with installation of electronic monitoring systems and the role of human observers in collection of biological data and analysis of footage. It was noted that an electronic monitoring system costs

between AUD$10,000-15,000 per vessel for equipment and installation under Australia's electronic monitoring program. It was noted electronic monitoring could be used to complement an observer program and strengthen monitoring in SIOFA.

Agenda Item 7 - Vulnerable marine ecosystems

42. The Scientific Committee noted the function of the Scientific Committee to conduct scientific assessment of the impact of fishing on the marine environment and that the first MoP had agreed that the Scientific Committee's work plan should include the identification and distribution of vulnerable marine ecosystems.

43. The FAO provided the Scientific Committee with an update of the Areas Beyond National Jurisdiction Deep Seas Project (SC-01-INFO-07), a five year project designed to enhance sustainability in the use of deep-sea living resources and biodiversity conservation in the ABNJ through the systematic application of an ecosystem approach. The project has four major areas of work: 1: Strengthening policy and legal frameworks for sustainable fisheries and biodiversity conservation in the ABNJ deep seas; 2: Reducing adverse impacts on VMEs and enhanced conservation and management of components of EBSAs; 3: Improving planning and adaptive management for deep sea fisheries in ABNJ; and 4: Development and testing of methods for area-based planning. The ABNJ Deep Seas project brings together a range of partners working on deep-sea fisheries and conservation issues in the ABNJ globally. The partnership includes amongst other regional organizations responsible for the management of deep-sea fisheries, Regional Seas Programmes, fishing industry partners and international organizations. SIOFA's neighbouring management organizations, CCAMLR, SPRFMO and SEAFO are active partners in the Project. The southern Indian Ocean is one of the focal areas for the ABNJ Deep Seas Project, and the Project would very much welcome SIOFA to become an active member in the partnership. Fishing industry partners operating in the SIOFA area such as the Southern Indian Ocean Deep Seas Fishers Association (SIODFA) and the Sealord Group are currently contributing to the partnership. To date, work has involved coordination of the Global VME database, organizing a review of processes and practices surrounding VME's in RFMO's, development of data collection systems and preparation of a number of species guides and technical papers. The Project is able to offer support to the SIOFA in relation to a range of the Scientific Committee's proposed activities on data collection, stock assessment, Vulnerable Marine Ecosystems, and impacts on associated and dependent species.

44. The Scientific Committee noted that several of the project's areas may have direct benefits to SIOFA. Potential links were identified in the Scientific Committee's Research Priorities Plan and 2016-2018 Operational Work Plan.

45. The Cook Islands presented SC-01-INFO-17 on the results of seabed habitat mapping carried out in the SIOFA area in 1997 and 2001 using sidescan sonar technology from the University of Hawaii Mapping Institute. These data were used in the delineation of potential Benthic Protected Areas (BPAs) in the SIOFA area by marine scientists. The BPA program of SIODFA was organised in association with the IUCN and the Cook Islands. Published as FAO Technical Report 1020 (SC-01-INFO 18), the declarations of these BPAs were announced to the

signatories of SIOFA by Cook Islands at the opening of the Agreement in Rome 2006. Fishing operations by vessels under their flags are prohibited by both Australia and Cook Islands, and also by Japanese vessels who are members of the SIODFA.

46. The Cook Islands noted that SIODFA vessels have not fished in the BPAs in the last ten years and it was unlikely that any other fishing activities had occurred in these areas.

47. Small scale full-habitat and bathymetry maps for most of the SIOFA Area between 0-2000 metres were made available to the Scientific Committee by Cook Islands (SC-01-INFO-17). As noted in the FAO Guidelines, habitat assessment is critical to understanding of the potential distribution of vulnerable marine ecosystems in the SIOFA area.

48. Cook Islands noted concerns with the reliability of global habitat predictive models. The overestimation of the distribution of scleractinian corals in the South Pacific were noted in SC-01-INFO-20. A conclusion of this 2016 report was "However, both models failed to accurately differentiate high suitability from low suitability at the individual seamount scale in the Louisville Seamount Chain region of the SPRFMO area, and thus the usefulness of these broad-scale models for their intended purpose is questionable". It was also noted that a number of habitat impact surveys have been carried out by Australia and New Zealand in the South Pacific region since 2006, and the same report highlighted problems with the failure to incorporate true absence records in the predictive models.

49. Cook Islands referred to the habitat mapping on the Walters' Shoal region of SIOFA where the predicted model results indicate substantial areas of coral rocky habitat when in fact 70% of the habitat is of sand.

50. The Cook Islands suggested that the SC follow the approach of SPRFMO in considering spatial management approaches.

51. The Scientific Committee discussed the role of habitat suitability models in identifying areas of potential VMEs, noting research undertaken in other areas, including SIOFA and SEAFO. The Scientific Committee discussed the level of evidence required to inform the management of risks and need to identify areas of uncertainty. SIODFA expressed that some habitat suitability models were not robust predictors of the presence or absence of coral or sponges.

52. The Deep Sea Conservation Coalition suggested inaccuracies shown in the SPRFMO models highlight the need for precautionary approaches with area based management, emphasised the need for consistency with UNGA resolutions and highlighted the upcoming UNGA review of bottom fishing due in August

53. Australia presented (SC-01-07 (01)). The paper examines the international requirements for the management of high seas deep sea fisheries and provides a series of recommendations to assist the formulation of a binding measure for the conservation and management of bottom fishing. Additionally, this provides guidance for progressing a scientific work plan for the development of appropriate scientific advice in relation to bottom fishing. The paper notes that this work will impact those flag States currently engaging in, or wishing to undertake, bottom fishing in the SIOFA Area. The paper provided a series of

recommendations relating to bottom fishery impact assessments, bottom fishing footprints, protection vulnerable marine ecosystems, mapping and impact management and stock assessments of deep-sea species.

54. SIODFA expressed concerns over the lack of fully defined terms in the FAO Guidelines, their view that threshold limits and move on rules failed to ensure conservation of fragile benthos, and noted the potential conservation benefits of using area-based management. SIODFA suggested the Scientific Committee to review the FAO guidelines and develop clearly identified objectives regarding VMEs.

55. The Scientific Committee noted work that could inform SIOFA discussion on VMEs. The ABNJ Deep Seas project will be undertaking work in this area that may assist or inform the Scientific Committee.

56. The Scientific Committee discussed the need for bottom fishing impact assessments and standards for these, mechanisms for controlling effort and other management responses.

57. The Scientific Committee considered SC-01-INFO-25 as an example of what might be included in bottom fishing impact assessments standards. Parties agreed to work intersessionally to develop and adopt a standards for bottom fishing impact assessments.

58. A draft table of contents for bottom fishing impact assessment standard (Annex L) was developed by the Scientific Committee. The Scientific Committee did not have detailed discussions on this document, however agreed it would be used as a starting point for intersessional work to develop the standards.

59. The intersessional work would be led by the Chairperson. If the standard was adopted intersessionally, it would allow the second Scientific Committee to consider any bottom fishing impact assessments submitted by Scientific Committee members. Any CP, CNCP and PFEs undertaking bottom fishing in the area were encouraged to provide the second Scientific Committee with any bottom fishing impact assessments that had been completed for their fisheries in the SIOFA area.

60. The Scientific Committee discussed the potential role of management measures such as establishing a fishing footprint and limiting fishing to within the footprint area. It was noted that an appropriate spatial scale and time period for the footprint would need to be determined.

61. Two draft conservation and management measures had been provided to the Science Committee for consideration (SC-01-07 (02) and SC-01-INFO-26). The Scientific Committee discussed the scientific elements of these towards providing scientific advice to the MoP to allow their development of measures.

62. The Scientific Committee considered scientific elements of SC-01-07 (02). It was suggested that the stock assessment components be removed. Australia clarified that the proposal sought to address bottom fishing, not just vulnerable marine ecosystems and if stock assessments are removed, the Scientific Committee should recommend that the MoP develop a directive for the Scientific Committee to prioritise stock assessments.

63. The Scientific Committee considered SC-01-INFO-26 which had been previously submitted to the second MoP but not considered. The Cook Islands clarified this proposal was to protect vulnerable marine ecosystems, rather than addressing bottom fishing more broadly.

64. Some members of the Scientific Committee expressed support for exploring the possibility of adoption of the BPAs identified by SIODFA. To assist discussion on this proposal further information was presented on the scientific basis for the SIODFA benthic protected areas, in order to formulate advice to the MoP.

65. The Cook Islands provided a presentation on BPAs outlining the justification for closing a selection of areas (SC-01-INFO-15). The SC noted the BPAs analysis contained in SC-01-INFO-18 and requested an update on the justification for some of these. It was noted that the Bridle BPA was surrounded by major fishing grounds for alfonsino and orange roughy and there had been no fishing in the area for 10 years, and this provided for maintenance and protection of biodiversity in the Central SW Indian Ridge. Deepsea vents had also been identified in this area by the International Seabed Authority. In addition the new MOW BPA had been established nearby, as large deepwater coral beds were identified there by the IUCN in 2014. Other areas were closed on the basis of extensive coral habitat, or significant sites for global science such as the Atlantis sea floor feature as described in the report.

66. The Scientific Committee noted that three of the BPAs meet the criteria for EBSA identification under the Convention on Biological Diversity.

67. Noting the process undertaken to identify these areas and that three meet the criteria for EBSA, the Scientific Committee recommends that the MoP consider closing the SIODFA BPAs (Annex M XX based on Table 3 of SC-01-INFO-15) to fishing. France (Territories) noted a reservation for one area where French activities occur (Del Cano Rise – south Indian ridge) which is currently under investigation.

68. The Scientific Committee agreed to develop standards for the identification of future areas for protection or spatial management and included this in its 2016-2018 Operational Work Plan.

69. The Scientific Committee discussed SC-01-INFO-27 which was submitted to, but not discussed at, the second MoP Cook Islands clarified this was in response to the first MoP that discussed the development of measures *to constrain the deepsea trawl fishery* (para 47, Report of First MoP). The Cook Islands expressed the view that the proposal would limit overall fishing effort in the Agreement Area and was suggested to be more practical than identifying footprints.

70. In discussing the management of bottom fishing in the SIOFA area (SC-01-07 (01), SC-01-07 (02), SC-01-INFO 26, SC-01-27) the Scientific Committee advises the MoP that there are several options for limiting fishing effort. Adopting effort control in SIOFA was considered prudent given the absence of quantitative assessments on the status of stocks in relation to biological reference points and an agreed harvest policy. Options include:

    1. limiting fishing activity in bottom and mid-water fishing in any one year to their maximum effort in any one of the reference years (which would need to be defined).

Limits could be defined as total days at sea in the Agreement Area and/or vessel numbers. The Scientific Committee did not have a substantive discussion on the most appropriate effort measure.

2. prohibiting vessels from undertaken bottom fishing in the Area outside their historical bottom fishing footprint. The term 'bottom fishing footprint' means a map of the spatial extent and distribution of historical bottom fishing in the Area of all vessels flagged to a particular Contracting Party, CNCP or PFE over expressed as grid blocks of 20 minute resolution over a reference period (which would need to be defined).

71. The Scientific Committee advised that Option 1 would not necessarily constrain the spatial distribution of effort. Option 2 would not constrain total effort but would constrain the spatial distribution of effort which may assist the MoP with ensuring that impacts on VMEs is minimised by preventing fishing activities from expanding into new areas. The MoP may wish to consider both options if it chooses to manage effort in terms of total effort and its spatial distribution. The MoP is advised that Scientific Committee did not discuss the implications of effort creep due to increases in fishing power of vessels on these options. The Scientific Committee did not discuss the definition of reference periods for limiting effort, suggesting this be investigated intersessionally and advice provided in future if required.

72. The Scientific Committee noted that if the MoP decided to adopt both options for effort control that fishing entities would not need to be constrained to their own historical footprints in order to achieve the desired effort control. Further, SIODFA considered it unlikely that their operators would fish outside their historical footprint. The scientific Committee advises the MoP that effort control alone may not limit the total catch. A more precautionary method for ensuring that total catch is constrained would be the introduction of a catch quota. This would also manage the impact of any effort creep. The Scientific Committee did not discuss appropriate methods for determining catch quotas.

73. The FAO demonstrated the VME Portal and Data Base to the Scientific Committee. The VME Portal provides general information on VMEs, including sections for relevant publications and international instruments, links to VME-related tools and terminology, and the VME Data Base containing information on VME-related measures in ABNJ for each regional fisheries body. The database and website serve as an information sharing platform as well as an awareness building tool (www.fao.org/in-action/vulnerable-marine-ecosystems/en/). The SC was invited to contribute to the VME database, with information on new or modified measures on fishing with bottom contact gears (including fishing footprints, encounter protocols, new VME indicator species), VME areas, and other VME relevant information.

74. The FAO offered to provide assistance to SIOFA through the ABNJ Project. This was well received by the Scientific Committee. The Scientific Committee recommended the Secretariat (once established) would provide information to and collaborate with the VME Portal and Database.

Agenda Item 8 - Stock assessments for deep sea fisheries

75. The Scientific Committee noted the direction from the first MoP to determine the requirements for stock assessments for deep sea fisheries. The discussion focused on the criteria that should be used to identify which species/stocks should be assessed as a priority, how these stock assessments may be conducted and peer review standards.

76. The Scientific Committee agreed that the identification of the priority species for stock assessment should consider the level of catch within the different fisheries. On the basis of this Annex N was produced summarising the key species on the basis of catch within the fisheries.

77. The Scientific Committee recommended that the MoP note toothfish is being targeted in the Agreement Area and that the stocks are likely to straddle the Southern Indian Ocean and CCAMLR areas.

78. The Scientific Committee, noted that currently the toothfish catches within the SIOFA area are not considered in the CCAMLR assessments. Given the likely straddling nature of the stocks, the Scientific Committee agreed that it would be appropriate to suggest this information was considered through the CCAMLR assessment process. These assessments, along with monitoring of indicators (such as CPUE) in the SIOFA area, could be considered by the Scientific Committee in formulating advice to the MoP.

79. The Scientific Committee requested that the SIOFA Secretariat or Scientific Committee Chair approach CCAMLR Secretariat and Scientific Committee Chair to discuss collaborating on stock assessments for toothfish. The Scientific Committee notes that the data associated with toothfish fishing in the SIOFA area will need to be made available to CCAMLR for this process.

80. The Scientific Committee noted the substantial level of reported deepwater shark catch in some fisheries (particularly gillnet) and that it appeared to have been targeting of these species. It was noted that deepwater sharks were also taken as incidental catch in other fisheries. The EU noted the measures that had been taken in EU waters to ensure fisheries did not target deepwater sharks and that guidelines had been developed to ensure they were not targeted in other areas, globally by EU vessels. The Scientific Committee agreed that deepwater sharks may not be regarded as a target species of SIOFA fisheries into the future, given the measures parties were putting in place to prevent targeting. However, given the previous catch levels and potential incidental catch and the need to advise the MoP on their stock status, deepwater sharks should remain considered for assessment. It was noted that there was uncertainty in the species identification from the logbook data and that these may be a data poor group.

81. The FAO noted that the ABNJ Deep Seas project included elements on deepwater sharks, such as the development and dissemination of identification guides. The Scientific Committee encouraged members to work with the ABNJ Deep Seas project to link to the initiatives in this area.

82. There was discussion on the role of industry vessels as platforms for collecting data to inform stock assessments. There was general agreement that this was likely to be a cost effective approach, given the scale of the fisheries and the geographic distances involved. SIODFA suggested that commercial vessels engaged in the fishery should be required/expected to undertake these types of research and data collection as a condition for access to the fishery, the use of independent research vessels is cost prohibitive, and acoustic assessments should therefore be conducted by commercial vessels under guidance from the Scientific Committee. The CCAMLR requirements for commercial vessels in exploratory fisheries to participate in research activities was noted.

83. Cook Islands (SC-01-05) reported that over recent years, acoustics methods have become the standard approach to evaluate orange roughy biomass in more developed deepwater fisheries such as in New Zealand, Australia, and Chile. In all these countries, industry vessels have played very important roles, from passive acoustic data logging to taking full responsibility for yearly evaluations. Catch per unit effort analysis, and meta-analysis techniques based on fishery dependent data are now rarely applied for stock assessments by scientific working groups in both New Zealand and Australia.

84. The Cook Islands noted, that in particular, (SC-01-INFO-21), the New Zealand MPI report on the 2014 Orange Roughy Assessments noted the major problems in historical deepwater fisheries assessments," and a high threshold was placed on data quality in these assessments. This excluded, from the stock assessment models, much data that had previously been used. In particular, CPUE time series were not used in the models. In the past, CPUE indices were used as abundance indices but this is not appropriate for orange roughy fisheries." It was noted that these assessments were subject to peer group review as part of the Marine Stewardship Council certification process for three New Zealand orange roughy stocks.

85. Cook Islands presented recent acoustic survey results on orange roughy and alfonsino in SIOFA (SC-01-INFO-15), which were undertaken in accordance with the FAO Guidelines and Cook Island flag state requirements for its vessels, following protocols outlined in SC-01-INFO-19. The recent progress in acoustic surveys for deepwater species on the high seas using commercial vessels was noted, with the FAO convening a workshop of experts to advise on ways forward. The Cook Islands provided a reference for delegates seeking further information (FAO Fish. Aquat. Circ. No 1059, 2012).

86. The data collection program on Orange Roughy and Alfonsino in the SIOFA area by Cook Island vessels was highlighted in SC-01-INFO -15 and SC-01-INFO-16. This sampling program commenced in 2004, and over 50,000 detailed biological records, including length weight, maturity stage, and length distribution are available for the Scientific Committee as inputs to stock assessments. The differences in mean length between stocks, and potential differences in age composition was noted, and the need for good age composition for robust stock assessments for deepwater species as highlighted in SC-01-INFO-21.

87. Estimates of historical catch and vessel numbers, and an assessment of the biological parameters for orange roughy in the SIOFA area was presented by Cook Islands (SC-01-INFO-16), noting that there were at least 54 spawning aggregations identified. Less than 50% of

these aggregations were reported as heavily fished in the 1999-2015 period, but full catch histories were only available for 12 of these aggregations. It was noted that a priority for the SC should be to ensure full catch history was made available for assessments. Preliminary estimates indicated that the current harvest rate on orange roughy stocks was less than 3% of current estimated biomass, which is less than the 4.5% rate of the New Zealand orange roughy harvest policy adopted to deal with stocks where a full stock assessment is not available. However data from acoustic surveys between 2009-2015 were still being analysed, and could be presented to SC-02.

88. Preliminary acoustic surveys on alfonsino in SIOFA were reported by the Cook Islands (SC-01-INFO-15). The problems with use of catch per unit effort in alfonsino assessments in New Zealand were noted, and a newly published report from an expert workshop on alfonsino convened by the FAO should be reviewed by SC-02 to assist with the way forward on establishing sustainable alfonsino fisheries in SIOFA. It was noted that the acoustic Target Strength (TS) for alfonsino is based on modelling and a more accurate estimate is required to establish robust biomass estimates for assessment and reduce the uncertainties. Over recent years the TS for a number of deepwater species have been quantified using in-situ data collected with Acoustic Optical systems, and that some data have been collected by Cook Islands which could be made available for any science institution to analyse.

89. Australia noted that their orange roughy stock referred to in the presentation has recovered to above their limit reference point and that management procedures, including a harvest strategy, harvest control rules and catch limits were in place to ensure continued recovery. These stocks were assessed using acoustic survey data.

90. The value of the Scientific Committee developing standards for the peer review of stock assessments was discussed. This would include review of the robustness and representativeness of the data used in the assessment and assessment approach.

91. The Scientific Committee discussed potential review processes and the need to agree standards on which to accept stock assessments. It was noted that part of the quality control/peer review, included a review of the data that are available and may be included in the assessment. The Scientific Committee would have a key role in the peer review, but it was noted that at times specific expertise may be required, such as in the discussion of the acoustic data. It was suggested that following a similar approach to the SPRFMO Scientific Committee, of conducting joint assessments as part of the Scientific Committee would be a valuable, collaborative approach.

92. Agenda Item 9 - Associated and dependent species
The Scientific Committee noted that the first function of the Scientific Committee (as outlined in Article 7 (1)(a)(i)) is to conduct scientific assessment of the fishery resources and the impact of fishing on the marine environment. Moreover, the MoP has tasked the Scientific Committee with specifically considering the impact of fishing on associated and dependent species including deepwater sharks and seabirds.

93. It was noted that historical data is available that should be considered in determining what the associated species are and could contribute to assessing the fishing and environmental

impacts on these species. The Scientific Committee agreed that this work should be included in the Scientific Committee's Operational Plan 2016-2018.

94. The Cook Islands noted the research work completed aboard Cook Islands flagged vessels included the collection of deepwater shark data over the past 10 years and that this had contributed to the FAO projects on shark identification.

95. The FAO noted that the ABNJ Deep Seas project has completed work in the development and sharing of shark identification work, and encouraged the formalisation of a partnership with the SIOFA Secretariat (once it is established) to facilitate the distribution of identification guides amongst relevant Parties.

96. Australia noted its domestic processes of using risk assessment approaches to consider these species, including ERA Productivity-Sensitivity Analysis, and residual risk assessment to address the potential for overestimation of risk. Australia also noted a revised approach using Sustainability Assessment for Fishing Effects (SAFE) assessment, which produces F-based reference points through the analysis of species distribution and fishing effort distribution data. Australia noted that with appropriate access to data, this work may be completed intersessionally and provided to the next meeting of the Scientific Committee.

97. The Scientific Committee agreed to seek advice from expert groups, such as Birdlife International and the Agreement for the Conservation of Albatross and Petrels, in relation to risk assessments completed for species in the SIOFA Area.

Agenda Item 10 - Review of temporary measures adopted by Contracting Parties

98. The Scientific Committee considered Recommendation 15-01 *Interim Recommendation for Deepwater Gillnets in the Southern Indian Ocean Fisheries Agreement Area*, which was adopted by the second MoP in March, 2015.

99. The Scientific Committee noted that recommendation 15-01 expires on the last day of the 2016 annual MoP, and that the MoP had directed the Scientific Committee to review the recommendation and provide advice on this issue.

100. Australia presented SC-01-10 (02) that explains the negative impact of large-scale pelagic driftnets (drift gillnets) and deepwater gillnets on fishery resources, bycatch species and deep sea habitats has been raised as a management issue for SIOFA. Australia's paper provides background information that may assist the SIOFA Scientific Committee with recommendations for the next MoP on a binding measure that prohibits the use of large-scale pelagic driftnets and deepwater gillnets. The main issues of concern in relation to large-scale pelagic driftnets are the gear's highly non-selective nature, lack of data to estimate mortality of bycatch and negative impacts resulting from nets or net fragments lost or abandoned (i.e. ghost fishing). Issues of concern in relation to deepwater gillnets are risks to deepwater shark populations due to their life history traits (i.e. slow growth, high longevity, late maturity and low fecundity), lack of data and ghost fishing. A ban on the use of large scale pelagic driftnets and deepwater gillnets in the SIOFA area would be consistent with current UNGA Resolutions, the FAO International Plan of Action (IPOA) on Sharks and

conservation and management measures taken by other Regional Fisheries Management Organizations (RFMOs).

101. The Scientific Committee noted there is a requirement to follow the principles of the precautionary approach, whereby the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures (Article 4(c)). Some Members noted that the Scientific Committee could recommend a prohibition on deepwater gillnets that would not necessarily preclude their future use, but that if deepwater gillnet fishing occurred it would be on the basis of having a robust ecological risk assessment undertaken, an agreed harvest strategy with clear harvest control rules.

102. The Deep Sea Conservation Coalition noted their strong support for prohibitions of both large scale pelagic driftnets and deepwater gillnets and noted recent evidence of driftnet operations in the Indian Ocean. They suggested that the Scientific Committee should consider expanding the prohibition on large scale pelagic driftnets to cover all driftnet operations, rather than those over 2.5km in length.

103. Noting the available information on the potential impact of large scale pelagic driftnets on target species and the marine environment, the Scientific Committee agreed to recommend that the MoP prohibit the use of large scale pelagic driftnets in accordance with the UNGA moratorium.

104. In response to the MoP's request to consider Recommendation 15-01 Interim Recommendation for Deepwater Gillnets in the Southern Indian Ocean Fisheries Agreement Area, the Scientific Committee advises that seven members of the Scientific Committee supported the prohibition of deepwater gillnets in the SIOFA Area based on the scientific information available on the potential impacts on target species and the marine environment. Japan expressed a reservation, noting that their position that a risk assessment should be undertaken before the development of recommended actions. Japan also expressed an interest to conduct risk assessments. Therefore the Scientific Committee was unable reach consensus advice on this issue.

Agenda Item 11 - Advice to the Meeting of the Parties

Scientific Committee Work Plan

105. The Scientific Committee agreed to recommend the Work Plan at Annex F to the MoP.

Scientific Committee Research Priorities Plan

106. The Scientific Committee adopted the Research Priorities Plan at Annex G and it is provided for information to the MoP.

Data Standards

107. The Scientific Committee discussed the details of the proposed standards with respect to the collection of data on fishing activities and the impacts of fishing. Given the protocols around

confidentiality had yet to be agreed by the MoP, the discussion on the standards for scientific data collection was separated from reporting and exchange. In terms of data collection, discussion included details of the individual data components. The other elements of the proposed standards were redrafted.

108. The developed Scientific Data Standards for Vessel Catch and Effort Data, Landing and Transshipment Data, Annual Catch Data, and Observer data are provided in Annex K for consideration as the fields for Scientific Data Standards to be adopted by the MoP. This was agreed to by seven of the eight Contracting Parties. It was noted that Japan agreed to catch and effort data, annual catch data and observer data. However, Japan considered that landing data and transhipment data should be discussed in the MoP. The Scientific Committee also agreed that to account for all catch, verification of vessel Catch and Effort Data may be required. This verification could be undertaken using:

- Position verification through vessel monitoring systems;
- Scientific observer programmes (including Scientific Committee-approved e-monitoring systems) to collect verification data on catch, effort, catch composition (target and non-target), discards and other details of fishing operations. This only applies if the observer does not collect the data from the vessel captain or crew.
- Vessel trip, landing and transshipment reports; and
- Port sampling.

109. The Scientific Committee members also recommended that it is preferable that all Contracting Parties, CNCPs and PFEs report all data proposed in the data standards to the Secretariat in accordance with the specifications and format described in Annex K. It was noted that Japan agreed to catch and effort data, annual catch data and observer data. However, Japan considered data exchange and confidentiality should be discussed in the MoP.

110. The Scientific Committee noted that due to operational constraints, the earliest that data could be reported to the Secretariat for the previous calendar years activities would be 31 May of the following calendar year.

111. The Scientific Committee discussed the importance of establishing a database for this data and recommended the MoP direct the Secretariat (once appointed) to establish a database as soon as possible.

112. The description of Maintenance of Confidentiality as written in SC01-WP-06-(01) was agreed to by all Scientific Committee members. It was noted that Japan considered confidentiality should be discussed by the MoP.

113. The Scientific Committee recommended that the scientific data fields be revised on an “as needs” basis.

Vulnerable Marine Ecosystems

114. Noting the process undertaken to identify these areas and that three meet the criteria for EBSA, the Scientific Committee recommends that the MoP consider closing the SIODFA BPAs

(Annex M based on Table 3 of SC-01-INFO-15) to fishing. France (Territories) noted a reservation for one area where French activities occur (Del Cano Rise – south Indian ridge) which is currently under investigation.

115. In discussing the management of bottom fishing in the SIOFA area (SC-01-07 (01), SC-01-07 (02), SC-01-INFO 26, SC-01-27) the Scientific Committee advises the MoP that there are several options for limiting fishing effort. Adopting effort control in SIOFA was considered prudent given the absence of quantitative assessments on the status of stocks in relation to biological reference points and an agreed harvest policy. Options include:

    1. limiting fishing activity in bottom and mid-water fishing in any one year to their maximum effort in any one of the reference years (which would need to be defined). Limits could be defined as total days at sea in the Agreement Area and/or vessel numbers. The Scientific Committee did not have a substantive discussion on the most appropriate effort measure.

    2. prohibiting vessels from undertaken bottom fishing in the Area outside their historical bottom fishing footprint. The term 'bottom fishing footprint' means a map of the spatial extent and distribution of historical bottom fishing in the Area of all vessels flagged to a particular Contracting Party, CNCP or PFE over expressed as grid blocks of 20 minute resolution over a reference period (which would need to be defined).

116. The Scientific Committee advised that Option 1 would not necessarily constrain the spatial distribution of effort. Option 2 would not constrain total effort but would constrain the spatial distribution of effort which may assist the MoP with ensuring that impacts on VMEs is minimised by preventing fishing activities from expanding into new areas. The MoP may wish to consider both options if it chooses to manage effort in terms of total effort and its spatial distribution. The MoP is advised that Scientific Committee did not discuss the implications of effort creep due to increases in fishing power of vessels on these options. The Scientific Committee did not discuss the definition of reference periods for limiting effort, suggesting this be investigated intersessionally and advice provided in future if required.

117. The Scientific Committee noted that if the MoP decided to adopt both options for effort control that fishing entities would not need to be constrained to their own historical footprints in order to achieve the desired effort control. Further, SIODFA considered it unlikely that their operators would fish outside their historical footprint. Scientific Committee advises the MoP that effort control alone may not limit the total catch. A more precautionary method for ensuring that total catch is constrained would be the introduction of a catch quota. This would also manage the impact of any effort creep. The Scientific Committee did not discuss appropriate methods for determining catch quotas.

118. The FAO demonstrated the VME Portal and DataBase to the Scientific Committee. The VME Portal provides general information on VMEs, including sections for relevant publications and international instruments, links to VME-related tools and terminology, and the VME Data Base containing information on VME-related measures in ABNJ for each regional

fisheries body. The database and website serve as an information sharing platform as well as an awareness building tool (www.fao.org/in-action/vulnerable-marine-ecosystems/en/). The SC was invited to contribute to the VME database, with information on new or modified measures on fishing with bottom contact gears (including fishing footprints, encounter protocols, new VME indicator species), VME areas, and other VME relevant information.

119. The FAO offered to provide assistance to SIOFA through the ABNJ Project. This was well received by the Scientific Committee. The Scientific Committee recommends that the Secretariat (once established) provide information to and collaborate with the VME Portal and Database.

Stock Assessments

120. The Scientific Committee recommended that the MoP note toothfish is being targeted in the Agreement Area and that the stocks are likely to straddle the Southern Indian Ocean and CCAMLR areas.

Review of temporary measures

121. Noting the available information on the potential impact of large scale pelagic driftnets on target species and the marine environment, the Scientific Committee agreed to recommend that the MoP prohibit the use of large scale pelagic driftnets in accordance with the UNGA moratorium.

122. In response to the MoP request to consider Recommendation 15-01 *Interim Recommendation for Deepwater Gillnets in the Southern Indian Ocean Fisheries Agreement Area*, the Scientific Committee advises that seven members of the Scientific Committee supported the prohibition of deepwater gillnets in the SIOFA Area based on the scientific information available on the potential impacts on target species and the marine environment. Japan expressed a reservation, noting that their position that a risk assessment should be undertaken before the development of recommended actions. Japan also expressed an interest to conduct risk assessments. Therefore, the Scientific Committee was unable reach consensus advice on this issue.

2016-2018 Operational Work Plan and Budget

123. The Scientific Committee prepared an Operational Work Plan for 2016-2018 (Annex O) and requests this is noted by the MoP. The Scientific Committee noted that the availability of resources will influence their ability to progress work. This work plan does not include a proposed budget for activities.

Agenda Item 12 - 2016-2018 Operational Work plan and Budget

124. The Scientific Committee prepared an Operational Work Plan for 2016-2018 (Annex O) and requests this is noted by the MoP. The Scientific Committee noted that the availability of resources will influence their ability to progress work. This work plan does not include a proposed budget for activities.

Agenda Item 13 - Election of Chairperson and Vice Chairperson

125. Noting paragraph 2 of its terms of reference, the Scientific Committee elected the following office holders by consensus to take office from the conclusion of this meeting:

- Dr Ilona Stobutzki (of Australia)- Chairperson
- Dr Tsutomu Nishida (of Japan)- Vice Chairperson

Agenda Item 14 - Future meeting arrangements

126. The Scientific Committee considered its future meeting arrangements. The Scientific Committee agreed that the Scientific Committee should generally meet in March each year. The Scientific Committee noted meetings at this time would only allow consideration of preliminary data for the previous year, with full data not available until the end of May.

127. There was discussion on meeting duration and the need for an intersessional data workshop. The Scientific Committee suggested a duration of five to seven days, noting length would be dependent on progress made on Work Plan tasks and resourcing provided by the Secretariat and Contracting Parties. The Scientific Committee suggested intersessional work could be conducted electronically.

128. There were no offers to host the next meeting of the Scientific Committee. Consequently it defaulted to the Secretariat headquarters in La Reunion and noted that this would require provision in the MoP budget for 2017. Dates will be to be developed by the Secretariat in conjunction with the Chairperson. The MoP may wish to consider funding a rapporteur to assist the Scientific Committee at its 2017 meeting given the small size of the Secretariat.

129. The Scientific Committee agreed that working papers and information papers should be submitted to the Secretariat 30 days before the Scientific Committee meeting. The Scientific Committee agreed that late papers could be considered by exception and confirmed at the beginning of each Scientific Committee meeting.

Agenda Item 15 - Other business

130. There was no other business.

Agenda Item 16 - Adoption of the meeting report

131. The Scientific Committee adopted the meeting report at 7:16 PM on 24th March 2016 and agreed that the Chairperson will present this report to the MoP.

Agenda Item 17 - Close of meeting

132. The Chairperson extended her thanks to all Members and Observers of the Scientific Committee and the Secretariat. The Chairperson closed the first meeting of the Scientific Committee at 7:21 PM on 24th March 2016.

List of Annexes

Annex A

Opening Statement

Colleagues

I would like to begin by acknowledging the Whadjuk people who are the traditional custodians of the land upon which we are meeting this week. I would also like to pay respect to the Elders of the land, both past and present, and extend that respect to other Indigenous Australians who are present.

It is an honour to Chair the first meeting of the SIOFA Scientific Committee.

I am encouraged to see such strong representation from among the Contracting Parties and Observers to SIOFA.

SIOFA is charged with an important responsibility to ensure the long term sustainability of the fish stocks within its competence and the ecosystems in which they occur. As scientists and technical experts, we understand the importance of science in decision-making and of scientific objectivity.

We have a genuine opportunity to provide guidance and advice to the Meeting of the Parties that will ensure SIOFA can implement contemporary, best-practice conservation and management measures based on the best information available. This will give us the best opportunity to responsibly manage fisheries in the southern Indian Ocean

To do this, we will be dependent on the data we can collect. I am pleased to note that we have draft standards for the collection, verification and exchange of data for our discussion. Data standards are a critical foundation document for this Scientific Committee and I look forward to our thorough consideration of this issue.

As a Committee we are also asked to consider an interim recommendation that recommends that deep water gillnets not be used in the SIOFA Area. This recommendation was adopted by the Meeting of the Parties in March 2015 and expires on the last day of their ordinary meeting in July 2016.

I note that we have some advice that considers both these nets and large-scale pelagic gillnets Providing advice on the impact of fishing is an important part of our role. A number of other RFMOs have prohibited these nets in some capacity. SIOFA should take care not to fall behind where the evidence suggests that action should be taken.

Stock assessments will be an important part of our work long-term. We know that stocks in the southern Indian Ocean under the competence of SIOFA are particularly susceptible to overexploitation due to their slow growth and aggregating nature. I thank those delegations who provided information papers of relevant to this item.

I thank those delegations that prepared a National Report on their fishing activities. These will be an important way to communicate and exchange information about SIOFA Fisheries. I read these

reports with great interest. It is clear that there are a number of Contracting Parties with substantial bottom fishing interests in this area. It will be critical for this scientific committee to provide advice on appropriate arrangements to manage these bottom fisheries –this is what is expected of SIOFA at a global level. During this meeting, I would like to see this committee discuss both the stock assessments we consider should commence as a priority; as well as our approach to undertaking stock assessments in general. We have a number of issues to consider in this regard, including how this work will be undertaken, peer review standards and possible funding models.

This week, the Scientific Committee will work to develop three documents to govern its work.

- a Scientific Work Plan, as is required by our terms of reference, for consideration by the Meeting of the Parties. We are fortunate that the Meeting of the Parties has already provided guidance on this work plan.
- a longer term research plan to guide our longer term research work in more specific detail. This is an area in which we have more scientific discretion but we must still take care to align this research plan with our work plan. We should be able to demonstrate how this research will help us achieve the objectives set out in our work plan; and
- a shorter term operational work plan for 2016-2018 and a proposed budget, if necessary, that sets out our short term tasks and the delegations responsible for progressing that work.

I am also mindful of the requirements under our terms of reference to elect a Chairperson and Vice Chairperson for the next two years. At this stage, I am not aware of any nominations but this is an issue we should seek to discuss in the margins of this meeting. I intend to hold these elections on Thursday morning.

I am conscious of our very busy agenda this week but I am optimistic we will make great progress and be in a position to provide sound advice to the Meeting of the Parties. On this note, it is a pleasure to declare the first meeting of the SIOFA Scientific Committee open.

Annex B

List of Participants

Chairperson

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Annex C

Agenda

1st Meeting of the Southern Indian Ocean Fisheries Agreement (SIOFA) Scientific Committee

21-14 March 2015, Esplanade Hotel, Fremantle

Admiralty Gulf / King Sound Room

Chair: Dr Ilona Stobutzki

The provisional agenda for the first meeting of the SIOFA Scientific Committee has been developed to focus on the areas of work identified at the first Meeting of the Parties to SIOFA and to meet the governance requirements set out in the Scientific Committee's terms of reference.

1. **Opening**
    a. **Opening statement from the Chair**
    b. **Introduction of participants**

2. **Administrative arrangements**
    a. **Adoption of the agenda**
    b. **Confirmation of meeting documents**
    c. **Appointment of rapporteurs**
    d. **Review of functions and terms of reference**

3. **Scientific Committee work plan**

    In accordance with its Terms of Reference, the Scientific Committee is required to periodically provide a Scientific Committee Work Plan to the Meeting of the Parties for adoption. The Work Plan prioritises and identifies the key work of the Scientific Committee and will be consistent with the decisions taken at SIOFA 1 (refer para 73 of the Final Report of the 1st Meeting of the Parties).

4. **Development of SIOFA Scientific Committee long term Research Plan**
    a. **Establishment of working parties as required.**

5. **Review of fisheries: summary of fishing activity**

    At SIOFA 1, the Meeting of the Parties agreed that the SIOFA Scientific Committee should, as part of its work plan, determine the state of play of current fishing activities for both bottom and pelagic fisheries in the SIOFA Area.

6. **Data Standards**

At SIOFA 1, the Meeting of the Parties agreed that the SIOFA Scientific Committee should, as part of its work plan, develop scientific data standards for collection, reporting, verification and exchange of data using the SPRFMO scientific data standards as a model.

7. **Vulnerable marine ecosystems**

At SIOFA 1, the Meeting of the Parties agreed that the SIOFA Scientific Committee should, as part of its work plan, identify vulnerable marine ecosystems and predictive habitat modelling.

8. **Stock assessments for deep sea fisheries**

At SIOFA 1, the Meeting of the Parties agreed that the SIOFA Scientific Committee should, as part of its work plan, determine requirements for stock assessments for deep sea fisheries.

9. **Associated and dependent species**

At SIOFA 1, the Meeting of the Parties agreed that the SIOFA Scientific Committee should, as part of its work plan, determine the impacts of fishing on associated and dependent species, in particular deep sea sharks and seabirds.

10. **Review of temporary measures adopted by Contracting Parties**
    a. **Review of recommendation 15-01 *Interim Recommendation for Deepwater Gillnets in the Southern Indian Ocean Fisheries Agreement Area.***

11. **Advice to the Meeting of the Parties**

The Scientific Committee is requested to provide a summary of advice and recommendations to the Meeting of the Party with respect to conservation and management measures to be considered by the Meeting of the Parties at its next ordinary meeting.

12. **2016-2018 work plan and budget**

The Scientific Committee is asked to agree an operational work plan, accompanied by a budget as is necessary, for the ensuing two years for consideration by the Meeting of the Parties at its next ordinary meeting. The Meeting of the Parties is expected to adopt a budget for the ensuing financial year; and consider an estimated budget for the following financial year.

13. **Election of Chairperson and Vice Chairperson**

In accordance with its Terms of Reference, the Scientific Committee shall elect its Chairperson and Vice Chairperson from representatives of Contracting Parties or cooperating non-Contracting Parties to the Scientific Committee.

14. **Future meeting arrangements**

The Scientific Committee is asked to agree to (approximate) dates and location for the 2nd meeting of the SIOFA Scientific Committee.

15. **Other business**

16. **Adoption of the meeting report**

17. **Close of meeting**

Annex D

1st Meeting of the Southern Indian Ocean Fisheries Agreement (SIOFA) Scientific Committee

21-14 March 2015, Esplanade Hotel, Fremantle

Admiralty Gulf / King Sound Room

SC-01-06 - List of Meeting Documents (as at 24/03/16)

SC-01 -01	Meeting notice	Relevant agenda items
SC-01 -02	Provisional agenda for the SIOFA Scientific Committee meeting	N/A
SC-01 -03	Provisional agenda for Heads of Delegation meeting	N/A
SC-01 -04	Invitation to cocktail function	N/A
SC-01 -05	Tentative meeting schedule	N/A
SC-01 -06	List of Meeting Documents	N/A
SC-01 -07	Table of agenda items and related papers	N/A
SC-01 -07	Scientific Committee Terms of Reference	N/A
SC-01 -03 (01)	Scientific Committee work plan	3
SC-01 -04 (01)	Development of SIOFA Scientific Committee long term Research Plan	4
SC-01 -05 (01)	Review of Fisheries – National Report (Australia)	5
SC-01 -05 (02)	Review of Fisheries – National Report (European Union)_Rev 1	5
SC-01 -05 (03)_Rev 1	Review of Fisheries – National Report (Republic of Korea)	5
SC-01 -05 (04)	Review of Fisheries – National Report (Cook Islands)	5
SC-01 -05 (05)	Review of Fisheries – National Report (Japan)_Rev 1	5
SC-01 -05 (06)	Review of Fisheries – National Report (Comoros)	5
SC-01 -05 (06)	Review of Fisheries – National Report (France Territories)	5
SC-01 -05 (09)_rev 1	Proposed guidelines for the submission of National Reports	5
SC-01-06 (01)	Benchmark Standards for the Collection, Reporting, Verification and Exchange of Scientific Data for SIOFA (Delegation of Australia)	6
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SC-01-INFO-03	**Large-scale distribution of three deep-water squaloid sharks: Integrating data on sex, maturity and environment (Delegation of the European Union)**	**5, 8, 9**
SC-01-INFO-04	**Approach to ageing and growth back-calculation based on the otolith of the southern boarfish Pseudopentaceros richardsoni (Smith, 1844) from the south-west Indian Ocean seamounts. (Delegation of the European Union)**	**5, 8, 9**
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SC-01-INFO-08	**Characteristics of SIODFA Vessels Operating in the Southern Indian Ocean Deep-sea Trawl Fisheries (SIODFA)**	**5**
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SC-01-INFO-10	**Yield per recruit analysis of Alfonsino and implications for their management in the southern Indian Ocean (SIODFA)**	**8**
SC-01-INFO-11 (Rev _1)	**Bycatch of Corals, Sponges and Related Benthos (SIODFA)**	**9**
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SC-01-INFO-13	**Frequency Composition of Orange Roughy Sampled on Board FV Ocean Explorer (SIODFA)**	**8**

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SC-01-INFO-17	Seabed Mapping in the SIOFA Area (Cook Islands)	7
SC-01-INFO-18	Management of Demersal Fisheries Resources of the Southern Indian Ocean (FAO 1020) (Cook Islands)	5, 6, 7, 8
SC-01-INFO-19	FAO Tech Rep 1020 - Data Collection Protocols 2012 (Cook Islands)	6
SC-01-INFO-20	Vulnerable Marine Ecosystems of the Louisville Seamount Chain: voyage report of a survey to evaluate the efficacy of preliminary habitat suitability models (Cook Islands)	7
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SC-01-INFO-21	Proposed sub areas for reporting catch and effort data for the Southern Indian Ocean – extracted from the second ah hoc meeting on management of deeepwater fisheries resources in the southern Indian Ocean (20-22 May 2002) (SIODFA)	6
SC-01-INFO-22	Extract from FAO circular 677 regarding coordinates of the fishing areas in the Resolution on Data Collection Concerning the High Seas in the Southern Indian Ocean (SIODFA).	6
SC-01-INFO-23	Indian Ocean Fishery Catch and Vessel Effort 1997-2014	5, 6
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SC-01-WD - 03	Revisions to annexes in data standards (working paper 06) (Australia)	6
SC-01-WD - 04	Overview of fisheries	5

SC-01-WD-05 -	**Deepwater gillnets proposal - advice to MoP (Aus, EU, Japan)**	**10**
SC-01-WD - 06	**Data standards-comments from Japanese delegation**	**6**
SC-01-WD - 07	**Bottom Fishing Impact Assessment Standard – Table of Contents (Australia)**	**7**

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Agenda Item	Related Papers
18. Opening a. Opening statement from the Chair b. Introduction of participants	No papers provided for this item.
19. Administrative arrangements a. Adoption of the agenda b. Confirmation of meeting documents c. Appointment of rapporteurs d. Review of functions and terms of reference	SC -01 -02 - Provisional Agenda SC -01- 05 - List of Meeting Documents SC -01 -02 (01) – Scientific Committee ToR (as adopted by the Meeting of the Parties).
20. Scientific Committee work plan	SC-01 -03 (01) - SC work plan (Secretariat) SC-01-WD -02 -_Rev 3.5 - Scientific Committee Work Plan, research plan and operational plant (Draft) (Australia)
21. Development of SIOFA Scientific Committee long term Research Plan **a.** Establishment of working parties as required.	SC-01 -04 (01) -SIOFA SC long term research plan (Secretariat) SC-01-WD -02 -_Rev 3.5 - Scientific Committee Work Plan, research plan and operational plant (Draft) (Australia)
22. Review of fisheries: summary of fishing activity	SC-01 -05 (01) - National Report (Australia) SC-01 -05 (02) - National Report (EU)_Rev 1 SC-01 -05 (03) - National Report (Korea)_Rev 1 SC-01 -05 (04) - National Report (Cook Islands) SC-01 -05 (05) - National Report (Japan)_Rev 1 SC-01 -05 (06) - National Report (Comoros) SC-01 -05 (07) - National Report (France Territories) SC-01 -05 (09)_Rev 1 - Proposed guidelines for the submission of national reports (Secretariat) SC-01-INFO-01 - Experimental toothfish fishing in the SW Indian ocean (EU) SC-01-INFO-02 - Growth of alfonsino in the SW Indian Ocean (EU) SC-01-INFO-03 - Deepwater sharks distribution (EU) SC-01-INFO-04 - Age and growth of southern boarfish (EU) SC-01-INFO-08 - Characteristics of SIODFA Vessels Operating in the Southern Indian Ocean Deep-sea Trawl Fisheries (SIODFA)

	SC-01-INFO-18 - Management of Demersal Fisheries Resources of the Southern Indian Ocean (FAO 1020) (Cook Islands) SC-01-INFO-23 - Indian Ocean Fishery Catch and Vessel Effort 1997-2014 (Cook Islands) SC-01-INFO-24 - Second ad hoc meeting on management of deepwater fisheries resources of the southern Indian Ocean (May 2002) (SIODFA) SC-01-WD -05 – Overview of Fisheries (Chairperson)
23. Data Standards	SC-01-06 (01) - Benchmark Standards for the Collection, Reporting, Verification and Exchange of Scientific Data for SIOFA (Delegation of Australia) SC-01-INFO-05 - Australia's electronic monitoring program (Australia) SC-01-INFO-07 - ABNJ Deep Seas project update (FAO) SC-01-INFO-18 - Management of Demersal Fisheries Resources of the Southern Indian Ocean (FAO 1020) (Cook Islands) SC-01-INFO-19 - FAO Tech Rep 1020 - Data Collection Protocols 2012 (Cook Islands) SC-01-INFO-21 -Proposed sub areas for reporting catch and effort data for the Southern Indian Ocean – extracted from the second ad hoc meeting on management of deeepwater fisheries resources in the southern Indian Ocean (20-22 May 2002) (SIODFA) SC-01-INFO-22 -Extract from FAO circular 677 regarding coordinates of the fishing areas in the Resolution on Data Collection Concerning the High Seas in the Southern Indian Ocean (SIODFA). SC-01-INFO-23 - Indian Ocean Fishery Catch and Vessel Effort 1997-2014 (Cook Islands) SC-01-WD -03 - Revisions to annexes in data standards (working paper 06) (Australia) SC-01-WD -06 -Data standards-comments from Japanese delegation
24. Vulnerable marine ecosystems	SC-01-07 (01) - Protection of Vulnerable Marine Ecosystems in the SIOFA Area (Australia) SC-01-07 (02) -Draft CMM for the management of bottom fishing in the SIOFA Area (Australia)

	SC-01-INFO-06 - SPRFMO BFIAS (Australia) SC-01-INFO-07 - ABNJ Deep Seas project update (FAO) SC-01-INFO-15 - SIODFA Benthic Protected Areas) (SIODFA) SC-01-INFO-17 - Seabed Mapping in the SIOFA Area (Cook Islands) SC-01-INFO-18 - Management of Demersal Fisheries Resources of the Southern Indian Ocean (FAO 1020) (Cook Islands) SC-01-INFO-20 - Vulnerable Marine Ecosystems of the Louisville Seamount Chain: voyage report of a survey to evaluate the efficacy of preliminary habitat suitability models (Cook Islands) SC-01-INFO-24 - Second ad hoc meeting on management of deepwater fisheries resources of the southern Indian Ocean (May 2002) (SIODFA) SC-01-INFO-25 -SIOFA Bottom Fishing Impact Assessment (Australia) SC-01-INFO-26 -Draft CMM for the protection of VMEs (Cook Islands) SC-01-INFO-27 -Draft CMM for the limit of deep sea trawl effort (Cook Islands) SC-01-WD -07 - Bottom Fishing Impact Assessment Standard – Table of Contents (Australia)
25. Stock assessments for deep sea fisheries	SC-01-INFO-01 - Experimental toothfish fishing in the SW Indian ocean (EU) SC-01-INFO-02 - Growth of alfonsino in the SW Indian Ocean (EU) SC-01-INFO-03 - Deepwater sharks distribution (EU) SC-01-INFO-04 - Age and growth of southern boarfish (EU) SC-01-INFO-07 - ABNJ Deep Seas project update (FAO) SC-01-INFO-10 - Yield per recruit analysis of Alfonsino and implications for their management in the southern Indian Ocean (SIODFA) SC-01-INFO-12 - Age and size at maturity of alfonsino and implications for their management in the southern Indian ocean (SIODFA) SC-01-INFO-13 - Frequency Composition of Orange Roughy Sampled on Board FV Ocean Explorer (SIODFA) SC-01-INFO-14 - Conversion Factors for Determining Whole Weights from Processed Weights for some DW species in the SIO (SIODFA) SC-01-INFO-15 - Indian Ocean Orange Roughy and Alfonsino Acoustic Surveys 2004-2008 (Cook Islands) SC-01-INFO-16 - Biological data from Orange Roughy Spawning Stocks in the Southwest Indian Ocean (Cook Islands)

	SC-01-INFO-18 - Management of Demersal Fisheries Resources of the Southern Indian Ocean (FAO 1020) (Cook Islands) SC-01-INFO-21 - The 2014 orange roughy stock assessments (Cook Islands) SC-01-INFO-24 - Second ad hoc meeting on management of deepwater fisheries resources of the southern Indian Ocean (May 2002) (SIODFA) SC-01-WD -01_Rev 1 - SIOFA Target Species Matrix_Rev 1 (Australia)
26. Associated and dependent species	SC-01-INFO-01 - Experimental toothfish fishing in the SW Indian ocean (EU) SC-01-INFO-02 - Growth of alfonsino in the SW Indian Ocean (EU) SC-01-INFO-03 - Deepwater sharks distribution (EU) SC-01-INFO-04 - Age and growth of southern boarfish (EU) SC-01-INFO-07 - ABNJ Deep Seas project update (FAO) SC-01-INFO-11 (Rev_1) -Bycatch of Corals, Sponges and Related Benthos (SIODFA)
27. Review of temporary measures adopted by Contracting Parties **a.** Review of recommendation 15-01 Interim Recommendation for Deepwater Gillnets in the Southern Indian Ocean Fisheries Agreement Area.	SC-01 -10 (01) - Review of recommendation 15-01 (Secretariat) SC-01 -10 (02) - Large scale pelagic drift nets and deep water nets in the SIOFA area (AU) SC-01 -10 (03) - Draft CMM for the prohibition of DW and LSP drift nets (AU) SC-01-WD-05 -Deepwater gillnets proposal - advice to MoP (Aus, EU, Japan)
28. Advice to the Meeting of the Parties	No papers provided for this item
29. 2016-2018 work plan and budget	SC-01 -12 (01) - 2016-2018 Work Plan and Budget (Secretariat) SC-01-INFO-09 -Funding Procedure for the Australian Sub-Antarctic Fishery Assessment Plans (SIODFA) SC-01-WD -02 -_Rev 3.5 - Scientific Committee Work Plan, research plan and operational plant (Draft) (Australia)
30. Election of Chairperson and Vice Chairperson	SC-01 -13 (01) - Election of the Chairperson and Vice Chairperson (Secretariat)
31. Future meeting arrangements	SC-01 -14 (01) - Future meeting arrangements (Secretariat)
32. Other business	No papers provided for this item
33. Adoption of the report	No papers provided for this item
34. Close of business	No papers provided for this item

SIOFA Scientific Committee Work Plan

The SIOFA Scientific Committee (SC) Work Plan provides the overarching plan to guide the SC in providing advice to the Meeting of the Parties (MoP). The SC Work Plan is required under the SC Terms of Reference and needs to be provided to the Meeting of the Parties. The SC Work Plan, including work undertaken as part of the associated Research Priorities Plan and Operational Work Plan, will be undertaken in accordance with articles 7(1)(a) and 7(1)(b) of the SIOFA Agreement.

This SC Work Plan is intended to ensure scientific rigour is applied to scientific decision making processes in SIOFA. The Work Plan is supported by a Research Priorities Plan and an Operational Work Plan.

The timeframe for the SC Work Plan is 3-5 years and it will be reviewed annually in accordance with the SC Terms of Reference.

Scientific Committee Work Plan themes

At SIOFA 1, the Meeting of the Parties agreed that the Scientific Committee's Work Plan should include, but not be limited to, the following priority 'themes':

- Scientific data standards for the collection, reporting, verification and exchange of data
- Advice on vulnerable marine ecosystems
- Current and historical status of fishing activities
- Stock assessments
- Advice on the impacts of fishing on associated and dependent species
- Any other advice that the MoP requests.

The SC will adopt these themes as basis for its first work plan.

Additional work of the SC may include:

- contribution to the formulation of Bottom Fishery Impact Assessment Standards (BFIAS) for the SIOFA area
- advice on new and exploratory fisheries.

Themes may be added or removed depending on the objectives of the SC and in response to directions from the MoP and other relevant SIOFA bodies.

Annex G

SIOFA Scientific Committee Research Priorities Plan

The SIOFA Scientific Committee (SC) Research Priorities Plan will guide the activities of the SC over the coming 3-5 years, as required to support the SC Work Plan. It will be used to identify work that is necessary to progress the longer-term development and sustainability of relevant fisheries in the SIOFA Area. The Research Priorities Plan should be reviewed every two years or as required.

The Research Priorities Plan contains discussion of implementation, monitoring and review of the plan as well as information on consultation, cooperation and collaboration with other relevant organizations, particularly those with related objectives and that can contribute to the attainment of the SIOFA objectives.

Research priorities are organised below by the themes under the SC Work Plan.

1. Scientific data standards for the collection, reporting verification and exchange of data

Key research activities required may include:

- Development of data collection standards
- Development of verification methods
- Development of methods for estimation of total fishing effort, including incremental increases in effective effort, catches and related mortalities of target and non-target species, stratified, as appropriate, by area, time, species or stock, size, sex and other characteristics
- Review of relevant data, including operational-level catch and effort data, aggregated catch and effort data and size composition data
- Development of programmes to improve accuracy and coverage and to address data gaps that are identified
- Development of programmes for the collection and compilation of related fisheries data, such as gear and vessel attributes, and other information, that can be used to standardize fishing effort and estimate fishing capacity and changes in effective fishing effort
- Sourcing and compiling historical fisheries data and related metadata needed for stock assessment and effort standardisation
- Development and testing of sampling designs, including sampling protocols, for the collection of these data through observer, vessel and port sampling programmes
- Development of programmes to assist Contracting Parties (CPs), Cooperating Non-Contracting Parties (CNCPs) and Participating Fishing Entities (PFEs) in meeting data-related MoP obligations
- Development of a database for compilation of relevant data.

2. Advice on vulnerable marine ecosystems

Key research activities may include:

- Mapping by direct observation to identify occurrence of VMEs
- Developing and applying reliable and verifiable methods to identify potential occurrence of VMEs
- Collection and analysis of benthic bycatch data
- Investigation and possible development of spatial management methods to mitigate significant adverse impacts on VMEs
- Assessment of the scientific basis for benthic protected areas (BPAs) for the purpose of developing criteria for future definition and assessment of BPAs
- Assessment of individual bottom fishing activities that would have significant adverse impacts on VMEs, and of possible measures to prevent such impacts. Assessment of CMMs to prevent significant adverse impacts on VMEs where they have been identified.

3. Current and historical status of fishing activities

Key research activities include:

- Contribution to compilation on a report of the historical fishing activity in the SIOFA Area, including catch and effort data if available.

4. Stock assessments

Key research activities required to support stock assessment and modelling may include:

- Identification and prioritisation of key species of interest
- Identification and application of methods for stock assessment, including the characterisation of statistical and structural uncertainty of the models
- Improvement of existing methods and development of new methods
- Identification and refinement of biological reference points for use in stock status determination
- If possible, use of simulation models for testing stock assessment models and to evaluate the sensitivity of stock assessment results to violation of structural assumptions
- Development of survey indices/abundance estimates as inputs to assessment model
- Identification of key biological and ecological parameters.

5. Advice on the impacts of fishing on associated and dependent species

Research activity tasks under this research priority may include:

- Estimation of interaction rates for non-target, associated and dependent species across each fishery
- Identification of the occurrence and distribution of non-target, associated and dependent species and consideration of risks to them from the effects of fishing

- Review of existing mitigation measures (and their performance) being applied in the SIOFA area and in other relevant regional fisheries management organisations (RFMOs), and identify appropriate measures for consideration in SIOFA
- Review of the efficacy of data collection methods for collecting data on fishing impacts on non-target, associated and dependent species
- Consideration of ecosystem models and related tools to assess the combined effects of fishing, other anthropogenic effects, oceanographic variability and socioeconomics
- Consideration of cumulative risk of fishing on stocks dealt with by different organisations.

Implementation and review of Scientific Committee Research Priorities Plan

Monitoring the implementation of the SIOFA SC Research Priorities Plan will be the responsibility of the Chair of the SC in collaboration with the Secretariat. Members of the SIOFA SC will share responsibility for identification and review of the priorities. Opportunities to take responsibility for activities supporting implementation of components of the Research Priorities Plan will be considered at each meeting of the SC. At each regular session of the SC the themes may also be reviewed. Theme-specific working groups may be formed at SC meetings or proposed by the MoP to work in-session or intersessionally to progress the various objectives of each theme. Themes may be modified, included added or removed, depending on the ongoing objectives of SIOFA, the SC and other related entities.

Opportunities to involve individuals and institutions from developing countries and territories should be a strong feature of the identification and review of research priorities. Promoting such involvement should use available expertise from developing countries, Small Island Developing States and territories and build scientific and technical capacity within those countries and territories.

Full implementation of the Research Priorities Plan may be beyond the means of SIOFA's core budget. Extra-budgetary funds from voluntary contributions of Members and other sources such as the Food and Agriculture Organization's Areas Beyond National Jurisdiction (ABNJ) Deep Seas Project may be required and actively sought by SIOFA. Nevertheless, adoption of the Research Priorities Plan by the SC and subsequent strong support from the MoP is a prerequisite to securing the necessary extra-budgetary funds. An independent external review of the priorities may periodically be requested by the SC. The SC will be responsible for preparing the terms of reference for the review. The SC will present the report of the review to the next regular session of the MoP.

Relationships with other organisations

There is considerable overlap between the objectives of SIOFA and other RFMOs and entities, particularly those with shared or overlapping boundaries. The SIOFA SC will consult, cooperate and collaborate with other relevant organizations, particularly those with related objectives and which can contribute to the attainment of the SIOFA objectives. In relation to this plan, relationships with the following institutions are of particular significance:

- SIOFA Compliance Committee

The Secretariat, in consultation with the Chairperson of the SC, will ensure that the SIOFA Compliance Committee is consulted on any element of the plan directly relevant to the functions of the Compliance Committee. The Secretariat will provide the Compliance Committee with copies of reports of the SC relating to implementation and review of the plan.

- The Commission for the Conservation of Antarctic Living Marine Resources
- The South Pacific Regional Fisheries Management Organisation
- The Indian Ocean Tuna Commission
- The Southern Indian Ocean Deepsea Fishers' Association
- South East Atlantic Fisheries Organisation
- Food and Agriculture Organization of the United Nations
    - ABNJ Deep Seas Project
- North Pacific Fisheries VME working group
- The Deep Sea Conservation Coalition
- Other associations and regional bodies as appropriate.

Guidelines for the submission of Annual National Reports to the SIOFA Scientific Committee

Purpose of annual national reports

Contracting Parties, Cooperating non-Contracting Parties and participating fishing entities should submit national reports to the Scientific Committee (SC) on an annual basis before its annual meeting in order to keep the SC informed, in a concise format, of their fishing, research and management activities over the previous year.

Such annual reports do not replace data submissions under any CMM developed for the collection, reporting, verification and exchange of data; nor do they replace submission of detailed scientific papers.

- Catch and effort data should still be submitted to the SIOFA Secretariat in accordance with the any prescribed data submission standards and procedures.
- Detailed information or scientific analyses on aspects of fisheries should continue to be presented in specific scientific papers to SC meetings.

The SC may review these guidelines periodically and update them as required to take into account new reporting requirements established under CMMs or other best practice standards.

It is proposed that national reports submitted to the SIOFA SC be made publicly available on the SIOFA website once available.

Template for the submission of National Reports

Annual national reports should include the following sections of specific relevance to the work of the Scientific Committee:

Description of fisheries

A general overview description of the fisheries of the flag state concerned over the previous five years, providing summarised information on:

- Fleet composition (number of vessels by gear type and size and how this has changed by year).
- Summary tables of effort (trawl fisheries - hours trawled, longline fisheries - number of hooks set, other gears-units appropriate to the gear) and total catches by year, gear-type, season and area. With respect to area, data should be provided, at a minimum, by the sub-areas at Attachment 1 of these guidelines.
- Brief description of significant changes and new developments in fisheries over the past year.

Catch, effort and CPUE summaries

Overall summary figures of trends in nominal effort, retained catch (tonnes or kilograms as appropriate) and discards (tonnes or kilograms as appropriate) and CPUE in the SIOFA Area over the history of the fishery, including:

- Trends in nominal fishing effort by gear type over time.
- Trends in catch by species for the main target, bycatch, associated and depended species.[1]
- Trends in nominal CPUE by gear type for the main species contributing to catches.

Fisheries data collection and research activities

Brief description of the fisheries data collection systems implemented, and the research and assessment activities conducted, including:

- Description of the statistical data collection systems in use, and how these have changed or been improved over the past year.
- Description of fisheries sampling programs or surveys conducted, scientific analyses and stock assessments undertaken, or other relevant research activities conducted.
- Information on other SIOFA-related research activities over the past year and future research plans.

VME Thresholds

[1] A table of relevant scientific names and associated common English name should be provided in an annex to report.

(for bottom fishing activity only)

- Describe threshold levels for encounters with VMEs and any move-on protocols
- For operations that exceeded the pre-determined VME threshold, provided details of the VME taxa observed including (wet) weight, number of taxa, the corresponding effort information and total weight of catch of the operation; and any action taken in respect of the relevant site.

Biological sampling and length/age composition of catches

- Overview summary of the coverage of biological and size-frequency sampling conducted.
- Simple summary table or figure showing length and/or age-frequency distribution of the target species by gear, and how this has changed over the past five years.

Description of data verification mechanisms

- Brief description of data verification mechanisms used. For example:
    - Position verification through VMS
    - Scientific observer programs to collect verification data on catch, effort, catch composition (target and non-target) discards and other details of fishing operations.
    - Vessel trip, landing and transhipment reports; and
    - Port sampling.

Summary of observer and port sampling programs

- Brief description of observer and port sampling programs conducted, and how these have changed or been improved over the past year.
- Information on coverage rates achieved by observer programs, or sampling coverage achieved by port sampling programs, over the past year.
- Information on the level of observer coverage focused on recording bycatch of seabirds, marine mammals, reptiles and other species of concern.
- Reporting of observed bycatch by species and fishery for all seabirds, marine mammals, reptiles and other species of concern.

Relevant social and economic information (optional)

- Brief description of relevant social or economic information related to the fisheries.
- Future prospects of the fishery
- Onshore development

Attachment 1

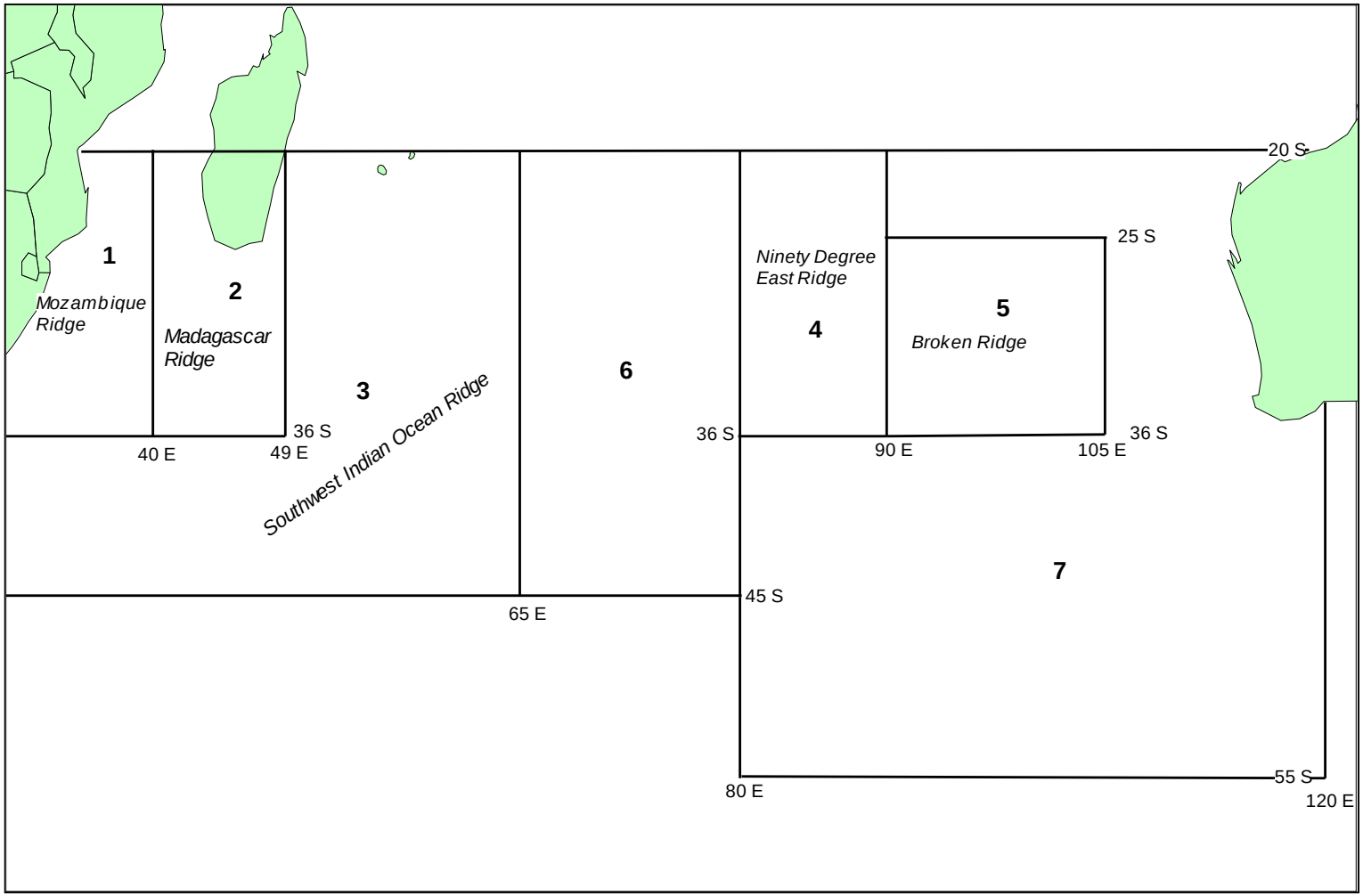
Sub-areas for reporting catch and effort data[2]

Table 1

	Area	Lats		Longs	
		N	**S**	**W**	**E**
1	Mozambique Ridge	20°	36°	-	40°
2	Madagascar Ridge	20°	36°	40°	49°
3a	Northern SW Indian Ridge	20°	36° ?	49°	65°
3b	Southern SW Indian Ridge	36° ?	45°		65°
6	Mid-Indian Ridge	20°	45°	65°	80°
4	Ninety Degree East Ridge	20°	36°	80°	90°
5	Broken Ridge	25°	36°	90°	105°
7	SE Indian Ocean	20°	55°	80°	120°
8	North of 20°	Undefined			

[2] Source for Table 1 and Figure 1: FAO Fisheries Report No. 677: report of the "*SECOND AD HOC MEETING ON MANAGEMENT OF DEEPWATER FISHERIES RESOURCES OF THE SOUTHERN INDIAN OCEAN"* held in Fremantle 20 -22 May 2002

Figure 1


1
Mozambique Ridge
2
Madagascar Ridge
3
Southwest Indian Ocean Ridge
4
Ninety Degree East Ridge
5
Broken Ridge
6
7
20 S
25 S
36 S
36 S
36 S
40 E
49 E
65 E
80 E
90 E
105 E
45 S
55 S
120 E

Overview of SIOFA fisheries

This overview has been drafted from the information provided in the national reports to the Scientific Committee.

Fishing effort

In the four years 2011 to 2014 (the most recent years reported by all parties), between 8 and 13 vessels fished each year area, across all the parties. Of these:

- 5[3] to 6 vessels conducted trawling (demersal and/or midwater) each year
- 2 to 6 vessels conducted longlining each year
- 1 vessel conducted gillnetting in 2013 and 2014.

In 2014, across the parties 8 active vessels were reported, of which 5 undertook trawling, 2 longlining and 1 gillnetting.

Catch composition

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

The catch of longline vessels differs between two groups. There are longline vessels (reported by Japan, Korea and France (Territories)) that catch Patagonian toothfish and associated species such as blue antimora. The other longline vessels catch hapuku wreckfish and ocean blue-eye trevalla, pelagic armourhead, deepwater sharks (Squalidae), alfonsino, rubyfish and common mora.

The catch of the gillnet vessels is predominantly deepwater sharks (Squalidae), there is uncertainty on the species composition within this group.

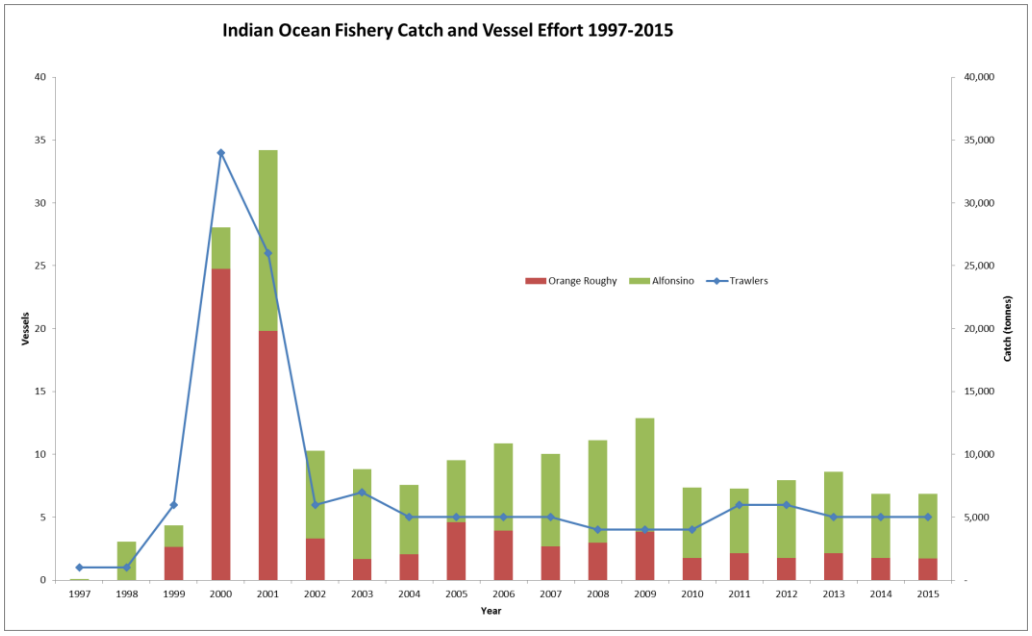
Catch levels

It is not possible to provide a consolidated estimate catch from the national reports; for some parties there are confidentiality constraints where there are small numbers of vessels.

[3] This includes an exploratory fishing vessel reported by Japan in 2009, 2010 and 2012.

Summary of historical fishing activity in the SIOFA Area

The Cook Islands provided the figure below, which has been compiled from historic catch records, port landings and data supplied from fishing vessels. The Scientific Committee noted this and will seek to validate historical catch through data provision.



Catch and effort distribution

It is not possible to provide consolidated information on catch and effort distribution.

Observer programs

All parties with active fishing vessels have implemented observer programs. It is not possible to provide a consolidated estimate of observer rates and data collection from observer programs. In future a summary by gear, fleet and area would have value.

Biological sampling and length frequency composition

Biological sampling and length frequency composition was provided for key species by Australia and the Cook Islands (alfonsino and orange roughy), and Korea (Patagonian toothfish, alfonsino and pelagic armorhead).

FAO species codes and alternative names used by members of the Scientific Committee

FAO common name	**FAO species code**	**Scientific name**	**Alternative common name**
Alfonsinos nei	ALF	*Beryx* spp.	Alfonsino
Splendid alfonsino	BYS	*Beryx splendens*	Alfonsino
Bluenose warehou	BWA	*Hyperoglyphe antarctica*	Blue-eye trevalla, Antarctic butterfish
Orange roughy	ORY	*Hoplostethus atlanticus*	
		Schedophilus labyrinthicus	Ocean blue-eye trevalla
Violet warehou	SEY	*Schedophilus velaini*	Indian Ocean trevalla
Pelagic armorhead	EDR	*Pseudopentaceros richardsoni*	Southern boarfish
Patagonian toothfish	TOP	*Dissostichus eleginoides*	
Common mora	RIB	*Mora moro*	Ribaldo
Wreckfish	WRF	*Polyprion americanus*	
Portuguese dogfish	CYO	*Centroscymnus coelolepis*	
Hapuka	HAU	*Polyprion* spp.	Antarctic butterfish (Japan?)
Rubyfish	RYG	*Plagiogeneion rubiginosum*	
		Plagiogeneion spp.	Rubyfish
Smooth oreo dory	SSO	*Pseudocyttus maculatus*	
Spiky oreo	ONV	*Neocyttus rhomboidalis*	
Blue antimora	ANT	*Antimora rostrata*	
Hapuku wreckfish	WHA	*Polyprion oxygeneios*	Hapuku
Cardinalfishes nei	APO	Apogonidae	
Cardinal fishes nei	CDL	Epigonidae	Deepwater cardinalfishes

Oreo dories nei	ORD	Oreosomatidae	
Blackbelly rosefish	BRF	*Helicolenus dactylopterus*	

Table of Common and Scientific Names

FAO species codes and alternative names used by members of the Scientific Committee

FAO common name	**FAO species code**	**Scientific name**	**Alternative common name**
Alfonsinos nei	ALF	*Beryx* spp.	Alfonsino
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Orange roughy	ORY	*Hoplostethus atlanticus*	
		Schedophilus labyrinthicus	Ocean blue-eye trevalla
Violet warehou	SEY	*Schedophilus velaini*	Indian Ocean trevalla
Pelagic armorhead	EDR	*Pseudopentaceros richardsoni*	Southern boarfish
Patagonian toothfish	TOP	*Dissostichus eleginoides*	
Common mora	RIB	*Mora moro*	Ribaldo
Wreckfish	WRF	*Polyprion americanus*	
Portuguese dogfish	CYO	*Centroscymnus coelolepis*	
Hapuka	HAU	*Polyprion* spp.	Antarctic butterfish (Japan?)
Rubyfish	RYG	*Plagiogeneion rubiginosum*	
		Plagiogeneion spp.	Rubyfish
Smooth oreo dory	SSO	*Pseudocyttus maculatus*	
Spiky oreo	ONV	*Neocyttus rhomboidalis*	
Blue antimora	ANT	*Antimora rostrata*	

Hapuku wreckfish	WHA	*Polyprion oxygeneios*	Hapuku
Cardinalfishes nei	APO	Apogonidae	
Cardinal fishes nei	CDL	Epigonidae	Deepwater cardinalfishes
Oreo dories nei	ORD	Oreosomatidae	
Blackbelly rosefish	BRF	*Helicolenus dactylopterus*	

Vessel Catch and Effort Data

Data Field	Detail
General (Trip)	
Vessel flag	
Vessel name	
Vessel call sign	
Vessel Registration number	Flag State or SIOFA
Lloyd's/ IMO Number (if allocated)	IMO if allocated
Vessel size: Gross Tonnage	Gross register tonnage may be used if GT not available; or both
Name of observer	
Name of person filling in the data	
Email address of person responsible for data enquiries	
Weight Conversion Factor	
Species	
Processing type	
Conversion factor = live weight/processed weight	
Haul Information	
Intended Target species (FAO code)	
Type of fishing (C)ommercial; (R)esearch; (S)urvey data	
Haul/Trawl number	
Gear	
Trawl	Type Mesh Size (mm) Trawl technique Type of trawl: (S)ingle, (D)ouble or (T)ripple
Longline	Type of longline (Spanish, Trotline, Autoline) Type of line Type of bait Hook size (mm) Hook code or make Length of line (m) Number of hooks set Number hooks per cluster (if Trotline) Length of longline Number of hooks lost
Trap/Potting	Pot type Number set Number lost Type of bait

Dahn/Drop Line	Total number of hooks in the set Number of hooks lost Type of hooks used Type of leader used Total number of line lifts in the set Type of bait used
Gillnet	Gillnet type Mesh size (mm) Gillnet length (m) Gillnet depth (number of meshes in a net drop)
Date (YYYY.MM.DD) & Time (HH:mm)	UTC Recorded at start and end of fishing. For LL this also needs to be recorded at start and end of setting in addition to start and end of haul.
Latitude (DD.MM) Longitude (DD.MM)	Use N and S rather than + and – Use E and W rather than + and – Recorded at start and end of fishing. For LL this is recorded at start and end of setting. For Trawl fishing is defined as when the otterboard is on the bottom.
Bottom depth (m)	
Average and/or Actual Fishing / gear depth (m)	Start and end of fishing (except for Trapping/Potting where only needed at start)
Species Retained	Estimated catch retained on board by species (FAO species code) in live weight
Species Discarded	An estimation of the amount of living marine resources discarded by species if possible in live weight (kg)
Marine mammals, seabirds, reptiles or other species of concern caught?	(Yes/No/Unknown – Y,N,U) For each species - Species name - Number alive - Number dead or injured

Landing and transshipment Data

Landing Details
Landing date
Country of Landing (standard ISO 3-alpha country codes)
Port/ Point of Landing
Landed state by species (FAO species code)
Landed (live) weight by species
Containers – Type by species (if applicable) and hold
Containers – Number by species (if applicable) and hold
Containers – Total Content weight for all containers by species (if applicable) and hold
Port of previous landing

Date of arrival at previous port Verification (if applicable):
Name of observer
Authority

Reefer Vessel Details
Name of vessel.
Current flag state.
Registration number of vessel
Radio call sign (If any).
IMO number/Lloyd number (if allocated).
Name of charter party or owner.

Details of transshipping vessel (delivering)
Name of vessel.
Registration number.
Radio call sign.
Vessel flag state.
IMO number/ IHS Fairplay number (if allocated).
Master of transshipping vessel.

Transhipment operation
Date and time of commencement of transshipment (UTC).
Date and time of completion of transshipment (UTC).
Position (nearest 1/10th degree) at commencement of transshipment (decimal).
Position (nearest 1/10th degree) at completion of transshipment (decimal).
Description of product type by species (e.g. whole, frozen fish in 20 kg cartons).
Number of cartons, net weight (kg) of product, by species.
Total net weight of product transhipped (kg).
Hold numbers in reefer vessel in which product is stowed.
Destination port of reefer vessel.
Arrival date estimate.
Landing date estimate.

Verification (if applicable)
Name of observer
Authority

Standard for Annual Catch Data

(a) Calendar year
(b) FAO Statistical Area (e.g. FAO87)
(c) Species/ group name (e.g. orange roughy)
(d) Species/ group code (FAO 3-alpha code19, e.g. ORY)
(e) Annual catch total – tonnes raised to 'live' weight

Standard for Observer Data

Data Field	Detail
Trip Details	Trip Number

	Cruise details (start and end dates – YYYY.MM.DD) Date report is generated (UTC) Current vessel flag. (ISO 3-apha) Previous flag (if any) (ISO 3-apha) Name of vessel Owner/Charterer Name of the Captain Name of the Fishing Master Number of Crew Registration number International radio call sign (if any) Lloyd's / IMO number (if allocated) Previous Names (if known). Port of registry (UNLOCODE) Port of Landing (UNLOCODE) Type of vessel (use appropriate ISSCFV codes, Annex 3.3) Type of fishing method(s) (use appropriate ISSCFG codes, Annex 3.2) Length (m) Beam (m). Gross Tonnage – GT (to be provided as the preferred unit of tonnage), Gross register tonnage – GRT (to be provided if GT not available; may also be provided in addition to GT) Power of main engine(s) (kilowatts) Hold capacity (cubic metres) Fish Meal Hold Capacity (m3) Other Hold Capacity (m3) Net monitoring cable used (Yes/No) Record of the equipment on board which may affect fishing power factors (navigational equipment, radar, sonar systems, weather fax or satellite weather receiver, sea-surface temperature image receiver, Doppler current monitor, radio direction finder), where practical.
Observer Details	Observer name and ID Nationality (ISO 3-apha) Employing organisation Contact name in organisation (Address/email/fax) Boarding location (UNLOCODE, if applicable or lat/long) Boarding Date (UTC:YYYY.MM.DD) Disembarkation location (UNLOCODE, if applicable or lat/long) Disembarkation date (UTC:YYYY.MM.DD) Time Zone (UTC +-)
Trawl Fishing Activities	**Gear details** Net ID Net type (ISSFCV) Headrope length (m) Groundrope length (m)

	Bobbin diameter (cm) Otterboard to wing length (m) Horizontal Opening (m) Vertical Opening (m) **Codend mesh** Mesh size (cm), codend circumference (cm), Orientation Mesh type (diamond, square, etc) **Otterboard** Type, weight (kg) **Net design** Net design description including make, model etc. **Trawl details** Trawl Number Gear Trawl type: Research or Commercial (R/C) Observed (Yes/No) Target Species (FAO species code) Date Start (YYYY.MM.DD) Date Finish (YYYY.MM.DD) Time net deployed (hh:mm) Time net retrieved (hh:mm) **Start and End Fishing** Time (hh:mm) Latitude degrees (DD; N and S for north and South) Latitude minutes (MM) Longitude degrees (DD; E and W for east and west) Longitude minutes (MM) Trawl Depth (m) Bottom Depth (m) **Other** Offal discharged during shooting (Y/N) Offal discharged during hauling (Y/N) Trawl speed (knots) Horizontal opening (m) Total catch (kg) **Observed catch composition** Observer ID Was Haul observed for fish/invertebrate by-catch (Y/N): Record the total weight of all sub-samples for this shot (kg): **Species** FAO species code Total retained catch weight (kg) Total discarded catch weight (kg) **Bycatch mitigation measures employed:** Were bird scaring (tori) lines in use? (Yes/No) Were bird bafflers in use? (Yes/No) **Trawl warp strike (monitored for 15 minutes immediately after the net has been deployed).** Trawl number Observer name Start observation time (hh:mm)

	End observation time (hh:mm) **Number of heavy warp strikes (record for Albatross, Giant Petrels, White chinned petrels, Other petrels)** Air Water Sinker **Seabird abundance observation** Seabirds present in observation area (y/n) Estimated numbers of abundance (by species)
Longline Fishing Activities	**Longline Description** Longline Type (FFSSCV) Period in which the gear was used (YYYY.MM.DD) Start and end date (YYYY.MM.DD) Target Species (FAO species code) **Main Line** Material Diameter (mm) Integrated Wt (g/m) **Branch Lines** Material Length (M) Spacing (m) **Hooks** Type Make Total length (mm) Shank (mm) Gape (mm) Throat (mm) Front length (mm) Usual setting position Line off bottom (m) Hooks off bottom (m) Method of baiting (manual/automatic) Automatic baiting equipment (make and model) **Hook sinkers** Size (g) Position from hook (mm) Offal dumping position (port, starboard, stern) longline setting position (port, starboard, stern) Offal dumping during hauling (never, occasionally, always) Propeller rotation direction (clockwise/anti-clockwise) Detail the weight and distance between the line weights for the longline system used Single (Auto) Line (kg:m) Double (Spanish) Line (kg:m) Trotline (vertical droppers/trots attached to a mainline) (kg:m) **General Streamer Line Description** Vessel equipped with a streamer line (y/n)

	Number of streamer lines regularly set Streamer line position (port, starboard, stern) Streamer line length (m) Streamer length min/max (m) Attached height above water (m) Distance between streamers (m) Number of streamers Streamer design (single or paired) Aerial extent of line (m) Method used to assess aerial extent Streamer material Streamer line diameter (mm) Streamer colours Streamer line over bait entry position? (y/n/u) Distance from stern to bait entry point (m) Towed object (Y/N) Horizontal distance from bait entry point to streamer line (m) **Daily setting observations** Set Number (as referenced in catch and effort log) Set Type: Research or Commercial (R/C) Longline Type Code (FSSCV) Trotline cetacean exclusion device used (Y/N) Date of observation (dd/mm/yy) **Setting information** Vessel setting speed (knots) Number sets unobserved since last set **Start and End setting. Repeated for Hauling** Date (dd/mm/yy) Time (hh:mm) Latitude degrees (DD; N and S for north and South) Latitude minutes (MM) Longitude degrees (DD; E and W for east and west) Longitude minutes (MM) Bottom Depth (m) Total length of longline set (km). Total number of hooks for the set. **Observation No** Start date (YYYY.MM.DD) Start time (hh:mm) End date (YYYY.MM.DD) End time (hh:mm) **Details of Longline Setting** Main line length (m) Number of hooks set Number of Baskets/Magazines Set Number of hooks per Basket/Magazine Percentage hooks baited Distance between branches (m) Distance of hooks off bottom (m) Bait species (FAO species code) Deck lights during setting (On, Off)

	Streamer lines used (Yes, No) Number of streamer lines used Offal dumping during setting (Yes, No) Bait entry position (Port, Starboard, Stern) **Daily hauling observations** Set number Date of observation (YYYY.MM.DD) **Hauling Information** Number of hooks observed for seabird and fish by-catch (tally period) Offal dumped during hauling (Yes / No) **Gear lost** Number of sections lost Number of hooks lost that were attached to lost sections of the longline Number of other hooks lost (excluding hooks attached to lost sections) **Observed catch composition** Was Haul observed for fish/invertebrate by-catch (Y/N): Estimate percentage of the haul observed for by-catch (%) **Species** Species code (FAO species code) Total retained catch weight (kg) Total discarded catch weight (kg) **Species Retained** observed number retained observed number retained with tags **Species Discarded** Observed number discarded Observed number discarded dead Observed number discarded alive **Species Lost** Observed number lost/dropped off at surface
Trapping/Potting Fishing Activities	**Gear type** pot type (with drawing) mesh size (mm) **Funnel position** orientation aperture (cm) number of chambers Escape port present (y/n) dimensions (cm) of escape port **Processing Details and Conversion Factors (CF)** Haul Number Observer name Species Code (FAO species code) Processing Code Length Range Min Max

	Number of individuals Live Weight (kg) Processed Weight (kg) Grade Conversion Factor **Set and haul details** Set Number Date of observation (YYYY.MM.DD) Set Type: Research or Commercial (R/C) Target species (FAO species code) Offal dumped during setting (Yes / No) Offal dumped during hauling (Yes / No) **Start and End setting. Repeat for hauling** Date (YYYY.MM.DD) Time (HH:mm) Latitude (DD; N and S for north and South) Latitude minutes and fraction of minutes (MM.mm) Longitude (DD; E and W for east and west) Longitude minutes and fraction of minutes (MM.mm) bottom depth (m) **Gear Details** Length of line (m) Type of line Pot spacing (m) Bait type **Setting** number of pots set number of pots observed **Hauling** number of pots hauled number of pots observed **Observed interactions with birds or marine mammals** Species Code (FAO species code) **Setting** Abundance (500m radius) Gear interaction (y/n) **Hauling** Abundance (500m radius) Gear interaction (y/n) **Observed catch composition** Observer name Was Haul observed for fish/invertebrate by-catch (Y/N): Estimate percentage of the haul observed for by-catch (%): **Number of pots observed for by-catch:** Species Code (FAO species code) total retained catch weight (kg) total discarded catch weight (kg) **Species Retained** observed number retained observed number retained with tags

	Species Discarded observed number discarded observed number discarded dead observed number discarded alive **Species Lost** observed number lost/dropped off at surface
Dahn/Drop lining fishing activity	**Dahn/Dropline Description** Line Type Period in which the gear was used (dd/mm/yy) Start and end date Target species (FAO species code) **Main Line** Material Diameter (mm) Integrated Wt (g/m) **Hooks** Type Make Total length (mm) Shank (mm) Gape (mm) Throat (mm) Front length (mm) Usual setting position Line off bottom (m) Hooks off bottom (m) Method of baiting (manual/automatic) Automatic baiting equipment (make and model) **Offal** Offal dumping position (port, starboard, stern) offal dumping during hauling (never, occasionally, always) Propeller rotation direction (clockwise/anti-clockwise) **General Streamer Line Description** Vessel equipped with a streamer line (y/n) Number of streamer lines regularly set Streamer line position (port, starboard, stern) Streamer line length (m) Streamer length min/max (m) Attached height above water (m) Distance between streamers (m) Number of streamers Streamer design (single or paired) Ariel extent of line (m) Method used to assess aerial extent Streamer material Streamer line diametre (mm) Streamer colours Streamer line over bait entry position? (y/n/u) Distance from stern to bait entry point (m) Horizontal distance from bait entry point to streamer line (m)

	Details of Dahn/Dropline Setting Main line length (m) Number of hooks set Percentage hooks baited Distance between branches/snoods (m) Distance of hooks off bottom (m) Bait species Bait size Bait proportion Deck lights during setting (On, Off) Streamer lines used (Yes, No) Number of streamer lines used Offal dumping during setting (Yes, No) Daylight period Moonlight Bait entry position (Port, Starboard, Stern) Vessel setting speed (knots) **Start and End setting. Repeat for Start and End of hauling** Date (YYYY.MM.DD) Time (hh:mm) Latitude degrees (DD; N and S for north and South) Latitude minutes (MM.mm) Longitude degrees (DD; E and W for east and west) Longitude minutes (MM.mm) Bottom Depth (m) **Gear lost** Number of sections lost Number of hooks lost that were attached to lost sections of the dahn/dropline Number of other hooks lost (excluding hooks attached to lost sections) **Observed catch composition** Observer ID Was Haul observed for fish/invertebrate by-catch (Y/N): Estimate percentage of the haul observed for by-catch (%) Species (data shall be collected for each observed species) Species code (FAO species code) total retained catch weight (kg) total discarded catch weight (kg) **Species Retained** observed number retained observed number retained with tags **Species Discarded** observed number discarded observed number discarded dead observed number discarded alive **Species Lost** observed number lost/dropped off at surface

Vulnerable Marine Ecosystems (VME)	**General information** Observers name Vessel name Date (YYYY.MM.DD) Trip number Set number Position (latitude/longitude) Species Code (FAO species code) **VME location** Start and end positions of all gear deployments and/or observations. (Lat/long) Depth(s) fished (m) **Fishing Gear** Indicate fishing gears used at each location. **VME Taxa** a) Species (identified taxonomically as far as possible, or accompanied by a photograph where identification is difficult). b) An estimate of the quantity (weight (kg) or volume (m3)) of each listed benthic species caught in the tow. c) An overall estimate of the total quantity (weight (kg) or volume (m3)) of all invertebrate benthic species caught in the tow. d) Where possible, and particularly for new or scarce benthic species which do not appear in ID guides, whole samples should be collected and suitably preserved for identification on shore. 5) Collect representative biological samples from the entire VME catch. (Biological samples shall be collected and frozen when requested by the scientific authority in a Contracting Party). For some coral species that are under the CITES list photographs should be taken
Length Frequency Data	Representative and randomly sampled length-frequency data be collected for the target species (FAO species code) and, time permitting, for other main by-catch species. Length data should be collected and recorded at the most precise level appropriate for the species (cm or mm and whether to the nearest unit or unit below) and the type of measurement used (total length, fork length, or standard length) shall also be recorded. If possible, total weight of length-frequency samples should be recorded, or estimated and the method of estimation recorded, and observers may be required to also determine sex of measured fish to generate length-frequency data stratified by sex
Biological Sampling	**Sample** Species Length (mm or cm), with record of the type of length measurement used. Skates and rays: • _maximum disk width shall be measured

	Sharks • _Appropriate length measurement to be used should be selected for each species. As a default, total length should be measured. Weight (kg) Sex (male, female, immature, unsexed) Maturity stage (and criteria/schedule used) Gonad weight (g) Otoliths Observer, Set/Haul and Trip details
Incidental Captures of seabirds, mammals, turtles and other species of concern	Species (identified taxonomically as far as possible, or accompanied by photographs if identification is difficult) and size. Estimated species abundance around fishing vessel. Species interactions with fishing gears. Count of the number of each species caught per tow or set. Fate of bycatch animal(s) (retained or released/discarded). If released, life status (vigorous, alive, lethargic, injured, dead) upon release. If injured, what was the cause of injury? If dead, then collect information or samples4 for onshore identification in accordance with pre-determined sampling protocols. Where this is not possible, observers may be required to collect sub-samples of identifying parts, as specified in biological sampling protocols. Record the type of interaction (hook/line entanglement/warp strike/net capture/other) if other, describe. Sex of each individual for taxa where this is feasible from external observation, e.g. pinnipeds, small cetaceans or Elasmobranchii species
Tag Recoveries	Observer name. Vessel name. Vessel call sign. Vessel flag. Collect, label (with all details below) and store the actual tags for later return to the tagging agency. Species from which tag recovered. Tag colour and type (spaghetti, archival). Tag numbers Date and time of capture (UTC). Location of capture (Lat/Lon, to the nearest 1 minute) Animal length / size (cm or mm) with description of what measurement was taken (such as total length, fork length, etc). Sex (F=female, M=male, I=indeterminate, D=not examined) Whether the tags were found during a period of fishing that was being observed (Y/N)

Hierarchies for Observer Data Collection	**Fishing Operation Information** All vessel and tow / set / effort information. **Reporting of Catches** Record time, weight of catch sampled versus total catch or effort (e.g. number of hooks), and total numbers of each species caught. Identification and counts of seabirds, mammals, reptiles (e.g. turtles), sensitive benthic species and vulnerable species. Record numbers or weights of each species retained or discarded. Record instances of depredation, where appropriate. **Biological Sampling** Check for presence of tags. Length-frequency data for Target species (FAO species code). Basic biological data (sex, maturity) for Target species (FAO species code). Length-frequency data for main by-catch species. Otoliths (and stomach samples, if being collected) for **Target species (FAO species code).** Basic biological data for by-catch species. Biological samples of by-catch species (if being collected) Take photos

Maintenance of confidentiality

The Secretariat of the SIOFA compile and disseminate accurate and complete statistical data to ensure that the best scientific evidence is available while maintaining confidentiality where appropriate.

Specifically:
a) "public domain" data:
I. Data on fishing activities, aggregated by flag state and month and 1 degree by 1 degree areas, except in those cases where such data describes the activities of less than 3 vessels (in which case a lower resolution will be used) or national policies;
II. Data for vessels including current flag, name, registration number, international radio call sign, IHS-Fairplay (IMO) number, previous names, port of registry, previous flag, type of vessel, types of fishing methods, when built, where built, length, length type, moulded depth, beam, gross tonnage (and/ or gross register tonnage), power of main engine(s), hold capacity, vessel authorisation start and end dates.
III. The occurrence of bottom fishing within a 20 minute block (without specifying flag, any vessel identification, or measure of fishing effort).

b) The Secretariat compile and disseminate "public domain" data through appropriate mechanisms, including the SIOFA website once developed.

c) The Secretariat operate comprehensive and robust processes to maintain the confidentiality of the non-public domain data that Contracting Parties, CNCPs and PFEs

provide to it. These processes should be based on the ISO/IEC27002:2005 (updates ISO/IEC 17799:2005) international standard for information security management. SIOFA specific data security standards can be developed over time if necessary.

d) The Secretariat be asked to compile and disseminate to Contracting Parties, CNCPs and PFEs or their designates non-public domain data (being any data not described in above as “public domain” data):
I. In response to a written request from the Meeting of the Parties, for the purposes documented by the Meeting of the Parties; and
II. In the absence of a written request from the Meeting of the Parties - only with the authorization of the Participant(s) that originally provided that data.

These standards should be reviewed periodically to ensure that they are adequate for the current and foreseeable needs of the SIOFA.

Annex L

SIOFA Scientific Committee
DRAFT Bottom Fishery Impact Assessment Standard

Contents

Annex M

List of Benthic Protected Areas proposed for closure to all fishing

Area	Coordinates			
	Lat (S)	Long (E)	Lat (S)	Long (E)
Gulden Draak	28° 00'	98° 00'	29° 00'	99° 00'
Rusky	31° 20'	94° 55'	31° 30'	95° 00'
Fools · Flat	31° 30'	94° 40'	31° 40'	95° 00'
East Broken Ridge	32° 50'	100° 50'	33° 25'	101° 40'
Mid-Indian Ridge	13° 00'	64° 00'	15° 50'	68° 00'
Atlantis Bank	32° 00'	57° 00'	32° 50'	58° 00'
Bridle	38° 03'	49° 00'	38° 45'	50° 00'
Walters Shoal	33° 00'	43° 10'	33° 20'	44° 10'
Coral	41° 00'	42° 00'	41° 40'	44° 00'
Banana	30° 20'	45° 40'	30° 30'	46° 00'
Middle of What (MoW)	37° 54'	50° 23'	37° 56.5. 5'	50° 27'

Annex N

Identification of Key Species

Trawl	**Line**	**Gillnet**
Alfonsinos	Hapuku & Wreckfish	Deepwater shark (Portuguese dogfish)
Orange roughy	Blue eye	
Boarfish/Pelagic armourhead	Southern Boarfish/Pelagic armourhead	
Blue eye	Deepwater shark (Portuguese dogfish)	
Oreo	Alfonsinos	
Butterfish	Rubyfish	
Cardinal fish	Ribaldo	
Hapuku & Wreckfish	Toothfish*	

* To be considered by CCAMLR.

Annex O

SIOFA Scientific Committee Operational Work Plan 2016-2019

The SIOFA Scientific Committee (SC) Operational Work Plan 2016-2019 contains immediate research priorities that are currently in progress or are proposed for the next 1-3 years. Noting that the operational work plan is influenced by the SC Work Plan which is agreed by the Meeting of the Parties, each 'year' refers to the intersessional period between the Meetings of the Parties (notionally occurring annually in June/July). Regarding timeframe for completion, the expected delivery of each task identified in this plan will be to the next SC meeting. Where there is no timeframe identified, it is assumed that this work has not been prioritised for the first year of this work plan (2016-2017) but should be undertaken within the three years to which this plan applies. The Operational Work Plan will be reviewed annually by the SC.

The SC may wish to consider the extent to which the Operational Work Plan will be connected to a SIOFA SC budget.

- Year 1: July 2016-July 2017
- Year 2: 2017-2018
- Year 3: 2018-2019

Operational Work Plan for SIOFA research

Theme	Research activities	Timeframe for completion*	Lead Party or Organisation
1. Scientific data standards for the collection, reporting, verification and exchange of data	• Review of current data holdings and other relevant research • Identify data gaps • List Agencies and States working on data related to SIOFA • Guidelines for evaluating and approving e-monitoring programs for scientific data collection • Development of database for compilation of relevant data • Development of identifications guides for sponges and corals to enable better collection of data. • Development of identifications guides for deepsea sharks to enable better collection of data • Periodic review of scientific data standards as and when required	Year 1 – for SC 02	All Members of the SC with involvement from the Secretariat once established.
2. Advice on vulnerable marine ecosystems	• Contribute information to FAO VME database	Ongoing	Secretariat
	• Mapping of bottom fishing effort and VME occurrence • Develop standard protocols for future protected area designation • Development of a bottom fishing impact assessment standard • Assessment of likely impact of specific gear types - including review of existing information (see also theme 5 below)	Year 1 – for SC 02	All Members lead by the Chairperson All Members of the SC with involvement from the FAO
3. Current and historical status of fishing activities	• Scientific impact assessments on demersal gillnet operations	Year 1 – for SC 02	Japan with relevant Members of the SC

	• Scientific impact assessment on other gillnets and developing gillnet fisheries • Develop advice on reference periods for effort, footprints and spatial control • Characterisation of historical and current deepsea shark fisheries (see also theme 5 below)	Year 1 – for SC 02	All Members of the SC
4. Stock assessments for key targeted species[4] **- Orange roughy** **- Alfonsinos** **- Pelagic armourhead?** **- Toothfish**[5]	• Collection, analysis and reporting of essential biological and fisheries information, including: ○ Age composition data ○ Length and age ○ Growth ○ Reproductive biology ○ Maturity ogives ○ Natural mortality	Commence in Year 1 (ongoing)	All Members of the Scientific Committee
	• Spatial structure for management purposes	Year 1 – for SC 02	
	• Determination of biological reference points and associated development of harvest strategies		
	• Survey indices/abundance estimates as inputs to assessment model		
	• Analysis of data from existing acoustic surveys	Year 1 – for SC 02	
	• Evaluation of alternative indices	Year 1 – for SC 02	
	• Conduct a stock assessment for orange roughy in the SIOFA Area	Year 1 – for SC 02	

[4] Note there are agreed assessment approaches for orange roughy, but not for alfonsino. This will affect speed at which some of this work can be addressed

[5] Noting that he SC agreed that the Chairperson would write to the Chair of the CCAMLR SC to discuss collaborating on toothfish stock assessments

	• Engage with the CCAMLR Secretariat to discuss collaboration on toothfish assessment	Year 1 – for SC 02	Chairperson
5. Advice on the impacts of fishing on associated and dependent species	• Risk assessment of effects of fishing on non-target, associated and dependent species *(see also theme 2 above)* • Seek advice from expert groups, such as Birdlife International and the Agreement for the Conservation of Albatross and Petrels, in relation to risk assessments completed for species in the SIOFA Area	Year 1 – for SC 02	Responsibility of all Members of the SC with involvement from the FAO
	• Trialling of 'smart forms'	Year 1 – for SC 02	Cook Islands with FAO
6. Any other advice that the Meeting of the Parties (MoP) requests	*This may be updated following the third Meeting of the Parties to SIOFA (4-8 July 216)*		

Annex H