

Commission for the Conservation of  
Southern Bluefin Tuna



みなまぐろ保存委員会

**Report of  
The Tenth Meeting of the Ecologically Related  
Species Working Group**

**28-31 August 2013  
Canberra, Australia**

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**Agenda Item 1. Opening**

1. The independent Chair, Mr Alexander Morison, welcomed participants and opened the meeting.
2. Each delegation introduced its participants. The list of participants is at **Attachment 1**.

***1.1 Adoption of the Agenda***

3. The agenda was adopted and is included at **Attachment 2**.

***1.2 Adoption of Document List***

4. The list of documents presented to the meeting is at **Attachment 3**. The Chair noted that some documents were submitted after the due date for the meeting. The meeting agreed to accept the late documents.

***1.3 Appointment of Rapporteurs***

5. Australia and New Zealand volunteered to rapporteur agenda item 4 and half of 5, with the Secretariat rapporteuring the majority of the remainder of the report.

**Agenda Item 2. Annual Reports**

***2.1 Members***

6. Annual reports from all Members were tabled and Members responded to questions of clarification that were raised by other Members and observers.
7. General discussion in relation to annual reports indicated that reporting has improved, with increased information on mitigation and compliance, and with most Members completing the reporting form for estimation of total mortality of Ecologically Related Species (ERS) in CCSBT fisheries.
8. The meeting noted the importance of evaluating the effectiveness of new mitigation measures and that the revised scientific observer standards should include details of the information necessary to enable the effectiveness of new mitigation measures to be better assessed. The meeting also commented that it is important to provide feedback to industry on the impact of new mitigation measures on both seabird mortality and seabird population status.

## ***2.2 Cooperating Non-Members***

9. The Chair advised that the European Union (EU) and South Africa had provided an annual report, but that no annual report had been provided by the Philippines.
10. The meeting requested that the Philippines be encouraged to submit an annual report in the future and that the EU be encouraged to provide more ERS information in its future reports, noting some CCSBT Members also have bycatch fisheries for SBT.
11. Tables summarising mortalities and other information on seabirds, sharks and turtles were compiled by meeting participants from information in the national reports, as a first attempt to provide a synthesis of the ERS data provided. The tables were not finalised at the meeting, but were considered to be a useful first step in examining the data provided. Members provided comments and suggestions on how these tables could be improved for submission to the next ERSWG meeting, such as noting how raised estimates of total mortality were calculated and providing measures of uncertainty if possible.

## **Agenda Item 3. Reports of meetings and/or outcomes of other organisations relevant to the ERS Working Group**

12. The Chair provided two reports (CCSBT-ERS/1308/Info11 and CCSBT-ERS/1308/Info12) that contained information on intersessional activities of the Joint Tuna RFMO Bycatch Working Group (JTBWG). CCSBT-ERS/1308/Info11 reported on a meeting of technical experts in tropical tuna purse-seine fisheries observer programs in Sukarieta Spain in March 2012, which aimed to harmonize data collection systems and variable definitions to improve research on bycatch mitigation, stock assessment and other topics. The report included recommendations for the minimum data standards and data fields, including identification of areas where some uncertainty in data definitions remains. CCSBT was not involved in this meeting but the Chair suggested that the findings were potentially relevant to future reviews of CCSBT's observer standards. CCSBT-ERS/1308/Info12 was a paper presented to the 2012 Scientific Committee of the WCPFC and contained background to the Joint Tuna RFMO Bycatch Working Group and progress made, including by the WCPFC. Of particular relevance were the work to update the WCPFC's Bycatch Mitigation Information System to include data from CCSBT, and the indication that ICCAT has initiated efforts at the harmonisation of longline data, to mirror the work done in Spain on purse seine data. This comprised a preliminary comparison between available RFMO data field standards.
13. Some Members and observers noted with disappointment that the JTBWG had not met in two years and although some work has happened, it has not been inclusive. The ERSWG had been looking to the JTBWG for guidance on harmonisation related matters.

14. The Humane Society International (HSI) provided a compendium of conservation and management measures (CCSBT-ERS/1308/Info09) that HSI, World Wildlife Fund, Sea Turtle Conservancy and TRAFFIC would like to see progressed to address the impacts of bycatch in tuna RFMOs. HSI noted that aspects of the compendium were relevant to other agenda items and that they might be raised in that context.

#### **Agenda Item 4. Information and advice on ERS**

##### ***4.1 Seabirds***

15. New Zealand briefly introduced paper CCSBT-ERS/1308/Info06, its 2013 National Plan of Action for seabirds. The NPOA-Seabirds was developed during 2012 and early 2013 with support from a broad range of stakeholders. The plan establishes strategic and shorter term objectives for practical issues, addressing biological risk, research and development and international co-operation. It outlines the management mechanisms for ensuring that the objectives are achieved including through the establishment of clear accountabilities for overall progress and a process of annual reporting and review of fisheries specific objectives contained in the national annual and five year fisheries planning documents. The science process underpinning the NPOA Seabirds 2013 is described in Annex II of the document and includes the ecological risk assessment described in documents CCSBT-ERS/1308/20 and 21.
16. Birdlife International noted that it was part of the group that developed New Zealand's NPOA for seabirds and while it was a successful process that established a broad framework, more work was required to establish the specific targets and objectives.

##### *4.1.1 Information on stock status*

17. ACAP presented CCSBT-ERS/1308/15 which provided an update on the status and trends of albatrosses and petrels listed under Annex 1 of ACAP that breed or forage in areas where SBT are fished. This assessment was undertaken by ACAP's Population and Conservation Status Working Group at its meeting in April 2013.
18. The paper notes that of the 22 species of albatrosses found globally, 18 overlap in distribution with the SBT fishery, as do seven of the eight petrel species also listed under ACAP. Of these 18 species of albatrosses, the International Union for Conservation of Nature (IUCN) lists two as Critically Endangered (CR), five as Endangered (EN), seven as Vulnerable (VU) and four as Near Threatened (NT). Of the seven ACAP petrel species, four are listed as VU, one as NT and two as Least Concern (LC).
19. ACAP noted that due to the life strategy of seabirds and albatrosses in particular, it may take decades for reductions in seabird mortality to be reflected in an increase in species' populations at breeding sites.

20. Members agreed that the paper provided by ACAP detailing the status of seabirds was very useful and emphasizes the importance of the ERSWG in providing advice to minimise the effect of SBT fishing. Japan noted this information will help the group focus on what is required for mitigation and reiterated the need to closely monitor breeding populations to assess the effectiveness of mitigation measures. Japan further commented that ICCAT has recently instituted new mitigation measures and hopefully the result of those measures will further reduce seabird bycatch.
21. New Zealand noted that while this information also raises the importance of considering other sources of mortality for seabirds, the role of the ERSWG is to consider the impact of SBT fishing on seabird populations.
22. HSI commented that members should use the document to drive implementation of effective mitigation measures and should look to manage risk based on the status of the most threatened seabird species.
23. ACAP noted that assessing the effectiveness of mitigation measures will be challenging given the low level of observer coverage and the statistical rarity of seabird bycatch events.
24. Japan commented that when new measures are proposed or introduced, it would be useful if information on how those measures work and what they will achieve could be provided to fishers so that they are more readily understood and accepted. ACAP and Birdlife International noted their availability to assist with this task, recalling that a number of workshops have been held/are planned in relation to this task.
25. The Chair recognised the importance of industry support, and noted that agenda item 6 is specifically for education and public relations activities. The Chair further noted that information on the status of seabird populations was important in helping the ERSWG focus on species of particular concern and improving the data collection for those species.
26. The ERSWG thanked ACAP for providing an up to date report on the status of seabird species. This contribution was regarded as an important, expert input to the ERSWG, and aided its consideration of risk assessment and advice to the Extended Commission.
27. The ERSWG advises that the updated information on the critical status of some seabird populations reinforced previous statements from ERSWG 9 on the concerns about the effects of fishing for SBT on seabirds.
28. Japan noted that there are issues with species identification of seabirds which make it difficult for the observers to get accurate information, for example with the critically endangered Amsterdam albatross. HSI responded that all the birds in the breeding colony (30 breeding pairs) were banded with coloured and numbered bands and that it was important that observers collected that type of information and pass it on. NZ also commented on the importance of retaining specimens for identification validation.

29. HSI further noted that the table in paper 15 does not capture the substantial effort that has been put into recovering some species on breeding islands, for example on Macquarie Island where a \$24 million pest eradication project has just concluded that should assist with the recovery of some of the seabird species emphasising the need to implement effective bycatch mitigation in longline fisheries.
30. Birdlife International also noted that some species that are listed as vulnerable in the table are likely to move to a more threatened species status, such as endangered or critical and that more species specific data was required. Using DNA analysis to identify seabirds to population level will aid in calculating risk.

#### 4.1.2 Information from other fisheries of relevance

31. No papers presented on this agenda item and no discussion took place.

#### 4.1.3 Ecological risk assessment

32. New Zealand presented a review of the ecological risk assessment (ERA) methodology used to determine the risk to seabird populations from fishing. Risk assessment can be carried out at different levels:

Level 1	Qualitative	Expert judgement
Level 2	Semi-Quantitative	Quantitative but using surrogates and proxies
Level 3	Quantitative	Formal mathematical models and predictions

33. Paper CCSBT-ERS/1308/20 (and supplementary paper 21) presents the results of an ERA for all fishing by commercial trawl, bottom-longline, surface-longline, and set-net fisheries within New Zealand's Exclusive Economic Zone for 70 seabird species that breed in New Zealand waters. The Potential Biological Removal (PBR) is an estimate of the number of seabirds that may be killed without causing the population to decline below half the carrying capacity. The number of potential fatalities divided by the PBR is defined as the risk ratio; median risk ratios above 1 imply the population is at very high risk.
34. Estimation of potential annual fatalities was based on seabird captures reported by observers between the 2006–07 and 2010–11 fishing years. From these captures, the total observable captures were estimated (the number of seabird captures that would have been reported had an observer been on every fishing vessel). Not all seabirds that are killed are brought on-board vessels, and the observable captures were multiplied by a factor to account for these cryptic mortalities.
35. Of the 70 species assessed:
  - 6 species were classified as at very high risk;
  - 4 species were classified as high risk;
  - 9 species were classified at moderate risk; and
  - The remaining 51 species were considered to face a low to very low risk from NZ commercial fisheries.

Of the 19 species at moderate or higher risk from all commercial fisheries in New Zealand, all but 2 species interact with the global SBT fishery. For some species, the assessment could be extended to include fatalities in global fisheries, and to include broader impacts, such as bycatch in recreational fisheries. The risk assessment requires adequate observer data, and in small-vessel fisheries observer coverage remains low.

36. Paper CCSBT-ERS1308/Info07 presents the results of a study to determine a correction factor required for the application of the PBR model (used for marine mammals) to seabird populations.
37. New Zealand also presented paper CCSBT-ERS/1308/18, which updated an analysis of risk of seabird (albatross and petrel species) interactions with SBT surface longlines presented in 2012. The 2013 risk assessment uses improved spatial seabird distribution data layers utilising all available satellite tracking data for these species. The risk scores are a combination of productivity and susceptibility. Productivity is a function of the seabird's biology and breeding patterns. The susceptibility index is the product of the fishing distribution and the species distribution (spatial overlap) multiplied by the vulnerability of the species to the longline fishing gear. Results indicate that species at highest risk are primarily large albatrosses at temperate latitudes, followed by smaller albatrosses. Geographical areas of highest risk include the Tasman Sea and the area around New Zealand, primarily in the austral autumn and winter.
38. The ERSWG thanked New Zealand for the work undertaken intersessionally to provide an updated CCSBT seabird ERA. The ERSWG noted that the ERA had been undertaken with the methods agreed at ERSWG 9.
39. The meeting discussed the ERA methodology and the assumptions that are made to determine the relative risk to each species in the analysis for SBT fisheries. The availability of good quality observer data is therefore critical to the risk analysis, otherwise assumptions must be made. The meeting discussed practical responses to potentially improve future ERA:
  - For rarer species vulnerability estimates may be based on expert advice or other species may be used as proxies (species guilds may be assumed to have similar vulnerability);
  - Accounting for the presence of diving seabirds which may affect surface feeding seabird bycatch rates;
  - Species identification is an issue for many observers; the meeting considered that feather and other tissue samples should be collected for DNA analysis;
  - The scale of spatial data collection is a key determinant of the risk analysis; finer resolution in the data reported would allow more accurate estimates of relative risk;
  - Defining high risk areas was considered important; the ERA only provides relative risk values so some criteria need to be determined for what is high risk;
  - The assumption in the current ERA is that vulnerability values from New Zealand apply across all the SBT fisheries; however, the level of mitigation in each fishery and the observed bycatch levels should also be considered;
  - It was noted that it may take many decades to measure the population response to mitigation and long-term recovery of populations; and

- The extent that mitigation measures are used needs to be recorded.
40. The meeting noted that the updated CCSBT seabird ERA could be used to help outline higher risk areas and species of greatest risk. However, to determine absolute rather than relative risk, the size and productivity of the seabird population is required. Future ERAs should be based on absolute risk. Also, where possible area and fishery specific vulnerability estimates should be developed for each seabird species or guild.
  41. There was discussion of the need to explore analyses to include fishing data from all fisheries in a global assessment of risk. The New Zealand paper CCSBT-ERS/1308/22 proposes that for albatrosses and petrels other RFMOs be requested to collaborate and provide data for areas outside the current area of assessment to enable this global risk assessment.
  42. Some ERSWG Members noted that other tuna RFMOs had carried out risk assessment for seabirds from other major tuna fisheries in the region. However, the ERSWG agreed that it was still necessary for the group to provide the Extended Commission with advice on the impact of ERS interactions in the SBT fisheries.
  43. The ERSWG advises that the current ERA identified higher risk areas south west of Australia, east of South Africa and in the Tasman Sea.
  44. The ERSWG reiterated its previous advice that implementation of effective seabird bycatch mitigation measures should not be delayed while ERAs are progressed.
  45. The following recommendations were made by the meeting:
    - Further improvement of risk assessments should be explored, in particular, those referred to in paragraph 39 above;
    - Species identification could be improved using DNA technology; and
    - The effectiveness of current mitigation measures needs to be measured and monitored.

#### *4.1.4 Future analyses to obtain improved estimates of ERS mortality and estimates of uncertainty*

46. CCSBT 19 endorsed the recommendation of ERSWG 9 that the ERSWG approach other tuna RFMOs with an offer to lead global work on assessment of impacts of fishing for tunas on seabirds and porbeagle sharks. The Executive Secretary summarised paper CCSBT-ERS/1308/05, which provided the responses from ICCAT, IATTC and IOTC to the ERSWG's offer to lead global work on assessment of the impacts of fishing for tunas on seabirds and porbeagle sharks. The Executive Secretary also summarised a response from Birdlife that was sent to the WCPFC Secretariat in response to the ERSWG offer. The responses were mixed, with IATTC and IOTC providing support in principle, but with IOTC pointing out that they had very little observer data from their fishery. ICCAT and Birdlife indicated that extensive seabird risk assessments had already been conducted. Birdlife's response suggested that the priority should instead be to assess the effectiveness of new tuna RFMO seabird conservation measures.



47. The meeting agreed that the work plan for ERSWG should include cooperation with the other tuna RFMOs to measure the effect of mitigation measures in all these fisheries. ACAP offered to help coordinate this effort as they were already involved in the other scientific working groups and also contributed to ERS.
48. Japan presented CCSBT-ERS/1308/12 which provided an estimation of annual incidental catch of seabirds in Japanese Southern Bluefin Tuna longline fishery in 2010-2012 (CCSBT-ERSWG/1308/12). Annual seabird catch were 4,054 (95% CI: 754-8,445) in 2010, 2,755 (95% CI: 1,528-4,001) in 2011 and 1,067 (95% CI: 484-1,888) in 2012. Estimates of seabird catch have been showing decreasing trends since 2000.
49. Clarification was sought on differences in the 2010 data between this paper and the paper provided to ERSWG 9. Japan noted the estimates had been redone.
50. Japan presented paper CCSBT-ERS/1308/13 which investigated how bycatch rate (birds caught per 1000 hooks) is affected by the seabird probability distribution and/or the number of seabird around longliners in setting. Habitat models of black-browed albatross and wandering albatross were examined by MaxEnt, and then modeling selection was done with zero-inflated model including these factors. In both albatrosses, the seabird probability distribution was not related to bycatch rate positively while the number of seabirds around longliners in setting was related to bycatch rate. The result suggested that bycatch rates were not directly related to the species distribution in our study, that there are other factors that cause albatrosses to gather around fishing boats locally and that the bycatch rates become high only when the albatrosses are in high densities during setting. These outputs were preliminary ones and habitat modeling analysis of factors affecting bycatch rate is needed to improve future analyses.
51. The meeting discussed the result in this paper that the bycatch of these albatrosses was not positively correlated with the distribution of the seabirds. Some Members considered that there was a lack of contrast in the distribution data that might preclude a positive signal for this factor. However, the density of seabirds behind the vessel was a significant factor. It was also suggested that the difference between the species used in the distribution analysis and bycatch data relating to juveniles might have influenced the results.
52. New Zealand drew the meeting's attention to a website (<http://data.dragonfly.co.nz/psc/>) where detailed information on seabirds captures over the last decade for all New Zealand fisheries is summarised. The meeting discussed the possibility of a revised template to include all required information fields; further discussion was proposed under agenda item 5.2 (Observer data). It was suggested the additional requirements might be the seasonality and spatial scale of the observations.

#### *4.1.5 Assessment of mitigation measures*

53. Paper CCSBT-ERS/1308/04 was tabled by the Executive Secretary. This paper was produced following a request from the ERSWG 9 and provides an updated summary of the current seabird, shark and sea turtle mitigation measures of CCSBT, ICCAT, IOTC and WCPFC.

54. ACAP introduced CCSBT-ERS/1308/16 concerning its review of seabird bycatch mitigation measures for pelagic longline fisheries. ACAP's Seabird Bycatch Working Group (SBWG) conducted a comprehensive review of the scientific literature dealing with seabird bycatch mitigation measures in pelagic longline fisheries at its fifth meeting, held from 1-3 May, 2013. No substantial changes were made to the advice provided to ERSWG 9 that weighted branch lines, bird scaring lines and night setting constitute best practice mitigation in pelagic longline fisheries and that the most effective approach is to use all the above measures in combination. Some changes have been made to the supplementary text, particularly in relation to line weighting and tori lines.
55. ACAP further noted that there was a large amount of research still in progress, especially with line weighting, which would hopefully be concluded by the next ERSWG meeting so the paper could be updated. ACAP reiterated that best practice is combination of three key methods: line weighting, night setting and tori lines.
56. The ERSWG advised that the key points in the paper reinforce the advice from ERSWG 9 as there have been no major changes to advice concerning best practice for seabird mitigation measures.
57. Birdlife International introduced CCSBT-ERS/1308/17. This paper summarises the preliminary views of an ACAP intersessional group that has been formed to discuss what the minimum elements may be for reviewing the effectiveness of mitigation measures. It recommends the following four elements should be part of monitoring the effectiveness of the seabird conservation measures:
  - The extent to which the tuna RFMO seabird measure(s) reflects 'best practice' seabird bycatch mitigation for pelagic longline fisheries, and has appropriate spatial, temporal and vessel application;
  - The availability and quality of the data available for the review;
  - The degree of implementation by vessels (compliance); and
  - Analysis of seabird bycatch over time, most likely including;
    - Reported bycatch rates (birds per 1000 hooks),
    - Total mortality of seabird per tuna RFMO per year.
58. Paper 17 also recommends adoption of harmonized review methods across tuna RFMOs, in addition to ongoing efforts to harmonize tuna RFMO bycatch data collection, reporting and storage processes.
59. ACAP noted that this work was initiated by the ERSWG and is constrained by a lack of data. Further work on this is being done intersessionally to enable the paper to be revised for consideration at the next ERSWG meeting.
60. The ERSWG thanked ACAP and BirdLife International for their contribution of these papers. The ERSWG noted the assistance from external bodies and that this information should be revisited when considering observer standards and the future work plan.
61. Australia presented paper CCSBT-ERS/1308/Info02 that describes new line weighting regimes that reduce the risk of seabird mortality in pelagic longline fisheries without affecting fish catch. This work has been considered by ACAP. Two line weighting regimes were considered: 40 g at the hook, and 120 g within

2 m of the hook, each using sliding nylon-coated lead weights). Such research is based on the recognition that fast sinking gear reduces the availability of baits to seabirds and, consequently, the likelihood of incidental capture and death. The results demonstrate that the new line weighting regimes have better sink rate profiles than the industry standard of 60 g within 3.5 m of the hook. This research challenges the accepted (but hitherto untested) belief that placement of weights at the hook and heavy weights on short leaders reduce catch rates. The results show that catch rates are not significantly affected. The heavier weights are also more likely to sink beyond the diving range of the preponderance of seabird species within the aerial extent of bird scaring lines (commonly 50 m). The findings show that weights at the hook are more vulnerable to loss from being bitten off by sharks. In areas where this problem is considered excessive, the paper recommends that 40 g leads be placed on leaders within 0.5 m of the hook, and in areas of unknown or moderate to high risk to seabirds the paper encourages placement of heavier 60 g leads on leaders within 0.5 m of the hook. The results also show that the use of leads at or near the hook with a capacity to slide are a much safer option than leaded swivels crimped into branch lines. This is because the inertia of the lead weight is dissipated during flybacks as the weight slides along the line.

62. HSI commented that Japan's national report notes a line weighting concern to be overcome, that is the increased tangling rate of weighted line. However, putting weights closer to the hook, as noted in CCSBT-ERS/1308/Info02, will go a long way to resolving this problem.
63. Further discussion of this topic noted paper 17 and the four points listed in the summary of that paper for assessing mitigation measures. Under the first point, the ERSWG advised it would be important to know which measures are being used.
64. Under point 3, while it was noted that the ERSWG does not deal with compliance, it would be important in interpreting the data to know what is taking place on the water. HSI further noted that it would be useful to know what level of implementation there is on unobserved vessels.
65. In establishing a method to assess the effectiveness of mitigation methods, it was suggested that a baseline should be established against which new data could be compared. New Zealand noted that there were two ways to approach this question: (1) compare new data to the suggested baseline to see if the catch of seabirds is being reduced and/or (2) assess if the seabird populations are declining or if they have stopped declining.
66. Australia noted that the second option may be more difficult due to expected seabird population recovery timeframes. Indications of whether mitigation measures are effective or not will take substantial time to see in the population trends.
67. In terms of a baseline, ACAP noted that Taiwan and Japan have data across ocean basins and these could be correlated with the mitigation measures in place at the time. As new measures were going to be implemented in other RFMOs, this was an ideal time for the ERSWG to determine what data needed to be collected in order to assess the effectiveness of these mitigation methods.

68. Taiwan commented there were currently enough observer data to undertake some assessments but it should be recognised that there are other confounding factors such as seasonality and spatial factors of each fishery.
69. Korea informed the ERSWG that it carried out a sea trial to facilitate its SBT longline fishery to implement the new mitigation measures in collaboration with BirdLife International in July 2013. Korea further informed that it was scheduled to disseminate and educate the fishers and the scientific observers the implementation of the measures and data collection in 2014, which would be helpful for future assessment of the effectiveness of the new mitigation measures.
70. Recognising the importance of measuring and monitoring effectiveness of seabird mitigation measures in SBT longline fisheries, the ERSWG recommends that a Effectiveness of Seabird Mitigation Measures Technical Group be formed to provide advice to the ERSWG on feasible, practical, timely, and effective technical approaches for measuring and monitoring the effectiveness of seabird mitigation measures in SBT longline fisheries. The suggested Terms of Reference for this group is provided at **Attachment 4**.

#### *4.1.6 Recommend mitigation measures applicable to CCSBT Vessels*

71. Australia presented paper CCSBT-ERS/1308/09 on a draft working paper on reducing the incidental bycatch of seabirds in longline fisheries. It was agreed at CCSBT 19 that Australia would work intersessionally to develop draft conservation and management measures for ecologically related species. Noting concerns raised by Members at CCSBT 19, the paper builds on the importance of harmonising measures across tuna RFMOs and draws on the relevant aspects of ICCAT, IOTC and WCPFC conservation and management measures in a draft CCSBT specific seabird measure.
72. While several members commented that this would need to be discussed at the Extended Commission, Australia noted that it was not expecting extensive discussion on this during the meeting, but wanted to provide it to members for discussion intersessionally. Australia further noted that the terms of reference for the ERSWG state that the working group may provide advice on measures to minimise fishery effects on ecologically related species, including but not limited to gear and operational modifications.
73. Japan noted that the new mitigation measures to be introduced in three Oceans are a practical approach, and are recognised as likely to reduce seabird bycatch numbers significantly by ICCAT, IOTC and WCPFC.
74. New Zealand provided two technical comments on the working paper to strengthen it. These comments were noted by members as an improvement to the document.
75. Japan further noted that the effect of new mitigation measures introduced in the three Oceans should be analysed, not only in the CCSBT fishery, but in all fisheries as many fisheries that do not target SBT also operate in the southern Ocean.
76. Japan also noted that there are significant burdens and difficulties for fisherman in implementation of the new mitigation measures, and this should be continued to be discussed.

77. Australian reiterated that while it was important to draw on the work of other RFMOs, the ERSWG had an obligation to undertake their own work and to respond to the requests of the Extended Commission. Australia noted that it would be seeking comments on this draft working paper intersessionally in advance of CCSBT 20.
78. The ERSWG agreed to plan the way forward to assess effectiveness of current mitigation measures and ensure the collection of necessary information.
79. The ERSWG reiterated the advice from paragraph 139 of the ERSWG 9 report with respect to seabirds.

#### **4.2 Sharks**

80. Paper CCSBT-ERS/1308/Info10 was presented by TRAFFIC. At the 16th meeting of the CITES Conference of the Parties (CoP16) held in Bangkok, Thailand, in March 2013, four new proposals to list a number of commercially important marine species in Appendix II of CITES were adopted as follows:
  - Oceanic Whitetip shark *Carcharhinus longimanus*;
  - Porbeagle *Lamna nasus*;
  - Scalloped Hammerhead shark *Sphyrna lewini*;
  - Great Hammerhead shark *Sphyrna mokarran*, and Smooth Hammerhead shark *Sphyrna zygaena* (hereafter referred to collectively as “Hammerheads”); and
  - Manta rays *Manta* spp.
81. The entry into effect of the above listings has been delayed by 18 months to 14 September 2014, to enable Parties to resolve related technical and administrative issues. The European Commission requested that TRAFFIC carry out a rapid assessment of capacity building priorities and needs. The Report compiles and collates readily available information on: (i) the main Parties likely to be affected by the listings; (ii) international, regional and domestic regulations and measures that may be mutually supportive of, and complementary to, the listings; (iii) the main challenges expected in relation to implementation of the listings; and (iv) any existing or planned capacity building initiatives and tools available to support the listings, in addition to potential gaps and needs.
82. The Report identifies the following key challenges that are expected to arise in relation to the implementation of the CITES CoP16 shark and ray listings: (i) the development of non-detriment findings (NDFs)(confirmation of the sustainability of the catch); (ii) ensuring effective compliance with, and enforcement of, CITES provisions; and (iii) the making of legal acquisition findings. Additional challenges, namely institutional issues and issues associated with illegal, unreported and unregulated (IUU) fishing are also briefly discussed.
83. With regard to NDF development, the main issues discussed in Part III of the Report are: (i) a lack of data to perform stock assessments for shark species; (ii) a lack of guidance on NDFs for sharks; (iii) shared stocks and introduction from the sea; (iv) management deficiencies; and (v) species caught as bycatch. Details of initiatives and resources that can assist in addressing these issues are provided in the Appendices to the Report, including: (i) examples of initiatives to collect

data on shark catches and fishing effort to inform scientific assessments; (ii) available stock status information for NDFs; (iii) guidance, information and tools to assist in the development of NDFs for shark species; (iv) resources to assist fisheries managers in development and implementing appropriate shark conservation and management measures; and (v) resources on the mitigation of shark bycatch and post-release mortality, and reduction of discards.

84. Difficulties associated with establishing comprehensive compliance regimes for CITES provisions are described in Part III of the Report, including: (i) inadequate species-specific catch data; (ii) inadequate species-specific trade data; (iii) data discrepancies (e.g. differing usage of Customs codes between countries/across international supply chains); (iv) limited capacity to identify or trace the products in trade; (v) methods of shipment of fins and associated issues; (vi) a lack of effective inspection protocols; and (vii) overlapping enforcement jurisdictions, e.g. where shared or highly migratory stocks are concerned. The Report and its Appendices include details of tools, resources and approaches available to address these issues, including: (i) identification manuals/tools for the visual (morphological) identification of specimens; (ii) genetic (molecular) tests; and (iii) supply chain and product traceability initiatives. Examples of current valid shark-specific Customs codes are also provided in the Appendices.
85. The meeting thanked TRAFFIC for this paper that collated all the available data on trade and catch for these species. The ERSWG noted that the non-detrimental finding requirements would need to be based on shark species specific data and assessments. This highlights the need to collect and report species level data for these species. The ERSWG is considering the feasibility of completing a stock assessment for southern hemisphere porbeagle this year. In the CITES context a non-detrimental finding and legal acquisition finding would be required to allow for the issuing of export permits by members trading in these species from 14 September 2014.

#### 4.2.1 *Information on stock status*

86. Japan presented paper CCSBT-ERS/1308/14 This document summarized the catch, effort and size data of porbeagle caught by Japanese tuna longline fishery including SBT longline fishery in the southern hemisphere, as the basic information on the stock assessment of this population. Catch and effort data is available from logbook data since 1994 and size data is available from CCSBT observer data since 1992. Although Japanese logbook data and observer data covers wide range of SBT fishery, data in the area east of 120°E is relatively sparse and there is also a limited seasonal coverage. Collaboration among the countries for incorporation of the fishery and size data would aid in the development of a more reliable stock assessment of porbeagle in the southern hemisphere.
87. Japan also presented CCSBT-ERS/1308/Info13, which indicated the distribution pattern and trend in abundance of the porbeagle (*Lamna nasus*) in the southern hemisphere based on the SBT observer data, other fishery survey data and logbook data. The results showed that (1) porbeagles are distributed in the pelagic waters across the oceans of the southern hemisphere; (2) juveniles and adults are distributed in cooler environments than neonates; (3) while pregnant

females occur in the pelagic waters of the Indian Ocean and the Tasman Sea, most are frequently recorded around the Cape of Good Hope between June and July; and (4) the standardized CPUE based on tuna longline fishery (1994–2011) and driftnet survey (1982–1990) data indicate no continuous decreasing trend in the abundance of the southern porbeagle at this time. A series of results indicated that international coordination across oceans is necessary for the effective management of this population.

88. The meeting discussed the data required to complete a stock assessment of porbeagles for the southern hemisphere. It was reiterated that species-specific catch data since 1994 would be available for stock assessment instead of species-aggregated catch data before 1993 regarding Japanese logbook data. Regarding the question on the reliability of Japanese logbook data, it was indicated that filtering of logbook data based on observer data would minimise the uncertainty in the data. The species is widespread in the high seas areas of the southern ocean and a part of population (north of 50S) would be taken as bycatch by longline fisheries targeting SBT.
89. It appears that the dominant size of the fish taken in the Japanese catches is juvenile porbeagle less than 100 cm (pre-caudal length). The larger catches taken in statistical areas 7 and 9 are dominated by these smaller fish. The CPUE series may therefore reflect juvenile rather than adult abundance. The operation of the SBT fishery appears to overlap with the pupping season in the southern hemisphere. There does not appear to be an active fishery in the more southern areas where the adults are more abundant.
90. The meeting discussed the data currently available and potential sources of information on porbeagle required for a stock assessment. As catches from some fleets may not be available for the assessment it will be necessary to approximate the catch history using observer data on bycatch rates combined with the effort data from the fisheries of each country fishing in the area of porbeagle distribution. A collaborative approach is suggested and New Zealand has proposed to fund the work required to collate the information for the ERSWG.

#### 4.2.2 *Information from other fisheries of relevance*

91. No papers were presented on this agenda item.

#### 4.2.3 *Ecological risk assessment*

92. Australia presented paper CCSBT-ERSWG/1308/11 which details the results of ecological risk assessments for sharks that been undertaken by other RFMOs, specifically IOTC, ICCAT and WCPFC. These assessments have identified sharks as one of the groups most at risk due to a combination of high catch rates and life history traits that make sharks particularly vulnerable to overfishing. These risk assessments identified shortfin mako (*Isurus oxyrinchus*), bigeye thresher (*Alopias superciliosus*) and pelagic thresher (*Alopias pelagicus*) as the species most vulnerable to pelagic longline fisheries in the Indian Ocean. Shortfin mako, silky shark (*Carcharhinus falciformis*), porbeagle (*Lamna nasus*) and oceanic whitetip shark (*Carcharhinus longimanus*) were identified as the most vulnerable species to pelagic longline fisheries in the western and central

Pacific Ocean. These species were typically identified as highly vulnerable due to their low productivity and high susceptibility to fishing gear. Conversely, blue shark (*Prionace glauca*) was found to be very susceptible to longline fisheries, but highly productive, and therefore is considered less intrinsically vulnerable to overfishing. The recent stock assessments of oceanic whitetip and silky shark, accepted by the WCPFC Scientific Committee, are also relevant. For both species, the estimated fishing mortality in the western and central Pacific Ocean is well above the estimated the fishing mortality at maximum sustainable yield. The analyses undertaken by other RFMOs can be used as a starting point to consider the impact of SBT fisheries on shark stocks. It should be noted that the distribution of porbeagle has a substantial overlap with SBT fisheries. Given the information summarised in this paper, any work on shark species should initially focus on species identified as high risk or highly vulnerable to pelagic longline fisheries.

#### *4.2.4 Future analyses to obtain improved estimates of ERS mortality and estimates of uncertainty*

93. New Zealand presented paper CCSBT-ERS/1308/19, which proposed an approach to the joint assessment of porbeagle shark stock status. Specific comment on approaches to assessment, sharing of data, joint work and timing of research was sought from participants. Summarising data available to contribute to a joint assessment of porbeagle stock status during this ERS meeting was identified an important first step.
94. Australia noted that paper 19 was a very timely paper to guide progress on the porbeagle assessment discussed at ERSWG 9. Australia welcomed the opportunity to discuss this assessment further and noted they had brought data from relevant fisheries. However, Australia does not catch many porbeagles, but contributions from a technical perspective would be made. Australia noted that it could check its historical data from foreign fleets fishing in Australian waters to see if more data for the assessment were available.
95. Japan noted that it would submit its data on porbeagles for the assessment. Japan also noted that there were significant technical challenges to such an assessment such as estimating the total removals and post-release mortality and commented that a small working group might be best placed to undertake a porbeagle assessment.
96. The meeting discussed how the ERSWG could report back to the Extended Commission on the impact of shark bycatch given the difficulty in completing risk assessments for the shark species taken in SBT fisheries. It was suggested the ERSWG could take advantage of the reports by other RFMOs. For example, WCPFC have carried out stock assessments for both silky shark and oceanic whitetip. However, it was noted that such studies are constrained by the quality of the observer data. One option is for CCSBT is to identify key species for observer reporting, either species that are considered to have either poor population status or that are considered to be highly vulnerable. The observed mortality of these species would be reported separately in national reports.



97. The meeting agreed that reporting of the population status or risk assessments of shark species should be made to the Extended Commission based on all available information from both the ERSWG and from other RFMOs.
98. A small working group met to discuss future stock status assessment for porbeagle shark. The group worked through the data inventory checklist in Annex II of CCSBT-ERS/1308/19, sharing knowledge of what data sets are known to be available and potential data sources to pursue. A record of the data identified during the meeting is provided at **Attachment 5**.
99. The group identified that the first substantive step was a characterisation across all data sources identified in the data inventory. The characterisation would provide the basis for a stock status assessment for porbeagle shark.
100. New Zealand offered to contract an independent research organisation to coordinate and contribute to the characterisation. Australia and Japan agreed to provide scientific contacts who could contribute data and input to the analyses required.
101. The working group recommended that the ERSWG form a small intersessional working group consisting of representatives of each Member of the Extended Commission to oversee this work, and in particular to facilitate access to data.
102. The working group noted that the result of the small working group on porbeagle stock assessment may benefit the issue of non-detrimental findings of CITES.
103. The ERSWG requests the Extended Commission consider actions to reinvigorate the Joint Technical Bycatch Working Group as its work may assist in the ERSWG's work on sharks and other ERS.

#### *4.2.5 Assessment of mitigation measures*

104. Australia noted that it has previously undertaken work on mitigation measures to reduce shark bycatch that has been presented to the ERSWG. Australia asked if CMS or Traffic could comment on work being done on mitigation measures for sharks and if there was a summary of these available, similar to what ACAP presented for seabirds.
105. CMS responded that this work would be interesting but had not currently been undertaken. Traffic further commented that there were only a few mitigation measures for sharks that had been trialed and those tended to be at a generic level, such as a provision for fins to remain attached. Traffic also referred to the work previously completed in the WCPFC by Shelly Clarke, assessing the conservation benefits derived from measures, which highlights the need for species-specific measures to be investigated. Traffic also noted it is important to understand how fleets deal with and respond to sharks, for example if they move to a new area to fish if they are catching large numbers of sharks. This is not well understood in tuna RFMOs.
106. The meeting also noted that it was important to consider if implementing mitigation measures for one species or group (such as seabirds) has an impact on another group (such as sharks). ACAP noted that the Australia paper on line weighting regimes (Info 2) provides some catch rates for shark species. ACAP further noted that it does not endorse mitigation methods that would have an

adverse effect on other bycatch species and ask researchers to consider this in their studies.

107. A general discussion around the benefits of banning shark finning was undertaken. Korea queried whether shark finning was really a measure to mitigate shark bycatch, noting that other tuna RFMOs had not yet adopted this measure and that fins naturally attached and folded was known to damage the product and safety of crew. Traffic responded, noting a number of benefits of fins attached measures, including improving species identification and reducing waste. In addition, there is a basic logic that freezer space on a vessel is limited so only so many sharks can be retained if the fins must be attached to the bodies. The real issue around finning is the total amount of mortality and being able to assess that.
108. Japan noted that it had been concluded elsewhere that finning was no longer a science issue, but a compliance issue. Japan noted that it was important to include both shark catches and discards in logbooks however, and that verification of this data through observers was critical.
109. Indonesia commented on the difficulties it had encountered in educating artisanal fishers on the benefits of releasing sharks alive given the large numbers of fishers in small boats in the region. Indonesia also noted the great deal of effort it had put into education programs for fishers on the issue of shark finning.
110. In response to a previous comment by Japan on the work undertaken in the WCPFC on whale shark release from purse seines, Australia noted that there were no whale shark interactions with the SBT purse seine fleet given the distribution of whale sharks.
111. In addition, the ERSWG encouraged Members to submit information on ERAs and shark stock assessments completed by other RFMOs, and suggested that at the next ERSWG meeting it may be possible to provide species summaries for sharks. Furthermore, it was noted that it is important to understand how fleets deal with and respond to sharks, for example if they move to a new area to fish if they are catching large numbers of sharks. If this information is available, it could be included in national reports.
112. HSI noted a 2009 study by the IUCN that looked at the global conservation status of 64 pelagic shark species. The study noted that one third of the species were threatened with extinction. These results indicate the need for strong shark mitigation measures.

#### *4.2.6 Recommend mitigation measures applicable to CCSBT Vessels*

113. Australia presented paper CCSBT-ERS/1308/10 on a draft working paper to mitigate the impact on ecologically related species (other than seabirds) of fishing for southern bluefin tuna. It was agreed at CCSBT 19 that Australia would work intersessionally to develop draft conservation and management measures for ecologically related species. This paper draws on the relevant aspects of ICCAT, IOTC and WCPFC conservation and management measures with respect to ecologically related species (other than seabirds) in a draft CCSBT specific measure.

114. Australia noted that it would be seeking comments on this paper intersessionally in advance of CCSBT 20.

### **4.3 Other ERS**

115. The Secretariat introduced CCSBT-ESC/1308/06 which contained a report from IOSEA-Turtles that summarised information provided in national reports to the IOTC's December 2012 Scientific Committee meeting. The report was provided in response to ERSWG 9's request to contact IOSEA-Turtles with a view to assessing what data it holds and how it might assist future work of the ERSWG.

116. The ERSWG and HSI thanked the Secretariat for its efforts in acquiring this information. HSI further noted that Annex 2 of the paper indicates an issue in Mozambique with Asian longliners beheading turtles to retrieve hooks. So there are problems with turtle bycatch that need to be addressed in some fisheries.

#### *4.3.1 Information on stock status*

117. No papers were presented for this agenda item.

#### *4.3.2 Information from other fisheries of relevance*

118. No papers were presented for this agenda item.

#### *4.3.3 Ecological risk assessment*

119. The meeting noted CCSBT-ERS/1308/Info08 provided by IOSEA-Turtles on an Ecological Risk Assessment and Productivity-Susceptibility Analysis of sea turtles overlapping with fisheries in the IOTC region.

#### *4.3.4 Future analyses to obtain improved estimates of ERS mortality and estimates of uncertainty*

120. No papers were presented for this agenda item.

#### *4.3.5 Assessment of mitigation measures*

121. No papers were presented for this agenda item.

#### *4.3.6 Recommend mitigation measures applicable to CCSBT Vessels*

122. The ERSWG noted that CCSBT-ERS/1308/10 also applies here, however, the paper had already been discussed under agenda item 4.2.6.

#### ***4.4 Predator and prey species that may affect the condition of the SBT stock***

123. New Zealand provided a preliminary description of current research to evaluate data from observer sampling for diet of highly migratory species. The research is focussed on assessing the dietary composition of highly migratory teleosts and elasmobranchs, and, assessing spatio-temporal patterns in dietary composition and changes in food utilisation with fish size. In future the research will attempt to identify biological and physical environmental forces that can be used to explain highly migratory species distribution and begin development of an ecosystem model for the pelagic environment in New Zealand waters.
124. Initial results from the dietary analysis for southern bluefin tuna (non-empty stomach samples, n=9,966) show the diet is dominated by fish, but with significant cephalopod and salp components. The fish that could be identified were either lanternfish or Ray's bream. The cephalopods were mainly squid, but occasionally nautilus and octopus. Fish prey was dominant in the northeast, with cephalopod prey dominant in the southeast, and salps important only in southwest.
125. Initial results from the analysis of changes in food utilisation with fish size (ontogenetic changes) for southern bluefin tuna show fish prey (primarily Ray's bream) increased in abundance, and cephalopods, salps and crustaceans decreased, as predator size increased. The proportions of lanternfish in diet were relatively constant across all but the largest predator size class. Large tuna were less likely to have empty stomachs than small ones.
126. Initial exploration of the dietary overlap between species show southern bluefin tuna are likely to have some dietary competition with butterfly tuna and albacore (for lanternfish) and bigeye (for Ray's bream in northeast). However, in general there is quite distinct dietary separation between southern bluefin and other tunas.
127. Large volumes of data were available on the diets of species caught commonly by surface longline, but its precision (in term of prey species identification) was not adequate to allow any useful multivariate analyses. Recommendations for improved data collection have been made and will be implemented. The information derived from the current analysis is, however, still very descriptive, informative, and useful. New Zealand will present a comprehensive report of this research to the next ERS meeting, including progress toward development of simple ecosystem models for the pelagic environment in New Zealand waters.
128. Japan noted that the data were collected by observers at sea and suggested that a sub-sample of samples be returned for analysis onshore to potentially improve the range of specimens which could be reliably identified. Japan further queried whether there would be a bias toward larger items being sampled by observers at sea due to the working environment.
129. New Zealand noted that it would consider onshore analysis of a sub-sample of stomachs and that as part of current work to improve the quality of data collected by observers, it would review its at-sea sampling protocols to minimise to the extent practical bias toward larger items being sampled by observers.

## **Agenda Item 5. ERS Data Requirements**

### ***5.1 ERSWG Data Exchange***

130. The Executive Secretary presented CCSBT-ERS/1308/07, which documented the ERS Data Exchange process that occurred during 2013 for the first time. Highly aggregated ERS data for 2010, 2011 and 2012 was provided in accordance with the agreed format by five of the six CCSBT Members. Only two types of problems were noticed by the Secretariat. These were the length time it took to obtain approval for Members to access the data in accordance with CCSBT confidentiality requirements; and initial misunderstanding by some Members regarding what data was required to be provided.
131. The Secretariat sought feedback from the meeting on a number of matters relating to the data exchange, including: Whether any problems were experienced by Members in providing these data; whether the data were considered useful; what standard summaries of the data should be produced by the Secretariat; whether a longer time series of data be provided; and whether the data exchanged should be made available to all participants after Members' Annual Reports, which contain the same information, have been distributed.
132. The meeting considered the ERS Data Exchange to be highly useful and no major problems were experienced by Members in providing the data. The meeting supported provision of a longer time series of data by Members, but agreed that it would be on a voluntary basis and only where high quality information could be provided. The meeting tasked the Secretariat with providing summaries of the exchanged data to Members and to future ERSWG meetings after the next ERS Data Exchange, noting that the data would be aggregated over Members. The summaries would include at least observed and actual effort, observer coverage rate, observed mortalities and estimated total mortalities. Summaries would be provided separately for CCSBT statistical areas and species/species groups.
133. It was agreed that the confidentiality arrangements and access restrictions to the exchanged data should remain in place even after the same or similar information is provided through Members' Annual Reports to the ERSWG.
134. Discussion was held regarding the benefits that could be obtained from providing data with a finer spatial scale, particularly in order to determine the effectiveness of mitigation measures. It was noted that sharing of finer scale information might be possible for work in the small working groups between Member scientists as part of mutually agreed cooperative studies, but not as part of a general data exchange process.

### ***5.2 Observer data***

135. The Executive Secretary introduced CCSBT-ERS/1308/08, which provides a draft revision of the CCSBT Scientific Observer Program Standards (SOPS) that incorporates minimum requirements for ERS observer data. The revised draft was developed by including ACAP's minimum data requirements and through intersessional discussion with CCSBT Members.
136. The meeting discussed the minimum ERS data requirements and made additional changes to the draft revised SOPS, which are provided at **Attachment 6**.

137. Some Members expressed concern in relation to proposed recording of seabird mitigation measures for each set and the details of these requirements are subject further to consideration.
138. It was noted that it would be useful to look at the WCPFC's species of special concern intersessionally and harmonise with their observer requirements. In addition, it was noted that the ERSWG required life status definitions for sharks and seabirds which could be sought from other RFMOs and observer programs. These categories should consider the duration between capture and release as this may impact the status of the animal. This may be particularly important for turtles. ACAP offered to coordinate the work on seabird life status definitions and the ERSWG Chair has agreed to assist with the coordination of the life status work on sharks.
139. In terms of priorities, it was agreed that from an ERSWG perspective, in monitoring of the hauls all species should be given equal priority. For biological sampling, ERS priority will be in the following order: (1) seabirds and sharks; (2) marine reptiles; (3) all other species.

### ***5.3 Electronic monitoring***

140. ACAP presented CCSBT-ERS/1308/Info04, which provided an overview of an electronic monitoring (e-monitoring) system that could be used on fishing vessels to collect data on fishing activities. It was noted that such systems have the capacity to provide significant additional information with which to evaluate seabird bycatch events. E-monitoring utilises cameras linked to sensors that monitor the activity of fishing equipment, which allows the cameras to be turned on and off in association with key events, such as setting and hauling. When suitably sited on a fishing vessel, the cameras can capture the data necessary to determine the efficacy of the three seabird bycatch mitigation measures primarily used in the tuna RFMOs, namely night-setting, weighted branch-lines and tori lines although the effectiveness of this at night for tori lines may be limited.
141. It was noted that although e-monitoring can potentially collect a large amount of data, it does not replace the need for observer coverage to undertake activities such as sampling. It was proposed to undertake a pilot study to evaluate the extent to which e-monitoring could collect data relevant to monitoring the effectiveness of mitigation measures being used within the CCSBT. Interested Members were invited to participate in this study.
142. In response to questions, ACAP commented that the degree to which such a system could provide the required observer data was one of the objectives of the trial. Electronic monitoring does not replace the need for physical observers, it complements the observers, and may reduce the level of observer coverage required and the work the observer is required to do. It should be seen as a data collection tool.
143. ACAP further noted that they had not approached any other RFMOs about the potential of doing a trial. The SBT fishery covers several ocean basins so it provides a large scope for the trial.

144. Australia commented that it had trialled electronic monitoring in several fisheries and the system did provide many advantages. However, it was noted that the data must be examined and interpreted in order to be useful and provide meaningful information. The use of electronic monitoring has indirect benefits which can lead to improved logbook reporting and can also be useful in recording discrepancies that may occur in logbooks. The system is, however, only as good as what the camera sees, and it may not always be able to identify to species level.
145. In response to technical questions from Taiwan and Korea, Australia responded that some technical issues are still being investigated. However, there are methods that can be used to obtain data such as length. The system can record an entire voyage. The data can be downloaded for later analyses, and then can record the next voyage. The crew is not required to operate the system; it is a fixed camera. In addition, the system is closed and cannot be tampered with so the data is not erased until it has been downloaded after the voyage is complete. It was also noted that the system is particularly well-suited to longline fisheries, as the samples arrive in fixed intervals as the line is hauled, rather than everything arriving at once, as would happen on a purse seine haul. There is the potential for crew to aid in identification of seabirds by holding birds up to cameras in pre-determined positions to allow observers to confirm logbook identification.
146. ACAP noted that implementation acceptance will be improved with education of the benefits of the system to boat operators.

#### ***5.4 Identification guides***

147. ACAP presented a paper reporting on progress made with the development of a seabird identification guide (CCSBT-ERS/1308/Inf05). At the first meeting of the Joint Tuna RFMO Technical Working Group on Bycatch in July 2011, it was agreed to work towards the harmonisation of data collection across the RFMOs. To assist with this task, ACAP offered to develop a standardised seabird identification guide for use by all tuna RFMOs. The first phase of this project was to undertake a review of the seabird identification guides currently used by tRFMOs and by their Members' observer programmes. From this initial assessment it was found that the approach taken by the Japanese observer programme to utilise photos of dead seabirds offered significant benefits for the accurate identification of seabirds caught as bycatch. Subsequently, ACAP collaborated with the Japanese National Research Institute of Far Seas Fisheries (NRIFSF) to produce a draft photo identification guide.
148. The draft guide primarily uses head and bill characteristics to classify seabirds to species level and includes the photos of dead seabirds to facilitate fast and accurate identification. Although this method should enable the accurate identification of most species, it is important to recognise that it will not be possible for non-expert observers to identify every individual seabird to species level. Consequently, it is recommended that both photos and DNA samples (such as feathers) be collected, to enable confirmation of initial identification. The collection of DNA samples also has the potential benefit of enabling identification at the population level.

149. Expert input was sought from CCSBT Members and the Coordinators of their relevant observer programmes on outstanding issues relating to the development of the guide. ACAP undertook to forward the draft of the identification guide to the CCSBT Secretariat for distribution to relevant observer programmes for their advice and input. The contributions of Dr Nadeena Beck and Dr Yukiko Inoue in the development of the draft guide were gratefully acknowledged.
150. HSI noted it was important from a conservation perspective to be mindful of species at the population level. However, an identification guide won't allow assignment of a captured bird to the population level. It was therefore important to investigate the viability of using DNA technology to assign birds to populations.
151. ACAP agreed this was an important consideration that has been reflected in the observer requirements by requiring feather collection. It is important to get protocols correct for that kind of collection and those protocols are provided in the identification guide.
152. Birdlife noted that in order to use such an approach it is necessary to have a DNA reference collection of all populations for comparison.
153. This requirement was acknowledged, but HSI noted that much of that material has already been collected through observer programs so it should be possible to rapidly progress the development of such a reference collection.
154. Japan sought clarification about copyright issues in regards to distribution of identification guide. ACAP advised that guide was developed with intention to distribute to RFMOs, however permission will need to be sought from Fishery Research Agency before wider distribution. ACAP is unsure of who retains responsibility for translation of identification guide. Considerations will also need to be made for regional differences in translated versions, as distributions of bird species vary between oceanic basins.

## **Agenda Item 6. Education and public relations activities**

### ***6.1 Updated CCSBT ERS pamphlets***

155. The Secretariat introduced CCSBT-ERS/1308/Info01 concerning the updated CCSBT ERS Pamphlets. The Secretariat finalised the updated ERS pamphlets as agreed at ERSWG 9 and copies of the pamphlets, translated to all Member languages with the assistance of all relevant members, have been produced and placed on the CCSBT web site.

## **Agenda Item 7. Future work program**

156. The ERSWG 10 workplan, together with progress from the ERSWG 9 workplan is provided at **Attachment 7**.



### **Agenda Item 8. Other Business**

157. There was no other business.

### **Agenda Item 9. Referral of ERS matters for consideration by CCSBT subsidiary bodies**

158. The ERSWG agreed that the revised draft of the Scientific Observer Program Standards should be referred to the Extended Scientific Committee (ESC) for its consideration. The meeting also wished to advise the ESC of the ERSWG's workplan for porbeagle sharks, particularly given the stock assessment expertise of the ESC, and of the ERSWG's plans for a Effectiveness of Seabird Mitigation Measures Technical Group.

### **Agenda Item 10. Recommendations and advice to the Extended Commission**

159. The ERSWG reiterated the advice from paragraph 139 of the ERSWG 9 report with respect to seabirds.

160. The ERSWG advises that:

- The updated information on the critical status of some seabird populations reinforced previous statements from ERSWG 9 on the concerns about the effects of fishing for SBT on seabirds.
- The current ERA identified higher risk areas south west of Australia, east of South Africa and in the Tasman Sea.
- The key points in CCSBT-ERS/1308/16 reinforce the advice from ERSWG 9 as there have been no major changes to advice concerning best practice for seabird mitigation measures.

161. The ERSWG reiterated its previous advice that implementation of effective seabird bycatch mitigation measures should not be delayed while ERAs are progressed.

162. The following recommendations were made by the meeting:

- Further improvement of risk assessments should be explored, in particular, those referred to in paragraph 39 above;
- Species identification could be improved using DNA technology; and
- The effectiveness of current mitigation measures needs to be measured and monitored.

163. Recognising the importance of measuring and monitoring effectiveness of seabird mitigation measures in SBT longline fisheries, the ERSWG recommends that a Effectiveness of Seabird Mitigation Measures Technical Group be formed to provide advice to the ERSWG on feasible, practical, timely, and effective technical approaches for measuring and monitoring the effectiveness of seabird mitigation measures in SBT longline fisheries. The suggested Terms of Reference for this group is provided at **Attachment 4**.

164. The ERSWG recommended that a small intersessional working group be formed to progress the assessment of porbeagle sharks.
165. The ERSWG requests the Extended Commission consider actions to reinvigorate the Joint Technical Bycatch Working Group as its work may assist in the ERSWG's work on sharks and other ERS.

## **Agenda Item 11. Conclusion**

### ***11.1 Adoption of meeting report***

166. The report was adopted.

### ***11.2. Recommendation of timing of next meeting***

167. New Zealand and Australia preferred to hold the next meeting during 2014 and noted that urgent work was underway, such as the seabird ERA, or just beginning, in the case of the porbeagle assessment, and it was therefore important to have a meeting in 2014. Given the ERSWG's workplan, it was noted that there would be a substantive agenda for a 2014 meeting. Australia further noted that given the importance of the work discussed, the ERSWG should not wait two years for another meeting as this would likely result in the group losing momentum, as well as an inability for the ERSWG to provide further advice to the Extended Commission for two years.
168. Japan advised that given its full RFMO schedule in 2014, it would not be possible for them to participate in both the working group on seabirds formed at this meeting, and at a meeting of the ERSWG. Japan also noted that July, August and September were very full months on the RFMO calendar, and they did not have the resources to participate in an ERSWG meeting during that time.
169. Japan and Korea noted that with extensive work being undertaken both domestically, and in other RFMOs, strong advancements will be made in regards to ERS without a 2014 meeting of ERSWG. Japan further noted that they would instead prefer to prioritise the working group formed on seabirds formed at this meeting.
170. As a compromise, it was agreed that March 2015 appeared to be the most suitable time to hold ERSWG 11 and Members would seek to keep their calendars free for this period.
171. The meeting agreed the importance of finalising its recommendation for the revised observer standards and agreed to work on this intersessionally as a priority.
172. The meeting also agreed that the new seabird and porbeagle assessment working groups would report on progress to the ERSWG intersessionally (by 31 July 2014) to allow consideration by the Extended Scientific Committee of necessary.

### ***11.3. Close of meeting***

173. The meeting closed at 6:05pm, 31 August 2013.

## **List of Attachments**

### *Attachment*

1. List of Participants
2. Agenda
3. List of Documents
4. Seabird Mitigation Measures Technical Group – Terms of Reference
5. Data inventory for Porbeagle Sharks
6. Draft Revised CCSBT Scientific Observer Program Standards
7. ERSWG Workplan

**List of Participants**  
**The 10th meeting of Ecologically Related Species Working Group**

First name	Last name	Title	Position	Organisation	Postal address	Tel	Fax	Email
<b>CHAIR</b>								
Alexander	MORISON	Mr.			Australia			morisonaquaticsci@gmail.com
<b>MEMBERS</b>								
<b>AUSTRALIA</b>								
Ilona	STOBUTZKI	Dr	Assistant Secretary	Department of Agriculture, Fisheries & Forestry	GPO Box 1563, Canberra ACT 2601	61 2 6272 4277	61 2 6272 2104	ilona.stobutzki@daff.gov.au
Heather	PATTERSON	Dr	Scientist	Department of Agriculture, Fisheries & Forestry	GPO Box 1563, Canberra ACT 2601	61 2 6272 4612	61 2 6272 2104	heather.patterson@daff.gov.au
Scott	HANSEN	Mr	Research Officer	Department of Agriculture, Fisheries & Forestry	GPO Box 1563, Canberra ACT 2601	61 2 6272 5861	61 2 6272 2104	scott.hansen@daff.gov.au
Johnathon	DAVEY	Mr	Assistant Director (A/g)	Department of Agriculture, Fisheries & Forestry	GPO Box 1563, Canberra ACT 2601	61 2 6272 5476	61 2 6272 4875	johnathon.davey@daff.gov.au
Jonathon	BARRINGTON	Mr	Senior Policy Officer	Australian Antarctic Division	203 Channel Highway, Kingston TAS 7050	61 3 6232 3286	61 3 6232 3500	jonathon.barrington@aad.gov.au
Paul	RYAN	Mr	Environment Manager	Australian Fisheries Management Authority	GPO Box 7051, Canberra, ACT 2601, Australia	61 2 6225 5366	61 2 6225 5500	Paul.Ryan@afma.gov.au
Clayton	McCLOUD	Mr	Management Officer	Australian Fisheries Management Authority	GPO Box 7051, Canberra, ACT 2601, Australia	61 2 6225 5318	61 2 6225 5500	Clayton.McCloud@afma.gov.au
Brian	JEFFRIESS	Mr	Chief Executive Officer	Australian SBT Industry Association	PO Box 416, Fullarton SA 5063, Australia	61 4 1984 0299	61 8 8682 3749	austuna@bigpond.com

First name	Last name	Title Position	Organisation	Postal address	Tel	Fax	Email
<b>FISHING ENTITY OF TAIWAN</b>							
Julia Hsiang- Wen	HUANG	Dr. Associate Professor	National Taiwan Ocean University	2 Pei-Ning Road, Keelung 20224, Taiwan	+886 2 24622 192 ext 5608	+886 2 24633 986	julia@ntou.edu.tw
<b>INDONESIA</b>							
Saut	TAMPUBOLON	Mr Deputy Director for Fisheries Resource in Indonesia EEZ and High Seas	Ministry of Marine Affairs and Fisheries	Jl. Medan Merdeka Timur No. 16, Jakarta Pusat 10110 Indonesia	62 21 351 9070	62 21 345 3008	s.tampubolon@yahoo.com sdi.djpt@yahoo.com
Fifi	RIFIANI	Mrs Deputy Director for Monitoring of Utilization for Fisheries Resources	Ministry of Marine Affairs and Fisheries	Jln. Medan Merdeka Timur No.16, Jakarta Pusat, 10110 Indonesia	62 21 352 3113/1 527	62 21 352 3113/1 527	nifiani.fifi@gmail.com
<b>JAPAN</b>							
Hiroshi	MINAMI	Dr. Group Chief	National Research Institute of Far Seas Fisheries	5-7-1 Orido Shimizu Shizuoka 424- 8633	81 54 336 6000	81 543 35 9642	hminami@fra.affrc.go.jp
Tomoyuki	ITOH	Dr. Group Chief	National Research Institute of Far Seas Fisheries	5-7-1 Orido Shimizu Shizuoka 424- 8633	81 54 336 6000	81 543 35 9642	itou@affrc.go.jp
Yasuko	SEMBA	Dr. Resercher	National Research Institute of Far Seas Fisheries	5-7-1 Orido Shimizu Shizuoka 424- 8633	81 54 336 6000	81 543 35 9642	senbamak@affrc.go.jp
Osamu	SAKAI	Dr. Resercher	National Research Institute of Far Seas Fisheries	5-7-1 Orido Shimizu Shizuoka 424- 8633	81 54 336 6000	81 543 35 9642	sakaios@fra.affrc.go.jp
Kotaro	YOKAWA	Dr.	National Research Institute of Far Seas Fisheries	5-7-1 Orido Shimizu Shizuoka 424- 8633	81 54 336 6000	81 543 35 9642	yokawa@affrc.go.jp
Yukiko	INOUE	Dr. Resercher	National Research Institute of Far Seas Fisheries	5-7-1 Orido Shimizu Shizuoka 424- 8633	81 54 336 6000	81 543 35 9642	yuinoue@affrc.go.jp

First name	Last name	Title Position	Organisation	Postal address	Tel	Fax	Email
Nozomu	MIURA	Mr. Manager	Japan Tuna Fisheries Co-operative Association	31-1 Eitai 2-Chome, Koto-ku Tokyo 135-0034	81 3 5646 2382	81 3 5646 2652	gyojyo@japantuna.or.jp
Kojiro	GEMBA	Mr.	Japan Tuna Fisheries Co-operative Association	31-1 Eitai 2-Chome, Koto-ku Tokyo 135-0034	81 3 5646 2382	81 3 5646 2652	gyojyo@japantuna.or.jp
Toru	KITAMURA	Dr. Scientist	Japan NUS CO., LTD. Yokohama Office	Queen's Tower-A 26F 2-3-1 Minato Mirai Nishi-ku Yokohama Kanagawa 220-6001	81 45 682 8111	81 45 682 8765	tkitamura@janus.co.jp

#### NEW ZEALAND

Kevin	SULLIVAN	Dr	Science Manager Fisheries Stock Assessment	Ministry for Primary Industries	PO Box 2526, Wellington, New Zealand	+64 4 819 4264	Kevin.Sullivan@mpi.govt.nz
Neville	SMITH	Mr	Principal Scientist	Ministry for Primary Industries	PO Box 2526, Wellington, New Zealand	+64 4 819 4263	Neville.Smith@mpi.govt.nz

#### REPUBLIC OF KOREA

Zang Geun	KIM	Dr.	Scientist	National Fisheries Research and Development Institute	216 Gijanghaean-ro, Gijang-eup, Gijang-gun, Busan, Rep. of Korea	82 51 720 2310	82 51 720 2337	zgkim@korea.kr
Sung Il	LEE	Dr.	Scientist	National Fisheries Research and Development Institute	216 Gijanghaean-ro, Gijang-eup, Gijang-gun, Busan, Rep. of Korea	82 51 720 2325	82 51 720 2337	k.sungillee@gmail.com

#### OBSERVERS

##### AGREEMENT ON THE CONSERVATION OF ALBATROSSES AND PETRELS

Warren	PAPWORTH	Mr	Executive Secretary	Secretariat to the Agreement on the Conservation of Albatrosses and Petrels	27 Salamanca Square, Battery Point 7004, Tasmania, Australia	61 439 323 505	61 3 6233 5497	warren.papworth@acap.aq
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#### BIRDLIFE INTERNATIONAL

Karen	BAIRD	Ms		Birdlife International		64 9 42268 68	k.baird@forestandbird.org.nz
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First name	Last name	Title	Position	Organisation	Postal address	Tel	Fax	Email
<b>HUMANE SOCIETY INTERNATIONAL</b>								
Alexia	WELLBELOVE	Mrs	Senior Program Manager	Humane Society International	PO Box 439 Avalon NSW 2107	61 2 9973 1728	61 2 9973 1729	alexia@hsi.org.au
Nigel	BROTHERS	Mr	Consultant	Humane Society International	PO Box 439 Avalon NSW 2107	61 2 9973 1728	61 2 9973 1729	brothersbone@yahoo.com.au

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**UNEP/Convention on the Conservation of Migratory Species of Wild Animals**

Andrea	PAULY	Ms	Associate Programme Officer	UNEP/CMS	UNEP/CMS Secretariat Platz der Vereinten Nationen 1 53113 Bonn, Germany	49 228 815 2477	49 228 815 2449	apauly@cms.int
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**TRAFFIC**

Glenn	SANT	Mr	Fisheries Trade Programme Leader	TRAFFIC	ANCORS, University of Wollongong. Wollongong, NSW, 2522	61 2 4221 3221		glenn.sant@traffic.org
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**INTERPRETERS**

Saemi	BABA	Ms						
Kumi	KOIKE	Ms						
Yoko	YAMAKAGE	Ms						

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**CCSBT SECRETARIAT**

Robert	KENNEDY	Mr	Executive Secretary					rkennedy@ccsbt.org
Akira	SOMA	Mr	Deputy Executive Secretary		PO Box 37, Deakin West	61 2 6282	61 2 6282	asoma@ccsbt.org
Mari	WARREN	Ms	Administrati ve Officer		ACT 2600 AUSTRALIA	8396	8407	sec@ccsbt.org
Kozue	LOGHEM	Ms	Administrati ve Officer					sec@ccsbt.org

**Agenda**  
**Tenth meeting of the Ecologically Related Species Working Group**

1. Opening
  - 1.1 Adoption of the Agenda
  - 1.2 Adoption of Document List
  - 1.3 Appointment of Rapporteurs
2. Annual reports
  - 2.1 Members
  - 2.2 Cooperating Non-Members
3. Reports of meetings and/or outcomes of other organisations relevant to the ERS Working Group
4. Information and advice on ERS
  - 4.1 Seabirds
    - 4.1.1 Information on stock status
    - 4.1.2 Information from other fisheries of relevance
    - 4.1.3 Ecological risk assessment
    - 4.1.4 Future analyses to obtain improved estimates of ERS mortality and estimates of uncertainty
    - 4.1.5 Assessment of mitigation measures
    - 4.1.6 Recommend mitigation measures applicable to CCSBT Vessels
  - 4.2 Sharks
    - 4.2.1 Information on stock status
    - 4.2.2 Information from other fisheries of relevance
    - 4.2.3 Ecological risk assessment
    - 4.2.4 Future analyses to obtain improved estimates of ERS mortality and estimates of uncertainty
    - 4.2.5 Assessment of mitigation measures
    - 4.2.6 Recommend mitigation measures applicable to CCSBT Vessels
  - 4.3 Other ERS
    - 4.3.1 Information on stock status
    - 4.3.2 Information from other fisheries of relevance
    - 4.3.3 Ecological risk assessment
    - 4.3.4 Future analyses to obtain improved estimates of ERS mortality and estimates of uncertainty
    - 4.3.5 Assessment of mitigation measures
    - 4.3.6. Recommend mitigation measures applicable to CCSBT Vessels
  - 4.4 Predator and prey species that may affect the condition of the SBT stock



5. ERS Data Requirements
  - 5.1 ERSWG Data Exchange
  - 5.2 Observer data
  - 5.3 Electronic monitoring
  - 5.4 Identification guides
6. Education and public relations activities
  - 6.1 Updated CCSBT ERS pamphlets
7. Future work program
8. Other business
9. Referral of ERS matters for consideration by CCSBT subsidiary bodies
10. Recommendations and advice to the Extended Commission
11. Conclusion
  - 11.1. Adoption of meeting report
  - 11.2. Recommendation of timing of next meeting
  - 11.3. Close of meeting

**List of Documents**  
**Tenth Meeting of the Ecologically Related Species Working Group**

**(CCSBT-ERS/1308/)**

1. Provisional Agenda
2. List of Participants
3. List of Documents
4. (Secretariat) Relevant Tuna RFMO Measures Concerning Incidental Catches of Ecologically Related Species (4.1.5, 4.2.5, 4.3.5)<sup>1</sup>
5. (Secretariat) Tuna RFMO Responses to ERSWG9's offer to lead global work on assessment of the impacts of fishing for tunas on seabirds and porbeagle sharks (4.1.4, 4.2.4)
6. (Secretariat) Correspondence with IOSEA – Turtles (4.3)
7. (Secretariat) Review of the ERSWG Data Exchange Process (Rev.1) (5.1)
8. (Secretariat) Development of a Set of Minimum Requirements for Observer Data (5.2)
9. (Australia) Draft working paper on reducing the incidental bycatch of seabirds in longline fisheries (4.1.6)
10. (Australia) Draft working paper to mitigate the impact on ecologically related species of fishing for southern bluefin tuna (4.1.6, 4.2.6, 4.3.6)
11. (Australia) Summary of the status of key shark species in tuna RFMOs (4.2.3)
12. (Japan) Estimation of incidental catch of seabirds in the Japanese southern bluefin tuna longline fishery in 2011-2012 (Hiroshi Minami, Yukiko Inoue) (4.1.4)
13. (Japan) Preliminary results examining factors affecting bycatch of black-browed albatross and wandering albatross: relationship between distribution probability and bycatch probability (Yukiko Inoue, Cleo Small, Makoto Okazaki, Richard Phillips, Henri Weimerskirch, Javier Arata, Graham Robertson, David Gremillet, Hiroshi Minami) (Rev.1) (4.1.4)
14. (Japan) Review of Japanese catch, effort and size data of porbeagle in the southern hemisphere (Yasuko Semba, Kotaro Yokawa) (4.2.1)
15. (ACAP) An Update on the Status and Trends of Albatrosses and Petrels Listed Under Annex 1 of the ACAP Agreement<sup>2</sup> (4.1.1)
16. (ACAP) Review of Seabird Bycatch Mitigation Measures for Pelagic Longline Fisheries<sup>2</sup> (4.1.5)

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<sup>1</sup> Number in brackets following document title means intended agenda items.

<sup>2</sup> In accordance with the request from ERSWG9, the Secretariat requested ACAP and Birdlife International to provide updated information on the seabirds likely to be caught by SBT fisheries, including population status summaries and reviews of mitigation measures.

17. (Birdlife International) Preliminary identification of minimum elements to review the effectiveness of seabird bycatch mitigation regulation in tuna RFMOs (Rev.1) <sup>2</sup> (4.1.5)
18. (New Zealand) Ecological Risk Assessment for seabird interactions in surface longline fisheries managed under the Convention for the Conservation of Southern Bluefin Tuna (4.1.3)
19. (New Zealand) A brief note on future porbeagle shark research (4.2.1, 4.2.4)
20. (New Zealand) Risk of commercial fisheries to New Zealand seabird populations (4.1.3)
21. (New Zealand) Risk of commercial fisheries to New Zealand seabird populations: Supplementary information (4.1.3)
22. (New Zealand) A brief note on future seabird risk assessment research (4.1.3)

**(CCSBT-ERS/1308/Annual Report- )**

Australia	Ecologically Related Species in the Australian Southern Bluefin Tuna Fishery 2010–11 and 2011–12
Fishing Entity of Taiwan	National Report of Taiwan: Ecologically Related Species in the Taiwanese Southern Bluefin Tuna Fishery 2011-2012 (Rev.1)
Indonesia	Annual Report to the Ecologically Related Species Working Group (ERSWG) for 2012
Japan	National report of Japan: overview of researches on ecologically related species in Japanese SBT longline fishery, 2011-2012 (Rev.1)
New Zealand	New Zealand Country Report : Ecologically Related Species in the New Zealand Southern Bluefin Tuna Longline Fishery
Republic of Korea	2013 Annual Report to the Ecologically Related Species Working Group (ERSWG)
European Union	European Union Annual Report to the Ecologically Related Species Working Group (ERSWG)
South Africa	South Africa's Annual Report to the Ecologically Related Species Working Group of the Commission for the Conservation of Southern Bluefin Tun

**(CCSBT- ERS/1308/Info)**

1. (Secretariat) Updated CCSBT ERS Pamphlets (6.1)
2. (Australia) New branch line weighting regimes to reduce the risk of seabird mortality in pelagic longline fisheries without affecting fish catch.(4.1.5)
3. (Japan) Report of Japanese scientific observer activities for southern bluefin tuna fishery in 2011-2012 (Osamu Sakai, Daisuke Tokuda, Tomoyuki Itoh, Sayako Takeda, Osamu Abe) (2.1)
4. (ACAP) Electronic Monitoring of Seabird Bycatch (5.3)
5. (ACAP) Progress Report on the Development of a Seabird Identification Guide for use by tRFMOs (5.4)
6. (New Zealand) National Plan of Action to reduce the incidental catch of seabirds in New Zealand Fisheries 2013 (2, 4.1)
7. (New Zealand) Application of Potential Biological Removal methods to seabird populations (4.1.3)
8. (Submitted by Secretariat) Ecological Risk Assessment and Productivity – Susceptibility Analysis of sea turtles overlapping with fisheries in the IOTC region. Unpublished Report to IOTC and IOSEA Marine Turtle MoU. (Ronel Nel, Ross M. Wanless, Andrea Angel, Bernice Mellet & Linda Harris) (4.3.3)
9. (HSI) A Compendium of Conservation and Management Measures to address the impacts of species bycatch in tuna RFMOs (3)
10. (TRAFFIC) Into The Deep: Implementing CITES Measures for Commercially - Valuable Sharks and Manta Rays (3, 4.2)
11. (Submitted by ERSWG Chair) KOBE III Bycatch Joint Technical Working Group: Harmonisation of Purse-seine Data Collected by Tuna-RFMO Observer Programmes (3)
12. (Submitted by ERSWG Chair) Progress on Kobe III bycatch Technical Working Group (Simon Nicol, Sarah Bunce, Larissa Fitzsimmons) (3)
13. (Japan) Distribution and trend in abundance of the porbeagle (*Lamna nasus*) in the southern hemisphere (4.2.1)

**(CCSBT-- ERS/1308/Rep)**

1. Report of the Nineteenth Annual Meeting of the Commission (October 2012)
2. Report of the Seventh Meeting of the Compliance Committee (September 2012)
3. Report of the Ninth Meeting of the Ecologically Related Species Working Group (March 2012)
4. Report of the Eighteenth Annual Meeting of the Commission (October 2011)
5. Report of the Sixth Meeting of the Compliance Committee (October 2011)
6. Report of the Special Meeting of the Commission (August 2011)

7. Report of the Seventeenth Annual Meeting of the Commission (October 2010)
8. Report of the Eighth Meeting of the Ecologically Related Species Working Group (September 2009)
9. Report of the Seventh Meeting of Ecologically Related Species Working Group (July 2007)
10. Report of the Sixth Meeting of Ecologically Related Species Working Group (February 2006)

**Effectiveness of Seabird Mitigation Measures Technical Group  
Terms of Reference**

*Measuring and monitoring effectiveness of seabird mitigation measures in SBT  
longline fisheries*

**Purpose**

To provide advice to CCSBT-ERSWG on feasible, practical, timely, and effective technical approaches for measuring and monitoring the effectiveness of seabird mitigation measures in SBT longline fisheries.

**Composition**

Participation is open to representatives of Members and CNMs, Birdlife International and ACAP with technical, and scientific and other expertise concerning approaches for measuring and monitoring the effectiveness of seabird bycatch mitigation measures.

Participation is also open to other invited experts whose particular expertise would make a beneficial contribution to the work being undertaken.

**Activities**

1. Preparation of a scoping paper that considers approaches for monitoring the effectiveness of seabird mitigation measures in SBT longline fisheries taking into account, among other things:
  - proposed elements for monitoring the effectiveness of seabird bycatch mitigation set out in CCSBT-ERS/1308/17(Rev.1)
  - need for both immediate and longer-term approaches for monitoring effectiveness
  - the feasibility, practicality, timeliness and effectiveness of any proposed approaches for monitoring effectiveness
  - ways of conducting retrospective analyses of existing data on seabird bycatch mitigation to test developed methods of measuring and monitoring
  - ways of extending monitoring across other tuna RFMOs and bodies with responsibility for seabird bycatch mitigation in longline fisheries
  - need to finalise the scoping paper to timelines for ERSWG-11.
2. Conduct of an intersessional workshop involving the participants to discuss ways to measure and monitor the effectiveness of seabird bycatch mitigation measures in longline fisheries and to inform the development of the scoping paper.
3. Participants will develop the scoping paper collaboratively.

**Review**

These terms of reference will be reviewed by the Ecologically Related Species Working Group and Extended Commission during their next ordinary sessions with a view to developing terms of reference for additional work towards implementing the approaches for monitoring the effectiveness of seabird mitigation measures in SBT longline fisheries set out in the scoping paper.

**Resourcing**

The workshop will be conducted in English without interpretation. The workshop will be supported by the host Member with minimal involvement of the CCSBT Secretariat.

## Data inventory for Porbeagle Sharks

	Current status/data sources	Additional sources to check	Analyses to complete	Notes
1. Identification of stock unit	Nothing definitive	Check IUCN analysis of CITES proposal (on TRAFFIC website)	Use nested approach (whole area and subsets). Southern Hemisphere (whole area), Pacific and Indian/Atlantic (subsets)	Traffic (Sant) has provided paper
2. Fisheries description  Location  Type of vessels, number, sizes, fishing technology and fishing operation	RFMO characterisations, Semba et al., NZ plenary report, INF10-Table 3  Issues around types of gear used and link to selectivity	ICAAT stock assessment report in 2009, historic Australian JV fishery information (RTMP), Australian hook and trap information, JAMARC, EU document	Characterisation	Contact Sarah Fowler (details to be provided by Traffic/HSI)
Catch and effort data (month, year)	NZL, AUS, JPN, approach RFMOs for others ?	ZAF, ?KOR, ?TWN, check IND effort distribution	Estimates/proxies for fisheries	Part of characterisation
Observer coverage and data collected	NZL, AUS, JPN, ... RFMOs for others ?	ZAF, ?KOR, ?TWN	Estimates/proxies for fisheries  Stratify observer data for scaling (including live/dead)	Part of characterisation
3. Removals				Note, in future CITES trade data
Catch by fleet (month, year)	FAO but need to scale – see above for sources			FAO but need to scale – see above for sources
Discards	Observer data (including life status) scaled			Observer data scaled
4. Catch in numbers by size and/or age	Observers		Will need to stratify carefully (e.g. by fishery, by fleet)	Part of characterisation
Is information available on gear selectivity?	No	Look at northern hemisphere data?	Check though existing data, but likely to be model based	
Brief description of sample design	Is observer coverage stratified/random		Post stratify	

	<b>Current status/data sources</b>	<b>Additional sources to check</b>	<b>Analyses to complete</b>	<b>Notes</b>
5. Weight at size and age	JPN unpubl. ex SBT fishery, Francis et al. study	Check CITES work	Note, if by size then a growth function is necessary	Need to obtain also Mean size at age, Mean weight at age, Length-weight relationship from same sources
How is the fish size measured? Class interval? Fork length?	Check for each study. NZ has some comparative observer data		May need to bin sizes due to lack of precision in measurement	
6. Maturity schedule <ul style="list-style-type: none"> <li>• by age</li> <li>• by size</li> </ul>	Francis et al, JPN unpublished, Dulvy 2008 paper and CITES paper			
stock-recruit relationship assumptions	Will need to assume.....look at northern hemisphere			
7. Indices of abundance	Std series ex JPN (juv), std series ex NZL, JAMARC (but historic 82-90)		Exploratory to develop new series from 'found' data  Explicit evaluation of uncertainty	Consider if the indices are absolute or relative, sampling design, standardization, linearity between the index and stock abundance, what portion of the stock is indexed (spawning stock, exploitable biomass, recruitment, etc.). Brief description of the method used.
8. Other	Application of mitigation measures (historic e.g. selectivity and future e.g. assumptions in projections)			Seek Mary Lack work from Traffic (Glenn Sant), and also approach Mary re any other related porbeagle data
	Shark survival on release			Provide protocol for opportunistic tagging of porbeagle by observers for long term survival



**Attachment 6**

Commission for the Conservation of  
Southern Bluefin Tuna



みなまぐる保存委員会

DRAFT REVISED CCSBT Scientific Observer Program  
Standards

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**1. BACKGROUND**

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## **LIST OF ATTACHMENTS**

Attachment 1	Type and Format of Scientific Observer Data
Attachment 2	Reporting Requirements



## **1. BACKGROUND**

The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) has adopted a Scientific Research Program (SRP) with an overall objective of improving the quality of the data and information used as input to the stock assessment for Southern Bluefin Tuna (SBT), contributing to the development of reliable indices to monitor future trends in SBT stock size and identifying directions for further scientific research.

At CCSBT7 in April 2001 the Commission adopted the report of the Fifth Meeting of Scientific Committee, which recommended a SRP incorporating a Scientific Observer Program as one of four priority elements. The Observer Program endorsed by the Commission comprised the following features:-

- an observer coverage of 10% for catch and effort as a target level
- the level of observer coverage for estimation of tag reporting rates will depend on the scale of the tagging program subsequently agreed by the Commission and the tag recapture rate.
- standards for training of observers, operation of observer programs and the data to be collected including the forms to be used will be prepared
- data collected would become part of the CCSBT database as subsequently agreed in CCSBT protocols
- member countries will be responsible for operation of observers in high seas and domestic EEZ fisheries on their flag vessels
- all fleet components should be observed and target levels of observer coverage should be the same for all fleet components
- an exchange of observers between countries on a regular basis should be encouraged to maintain consistency and increase mutual trust in the results of the observer program
- recruitment of some observers from non-member nations would be encouraged

To facilitate implementation, the 6<sup>th</sup> Scientific Committee agreed that:-

- there would be an exchange of data sheets and standards for longline fleets between member countries through the Secretariat
- Australia would develop proposed program standards and data forms for the surface fisheries, taking note of the characteristics of observer programs administered by other fisheries management organizations
- the information gathered would be exchanged through the Secretariat
- proposals on draft CCSBT observer program standards will be presented and finalized at the 7<sup>th</sup> Scientific Committee meeting in 2002

Dr. Ianelli of the Advisory Panel together with the SC chair developed an initial draft of proposed outline of a CCSBT scientific observer program at the 6<sup>th</sup> Scientific Committee to serve as a basis for further discussion (See the Attachment F of the 6<sup>th</sup> SC Report.).

CCSBT8 endorsed the 6<sup>th</sup> Scientific Committee's proposals in October 2001.

The standards set out in this document reflect these decisions of the Commission and were developed in consultation with national observer program coordinators. A target level of observer coverage to meet tag reporting rate objectives has not yet been determined. When determined, the standards will be updated.

In developing the standards, the Secretariat has prepared a generic document for both surface and longline fisheries. Where the natures of the two types of fishery are differentiated in terms of observer activity, this is identified.

The tasks and record keeping requirements have been formulated to gather only that information, which is relevant to the objectives of the SRP. Consideration was also given to the practical limitations on the ability of observers to complete tasks in the fishing environment they would be operating in.

In order to facilitate implementation of the standards, the term “member” in this document means any Member of the Extended Commission of the CCSBT.

Reference to the acronym CCSBT is inclusive of the Commission and Extended Commission.

## **2. OBJECTIVES**

The standards set out below provide the framework for the operation of the CCSBT Scientific Observer Program by members.

The objectives of the standards are:

1. To provide a framework for the alignment of members’ scientific observer programs with the objectives of the SRP.
2. To standardize scientific observer programs across fleets and fisheries among members.
3. To specify minimum standards for the development of a scientific observer program for members without a program.
4. To provide a minimum set of standards for collection of bycatch data, consistent with international recommendations, and where appropriate to assist in harmonization of bycatch data collection across tuna Regional Fisheries Management Organisations.

All members are expected to adapt their respective programs ~~taking into account~~ to, at a minimum, meet these standards but recognizing-noting that members may have additional-are encouraged to implement further requirements they wish to maintain in their respective programs.

## **3. RESPONSIBILITY FOR PROGRAM OPERATION**

Responsibility for the operation of the CCSBT Scientific Observer Program on the high seas and in domestic EEZ fisheries will lie with the member whose flag is flown on the vessel.

Each member’s Scientific Observer Program will be managed taking into account these standards.

Where there is an external observer exchanged under agreements concluded between members or an observer recruited from a non-member nation, that observer shall comply with the laws and regulations of the member which exercises jurisdiction over the vessel to which the observer is assigned.

## **4. COVERAGE**

The CCSBT Scientific Observer Program will cover the fishing activity of CCSBT members and cooperating non-members wherever southern bluefin tuna are targeted or are a significant bycatch.

## **5. LEVELS OF SCIENTIFIC OBSERVER COVERAGE**

The Program will have a minimum target observer coverage of 10% for catch and effort monitoring for each fishery.

Observer coverage should therefore be representative of different vessel-types in distinct areas and times.<sup>1</sup>

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<sup>1</sup> For the purpose of this standard, it is recognized that there are many ways in which catch and effort can be stratified including vessels, areas and times. This level of coverage is relative to actual fishing operations, which, if randomly distributed, should result in about 10% of the catch.

In order to approach 10% coverage in some strata (e.g., specific vessel-types in certain areas and times) it may be necessary to have higher than 10% coverage in other strata.<sup>2</sup>

The exact level of observer placement will require periodic assessment to determine if the target level of coverage is achieved.

Consideration should also be given to higher levels of coverage in some stratas from time to time to address specific fisheries management questions (e.g. to better quantify non-fish and protected species bycatch where this is identified as a risk).

## **6. ASSIGNMENT OF SCIENTIFIC OBSERVERS TO VESSELS**

From the scientific perspective, it is important to ensure that the data collected through the scientific observer programs provide representative information and sampling for the entire fleet. Ideally, each individual operation should have an equal and independent probability of being observed. In practice, this ideal may not be possible to achieve. Nevertheless, the basic principle of representative sampling should underlie the assignment of scientific observers to vessels.

It is the responsibility of each member when implementing an observer program, to assign observers to its vessels and cruises based on a carefully considered and appropriately designed sampling scheme that has a high likelihood of ensuring reasonably representative coverage. The program should ensure that, within the main fishing areas and seasons and to the extent possible, all representative vessels, areas, and time periods have an approximately equal probability of being sampled.<sup>3</sup>

Each member should evaluate and analyse the sampling scheme used for the assignment of observers against the principles outlined above. Each member should document the scheme used for the observer assignments actually implemented and make this information and data collected available to the Commission in the manner described in Section 11 to enable review within the Commission of whether or not the standards are being met.

The placement of observers should also encompass arrangements to ensure the independence and scientific integrity of the data.

## **7. TAGGING PROGRAM**

Observer programs make a very valuable contribution to the direct recording of recaptured tags, and to the estimation of non-reporting rates. Failure to adequately quantify the uncertainty associated with estimates of tag reporting rates will substantially degrade the value of any resultant mortality estimates for use in stock assessments.

Observer plans and training programs should include specific provision for the role and responsibilities of observers for tag recapture reporting. A supplemental level of observer coverage may be required to take into account the results of the CCSBT tagging program.

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<sup>2</sup> While it might be possible to observe 10% of the catch from a single vessel (if a hypothetical fleet consisted of 10 vessels with equal catch allocations), this would not achieve the objective of sampling fishing operations with approximately equal probability, particularly if the vessels fish in different areas using different techniques. Clearly there are logistical difficulties in achieving random observations of fishing operations.

<sup>3</sup> To achieve a desired target coverage level may require a higher observer placement level. For example, it may take 150 observed vessel days out of a hypothetical 1,000 vessel-day year to achieve a target of 10% coverage for all important strata. In part, this may be due to the fact that the ability of observers to transfer among vessels on the fishing grounds is limited. The factors affecting this include the heterogeneity of the fleet and fishing behaviour.

## **8. RECRUITMENT AND TRAINING**

Each member is responsible for the recruitment and training of observers for placement on their flagged vessels. Details of the processes maintained for this responsibility are for members to manage consistent with the domestic environment in which they operate.

Training schemes should be constructed to impart the skills necessary to adequately collect the scientific data and should take account of the following principles.

### Qualifications of Observers

Scientific Observers for the program should have the following attributes:

- Technically trained or experienced personnel for the fleets concerned, with interests related to fisheries.
- Ability to work at sea in difficult conditions.
- Ability to work under stressful psychological and physical situations.
- Ability to work with a boat's crew on a cooperative and team basis over long and continuous periods at sea.
- Soundness of mind and body.

### Independence / Integrity

Observers should not have current financial or beneficial interests in the fisheries in which they will be required to operate as observers.

Observers should not have been found guilty of a serious criminal offence for five years prior to appointment as an observer.

### Scientific Observer Training

Members should establish and maintain a structured training program for the CCSBT Scientific Observer Program. Manuals should be developed for this purpose and courses operated, which would allow for observers to exchange approaches and experiences to improve the data collection process.

A Scientific Observer Training program of each Member should include, at least, the following items.

- Briefing on the CCSBT SRP, particularly the CCSBT Scientific Observer and Tagging Program elements to promote a full understanding of the rationale for the Programs.
- Fishery management and biological field collection programs including species identification, data collection and sampling procedures. This should also include identification of bycatch species, such as seabirds, sharks, marine reptiles, other ERS and knowledge of current mitigation measures that are used in the CCSBT.
- Monitoring tag recovery.
- Training on safety at sea and first aid.
- Protocols for dealing with difficult situations (personal conflicts and physical hazards).
- Preparation of cruise/trip reports
- De-briefing with observers to provide feedback on improvement.
- Any additional technical training required for special project such as tagging fish, when necessary

### Recruitment of Observers

Scientific observers could be recruited from a variety of related fishery sectors to widen the knowledge and experience base of the observer cohort.

Exchange of observers between members and recruiting some observers from non-members should be encouraged to improve consistency and transparency in the program. Responsibility for



implementing observer exchanges would reside with members and the exchanges would be organised between relevant members and non-members as appropriate

## **9. THE OBSERVED VESSEL**

Any vessel selected for an observation should be capable of meeting the minimum requirements for accommodation, sanitary facilities, meals, equipments and communication systems equivalent to those of the crew (junior officer when possible) so that the observer's duties are not compromised.

A selected vessel should be advised of its responsibility for the observer while they are on board.

## **10. INFORMATION AND DATA**

Scientific data to be collected should include the following categories of information:

- A. Details of the observed vessel, including its size, capacity and equipment.
- B. Summary of the observed trip, which will include information such as the observer name and identification number, degree of experience, dates of embarkation and disembarkation.
- C. Comprehensive catch, effort and environmental information for each set that occurred while the observer was on-board the vessel, regardless of whether the set/haul was actually observed. This includes the target species, location fished and quantity of gear used.
- ~~C-D.~~ Fishing methods and gear, including mitigation measures in use while fishing. The observer should record/describe mitigation measures, including the configurations, that were in use during the observed period. This includes the details of mitigation measures and their use as described in Attachment 1. Where applicable, the absence of mitigation equipment should also be noted.
- ~~D-E.~~ Observed catch information for each period of observation, including the time at start and end of observation, the number of hooks observed, the observed catch in number and weight for SBT and all other species caught to the extent possible.
- F. Biological measurements taken of individual SBT, as much as possible, including its condition, length, weight, sex and details of samples (otoliths, scales, gonads, etc.) that were taken from the SBT for later analysis.
- ~~E-G.~~ Information on SBT and ERS not retained should include counts by species and their life status (using the relevant codes as detailed in Attachment 1).
- ~~F-H.~~ SBT tag recovery information, including, both tag numbers (actual tags also to be provided), date, location, length, weight, sex, details of samples taken (e.g. otoliths), and whether or not the tags were spotted during a period of fishing that was being observed.

Most of the above categories of information are related to each other in a hierarchical relationship. So, the biological details of a fish (E) relates to a particular observed period (D) from a specific set (C) for a trip (B) on a particular vessel (A).

A detailed description of the proposed information to be collected for each of the above categories is provided in Attachment 1. Hierarchies for prioritising the collection of data by species caught and SBT data are at Annex 1. In severe weather conditions, data collection should only be conducted to the extent that is it safe for the observer to do so.

## **11. REPORTING**

Each member ~~should~~ shall provide a report to the Extended Scientific Committee and the Ecologically Related Species Working Group on the sampling scheme and arrangements for collecting data of its observer program as a separate section in the member's annual fishery report. Attachment 2 documents the information that should be provided.

Each member shall include in National Reports to the Compliance Committee and Commission, a summary of the levels of compliance in relation to the implementation of mandatory mitigation measures.

## **12. CONFIDENTIALITY OF DATA AND INFORMATION**

All data and information obtained through an observer program belongs to the flag country of the observed vessel. An observer should not disclose any information without the permission of the flag country.

## Type and Format of Scientific Observer Data

**A) Details of the observed vessel and gear**

The vessel details are recorded only once for an entire trip

All fishing:

- Vessel's Name
- Vessel's Call-sign
- Vessel's Flag Country
- Name of the Captain
- Name of the fishing master
- Year vessel built
- Engine brake power (kw/hp)
- Overall length (metres)
- Gross tonnage (tonnes)
- Number of people in crew (all staff, excluding observers)
- Total freezer capacity (cubic metres)
- Fuel capacity (tonnes)
- Instrumentation and electronic fishing equipment

Instrumentation	Yes/No (or code)
NNSS	
GPS	
Omega	
Radio direction finder	
Radar	
Weather Fax	
Track plotter	
NOAA receiver	
Sounder (1=colour monitor, 2=monochrome monitor, 3=printer)	
Sonar (1=scanning, 2=PPI)	
Doppler current monitor	
Sea surface temperature recorder	
Bathy-thermograph	
Bird radar	

Longliners only:

- Material of mainlines (Nylon, Cotton thread, Other)
- Material of branchlines (Nylon, Cotton thread, Type of trace, Other)
- Material of buoylines (Nylon, Cotton thread, Other)
- Details of mitigation measures used
  - For seabirds
    - Tori Pole/Bird scaring line used (Y/N)
    - Line weights used (Y/N)
    - Night setting with minimal deck lighting (Y/N)
    - Bait thrower/line shooter used (Y/N)
    - Dyed Bait (Y/N)
    - Details about management of offal
    - Underwater setting chute (Y/N)
    - Side setting (Y/N)
    - Haul mitigation (Y/N)
      - Branch line/snood haulers
      - Brickle curtain
      - Water cannon
    - Other mitigation measures used

Purse seiners only:

- Capacity of power block
- Capacity of purse winch
- Lengths and depths of all nets on board including expanded figure
- Mesh sizes of nets on board
- Number of net skiffs on board

**B) Summary of the observed trip**

- Observer's name
- Observer's organisation
- Date observer embarked (translatable to 24 hour clock, UTC to the day)
- Date observer disembarked (translatable to 24 hour clock, UTC to the day)

**C) Comprehensive catch, effort and environmental information for each set**

This information is recorded for each set while the observer is on-board a vessel, regardless of whether the set/haul was actually observed.

All fishing:

- Date and time at start of Set (translatable to 24 hour clock, UTC)
- Date and time at end of Set (translatable to 24 hour clock, UTC)
- Date and time at start of Retrieval (translatable to 24 hour clock, UTC)
- Date and time at end of Retrieval (translatable to 24 hour clock, UTC)
- Location at start of Set (latitude+N/S and longitude+E/W to a minute of accuracy)
- Wind speed (with unit) and direction (N, NNE, NE, etc.) of the operation
- ~~At the period of the wind measured~~ Time of wind measurement for operation (e.g. Noon, start of set etc.)
- Sea surface temperature (degrees Celsius, to 1 decimal place) at start of Set<sup>4</sup>
- Intended target species<sup>5</sup>

Longlining:

- Location at end of Set (latitude+N/S and longitude+E/W to a minute of accuracy)
- Direction of line set (eg straight, curved)<sup>6</sup>
- ~~• Wind speed (with unit) and direction (N, NNE, NE, etc.)~~
- ~~• (Comment: It is enough to collect the temperature at the start of set) At the period of the location and wind are measured for the operation (e.g. noon, start of set etc.)~~
- Direction of line set (straight, curved)
- Actually used mainline length (km)
- Actually used branchline length (m)
- Actually used buoyline length (m)
- Intended depth of the shallowest hook (m)
- Intended depth of the deepest hook (m)
- Type of hooks
- Number of hooks
- Number of baskets
- Seabird mitigation measure used:
  - Mass of added line weight (where applicable)
  - Distance between weight and hook (where applicable)
  - Number of tori lines used (where applicable)
  - Estimate of the aerial coverage achieved by tori lines (m)

<sup>4</sup> It is sufficient to collect the temperature at the start of a set – i.e at the time the location and wind are measured (eg. Noon, start of set, etc)

<sup>5</sup> All species should be reported with FAO species codes, or using National codes and providing a translation table to FAO species codes. Individuals should be identified as far as possible to species level

<sup>6</sup> Codes will be used to describe the type of line set, eg. S=straight, C=curved, U=u-shaped.

Distance between baskets, beacons, buoys, or floats as is appropriate to the operation (m)

- Percentage of bait by bait categories that were Fish, Squid, Artificial, and Other
- Bait status (live or dead)
- Total number by species<sup>5</sup> of SBT, and other tuna and tuna-like species caught, retained or discarded.
- Total processed weight (kg) and Processed State<sup>7</sup> by species<sup>5</sup> of SBT, and all other species caught. (~~i.e. all fish, birds, turtles etc.~~)

Purse Seining:

- Spotter plane used (Y/N). If used:
  - Time (translatable to 24 hour clock, UTC) and location aircraft began search
  - Time (translatable to 24 hour clock, UTC) and location aircraft ended search
  - Number, location of schools spotted by aircraft
  - Estimated size of each school spotted by the aircraft
  - Total searched distance
- Bird Radar used (Y/N)
- Logbook number and type
- Start and end Time spent for searching (from xx:xx to yy:yy translatable to 24 hour clock, UTC), location and total searched distance
- School finder (plane/vessel)
- Chumming boat used (yes/no)
- Chum status (Alive/Dead)
- Amount of chum used
- Start and end time for chumming (translatable to 24 hour clock, UTC)
- Start and end time for net shooting (translatable to 24 hour clock, UTC)
- Start and end time for net hauling (translatable to 24 hour clock, UTC)
- Start and end location for net shooting
- Start and end location for net hauling
- Light attraction used (yes/no)
- Total of wattage of lights used
- Start and end time for light attraction
- School type (e.g., shoaling/surface, FAD/debris associated)
- Length (m) of net set
- Height (m) of the net
- Number of net skiffs used
- Date and time that transfer to tow cage commenced
- Identification number of the tow cage to which the SBT were transferred
- Name of Carrier Boat that received the fish
- Estimated catch per set, species composition
- Estimated weight (kg) and/or number by species of SBT and other species caught
- Estimated weight of SBT caught alive
- Estimated weight and/or number of SBT dead during operation

Cage Towing:

- Name of carrier boat
- Tow cage identification number
- Cage depth (metres)
- Cage ring diameter (metres)
- Cage mesh size (in centimetres)
- Cage has second or predator net (Y/N)
- Number of divers used
- Chute fitted in cage (Y/N)
- Effective tow speed (km/hour)

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<sup>7</sup> As per processing codes identified in the CCSBT CDS Resolution. RD=round/whole, GG=gilled and Guttled, DR=dressed etc., as per TIS codes.

- If the catch was received from fishing operations, then for each catcher boat from which SBT were transferred, record:
  - Name of catcher boat
  - Call sign of catcher boat
  - Date and time (translatable to 24 hour clock, UTC) transfer started
  - Estimated weight of SBT transferred (tonnes)/dead SBT before transfer
- If the catch was received from another tow cage, then, record:
  - Name of the carrier boat from which the SBT came
  - Identification number of the tow cage from which the SBT came
  - Date and time (translatable to 24 hour clock, UTC) transfer started.
  - Estimated weight of SBT transferred (tonnes)/dead SBT before transfer
- Date and time (translatable to 24 hour clock, UTC) and place that tow finished
- Total weight of SBT mortalities per day from commencement of towing to end of transfer to farm
- Total number of SBT mortalities per day from commencement of towing to end of transfer to farm

#### **D) Observed catch information**

This relates to that part of the catch that was actually observed by the observer during the hauling process. All information recorded here relates only to the period(s) that were observed. Annex 1 provides hierarchies for the collection of data. Observers should use these hierarchies to prioritise data collection as circumstances prevail on the observed vessel.

##### Longlining:

- Date and time at the start of the observation period (translatable to 24 hour clock, UTC)
- Date and time at the end of the observation period (translatable to 24 hour clock, UTC)
- Number of hooks observed
- Total number by species<sup>5</sup> of all species caught and ~~retrieved~~ retained during the observed period<sup>8</sup>
- Total processed weight (kg) by species<sup>5</sup> and Processed State<sup>7</sup> of all species caught and retained during the observed period
- Total number and weight when possible (whole weight, in kilograms) by species<sup>5</sup> of all species caught but discarded during the observed period and life status<sup>8,9</sup>.

##### Purse Seining:

The entire purse seining shooting and hauling operation should be observed

- Date and time at the start of the observation period (translatable to 24 hour clock, UTC)
- Date and time at the end of the observation period (translatable to 24 hour clock, UTC)
- Estimated % of school caught
- Estimated weight (tonnes for SBT, kg for all other species<sup>5</sup>) and/or number by species of SBT, and all other species caught, retained or discarded including life status<sup>8,9</sup>
- Weight of SBT mortalities from commencement of fishing to end of transfer to cage
- Number of SBT mortalities from commencement of fishing to end of transfer to cage
- Number of species identified as escaped from commencement of fishing to end of transfer to cage
- Number by species identified as discarded from commencement of fishing to end of net hauling

<sup>8</sup> This includes target species (such as SBT) and all bycatch species such as seabirds, ~~and~~ sharks, marine reptiles etc.

<sup>9</sup> Individuals that are discarded with significant injuries and are not considered likely to survive should be included in the number of dead individuals.

#### Cage Towing:

The observer must observe or conduct each mortality count during the period of the tow.

- Date and time at the start of the observation period (translatable to 24 hour clock, UTC)
- Date and time at the end of the observation period (translatable to 24 hour clock, UTC)
- Total weight of SBT mortalities per day from commencement of towing to end of transfer to farm
- Total number of SBT mortalities per day from commencement of towing to end of transfer to farm

#### **E) Biological measurements of individual fish. Biological measurements are only required for SBT, but where possible, effort should be made to measure other species.**

For the purposes of SBT analyses, accurate size measurements of SBT are required. SBT should be selected in a manner to ensure within strata randomness. For example, for large numbers of fish caught in a single operation (e.g., a purse seine vessel) a systematic sampling may be appropriate

The actual number of fish should be spread throughout as many separate fishing operations as possible. For example, it is nearly always the case that sampling 20 fish (randomly) from 10 operations is much better than sampling 200 fish from every 10<sup>th</sup> operation. The required actual number of samples should be re-evaluated from time to time and as needs change.

- Species<sup>5</sup>
- Life status category<sup>10</sup>
- Length (for SBT, fork length measured on straight length, rounded up to the centimetre<sup>11</sup>)
- Length unit
- Length code (fork length, eye fork, etc.)
- Length, lower jaw-fork length
- Whole weight (kg), if possible. This is the measured weight before processing as opposed to a calculated whole weight.
- Processed weight (kg)
- Processed State<sup>7</sup>
- Sex (F=female, M=male, I=indeterminate, D= not examined)
- Samples taken, specifying:
  - A unique identification number given to the sample,
  - The type of samples taking, including: whole specimen, or samples of otoliths, scales, vertebrae, stomach, muscle, tissue, gonads, feathers, bird bands etc.)
  - Any additional details that may explain the capture of the sample (e.g. for seabirds the specific mitigation at the time of capture)

#### **F) SBT Tag recovery information**

Some of the data recorded here duplicates data that already exists in the previous categories of information. This is necessary because tag recovery information may be sent separately to other observer data.

- Observer's name
- Vessel's name
- Vessel's call sign
- Vessel flag
- Collect and provide the actual tags
- Tag colour
- Tag numbers (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing)
- Date and time of capture (UTC)

<sup>10</sup> The observer program will, as a minimum, distinguish the following life status categories: dead and damaged; dead and undamaged; alive and vigorous; and unknown.

<sup>11</sup> Length should be rounded (not truncated) to the nearest centimeter. For example, 62.4cm becomes 63cm and 62.5cm becomes 63cm (63 cm for both cases).

- Location of capture (latitude+N/S and longitude+E/W to 1 minute of accuracy)
- Length (fork length, rounded up to the nearest centimetre<sup>11</sup>)
- Processed Weight (kg.)
- Processed State<sup>7</sup>
- Details of samples taken, specifying:
  - A unique identification number given to the sample,
  - The type of samples taking, including: whole specimen, or samples of otoliths, scales, vertebrae, stomach, muscle, tissue, gonads, etc.)
- Sex (F=female, M=male, I=indeterminate, D=not examined)
- Condition of recaptured fish and their life status
- Whether the tags were found during a period of fishing that was being observed (Y/N)
- Reward information (e.g., name and address where to send reward)



## HIERARCHIES FOR DATA COLLECTED BY SPECIES AND SBT DATA

This annex provides a guideline for the collection of data by observers to enable prioritising of observer activities.

The flow of the main data collection activities are:

### *Fishing operation information*

- All vessel and shot information

### *Monitoring of hauls*

- Record time and species caught
- Record whether the specimen was retained or discarded (with life status)

### *Biological sampling*

- Collect data on length and whole and/or processed weight (including processed state)
- Check for presence of tags
- Record sex
- Collect biological samples
- Take photos

Both the monitoring of hauls and the biological sampling procedures should be prioritised among species groups as follows:

Species	Priority (1 is the highest)
SBT	1
Other tunas, billfishes, Gasterochisma, and sharks	2
All other species	3

“tunas” means all *Thunnus* species except SBT

The allocation of observer effort among these activities will depend on the type of operation and setting. The size of sub-samples relative to unobserved quantities (e.g., number of hooks examined for species composition relative to the number of hooks set) should be explicitly recorded under the guidance of member country observer programs.

**FORMAT OF NATIONAL REPORT SECTIONS ON DEVELOPMENT AND IMPLEMENTATION OF SCIENTIFIC OBSERVER PROGRAMS**

**REPORT COMPONENTS**

The observer program implementation report should form a component of the annual National Reports submitted by members to the Scientific Committee. This report should provide a brief overview of observer programs for SBT fisheries, and is not intended to replace submitted papers containing proper analyses of collected observer data. This observer program report should include the following sections:

**A. Observer Training**

An overview of observer training conducted, including:

- Overview of training program provided to scientific observers.
- Number of observers trained.
- Summary of qualifications / training and years of experience of the observers deployed in SBT fisheries during the past year.
- A copy of the latest version of relevant manuals in their original language for reference

**B. Scientific Observer Program Design and Coverage**

Details of the design of the observer program, including:

- Which fleets, fleet components or fishery components were covered by the program.
- How vessels were selected to carry observers within the above fleets or components.
- How was observer coverage stratified: By fleets, fisheries components, vessel types, vessel sizes, vessel ages, fishing areas and seasons.

Details of observer coverage of the above fleets, including:

- Components, areas, seasons and proportion of total SBT catch, specifying units used to determine coverage.
- Total number of observer employment days, and number of actual days deployed on observation work.

**C. Observer Data Collected**

List of observer data collected against the agreed range of data set out in Attachment 1. In broad structure this would include:-

- Effort data: Amount of effort observed (vessel days, sets, hooks, etc), by area and season and % observed out of total by area and seasons
- Catch data: Amount of catch observed of SBT and other species (if collected), by area and season, and % observed out of total estimated SBT catch by area and seasons
- Length frequency data: Number of fish measured per species, by area and season.
- Biological data: Type and quantity of other biological data or samples (otoliths, sex, maturity, Gonosomatic index, etc) collected per species.
- The size of sub-samples relative to unobserved quantities.

**D. Tag Return Monitoring**

Number of tags returns observed, by fish size class and area.

**E. Problems Experienced**

- Summary of problems encountered by observers and observer managers that could affect the CCSBT Observer Program Standards and/or each member's national observer program developed in the light of the Standards.

## ERSWG Workplan

This table shows progress on action items from ERSWG 9 workplan, together with action items for the ERSWG 10 workplan. The action items have been grouped in accordance with tasks specified in the CCSBT Strategic Plan.

CCSBT Strategic Plan				
Tasks in the CCSBT Strategic Plan	Priority	Action items in the ERSWG workplan	Status	Responsibility
Implement the Recommendation to Mitigate the Impact on ERS of Fishing for SBT <sup>1</sup>	High	1. Secretariat to obtain new information on seabirds likely to be caught in fisheries from ACAP and Birdlife International (including population status summaries and reviews of mitigation measures) in advance of ERSWG meetings.	Update provided at ERSWG10 Standing item for future meetings	Secretariat
		2. New Zealand to update the CCSBT seabird ERA to include global tracking data from Birdlife International prior to the next ERSWG meeting.	Further work to be conducted on: (1) an improved and updated version; (2) a global assessment.	New Zealand
		3. Members were encouraged to develop papers on ERA for non seabird species (in particular sharks) caught in SBT fisheries prior to next ERSWG meeting.	Members to continue this work and bring assessments and conduct ERAs for the next ERSWG meeting.	Members /CNMs
		4. Japan, New Zealand and Australia to work together on a stock assessment for porbeagle sharks in advance of the next ERSWG meeting and report back to Members on 31 July 2014.	Intersessional work to continue through a small working group lead by New Zealand.	New Zealand and other group members
		5. The Secretariat to contact IOSEA-Turtles with a view to assessing what data it holds and how it might assist any future work of the ERSWG.	Contact established. Liaison to continue with IOSEA-Turtles and provide any further updates.	Secretariat

<sup>1</sup> Implementation of the ERS Recommendation includes The Extended Commission and/or its subsidiary bodies undertaking an assessment of the risks to ecologically related species posed by fishing for southern bluefin tuna.

CCSBT Strategic Plan				
Tasks in the CCSBT Strategic Plan	Priority	Action items in the ERSWG workplan	Status	Responsibility
		6. Liaison between the Secretariat and both CMS-sharks & CITES as appropriate in the future to obtain population status summaries, any relevant data and information on mitigation measures for shark species.	Commenced	Secretariat
Review the implementation of the Recommendation on ERS	Medium	7. Effectiveness of Seabird Mitigation Measures Technical Group (ESMMTG) to commence work, hold its first workshop in accordance with its ToR and report back on progress by 31 July 2014 and to the ERSWG.	Established.	Proposed chair (Cleo Small – to be confirmed)
Agree on data provision requirements for ERS that ensure full reporting of bycatch and mitigation measures used in each fishery; this could occur through other RFMOs (e.g. WCPFC, IOTC) if they have appropriate protocols in place for ERS data reporting.	High	8. Members to report ERS catches to the next ERSWG meeting with appropriate stratification and in accordance with standardised format agreed at ERSWG9.  9. Members will undertake intersessional discussion to develop an agreement concerning the exchange of ERS data by CCSBT19. The Secretariat will coordinate the discussion.  10. Secretariat to produce summaries of ERS data provided in Data exchange.	Continue in accordance with agreed format.  Data Exchange agreed. To be continued each year in accordance with the agreed ERS Data Exchange. Optionally provide ERS data for years prior to 2010 if appropriate data are available.  Initiated	Members/ CNMs  Members/ CNMs  Secretariat

CCSBT Strategic Plan				
Tasks in the CCSBT Strategic Plan	Priority	Action items in the ERSWG workplan	Status	Responsibility
		<p>11. Develop a set of minimum requirements for observer data, taking into account the potential for harmonisation across RFMOs. It is recommended that this work be performed intersessionally. The Secretariat will facilitate the intersessional discussion Birdlife International and ACAP to collaborate with Members and Cooperating Non-Members to develop protocols for the improved identification of seabirds.</p> <p>12. Ongoing cooperation in relation to the observer standards, including sharing advice on life status codes, evaluating survival likelihood of discards, protocols for estimating tori line coverage.</p> <p>13. Members to provide further details on electronic monitoring systems in advance of the next ERSWG meeting to allow examination of the usefulness of e-monitoring to obtain data on ERS.</p>	<p>Draft developed. Continue work on the draft as outlined in the report of the meeting.</p> <p>Ongoing</p> <p>Ongoing</p>	<p>Members/ CNMs</p> <p>ACAP (for seabirds) Chair for Sharks</p> <p>Members /CNMs</p>
Assess how well the mitigation measures adopted by other area-based RFMOs mitigate the risks caused by fishing	Medium	14. Assess how well the mitigation measures adopted by other area-based RFMOs mitigate the risks caused by fishing.	Standing item for ERSWG meetings. To be considered by the (ESMMTG)	Members /CNMs ESMMTG
Where necessary, identify and adopt additional mitigation measures to manage risk taking into account the coordination and harmonisation with other RFMOs	Medium	<p>15. To review information on mitigation measures as they become available.</p> <p>16. Members are encouraged to conduct experiments to identify new mitigation measures or improve existing mitigation measures that may be effective in reducing bycatch of ERS.</p> <p>17. Secretariat to update its paper on ERS mitigation measures of other tuna RFMOs in advance of future ERSWG meetings.</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>	<p>Members/ CNMs</p> <p>Members/ CNMs</p> <p>Members/ CNMs</p>

CCSBT Strategic Plan				
Tasks in the CCSBT Strategic Plan	Priority	Action items in the ERSWG workplan	Status	Responsibility
		18. Members are encouraged to exchange information and collaborate between Members and with NGOs for effective and smooth implementation of mitigation measures.	Ongoing	Members/ CNMs
Coordination and harmonisation with area-based RFMOs, including on data reporting (see above)	Medium	19. ERSWG Chair to follow up with the Coordinator of the Joint Bycatch Technical Working Group (JBTWG) on progressing the work of that group.  20. The Secretariat to provide JBTWG participants with any publicly available information, including papers submitted by Members to the ERSWG, that they seek.  21. Subject to endorsement by the Extended Commission, approach the other tuna RFMOs with an offer to lead global work on assessment of impacts of fishing for tunas on seabirds and porbeagle sharks.  22. Secretariat to contact ICCAT and to determine progress on harmonising observer standards for longlines and engage in that process.	Liaison undertaken. Ongoing  Secretariat facilitated updates to BMIS database. Ongoing  Further liaison to occur through the new seabird and porbeagle working groups.  Initiated	Chair ERSWG  Secretariat  Secretariat  Secretariat
Instruct the ERSWG to monitor predator and prey species which may affect the condition of the SBT stock and report its findings to the Commission	Medium	23. Members to provide relevant papers for consideration at the next ERSWG meeting. New Zealand will report on its stomach content work with updated data from 2006. New Zealand will bring its finalised work to ERSWG 11 for discussion.	Interim update provided by NZ. Ongoing	New Zealand and other Members/ CNMS
		24. Secretariat to finalise the revised ERS pamphlets for seabirds and sharks, including translating to Member languages.  25. Birdlife International, ACAP, Members and CNMs collaborate to develop protocols for the improved identification of seabirds. Finalise and distribute the identification guide	Pamphlets finalised  Guide finalised	