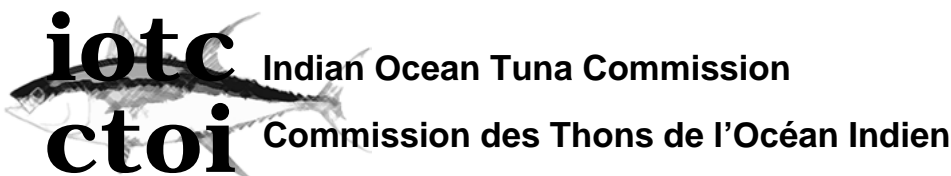


December 2001



REPORT OF THE FOURTH SESSION OF THE SCIENTIFIC COMMITTEE

Mahé, Seychelles, 4 – 7 December 2001

1. OPENING OF THE SESSION

1. The Fourth Session of the Scientific Committee of the Indian Ocean Tuna Commission (IOTC) was held at the Victoria Conference Centre in Victoria, Seychelles, from the 4th to the 7th of December 2001. It was attended by 33 delegates from 13 IOTC Members, as well as six observers from member countries of FAO or other UN agencies and intergovernmental organizations. Dr Chien-Chung Hsu and Mr Yu-Yi Huang attended as invited experts. The list of participants is reproduced in Appendix I.

2. Mr. Renaud Pianet of France, Chairperson of the Scientific Committee, chaired the Session. Mr. Pianet welcomed the delegates and noted the large amount of work to be done in the short time available.

2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION (IOTC/SC/01/01)

3. The Scientific Committee adopted the Agenda as presented in Appendix II of this report. The documents available are listed in Appendix III.

3. ADMISSION OF OBSERVERS

4. In conformity with the decision of the Third Session of the Commission on the admission of observers, the delegates from the Islamic Republic of Iran (members of FAO) and Russian Federation (non-members of FAO, members of other UN Agencies), ICCAT and FFA (international organization) were admitted. The Chairman then invited the delegates to introduce themselves.

4. PROGRESS REPORT OF THE SECRETARIAT (IOTC/SC/01/02)

5. The Secretariat presented IOTC/SC/01/02, outlining staff changes, the core activities of acquisition, processing and dissemination of information pertinent to the tuna fisheries of the Indian Ocean, as well as a work-plan for the year 2002.

6. The acquisition of information remained the main focus of the Secretariat's activities throughout the year. Requests for submission of the mandatory data were sent to all Member and non-Member countries and new data were entered in the databases. Additional data validation procedures were developed, which allowed the identification of various problems in specific datasets. Some of these problems were resolved after contacting the data correspondent. The execution of sampling programmes in Thailand and Malaysia continued. An agreement was also reached to establish a similar programme in Sri Lanka. Missions to other countries in the Indian Ocean were undertaken to assess the possibility of initiating similar joint activities.

7. The design of the IOTC database received some minor modifications, including the addition of facilities to assign a quality code and a code indicating the reporting source to most items of information stored. Additional procedures for data entry and validation were put in place. The Secretariat also undertook a major upgrade of the hardware used to maintain the database, which now resides on a dedicated server.

8. During 2001, more emphasis was placed than in previous years on processing existing information. These activities involved exploratory data analyses of various datasets, including historical data and the Vessel Record, with the objective of identifying inconsistencies in the data; estimation of catches from non-reporting fleets; and statistical analyses and data modeling to assist the work of the Working Parties.

9. Development of WinTuna, software to assist in the collection and processing of national statistics has proceeded as expected, and the first elements of the software are complete and ready for deployment. Several countries in the region have expressed interest in using the software which has now been installed at the Seychelles Fishing Authority, where it will be used to maintain the information from the domestic longline fishery. The FAO Fisheries Information, Data and Statistics Service (FIDI) has initiated the conversion of its artisanal fisheries software ARTFISH to the WinTuna architecture, thereby adding a module to handle sample-survey statistics normally used for artisanal fisheries. This partnership is likely to broaden the use of this software considerably and will contribute to its long-term support.

10. Activities related to the dissemination of information were carried out as in previous years with the publication of newsletters, data products and reports of the meetings that took place during the year. The IOTC website was redesigned to expand and improve access to its contents. In addition to all the Working Party and Committee reports, the website now includes electronic versions of virtually all the scientific papers presented to the Working Parties and recent Expert Consultations. In addition, the Secretariat has continued its partnership in the FIGIS initiative sponsored by the FAO, and has produced a version of the Permanent Report on the Status of the Species (PRESS) that is available through the querying system provided by FIGIS.

11. The Committee congratulated the Secretariat on the amount and quality of the work performed during the last year, in particular considering the restricted staff working in the Secretariat, and endorsed the plan of work for the year 2002.

12. The Committee considered that the current staff situation of the Secretariat must be revised in order to achieve the objectives of the work-plan for next year. The expansion of the responsibilities of the Secretariat in general and the addition of two major activities, the Indian Ocean Tuna Tagging Programme (IOTTP) and the IOTC/OFCF project will impose untenable workloads on the current staff.

13. Therefore, the Committee strongly recommends that the Secretariat staff be increased by recruiting :

- A Database Administrator that could assist in the maintenance, validation and analyses of the data available and other data-related tasks. This support is considered essential as the Data Manager will be heavily involved in the activities that would be part of the IOTC/OFCF project.
- A permanent Translator/Bilingual Editor, who would reduce the need for the professional staff to spend time in translating and editing the regular publications of the Commission.

5. REPORT OF THE WORKING PARTIES

Report of the Permanent Working Party on Data Collection and Statistics (WPDCS) (IOTC/SC/01/03)

14. The Third Meeting of the Working Party on Data Collection and Statistics took place in Mahé, Seychelles on December 3rd with the participation of 27 scientists from various countries.

15. The WPDCS reviewed the situation of the data holdings at the Secretariat, noting the improvement in several areas, including the retrieval of important historical datasets from several countries, better estimation of the catches of fresh-tuna IUU vessels, the progress of the sampling programmes in Thailand and Malaysia and the recent implementation of a sampling program in Sri Lanka. At the same time, it was noted that there is still no information about the fleet of IUU deep-freezing longliners and the former-Soviet purse-seine vessels that continues to operate in the Indian Ocean. The situation of the data holdings for nominal catches and catch-and-effort data has improved considerably in the past year, although the scarcity of size-frequency data from the longline and artisanal fisheries continues to be a major impediment for the application of a rigorous stock assessment.

16. Regarding the situation by groups of species, the WPDCS noted the following:
- **Tropical Tunas:** Problem areas include the poor knowledge of catches and effort of IUU vessels and the lack of size-frequency information for these and the Taiwan,China, longline fishery. The WPDCS noted the improvements in the levels of catch reporting, collection of vessel registry information, estimation of IUU catches, estimation of Indonesian longline catches, recovery of historical data and establishment of new sampling programmes by the Secretariat.
 - **Billfish:** Species aggregation, mislabelling, underreporting and non-reporting are widespread problems, indicating that, although data in the Secretariat's database are considered accurate and reliable for minor fishing entities, they are far from complete. The lack of size frequency statistics from Taiwan,China prevented the Billfish group from conduct a rigorous stock assessment of swordfish.
 - **Neritic Tunas:** Reporting of catches of neritic tunas has also been worsening. In recent years catches have not been reported or were reported aggregated for many Indian Ocean coastal countries. Catch and effort and size frequency statistics for these species are conspicuously absent from the IOTC database because they are rarely included in the data submissions. It is thought, however, that many countries may have collected information for these species.
 - **Temperate tunas:** The reporting of catches and effort of albacore has been worsening since the mid-eighties proportionally to the increase of IUU longliners operating in the Indian Ocean. Nevertheless, the completeness of the catch and catch-and-effort data is still good. In contrast, the size frequency statistics are poorly represented, because of the lack of reporting by Taiwan,China and IUU fleets.
17. The Committee stressed that the timeliness of data submissions must be improved, and encourages countries to provide their data before the stated deadlines. This is important to ensure that the Secretariat can process this information in a timely manner for the activities of the Working Parties.
18. The Committee concurred with the WPDCS that it will be important to collect detailed statistics in the main landing places for the species targeted by the Indian Ocean Tagging Programme.
19. The Committee concurred on the need to carry out a review of the procedures to raise catch-and-effort and size-frequency data to total catch, and agreed that such reviews should be done in the context of the Working Party on Methods. The Committee further agreed that the database obtained should be made available, in a standard format on CD-ROM, upon request.
20. The Committee agreed with the WPDCS that the use of supply vessels and Fish Aggregating Devices are integral part of the fishing effort exerted by the purse-seine fishery in association with floating objects and that more information is needed to obtain an appropriate measure of the fishing effort in this fishery.
21. Therefore, the Committee recommended that countries fishing for tunas in association with floating objects submit information on :
- i. Number and characteristics of supply vessels: a) operating under their flag, b) assisting purse-seine vessels operating under their flag, or c) licensed to operate in their economic exclusive zones, and that have been present in the Indian Ocean during the previous year.
 - ii. Levels of activity of supply vessels, including number of days at sea, by one-degree area and month during the previous year.
22. The Committee also noted that to properly assess the effective effort exerted by this fishery, it will be necessary to obtain data on:
- i. Total number and type of Fish Aggregating Devices (FADs) operated by the fleet by one-degree area and month.
23. Finally, the Committee expressed concern regarding the high amounts of incidental catches assumed for some longline fisheries, made up mainly of sharks. The Committee strongly recommended that observer programmes be initiated for purse seine and longline fisheries in order to quantify the actual amount of by-catches and discards occurring in these fisheries.

24. The Committee expressed great concern regarding the non-reporting of size-frequency statistics from Taiwan,China considering that these data are crucial to conduct the assessment of species such as yellowfin, bigeye and albacore tunas, and swordfish and requested that data be submitted as soon as possible, according to the Mandatory Data Requirements of IOTC. The Committee also strongly recommended that Japan and Korea make every possible effort to increase the sampling effort to ensure that the size-frequency samples are representative of the size distribution of the catch.

Report of the *ad hoc* Working Party on Methods (WPM) (IOTC-SC-01-04)

25. The meeting of the *ad hoc* Working Party on Methods (WPM) was held in Sète, France, from 23 to 27 April 2001, involving 12 participants from seven countries or organisations.

26. The main objective of this meeting was to discuss methodological aspects relevant to the activities of the species Working Parties. The discussions were centred on problems affecting directly the assessment of bigeye tuna, the main priority for the Working Party on Tropical Tunas in 2001.

27. Recognizing that the methodological approaches for stock assessment are closely related to the characteristics and availability of data for the stock in questions, the WPM summarized and discussed the features of main datasets available for bigeye tuna. This review concentrated on three data series for longliners from Japan, Korea and Taiwan,China. After a review of these datasets, the WPM agreed that most of the assessment analyses would have to be based on the Japanese data, as there were inconsistencies with the other two datasets which could not be resolved.

28. The WPM recommended a number of additional improvements to the existing analyses of catch-and-effort data to provide indices of abundance from fisheries data. The WPM noted that, until the estimation of indices of abundance from the purse-seine fishery is completed, any CPUE-based analyses for yellowfin or bigeye tunas would have to rely primarily on data from the longline fleet, especially the Japanese fleet.

29. As the size composition of the catch is not well known, even for recent years, the WPM also recognized the need for giving priority to approaches based on production modelling, in particular age-structured production models. The benefits of integrating the standardization of the CPUE with the assessment model were also acknowledged and it was recommended that further work be done in this area.

30. The WPM also discussed the need for adopting standard testing procedures, based on simulation modelling, which would be of help in improving the understanding of the properties of new and existing methods. The WPM drew a list of desirable characteristics that such a simulation, also called 'operating model' should have.

31. The Committee noted the development of integrated catch-at-age models in other commissions, although it considered that the use of standard models and methods should be continued.

32. The Committee discussed the possibility of using an operating model and noted that such models have been developed by other commissions and organizations around the world. Some of this work could be suitable for the stocks of the Indian Ocean after necessary modifications. The Committee requested that the Secretariat prepare a review of operating models currently in use for the next meeting of the WPM and the Scientific Committee.

33. The Scientific Committee observed that the task of the Working Party on Tropical Tunas last year was greatly facilitated by the work performed by the WPM, and suggested that the WPM could meet again next year if there are specific subjects for the WPM to consider.

Report of the Working Party on Tropical Tunas (WPTT) (IOTC-SC-01-05)

34. The Third Meeting of the Working Party on Tropical Tunas (WPTT) was held in Mahé, Seychelles from 19 to 27 June 2001, involving 35 participants from 12 countries or organisations. The main priority for this was to review the status of bigeye tuna, however, the WPTT was able to devote time to briefly review the situation of skipjack and yellowfin tunas.

35. A review of the data situation showed significant improvements relative to the previous year, in particular regarding the catches of fresh-tuna longliner IUU fleets estimated through the sampling

programmes. Although the availability of data for bigeye was considered good, there was concern regarding a worsening of the situation in recent years, mainly due to the non-reporting of IUU purse seiners and deep-freezing longliners and of the Indonesian fresh-tuna longliners and possibly double-counting in longliners. The lack of size data from Taiwan, China for the last decade and the low sample sizes from the Japanese longline fisheries in recent years continues to limit the ability of the WPTT to conduct a rigorous assessment of the bigeye tuna.

36. In spite of these limitations, the WPTT was able to conduct a stock assessment of bigeye tuna. The results of the assessment should be considered with caution as there are still unresolved uncertainties. These include the lack of an appropriate growth curve for the Indian Ocean, uncertainty about natural mortality at various life stages, uncertainty about the increase in efficiency of the different fisheries involved (especially in the purse-seine fishery) and unexplained anomalous observations in the indices of abundance. Although there is scope for improvement in the assessment, it is unlikely that these uncertainties will be substantially reduced in the next assessment cycle.

37. The WPTT also reviewed a number of stock status indicators for yellowfin tuna and skipjack tuna. The group agreed that the catches of yellowfin tuna have stabilized since 1993 could be interpreted as a sign of overexploitation, with catches of this species above MSY since that year.

38. The WPTT, given the incompleteness of the information on the existing fleet capacity, concurred with the conclusion of the WPM that it is not possible to provide advice on the question of the optimum fishing capacity of the fishing fleet for the sustainable exploitation of tropical tunas in the Indian Ocean.

39. The Committee commended the WPTT for the report and the progress achieved since the previous meeting, considering that the arrangements issuing from the last Scientific Committee had been successful, and suggested that, in the future, catch tables including catch by species, country, gear and year be included in the report.

40. When relatively long living species such as bigeye or swordfish, which have about 10 to 15 exploited year classes, are exploited with rapidly increasing fishing effort, trends which are clearly observed in the Indian Ocean for both stocks, the observed catches are always higher than the equilibrium catches that would be taken under stable fishing effort. Because of this disequilibrium, keeping the effort (and fishing mortality) constant will lead to decreasing catches, until the fisheries and stocks reach the equilibrium corresponding to that fishing mortality. In such situations of disequilibrium, trying to maintain constant catches would necessarily involve permanently increasing the fishing mortality, in order to compensate for the stock decline.

41. In the present context of increasing fishing effort in the Indian Ocean, keeping the fishing effort constant would be theoretically safer than maintaining a constant catch, even if the effort is larger than that corresponding to the fishing mortality leading to the MSY. Conversely, if catches are permanently larger than the MSY, keeping catches constant would unavoidably lead to overfishing of the stock.

42. The stock assessment of bigeye tuna in the Indian Ocean indicates that fishing mortality is close to the level that produces MSY and that the population is currently above the MSY level. Bigeye catches in the past six years (1994-99) have been substantially above the estimated MSY level (90,000 t), but projections suggest that if the current catches continue at the 1999 level, the spawning stock biomass will fall to levels well below the one that produces MSY in five or six years. Therefore, the Committee recommends that a reduction in catches of bigeye tuna from all gears, eventually to the level of MSY, be started as soon as possible.

43. The reduction of catches can be achieved by direct control of the catches (establishing a total allowable catch); likewise, maintaining the fishing mortality rate (F) at its current level would result in a reduction of catches to the level of the MSY. Recognising that controlling fishing mortality rate would be very difficult in practice, the Scientific Committee recommended that the control of the catches or, alternatively, fishing effort would be technically more realistic and feasible.

44. To achieve this objective, and considering differences in characteristics of the longline and purse-seine fisheries for bigeye tuna, different approaches may be considered to reduce catches in each fishery; for

example, a time-area closure and/or effort control for the purse seine fishery and a catch quota and/or effort control for the longline fishery.

45. The Committee noted that a control in fishing effort of purse seine and longline could be effective in reducing fishing mortality for other tuna or tuna-like stocks which may already be near to or below the MSY level (e.g., southern bluefin tuna, swordfish, yellowfin tuna).

46. The Committee agrees with the suggestion that priority should be given to yellowfin tuna in the next assessment. It was indicated that many of the previous results from the WPM would be useful also for yellowfin, but concerns were raised about the availability of data, in particular catch-and-effort and size frequency from artisanal and longline fisheries.

47. The Committee also recommends that next WPTT give some consideration the issues that might arise in attempting to study the interactions between fisheries for skipjack, in particular, between the industrial Indian Ocean purse-seine fishery and the artisanal fisheries in the region, including Maldives.

Report of the Working Party on Tagging (WPT) (IOTC/SC/01/06)

48. A meeting of the WPT was held in connection with the 3rd Working Party on Tropical Tunas to refine plans for pilot tagging studies and to discuss the prospects of the Indian Ocean Tuna Tagging programme (IOTTP). The chairman of the Working Party presented their report as document IOTC/SC/01/06E.

49. The Chairman of WPT described the situation regarding funding for the IOTTP. In the short term, only approximately \$135,000 of surplus IPTP funds might be available. No IOTC countries have firmly committed funds to this project to date. A possible new source of funds through the EC General Directorate for Development (DG-Dev) has been identified with funds of about EUR 4.5 million available to fund projects proposed by at least two countries of the western Indian Ocean area. Seychelles and Mauritius have already transmitted a request to the EC, and a detailed project document will be prepared early 2002 through a consultancy initiated by the EC. In addition, China has indicated that \$25,000 might be provided for tagging and the Secretariat has submitted a request for funding under the "Large Marine Ecosystems" programme of the Global Environment Fund, although no response has been received yet.

50. Obtaining bait supplies for the proposed large-scale pole-and-line tagging platforms is a potential problem. Bait resources are still poorly known in the Indian Ocean. Therefore, a comprehensive study of bait availability was added to the original pilot tagging programmes, and the Working Party recommended that the Secretariat contract a consultant on tuna baitfish to identify potential live bait resources and to test the best way to catch and to conserve them in coastal facilities, probably in Seychelles.

51. The main goals of the pilot tagging programmes are to test the feasibility of using small-scale tagging platforms other than pole-and-line vessels. In this sense, the Working Party recommended several research operations and actions for the pilot programme. The Working Party recommended that the Secretariat should initiate the purchase of a minimal set of tagging equipment needed for the pilot study as soon as possible.

52. The Committee congratulated the WPT for the progress of its work and commended the European Community for its support to the initial phase of the tagging programme.

53. The WPT considered that the original five-year large-scale programme covering the whole Indian Ocean, approved in the previous meeting of the Scientific Committee, must be maintained to achieve all the objectives of the programme. Funding needs, however, could be reduced to about \$12 million, if the EC tagging programme could be realized.

54. The Scientific Committee restated its strong support for the IOTTP. The Committee emphasized that no reliable assessment in the Indian Ocean could be achieved without a comprehensive tagging programme. This is worrisome considering the continuous increases in tuna catches and that some of the species could be overexploited.

55. The Committee noted with concern fact that funds for the full IOTTP have not been secured, as it believes this programme should be given high priority. The Scientific Committee therefore recommends that

the Commission explicitly express its support for the IOTTP and provides all the assistance necessary to secure funds for the program.

Report of the Working Party on Billfishes (WPB) (IOTC/SC/01/07)

56. The second meeting of the WPB took place in St. Gilles, La Réunion, from 5th-8th November, 2001, and included 21 participants. As instructed by the Scientific Committee, the WPB concentrated its efforts on assessing the status of swordfish, and briefly reviewed new information available for other species.

57. The Working party reviewed the swordfish fisheries of five countries: Seychelles, La Réunion, Western Australia, South Africa and Spain. These five fisheries show several common characteristics, including recent development, a semi-industrial scale and limited geographical extension. These characteristics contrast with those of the Japanese, Taiwanese and Korean longline fleets, which have been taking swordfish in the Indian Ocean over a long period of time.

58. The Taiwanese longline fleet is the dominant swordfish fishery in the Indian Ocean, catching more than 50% of the landed swordfish. However, Taiwan, China has not reported swordfish size-frequency data since 1989 and there are unresolved inconsistencies in other data which greatly limited the type of analyses that could be carried out using these data. In this sense, the Committee urged Taiwan, China to provide this information for their longline fishery.

59. The catch and effort information from the Japanese longline fleet provides coverage over a large area and time period. However, the fact that this fishery targets mainly southern bluefin tuna and bigeye tuna, and the catch of swordfish is small, might limit the usability of the data for swordfish and billfish stock assessments.

60. The Working Party reviewed information regarding the biology, ecology and fisheries oceanography. The Working Party also reviewed several abundance and stock indicators for swordfish, including catch trends, changes in fishing areas and CPUE trends. It was noted that increases in swordfish catches are usually linked to an expansion of the fishing zones and or local highs in concentration of fish. The Working Party considered the CPUE trends of the longline fisheries of Japan, La Réunion and Seychelles. The CPUE indices for Taiwan showed several anomalies that could not be resolved. The CPUE trends consistently indicate declines in areas where the swordfish resource has been more intensely exploited.

61. The Scientific Committee agreed with the conclusion of the WPB that the stocks of swordfish in the Indian Ocean should be closely monitored. The situation of the resource is highly complex, with local depletion apparently contradicting trends in different areas, etc. The Committee also agrees that it is necessary to improve the data available in order to be able to better assess targeting on swordfish.

62. The Committee recognized that it is a priority to obtain size data, preferably by sex, that would allow a better assessment of the status of the resource.

63. The Committee considered that it would be useful for the WPB to fully compare the detailed biological characteristics of swordfish observed in each ocean as a function of the environment (for instance sex ratio at size in spawning and feeding grounds). The reaction of the various swordfish stocks and fisheries to increasing fishing pressure, at a global and local scale, should also be usefully compared. Such an in-depth and comprehensive "between oceans review" of swordfish stocks and fisheries should be prepared before the next WPB meeting. Such work should include the acquisition of selected data bases which would allow further quantitative comparisons between stocks. Therefore, it recommended that the Secretariat make arrangements for conducting such a review in the most cost-effective way.

64. The Committee took note that the catches of swordfish have increased seven-fold in the last ten years, and agreed with the conclusion of the WPB that if further increases in catch and effort occur, it is likely that they will be unsustainable. Given the life history characteristics of swordfish, it is also likely that it will not be possible to detect over-fishing in time to correct serious damage to the stock.

65. The Committee recommends that, until the missing data are obtained and a stock assessment is achieved, and although a reduction of catch and effort is the preferable measure, at least no increases in catch and effort should be allowed.

Schedule of Working Party meetings in 2002

66. The Committee recommended that the Working Party on Data Collection and Statistics be held in 2002 just before the fifth Session of the Scientific Committee to facilitate participation of scientists also attending that meeting.
67. The Committee agreed that the Working Party on Tropical Tunas should meet again during the first fortnight June 2002 with priority given to yellowfin tuna. The Committee welcomed the invitation from China to hold the meeting in Shanghai, agreeing that final arrangements be made at a later date by the Secretariat after contacts with the interested parties.
68. The Committee agreed that the Working Party on Tagging should meet for one day immediately after the Working Party in Tropical Tunas. The Committee pointed out many activities tagging would have to be carried out before the meeting, and agreed that this should be done in consultation between the interested parties and the Secretariat, including an *interim* meeting if necessary.
69. The Secretariat agreed that an *ad-hoc* Working Party on Methods should meet in 2002. The Committee agreed that the Working Party should focus on reviewing procedures for raising size and catch-and-effort data and on a review of stock status indicators. It was further agreed that these tasks could be carried out during two days before the Working Parties on Tropical Tunas and Tagging. The final dates will be decided in consultation with the Chinese authorities.
70. The Committee noted that there was not sufficient justification for a meeting of the Working Party on Billfish in 2002 as it was unlikely that there would be important changes in the availability of data on these species.
71. The Committee agreed that the Secretariat should continue with the arrangements for the first meeting Working Party on Neritic Tunas to be held in 2002. The Committee welcomed the proposal by Iran to hold the meeting in September 2002 in Bandar-Abbas, and agreed that final arrangements be made at a later date by the Secretariat after contacts with the interested parties.
72. The Committee noted a sharp increase in the catches of albacore tuna recorded since 1998. It was suggested that a document be prepared for the session of the Scientific Committee to evaluate the situation of this species and to assess then the need for convening a meeting of the Working Party on Temperate Tunas.
73. The Committee discussed on the need of *ad hoc* Working Parties on By-catch and Environment to be held in 2002. It was agreed that there is no justification for these Working Parties to be held unless enough participation is assured. The Committee noted that other organizations hold meetings on these subjects, and invited scientists who participate in these meetings to report on their outcome in future sessions of the Scientific Committee.

6. MANAGEMENT RECOMMENDATIONS

General Considerations

74. When long living species such as bigeye or swordfish, which have about 10 to 15 exploited year classes, are exploited with rapidly increasing fishing effort, trends which are clearly observed in the Indian Ocean for both stocks, the observed catches are always higher than the equilibrium catches that would be taken under stable fishing effort. Because of this disequilibrium, keeping the effort (and fishing mortality) constant will lead to decreasing catches, until the fisheries and stocks reach the equilibrium corresponding to that fishing mortality. In such situations of disequilibrium, trying to maintain constant catches would necessarily involve permanently increasing the fishing mortality, in order to compensate for the stock decline.
75. In the present context of increasing fishing effort in the Indian Ocean, keeping the fishing pressure constant would be theoretically safer than maintaining a constant catch, even if the effort is larger than the fishing mortality corresponding to the MSY. Conversely, if catches are permanently larger than the MSY, keeping catches constant would unavoidably lead to overfishing of the stock.

Bigeye tuna

76. Despite some unresolved uncertainties, the stock assessment of bigeye tuna in the Indian Ocean indicates that fishing mortality is close to the level that produces MSY and that the population is currently above the MSY level. Bigeye catches in the past six years (1994-99) have been substantially above the estimated MSY level (90,000 t), but projections suggest that if the current catches continue at the 1999 level, the spawning stock biomass will fall to levels well below the one that produces MSY in five or six years. Therefore, the Committee recommends that a reduction in catches of bigeye tuna from all gears, eventually to the level of MSY, be started as soon as possible.

77. The reduction of catches can be achieved by direct control of the catches (establishing a total allowable catch); likewise, maintaining the fishing mortality rate (F) at its current level would result in a reduction of catches to the level of the MSY. Recognising that controlling fishing mortality rate would be very difficult in practice, the Scientific Committee recommended that the control of the catches or, alternatively, fishing effort would be technically more realistic and feasible.

78. To achieve this objective, and considering differences in characteristics of the longline and purse-seine fisheries for bigeye tuna, different approaches may be considered to reduce catches in each fishery; for example, a time-area closure and/or effort control for the purse seine fishery and a catch quota and/or effort control for the longline fishery.

79. The Committee noted that a control in fishing effort of purse seine and longline could be effective in reducing fishing mortality for other tuna or tuna-like stocks which may already be near to or below the biomass corresponding to the MSY (e.g., southern bluefin tuna, swordfish, yellowfin tuna).

Swordfish

80. The Committee took note that the catches of swordfish have increased seven-fold in the last ten years, and agreed with the conclusion of the WPB that if further increases in catch and effort occur, it is likely that they will be unsustainable. Given the life history characteristics of swordfish, it is also likely that it will not be possible to detect over-fishing in time to correct serious damage to the stock.

81. The Committee recommends that, until the missing data are obtained and a stock assessment is achieved, and although a reduction of catch and effort is the preferable measure, at least no increases in catch and effort should be allowed.

7. PROPOSED ACTIVITIES FOR THE IMPROVEMENT OF DATA COLLECTION AND STATISTICS

Proposal for a joint IOTC-OFCF project to improve statistical systems in Indian Ocean coastal countries

82. The Secretariat presented document IOTC-SC-01-08, a proposal for a joint project between IOTC and the Overseas Fishery Cooperation Foundation (OFCF), from Japan. Contacts between the Secretariat and the OFCF early in 2001 led to a proposed project that would address the main needs regarding data collection and statistics in selected developing countries of the region. The activities under the project will follow the recommendations of the Commission and its relevant subsidiary bodies regarding the need to improve data collection and statistics, with no direct financial implications for IOTC Member countries. This project could be extended up to five years at an annual funding level of about \$500,000.

83. The plan of action for the first year includes fact-finding missions to developing countries from the region, followed by a workshop on data collection and processing systems in these countries and the provision of direct assistance as required to design and implement data collection and processing systems.

84. Several countries and/or fisheries in the Indian Ocean are identified as primary targets of the programme. Among these the Secretariat stressed the need for immediate action in Indonesia and in other coastal countries having important tuna fisheries, especially with gillnets which catch a size range of fish which is generally missing from other fisheries.

85. The Committee expressed its appreciation to the OFCF for this initiative and strongly recommended that this project be executed following the plan of action presented in the proposal. The Committee recommended that a field manual including details about species identification, data collection methodology and other relevant information should also be produced under the auspices of this project.

Multilateral cooperation to improve data collection system in Indonesia

86. The Secretariat presented the document IOTC/SC/01/09, describing the proposed multilateral cooperative arrangements to improve the data collection and processing systems in Indonesia. The activities in Indonesia will be conducted under the framework of IOTC and would include both bilateral or multilateral components involving Indonesian institutions, the IOTC Secretariat, the OFCF (Japan) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) (with funding from Australian Centre for International Agricultural Research, Australia). To make effective use of the available resources, a Steering Committee including all participating parties will coordinate and monitor all relevant activities. The first meeting of this Steering Committee is expected to take place in early 2002.

87. The Committee welcomed this initiative, commending the assistance provided by Japan and Australia to the staff of the Secretariat in improving the national statistical system in Indonesia

8. PROGRESS ON A SURVEY OF PREDATION OF LONGLINE-CAUGHT FISH (IOTC/SC/01/10)

88. The Scientific Committee invited the countries involved in the survey of predation of longline-caught fish to report on the progress achieved during 2001.

89. Japan reported that, from September 2000 to September 2001 a total of 832 longline Japanese operations in the Indian Ocean reported predation-related catch losses. The average composition of damaged species was dominated by yellowfin, bigeye, albacore and swordfish; about 32% of the predators are false killer and killer whales, and 62% are sharks based on bite marks on damaged fish. Damage caused by whales can be easily differentiated from that caused by sharks. Because of a current limitation in the survey programme, reports of predation are received only when predation occurs, which precludes the computation of overall predation rates. This is expected to be solved through changes in the predation survey form.

90. Seychelles indicated that they are highly concerned as predation by marine mammals represents a major economic loss for their semi-industrial longline fishery. Information about predation has been collected since the beginning of the domestic fishery in 1995 and the trends in the predation rates were presented at the last WPB. Since 1999, foreign longline fleets licensed in Seychelles have been supplied with modified logsheets so as to record the number of fish by set lost to predation.

91. La Réunion has been collecting predation information since 1992. A summary of this research has been written and will be published shortly. About 6% of longline sets are subject to predation, and currently there are preliminary experiments with the use of acoustic repellents with no positive results. The research focus includes obtaining a better understanding of the species involved and their distribution, as well as collecting more data.

92. Australia suggested that monitoring shark by-catch would be useful to determine if there is a relationship between shark abundance and the incidence of damage to longline-caught fish by sharks. A pilot study on the effectiveness of acoustic deterrents to prevent predation on longline-caught fish by marine mammals is underway in Australia.

93. Australia stated that it is not clear what is the impact of longline-caught fish predation on the stock assessment. It is likely that damaged fish are not recorded in logbooks and, with the high predation rates reported, this would have an important impact on the stock assessment. Several participants indicated that vessels do not record damaged fish and it was concluded that this issue requires further consideration.

94. Mauritius reported surveys that indicate that marine mammal predation rates reach about 20% during the summer months, and is lower during the winter.

95. India reported rates of predation of 15 to 16% of yellowfin, swordfish and other species. These results will be published soon in a more comprehensive report.

96. The Scientific Committee considers that these studies are of great importance and encouraged participating countries to continue with this work. It also recommended that the studies on prevention of predation be extended to other regions. The Committee also requested that countries involved in these studies report their findings to the appropriate Working Party, and in particular to the WPTT.

9. ANY OTHER BUSINESS

The use of marine protected areas

97. The European Community presented some consideration on the potential use of marine protected areas applied to tuna fisheries and offshore pelagic ecosystems. The implementation of such areas was introduced as potentially useful tool to reduce the catches of both by-catch and target species.

98. Concern was expressed that presenting a concrete model or map of marine protected areas prematurely may result in some groups citing it out of the context, and it may be harmful for the actual development of such a model in the future.

99. The Committee noted that it would be difficult to assess the political and socio-economic implications that the implementation of such a measure could have. The Committee further agreed that more research was needed on the consequences that these measures could have from both social and biological points of view.

100. Australia informed the Scientific Committee that an International Symposium on Marine Protected Areas will be held in Cairns in August next year, inviting all interested scientists to participate.

Research on tunas in relation with the environment and ecosystem

101. The European Community briefed the Scientific Committee on several meetings held last year regarding the interactions between fish populations and environment. The Committee agreed that such interactions should be studied globally rather than be limited to specific areas.

102. The Committee agreed that scientists participating in these meetings should continue to report to the relevant Working Parties and the Scientific Committee on the progress achieved to assess the implications that these studies could have in the Indian Ocean context.

Production of Executive Summaries on the status of the species

103. The Scientific Committee agreed on the need of an Executive Report for species of interest in the Commission's charter. This report should be a short summary of the major issues, relevant figures and tables and recommendations for the incumbent species.

104. The Committee further agreed that the preparation of such documents for all species would be beyond the expected tasks of the Secretariat. Therefore, the Committee recommended that each species Working Party designate a participant to be responsible for the production of such report for each of the species under the mandate of the Working Party. The Secretariat could probably prepare similar reports for species not covered by Working Parties.

Policy for the presentation of documents to the Scientific Committee

105. The Committee discussed several proposed changes to the editorial policy regarding the reception of papers for the meetings of the Scientific Committee. It was agreed that, as a general principle, the Committee should not accept papers that could have been assessed more thoroughly within the appropriate Working Party. However, the Committee is aware that such a strict policy would also hinder the presentation of information that might be relevant to their tasks.

106. It was agreed that a Selection Subcommittee, which would include the Chairperson and Vice-Chairperson of the Scientific Committee, the Chairpersons of Working Parties and a staff member from the

Secretariat should be formed and charged with the task of selecting papers to be admitted for presentation during the sessions of the Scientific Committee.

107. The task of this Selection Subcommittee is to decide on the most appropriate forum to review the documents submitted for consideration by the Scientific Committee. In general, documents dealing with stock assessment should not be reviewed during the Committee sessions unless they relate to species not covered by WP activities. Papers dealing with scientific issues of general interest would also be acceptable for presentation to the Committee.

108. The Scientific Committee agreed that papers should be made available before the start of the session and agreed to request the Commission that such documents be allowed to be presented in the original language, with interpretation, without the need for them to be translated.

109. In response to a query from the Secretariat on the editorial policies to be applied to the documents presented to the Working Parties, it was agreed that content is mainly the responsibility of the authors. The Committee requested the Secretariat to produce a set of simple format standards for submissions and encouraged the Secretariat to continue with the electronic publication and dissemination through CD-ROM of the documents presented to the Working Parties

Report on the activities of the ICCAT SCRS

110. The Chairman of the Scientific Committee reported on the current activities of the Standing Committee on Research and Statistics (SCRS) of the International Commission for the Conservation of Atlantic Tunas (ICCAT), highlighting the conclusions of the Methods Working Group, the completion of the work of the Working Group on the Precautionary Approach and the most recent decisions concerning the mode of operation of the SCRS.

National Reports

111. The Scientific Committee agreed to request from countries, whether they attend or not the next session, to present the Committee with a National Report which would provide general fisheries statistics, report on the implementation of Committee recommendations, national research programs currently in place and other relevant subjects. The Committee requested the Secretariat to prepare a template with an outline of items that should be included in the report to guide in the preparation of such reports.

Fishing Capacity Research Program (FAO)

112. The Scientific Committee was informed by the FAO's representative that, next year, the organization may receive funds for a technical project on management of tuna fishing capacity at a global scale. The main objectives of the project are to provide technical information necessary for the management of tuna fishing capacity, and to consider and resolve technical problems associated with that management on a global scale, taking into account conservation and socio-economic issues. The preparatory work will include, among other activities, convening an Expert Consultation on the subject. It is desirable to invite the collaboration of bodies involved in the management of tuna fisheries such as IOTC, IATTC, ICCAT, CCSBT, FFA and SPC. It is envisaged that the project's Steering Committee would be composed of technical representatives of these organizations, donor countries and FAO.

113. The Scientific Committee supports the project as being relevant to one of the Commission's main areas of concern.

10. ADOPTION OF THE REPORT

114. The Report of the Fourth Session of the Scientific Committee was adopted December 7th, 2001.

APPENDIX I: LIST OF PARTICIPANTS IOTC MEMBERS/MEMBRES DE LA CTOI

AUSTRALIA/AUSTRALIE

John Kalish

Program Leader Fisheries and Marine Sciences
Bureau of Rural Sciences
P.O. Box E11
Kingston
AUSTRALIA
e-mail: john.kalish@brs.gov.au

CHINA/CHINE

Zhao Liling (Ms)

Assistant Director, Division of Distant Water Fisheries
Ministry of Agriculture, Bureau of Fisheries
No. 11 Nongzhanguan Nanli
Beijing
CHINA
e-mail: bofdwf@agri.gov.cn

Dai Xiaojie

Associate Professor
Shanghai Fisheries University
P.O.Box 85
334 Jun Gong Road
Shanghai 200090
CHINA
e-mail: xjdai@shfu.edu.cn

COMORES

Mohamed Halifa

Directeur Général de la Pêche
Ministère de la Production et de l'Environnement
B.P 41
Hamramba
Moroni
COMORES
e-mail: dg.peche@snpt.km

Ahmed Said Solihi

Chef du services peche a Ngazidja
Ministère de la Pêche
B.P. 289
Moroni
COMORES
e-mail: dg.peche@snpt.km

Rachid Ben Massoundi

Chef de Service de Pêches Moheli
Ministère de la Production et de l'Environnement
B.P 41
Hamramba
Moroni
COMORES

James Williams

Chef du service peche a Anjouan
B.P. 330
Hombo
Mutsamudu
COMORES
e-mail: dg.peche@snpt.km

ERITREA/ERITHRÉE

Ahmed Saleh Mohammednour

Head, Regional and International Relations
Ministry of Fisheries
P.O. Box 27
Massawa
ERITREA
e-mail: ahmedsaleh11er@yahoo.com

EUROPEAN COMMUNITY/COMMUNAUTE EUROPENNE

Alain Fonteneau

Scientist
Institut de recherche pour le développement
P.O. Box 570
Victoria
SEYCHELLES
e-mail: irdsey@seychelles.net

Pilar Pallarés (Ms)

Scientist
Instituto Español de Oceanografía
Corazón De María 8
Madrid
SPAIN
e-mail: pilar.pallares@md.ieo.es

Juan José Areso

Spanish Fisheries Representative
Oficina Espanola de Pesca (Spanish Fisheries Office)
P.O.Box 14
Victoria
SEYCHELLES
e-mail: jjareso@seychelles.net

Javier Ariz

Scientist
Centro Oceanográfico de Canarias
P.O. Box 1373
Carretera de San Andres. No. 45
Sta. Cruz De Tenerife
SPAIN
e-mail: jat@ieo.rcanaria.es

Haritz Arrizabalaga de Mingo

Dept. of Fisheries Resources
Fisheries and Food Technological Institute
Txatxarramendi ugarte, z/g
Sukarrieta
SPAIN
e-mail: harri@suk.azti.es

Olivier Maury

Researcher
IRD - Unité de Recherche no. 109 (THETIS)
B.P. 171
Av. Jean Monnet
Sète
FRANCE
e-mail: maury@ird.fr

Jose Ignacio Parajuá Aranda

Director
Asociacion Nacional de Armadores de Buques Atuneros
Congeladores (ANABAC)
Jose Rodriguee Pinilla 25
Bermeo
SPAIN
e-mail: indemar@retemail.es

FRANCE**Marc Taquet**

Chef du Laboratoire Ressources Halieutiques
IFREMER, Délégation de la Réunion
B.P. 60
Rue Jean Bertho
Le Port
FRANCE
e-mail: marc.taquet@ifremer.fr

Renaud Pianet

Chairman of the Scientific Committee
Président du Comité scientifique
Chercheur Oceanographe
IRD - Unité de Recherche no. 109 (THETIS)
B.P. 171
Av. Jean Monnet
Sète
FRANCE
e-mail: pianet@ird.fr

INDIA/INDE**V.S. Somvanshi**

Director-General, Fishery Survey of India
Ministry of Agriculture
Botawala Chambers, Sir P M Road, Fort
Mumbai
INDIA
e-mail: somvanshi@rediffmail.com/fsi@nic.com

JAPAN/JAPON**Ziro Suzuki**

Director, Pelagic Fish Resources Division
National Research Institute of Far Seas Fisheries
5-7-1, Orido
Shimizu-shi
JAPAN
e-mail: zsuzuki@enyo.affrc.go.jp

Shingo Fukui

Section Chief, International Affairs Division
Fisheries Agency of Japan
1-2-1, Kasumigaseki, Chiyoda-Ku,
Tokyo
JAPAN
e-mail: shingo_fukui@nm.maff.go.jp

Peter M. Miyake

Scientific Advisor
Japan Tuna
3-3-4 Shimorenjaku, Mitaka-Shi
Tokyo
JAPAN
e-mail: miyake@sistelcom.com

Isamu Murakami

Assistant to Managing Director, Technical
Cooperation Department
Overseas Fishery Cooperation Foundation
Sankaido Bldg., 9-13 Akasaka 1 Minato-ku
Tokyo
JAPAN
e-mail: murakami@ofcf.or.jp

Tsutomu (Tom) Nishida

Research Coordinator for Ocean and Ressources
National Research Institute of Far Seas Fisheries
5-7-1, Orido
Shimizu-shi
JAPAN
e-mail: tnishida@affrc.go.jp

Kenichi Notou

Section Chief, Far Seas Fisheries Division
Fisheries Agency of Japan
1-2-1, Kasumigaseki, Chiyoda-Ku,
Tokyo
JAPAN
e-mail: kenichi_notou@nm.maff.go.jp

Republic of KOREA/COREE, République de

Doo Hae An

Distant Water Fisheries resources Division.
National Fisheries Research and Development Institute
408-1, Shirang-ri, Kijang-up, Kijang-Kun
Pusan City
KOREA
e-mail: dhan@nfrdi.re.kr

MAURITIUS/MAURICE

Devanand Norungee

Scientific Officer
Albion Fisheries Research Centre
Albion
MAURITIUS
e-mail: fish@int.net.mu

SEYCHELLES

Rose-Marie Bargain (Ms)

Industrial Fisheries Research Manager
Seychelles Fishing Authority
P.O. Box 449
Fishing Port
Victoria
SEYCHELLES
e-mail: rbargain@sfa.sc

Vincent Lucas

Fisheries Biologist - tuna section
Seychelles Fishing Authority
P.O. Box 449
Fishing Port
Victoria
SEYCHELLES
e-mail: vlucas@sfa.sc

Andrew Thomas

Fisheries Research Officer
Seychelles Fishing Authority
P.O. Box 449
Fishing Port
Victoria
SEYCHELLES
e-mail: athomaslo3@hotmail.com

Bertrand Wendling

Technical Advisor
Seychelles Fishing Authority
P.O. Box 449
Fishing Port
Victoria
SEYCHELLES
e-mail: wendling@seychelles.net

THAILAND/THAILANDE

Somsak Chullasorn

Senior Marine Fisheries Advisor
Department of Fisheries
Phaholyothin Road
Bangkok
THAILAND
e-mail: somsakc@fisheries.go.th

Dhammasak Poreeyanond

Director, Oceanic Fisheries Division, Department of
Fisheries
Ministry of Agriculture and Cooperatives
Sri Samuth Road, Paknam, A.Muang Samuth Prakarn
Samuth Prakarn
THAILAND
e-mail: dhammasakp@fisheries.go.th

UNITED KINGDOM/ROYAUME UNI

Geoffrey Kirkwood

Director
Renewable Resource Assessment Group, Imperial
college
RSM Building, Prince Consort Road
London
ENGLAND
e-mail: g.kirkwood@ic.ac.uk

OBSERVERS, MEMBERS OF FAO/OBSERVATEURS, MEMBRES DE L'OAA

Islamic Republic of IRAN/ République Islamique d' IRAN

Farhad Kaymaram

Head-Stock Management Group (Persian Gulf & Oman Sea)
Iranian Fisheries Research Organization
P.O.Box 14155-6116
No. 297, West Fatemy
IRAN
e-mail: kaymaram_ifro@yahoo.com

OBSERVERS NON MEMBERS OF FAO/OBSERVATEURS NON MEMBRES DE L'OAA

RUSSIAN FEDERATION/ RUSSIE, FEDERATION de

Sergei Yu. Leontiev

Head of Laboratory
Russian Federal Institute of Fisheries and Oceanography
17 A, V.Krasnoselskaya Ul
Moscow
RUSSIAN FEDERATION
e-mail: leon@vniro.ru

INTERNATIONAL ORGANISATIONS/ORGANISATIONS INTERNATIONALES

FISHERIES FORUM AGENCY

Barry Pollock

Deputy Director
Forum Fisheries Agency
P.O. Box 629
Honiara
SOLOMON ISLANDS
e-mail: barry.pollock@ffa.int

Akau'ola

Secretary for Fisheries
Ministry of Fisheries, Government of Tonga
P.O. Box 871
SOPU
Nuku'alofa
TONGA
e-mail: mofish01@kalianet.to

Ramon Rechebei

Chief, Technical Assistance Division
Bureau of Foreign Affairs, Ministry of State
P.O. Box 100
Koror
PALAU
e-mail: tad.bofa@palaunet.com

FAO/OAA

Jacek Majkowski

Fishery Resources Officer
Food and Agriculture Organization
Viale delle Terme di Caracalla
Rome
ITALY
e-mail: jacek.majkowski@fao.org

IOTC SECRETARIAT/CTOI SECRETARIAT

David Ardill

Secretary
Indian Ocean Tuna Commission
P.O.Box 1011
Fishing Port
Victoria
SEYCHELLES
e-mail: iotcsecr@seychelles.net

Alejandro Anganuzzi

Deputy Secretary
Indian Ocean Tuna Commission
P.O.Box 1011
Fishing Port
Victoria
SEYCHELLES
e-mail: aanganu@seychelles.net

Marco A. Garcia

Systems Analyst/Programmer, IOTC
Indian Ocean Tuna Commission
P.O.Box 1011
Fishing Port
Victoria
SEYCHELLES
e-mail: mgarcia@canaimasoft.com

Miguel Herrera

Data Manager
Indian Ocean Tuna Commission
P.O.Box 1011
Fishing Port
Victoria
SEYCHELLES
e-mail: herrera@seychelles.net

INVITED EXPERTS/EXPERTS INVITES

Yu-Yi Huang

Division Chief
Fisheries Administration, Council of Agriculture
Executive Yuan
No. 2, Chaochow St.
Taipei
TAIWAN, CHINA
e-mail: yuyi@msl.f.a.gov.tw

Chien-Chung Hsu

Professor
Institute of Oceanography
23-13
1, Roosevelt Road Section 4
Taipei
TAIWAN, CHINA
e-mail: hsucc@ccms.ntu.edu.tw

APPENDIX II. AGENDA OF THE MEETING

1. *Opening of the Session*
2. *Adoption of the Agenda and arrangements for the Session (IOTC/SC/01/01)*
3. *Admission of observers*
4. *Progress Report of the Secretariat (IOTC/SC/01/02)*
5. *Report of the Working Parties*
 - Report of the Permanent Working Party on Data Collection and Statistics (WPDCS) (IOTC/SC/01/03)*
 - Report of the ad hoc Working Party on Methods (WPM) (IOTC-SC-01-04)*
 - Report of the Working Party on Tropical Tunas (WPTT) (IOTC-SC-01-05)*
 - Report of the Working Party on Tagging (WPT) (IOTC/SC/01/06)*
 - Report of the Working Party on Billfishes (WPB) (IOTC/SC/01/07)*
 - Schedule of Working Party meetings in 2002*
6. *Management recommendations*
 - General Considerations*
 - Bigeye tuna*
 - Swordfish*
7. *Proposed activities for the improvement of data collection and statistics*
 - Proposal for a joint IOTC-OFCF project to improve statistical systems in Indian Ocean coastal countries*
 - Multilateral cooperation to improve data collection system in Indonesia*
8. *Progress on a survey of predation of longline-caught fish (IOTC/SC/01/10)*
9. *Any other business*
 - The use of marine protected areas*
 - Research on tunas in relation with the environment and ecosystem*
 - Production of Executive Summaries on the status of the species*
 - Policy for the presentation of documents to the Scientific Committee*
 - Report on the activities of the SCRS*
 - National Reports*
 - Fishing Capacity Research Program (FAO)*
10. *Adoption of the Report*

APPENDIX III. LIST OF DOCUMENTS

IOTC-SC-01-01	Provisional Agenda.
IOTC-SC-01-02	Progress Report of the Secretariat.
IOTC-SC-01-03	Report of the Permanent Working Party on Data Collection and Statistics (WPDCS).
IOTC-SC-01-04	Report of the ad hoc Working Party on Methods (WPM).
IOTC-SC-01-05	Report of the Working Party on Tropical Tunas (WPTT).
IOTC-SC-01-06	Report of the Working Party on Tagging (WPT).
IOTC-SC-01-07	Report of the Working Party on Billfish (WPB).
IOTC-SC-01-08	Proposal for a joint IOTC-OFCF project to improve statistical systems in Indian Ocean coastal countries
IOTC-SC-01-09	Multilateral cooperation to improve data collection system in Indonesia
IOTC-SC-01-10	Progress on a survey of predation of longline-caught fish.
IOTC-SC-01-11	Progress on a survey of predation of longline-caught fish (Japan). <i>National Research Institute of Far Seas Fisheries, Japan</i>
IOTC-SC-01-12	Meeting of the Standing Committee for the Research and Statistics of ICCAT Madrid, Spain, October 8-12 2001. <i>Pianet,R.</i>