

Commission for the Conservation of
Southern Bluefin Tuna



みなまぐろ保存委員会

Report of the Sixth Meeting of the Ecologically Related Species Working Group

**20-23 February 2006
Kaohsiung, Taiwan**

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Agenda Item 1. Opening of the meeting

1.1 Election of the Chair

1. Dr Shui Kai Chang (Taiwan) was confirmed as the Chair for the meeting.
2. The Chair welcomed participants and opened the meeting.
3. The Chair conveyed the two directions of the Extended Commission on the recommendation of collection and provision of ERS bycatch data and the provision of management advice relating to ERS issues. He expressed his hope that the meeting would be able to focus on these two issues.

1.2 Adoption of agenda

4. A revised agenda was adopted and is at **Attachment 1**.
5. Each delegation introduced its participants and provided brief opening remarks. The list of meeting participants is at **Attachment 2**.
6. The list of documents presented to the meeting is at **Attachment 3**.
7. Rapporteurs from the Members were appointed to assist the Secretariat in drafting the report of the meeting.

Agenda Item 2. Reports

2.1 Member reports (activities undertaken since last meeting in February 2004)

8. Australia, Japan, New Zealand, the Fishing Entity of Taiwan, and Korea provided national reports on ecologically related species (ERS) issues according to the format agreed at ERSWG4. National reports were briefly presented to the Working Group as papers CCSBT-ERS/0602/National Reports 01-05 and questions taken from participants.
9. Japan queried the definition of ERS provided by Australia in their report in that it did not appear to consider species that might be involved in predator / prey relationships with SBT. Japan also asked if there was any work relating to any interactions between sharks and turtles with the cages used in the farming operations. Japan also asked if there was any research on possible impacts of the farms on the environment or impacts associated with the capture of feed to be used in the farming operations. Australia responded that the geographical distribution of the farms does not overlap

with turtle distributions and that there are minimal interactions with sharks in the purse seine fishery (as described in their national report).

10. New Zealand asked about Korea's future intentions for observer coverage and Korea indicated that further details of their observer programme is provided in CCSBT-ERS/0602/Info12. Korea advised that it will progress its observer program in the observer coverage and the role of scientific observers. It can contribute to progress in the scientific study of ecologically related species. In response to a question from Japan, Korea indicated that seabirds taken in its fishery were photographed and the species identified by experts back in Korea rather than by the observer.
11. Korea asked Taiwan how they trained the fishermen while they operated from foreign bases. Taiwan responded that it has established a professional training centre for fishermen in assisting their knowledge of identifying relevant ecologically related species, and fishermen are required to receive this training prior to their departure. In addition, Taiwan has disseminated brochures of how to identify species of sea turtles and seabirds and conservation measures regarding ERS. Taiwan had commissioned Wild Bird Federation Taiwan (WBFT) to conduct a fishermen education program for mitigating seabird by-catch in Port Louis Mauritius in 2005. Furthermore, Taiwan regularly broadcasts for educational information through its professional fisheries radio station.
12. Australia sought clarification on the meaning of the term "identification to biospecies" in Taiwan's national report. Taiwan advised that observers identify bycatch to the species level. In response to a question from New Zealand, Taiwan advised that it was difficult to reflect the 4.67% by vessel observer coverage as percentage coverage by catch or effort and it would not be appropriate to raise estimates of the total bycatch based on this observer coverage.
13. Australia asked New Zealand why there were such large differences between observer coverage of the charter and domestic fleets in the New Zealand fishery. New Zealand responded that while the charter vessels are large, the domestic vessels are typically small vessels and fish out of a large number of ports leading to logistical problems in securing representative coverage of this fleet. In response to a further question by the Fishing Entity of Taiwan, New Zealand explained that this non-representative coverage could also be partly responsible for the large difference in seabird catch rates in their domestic fleet between 2003 and 2004.
14. Taiwan asked New Zealand which national SBT quota was used by Philippine charter vessels operating in the EEZ of New Zealand. New Zealand advised that those vessels operated in 2002-03 and the less than 1 tonne that was caught was counted against the New Zealand's national allocation.
15. Australia asked Japan whether the shark CPUE referred to retained catches or total catches (retained plus discards), Japan indicated that the CPUE was based on observer data and would include total catches.
16. Japan reminded members that a template for the National Report to the ERSWG has been agreed upon (Report from ERSWG-4 Attachment 10) and that the ERSWG should evaluate whether members have met these requirements. They suggested that

the Secretariat could undertake this review and develop a checklist (provided at **Attachment 4**) and any missing information should be requested in future reports. This would be considered under Agenda Item 8, noting that it was possible that recommendations from this Working Group could lead to further changes to the template for National Reports.

2.2 Non-member reports

17. It was noted with disappointment that the Philippines, a Cooperating Non-Member, had not provided a report to this Working Group. The Secretariat indicated that both Indonesia and the Philippines had been contacted regarding this meeting, but had not responded.

Agenda Item 3. Review of relevant International Instruments

18. The Chair noted that ICCAT, IOTC, IATTC and WCPFC have all adopted resolutions/recommendations for seabirds and sharks which demonstrates their commitment to ERS matters and highlighted the importance of having an outcome from this discussion which will enable specific advice to be provided to CCSBT on how to implement the IPOA's.
19. Australia presented CCSBT-ERS/0602/Info01 and 02, two information papers on the implementation of its NPOA-Sharks. In terms of its draft NPOA-Seabirds, Australia provided information paper CCSBT-ERS/0602/Info03 on its threat abatement plan for seabird interactions. Australia suggested that the Working Group provide management advice to CCSBT including recommendations to set quantitative objectives and enable individual members to choose the best approach to meet those objectives.
20. Korea indicated that its NPOA's for sharks and seabirds are both in development and noted that it has completed an NPOA-IUU Fishing (reported to FAO in 2005).
21. Taiwan advised that it has drafted NPOA's for seabirds and sharks and is awaiting final approval on these documents.
22. New Zealand completed its NPOA-Seabirds in April 2004. The overall philosophy is to allow fishers to take responsibility for managing their seabird interactions through codes of practice but regulatory controls would be introduced if the voluntary approach is considered inadequate. New Zealand informed the meeting that it will soon be consulting with stakeholders on the framework for its NPOA-Sharks. New Zealand noted that it has taken action to reduce shark bycatch in recent years by implementing quota management for a range of shark species as well as providing protection for some species regarded as vulnerable.
23. It was noted that Japan submitted its NPOAs for seabirds and sharks to FAO COFI in 2001. It was also noted that Japan conducted assessment of these NPOAs and submitted reports on the assessment to the COFI in March 2005 (CCSBT-ERS/0602/Info10 and 11). Japan asked the other members and cooperating non-

member to implement NPOAs for seabirds and sharks as soon as possible if they have not already done so.

24. The Chair congratulated Members on the progress they have made towards finalising their NPOA's.
25. Australia introduced paper CCSBT-ERS/0602/04 which reviewed the international instruments relevant to ecologically related species data requirements and recommendations for sharks and seabirds. Australia identified that there is increasing global pressure on RFMO's, such as CCSBT, to monitor and evaluate fishing impacts on ERS and implement management measures that ensure conservation and sustainable utilisation of ERS. The paper also addressed the progress made by CCAMLR and other relevant RFMO's which have produced resolutions to address their international obligations with regard to data collection and provision, mitigation of seabird interactions and the conservation and sustainable management of sharks. This is summarised in **Attachment 5**. It is possible that in the future the lack of progress by CCSBT on ERS issues may result in trade-related restrictions for ERS matters as seen in other fisheries.
26. To promote discussions on recommendations to CCSBT with respect to meeting these international obligations, Australia tabled draft recommendations for discussion on (i) data collection and provision for ERS, (ii) mitigation of seabird interactions and (iii) measures to ensure the conservation and sustainable management of sharks and promote full utilisation of retained shark catch.
27. In relation to (ii) Australia suggested that in order to achieve substantial reduction in bycatch of seabirds within the SBT fishery it is necessary to set a bycatch reduction reference point against which to measure progress in minimising seabird bycatch. They suggested that an appropriate reference point would be a bycatch rate of less than 0.05 birds per 1000 hooks in all fishing areas and seasons, to be achieved within a five year period.
28. In relation to (iii), Australia suggested that the following measures for the conservation and management of sharks should be considered. To mitigate shark bycatch: ban of the use of wire traces, and implement trip or catch limits. To reduce shark finning either: ban finning at sea; or implement shark to fin landing ratios that require vessels to not have fins totalling more than 3 percent of the whole weight of sharks or 5 percent of the dressed weight.
29. New Zealand tabled its recommendations for data provision and exchange, assessing the risk to sharks taken as bycatch of SBT fisheries and managing incidental bycatch of seabirds. The seabird proposal was developed from that circulated in advance of ERSWG6 in the New Zealand national report. Other recommendations were as contained in that report.
30. On request from the Chair, Australia agreed to work with New Zealand to develop common working group papers on these issues for further discussion.

Agenda Item 4. Reports of meetings of other organisations relevant to the ERS Working Group

31. The observer from ACAP (Agreement of the Conservation of Albatrosses and Petrels) provided the following report on its activities:
- ACAP is a multilateral agreement negotiated under the auspices of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). It seeks to conserve albatrosses and petrels by coordinating international activity to mitigate known threats to albatross and petrel populations.
 - The Agreement entered into force on 1 February 2004 and there are currently 11 signatories, eight of whom have ratified the Agreement. In the short life of this Agreement there have been two meetings, the first Meeting of the Parties (MOP1), held in November 2004; and the first meeting of the Advisory Committee (AC1), which was held in July last year.
 - Three Working Groups have been established under the Advisory Committee in order to progress the action plan annexed to the Agreement. Their responsibilities include reviewing the population status and trends of species listed under Annex 1 of the Agreement; addressing taxonomic issues; and collecting information on breeding sites and assessing threats to species from factors associated with these sites.
 - The Agreement can only be fully effective if all nations having an interest or responsibility for maintaining a favourable conservation status for albatrosses and petrels participate in ACAP. The observer issued an invitation to all Parties participating in this meeting to attend the next meeting of ACAP's Advisory Committee, to be held in Brasilia, Brazil between 5-8 June 2006 and to attend also the next Meeting of the Parties, which is expected to be held in New Zealand in November, this year.
32. Japan introduced CCSBT-ERS/0602/13 which reported on the Third International Fishers Forum held in Yokohama in July 2005. This forum was attended by people from many backgrounds, including; fishers, government officials, researchers, traders, and distributors etc. Two hundred and forty three people from 28 countries attended the meeting. The forum was successful in facilitating fishermen to implement effective measures for the reduction of incidental catch of seabirds and sea turtles. One of the outcomes of the forum was the Yokohama Declaration, which is a declaration of the intent of fishers to eliminate IUU fishing and reduce the bycatch of sea birds, sharks and sea turtles and cooperate with scientific data collection by becoming active in this area. Japan proposed that similar kinds of meetings held on a regional scale would be helpful to raise awareness and initiative of fishers on ERS issues.
33. Australia and New Zealand thanked Japan for bringing the outcomes of the forum to this meeting and noted that within the Yokohama Declaration, there is a mandate for CCSBT to move forward with recommendations on seabirds, sharks and data collection and provision.

Agenda Item 5. Provide information and advice on issues relating to species associated with southern bluefin tuna (SBT) (ecologically related species), with specific reference to:

(a) Species (both fish and non-fish) which may be affected by SBT fisheries operations

34. New Zealand presented paper CCSBT-ERS/0602/06 summarising fish catches taken in tuna longline sets that either targeted or caught SBT from 2002-03 to 2003-04. Ray's bream, blue shark, and dealfish were the most discarded fish species by number while most lancet fish, deepwater dogfish, and dealfish that were caught were subsequently discarded. Most fish that were discarded were returned to the water alive, but no estimates of the subsequent mortality of discards are available.
35. New Zealand presented paper CCSBT-ERS/0602/07 on the incidental catch of seabirds fishing for SBT in their waters. Observer coverage is high in the non-domestic fleets, but lower in the domestic fleets resulting in very wide confidence intervals for the estimated total bycatch. The Japanese charter fleet showed a decline in the number of seabirds captured. Data indicated that 24% of seabirds were landed alive indicating that at least this percentage of seabirds were caught during the haul. This implies that effective mitigation while hauling is required.
36. New Zealand summarised the research it has conducted into ERS fish species taken in the SBT longline fishery. This included biological studies of SBT prey (Ray's bream) and pelagic sharks and other species which eat similar prey types to SBT. New Zealand noted that the studies of pelagic sharks were important in determining the potential vulnerability of these species to overfishing. Japan commented that the growth rate and maturity data for the blue and mako sharks was different to that found by Japanese researchers and indicated its interest in conducting a collaborative assessment to determine why these differences exist.
37. Japan presented paper CCSBT-ERS/0602/10 on the incidental take of seabirds in the Japanese SBT longline fishery – a study that has been continued from previous years. It was estimated from observer data that mean seabird catch for 2003/04 was similar to 2001/02.
38. Japan presented paper CCSBT-ERS/0602/11 on the effect of blue-dyed bait and tori lines to reduce the incidental catch of seabirds. The research also examined whether catch rates of tuna were affected by blue-dyed bait. The study was conducted in the Japanese SBT fishery off South Africa. Results reaffirmed the high efficacy of blue-dyed bait by reducing seabird catch to 25%, a reduction that was further strengthened with the use of a tori line. Results also indicated that tuna catch rates were not significantly affected by the use of blue-dyed bait. Australia questioned the statistical strength of the data given the size of the error bars displayed in the results. Japan indicated that it would increase the sample size and improve the statistical methods in upcoming years. Taiwan queried Japan on whether the chemical component of the blue dye is human friendly. Japan responded that the blue dye (Brilliant Blue FCF) is a kind of food colouring and that it has been approved for human consumption.

39. Japan presented an update of standardised CPUE for the main pelagic shark species caught in its longline SBT fishery, namely blue shark, porbeagle and shortfin mako shark (CCSBT-ERS/0602/15). The emphasis was on the long-term assessment of the stability of these species. Results indicated that although the standardised CPUE's fluctuated annually, a constant trend of increase or decrease was not apparent.
40. New Zealand noted that the approach of adding a small constant to zero observations was not ideal and could result in a flattening of the estimated trends. Japan recognised the difficulty in treating bycatch data with many zero catches and indicated that it would improve the mathematical methods in upcoming years.
41. Japan reported on its tag and release program and advised that 2844 sharks had been tagged and released since 1988 with blue sharks being the most common (CCSBT ERS/0602/16). Japan indicated that the recapture rate was very low and that it was therefore unable to achieve a substantive outcome at this time.
42. Taiwan presented paper CCSBT-ERS/0602/17 on the incidental and bycatch rates prepared from their observer data. A total of 14 trips were conducted in latitudes higher than 25°S during 2002-2004. The majority of incidental and bycatches were sea birds and sharks. There were no sea turtles, whales or dolphins taken in this region. Taiwan cautioned against extrapolating the data due to the low coverage rate.
43. A paper prepared by BirdLife International (CCSBT-ERS/0602/Info06) was introduced by Australia. This paper provided an analysis of albatross and petrel distribution within the CCSBT area and the level of spatial overlap with fishing effort. The results demonstrate that there is a high potential for interaction between breeding albatrosses and petrels and fisheries in the CCSBT area. Some of these species, such as the wandering albatross and grey-headed albatross, have been suffering global declines for the last two decades and CCSBT Members have long been suspected by the global conservation community to be responsible for these declines. This paper was brought to the attention of the Commission to emphasise the growing weight of evidence to support this international opinion.
44. Australia reported on a recent meeting of the Commission for the Conservation of Antarctic Marine living resources (CCAMLR) (CCSBT-ERS/0602/Info07). In conducting its annual evaluation of the impact of all longline fishing effort on albatross and petrels breeding in the CCAMLR Convention Area, CCAMLR had drawn upon the data presented at ERSWG 5 to quantify the likely level of bycatch by CCSBT Members. CCAMLR noted that the CCSBT estimates were based upon a low level of observer coverage, but given that reports derived from birds brought on board vessels sometimes substantially underestimate the number of birds actually killed, they believed it to be perfectly conceivable that if up to at least 9,000 seabirds are killed annually, as stated by CCSBT, this could represent 6,670 albatrosses (including c. 3,000 grey-headed albatrosses and 1,370 black-browed albatrosses), 690 giant petrels and at least 600 *Procellaria* petrels. CCAMLR expressed concern at the levels and rates of seabird by-catch in the CCSBT fisheries, and about what that the real number of birds killed could be. It also noted that most of the birds

killed were globally threatened species and are likely to be from populations breeding in the CCAMLR Convention Area.

45. Australia stated its view that if analyses such as those carried out by Birdlife and CCAMLR are to be undertaken, it would be more appropriate if they were undertaken by members of the Commission, and based upon adequate levels of observer data collected at a fine spatial scale, and including all species. Present levels of data are inadequate for this purpose, however if it is not improved, it can be expected that other members of the global community will use what data there is to draw conclusions that may be inaccurate and harmful to CCSBT.
46. New Zealand commented that reports such as these reinforce the need to be proactive in assessing these issues and being aware that there are outside agencies looking at the CCBST situation and data.
47. The ERSWG noted the Extended Commission's request for advice and devoted a significant portion of the meeting to discussing data and management related recommendations for the Extended Commission's consideration.
48. The WG considered working papers prepared by New Zealand and Australia on reducing the incidental bycatch of seabirds, conservation and sustainable utilisation of sharks and data collection and provision for ERS. These are available for the consideration of CCSBT in **Attachment 6**. The working paper on data collection and provision for ERS was advanced in discussion to the point that it was available for discussion by members at a national level. This draft is available for the consideration of the CCSBT in **Attachment 7**.
49. During discussions of working papers on seabird and shark proposals, considerable progress was made in identifying issues of concern. **Attachment 8** reflects some of these issues (for example data availability, timeframes for domestic legislation) and is available for the consideration of the CCSBT. Further discussion is necessary on these issues of concern.
50. ERSWG members expressed a commitment to conclude agreements on advice to CCSBT on reducing the incidental bycatch of seabirds, conservation and sustainable utilisation of sharks and data collection and provision for ERS at ERSWG7. Japan proposed to have the ERSWG7 in 2007 instead of 2008 in order to achieve agreements on these matters as soon as possible. All members acknowledged that these agreements should be reached as soon as possible. It was agreed to recommend to CCSBT that ERSWG7 be convened next year.
51. During the discussion on seabirds, sharks and data, Japan raised a question regarding whether or not CCSBT has competence to adopt binding conservation and management measures for ecologically related species. It was agreed that this was a matter for the Extended Commission to consider.

(b) Predator and prey species which may affect the condition of the SBT stock

52. New Zealand (CCSBT-ERS/0602/08), Japan (CCSBT-ERS/0602/12), and Taiwan (CCSBT-ERS/0602/18) presented papers describing analyses of stomach contents from SBT and other ecologically related species.
53. New Zealand's analysis considered 36,000 stomach samples collected over 11 years from SBT and eight species taken in the SBT fishery. This included species that likely compete with SBT, and species that are prey of SBT. The opportunistic nature of these data, in particular the use of observers to identify stomach contents does put some limitations on the inferences that can be taken. Japan thanked New Zealand for their paper and encouraged both the continuation of the long-term data collection and further more detailed analyses.
54. Japan's analysis was a continuation of previous work and confirmed previous findings that the major prey of SBT was fish and cephalopods. They noted geographical variation in the diet composition of SBT and inter-specific differences among tuna and other fish species. They also indicated that it is difficult to obtain data on the diets of smaller SBT from Japanese high seas samples.
55. Taiwan reported an update of a study previously reported to SC-10. Stomachs from 105 SBT were analysed with fish prey dominating the stomach contents. Currently the prey are only identified to family level so cooperation is sought from other members.
56. The Working Group supported further collaboration of diet studies to help better understand the life history of SBT and how its diet differs across its range. **Attachment 9** shows the locations where SBT stomach content sampling has been conducted. Members were encouraged to provide support in helping identify stomach contents. Korea indicated that it was also starting to work in this area.
57. Japan noted that information on digestive rates of SBT was lacking and that work in this area would be important. Japan encouraged the use of farmed SBT for such work and encouraged Australia to assist with this research.
58. Japan further noted that research on predator / prey issues during the recruitment phase was an important area of future research, particularly given the current low levels of recruitment in SBT.
59. Australia reported that it had State, and Commonwealth regulations regarding ecosystem approaches to fisheries management which have resulted in a wide range of research, including research on mitigation measures. Also, of most interest to this Working Group is a study of the pelagic ecosystem in the Great Australian Bight which is currently underway.

Agenda Item 6. Education and public relations activities

60. Japan and Taiwan presented information on their education and public relations activities.
61. Japan introduced materials that are being used to educate fishers and other relevant parties on Japan's NPOA's for sharks and seabirds. These materials included

pamphlets, brochures and a video program (DVD/VHS) that have been designed to explain the importance of avoiding incidental take of seabirds and to improve the identification of seabirds and other bycatch species. The video program won an award in Japan and copies were passed on to Members.

62. In cooperation with the Fisheries Agency of Japan and the National Research Institute of Far Seas Fisheries, local fisheries organisations held educational seminars for fishermen and distributed the educational materials. The aim of such events was to encourage fishers to become more proactive with these issues.
63. The ACAP observer commended Japan on the work they had done and on the materials they had produced. These sentiments were echoed by New Zealand and Australia.
64. Taiwan reported that in 2005 the Fisheries Agency of Taiwan authorised the Wild Bird Federation of Taiwan to implement an education program promoting seabird bycatch mitigation for Taiwanese fishermen operating in international waters. An onboard educational program for Taiwanese fishermen was conducted in Mauritius in the Fall of 2005. This program represents Taiwan's first attempt to discuss the issues of bycatch and the importance of mitigation measures with fishermen on board. It is hoped that this program will make a lasting and meaningful contribution to seabird bycatch and the sustainable management of Taiwan fisheries. This continuous education program is supported by the Fisheries Agency of Taiwan and the Taiwan Tuna Association.
65. Fishermen were given posters, sheets and booklets containing information on the use of mitigation measures, the full utilisation of shark catches and species identification for seabirds, sharks and turtles.
66. Taiwan also reported that they have a dedicated radio broadcast for professional fishermen and have used this medium to educate and communicate with fishermen on the issues of bycatch and sustainable utilisation of catch.
67. ACAP commended Taiwan on the valuable work being done to change the culture of the fishing practices of their nationals.
68. The Chair indicated that, according to the Operational Framework from ERSWG5, the CCSBT pamphlets require revision to reflect requirements for species identification and any updated information on taxonomy.
69. The CCSBT Secretariat outlined the matters surrounding the production of the seabird and shark pamphlets. It was reported that the pamphlets took six years to produce, at a cost of \$AU84,000, with two thousand copies printed for each of the seabird and shark pamphlets. The Secretariat then sent copies of each to each Member: Australia (200), Taiwan (570), Japan (670), Korea (120) and New Zealand (420).
70. Australia asked for clarification on the aim of the pamphlets in terms of the level of identification expected from fishermen. It was also noted that some discussion was required regarding the amount of overlap between the CCSBT pamphlets and the pamphlets or species guides produced by each country for their fishers.

71. Australia also noted that while the information provided is useful in educating fishers, the identification sheets, as they are now, would not allow fishers to improve their ability to identify species to a refined level.
72. Taiwan reported that the pamphlets have been useful for both fishermen and observers. Taiwan questioned the ownership of the copyright as they have found that some of the content needs to be revised. They noted their preference to revise rather than redraft the pamphlets.
73. Korea indicated that the pamphlets have been helpful and noted that they would like more information in the future so as to revise the pamphlets.
74. New Zealand noted that the pamphlets had proven to be a useful starting point for educating their fishers. New Zealand supported Australia's suggestion to review the aim of the pamphlets. New Zealand noted its reliance on the use of observer data for the detailed identification of seabirds, but believed that more suitable information may be required for useful data to be obtained from fishers. The seabird pamphlet has been particularly useful in educating fishers in appropriate handling techniques for seabirds.
75. New Zealand is developing new regulations that require operational level reporting by fishers of incidental catch of non-fish species (including seabirds) in its fisheries, including a record of the life status once removed from gear. A new framework has been developed to support this reporting obligation and it was decided to only list species into one of 10 major groups of animals. The data obtained from this grouping approach is considered more reliable. A field guide is being developed to support the implementation of the new reporting framework and identification of incidentally caught species to a major grouping level. New Zealand expects a far greater level of detail and confidence in information recorded by observers and provides detailed training and guides to support this requirement. In this regard, New Zealand noted that Harrison's "Field Guide to the Seabirds of the World" has recently been completely revised and this could provide a valuable reference for observers.
76. Australia endorsed the approach taken by New Zealand and expressed a desire to see materials produced at New Zealand's earliest convenience.
77. Japan informed the ERSWG that it has been using the material produced by CCSBT to educate its fishers. Japan noted the importance of continuing the dialogue with fishers and reported that the first half of the pamphlet was particularly useful and would like to make more use of it in the future especially in relation to the SBT fishing grounds. Japan acknowledged the importance of informing fishers of the importance of reducing the incidental take of seabirds in accordance with international obligations. Japan considered that the material should be designed for the fishers. They considered that the copyright for the pamphlets should be given to each Member so they can make amendments to suit the area in which they fish. The Secretariat advised that they could make materials available to countries wishing to make minor amendments to the pamphlets. Japan considered that a reprint was not urgent at this time as they still have copies.

78. The meeting confirmed that the reprint of the pamphlets was not a major priority at this time. Members noted their agreement to work intersessionally on the information in the pamphlets when required.
79. The Secretariat informed the group that pamphlets have not been distributed to the cooperating non-members and agreed to contact Indonesia and the Philippines to determine what language they would prefer pamphlets to be in if these were to be made available to these countries.

Agenda Item 7. Research priorities

80. The meeting updated the table of research priorities for mitigation measures. This is provided at **Attachment 10**.

Agenda Item 8. ERSWG operational framework (ERSWG 5 Attachment 5)

8.1 Update of the operational framework

81. There was discussion of the submission dates for reports and resolutions, and members felt it would be constructive to have a formal statement on the consideration of reports arriving after the submission deadline. Some members felt disadvantaged because they did not have time to consider important issues and consult internally before coming to the meeting, due to information arriving within the meeting.
82. The Meeting agreed that meeting documents, national reports, information papers and draft recommendations or resolutions shall be submitted 4 weeks before the meeting. For documents submitted after this date, the chair, in consultation with the members, would determine whether the document could be considered at the meeting.
83. Japan noted the importance of following the agreed standard format for national reports. It was agreed that members should provide their national reports according to the agreed format. The meeting recommended that the Extended Commission request Cooperating Non-Members and Indonesia to submit national reports.
84. The ACAP observer advised that the ACAP Secretariat would be pleased to provide information from the review of Albatross taxonomy being undertaken by its Taxonomy Working Group, to assist the work of the ERSWG. The Working Group gratefully accepted the offer of assistance from ACAP.
85. The updated operational framework is provided at **Attachment 11**.

Agenda Item 9. Future work program

9.1 Draft Agenda for the next ERSWG meeting

86. The meeting considered that the agenda for the next meeting should be developed closer to the next meeting to enable it to be most relevant to the issues that need to be considered at that time. It was agreed that the draft agenda for the next meeting should be developed and circulated at least 100 days prior to commencement of the next meeting. The Secretariat would initiate the process of developing the agenda.

9.2 Inter-sessional work

87. The meeting encouraged members to consult intersessionally regarding ideas for revising the shark and seabird brochures. The Chair recalled that ACAP have offered to provide advice on albatross taxonomy if this was desired.
88. The ACAP observer advised that he would be happy to circulate considerations of the working group on the pamphlets to the ACAP Secretariat and its Parties.

Agenda Item 10. Other business

89. New Zealand noted that in reviewing national reports, there was a lack of a standardised way of estimating seabird interactions. Different Members had provided data in different formats making comparisons difficult. The Working Group agreed that development of standardised methodologies for estimating seabird interactions should become part of the work program for the next meeting. It was agreed that Members should work intersessionally to develop some alternative mechanisms for dealing with this in time to be discussed at the next meeting. The meeting agreed that this should be included in the agenda for the next working group meeting.

Agenda Item 11. Conclusion

11.1 Adoption of meeting report

90. The meeting adopted the report

11.2 Recommendation of timing of next meeting

91. Japan proposed that the next ERSWG be held in Japan next year. Japan considered that holding the meeting in one year's time would enable the progress made at this meeting to be continued, especially as the same participants are likely to attend and there will be a high level of motivation to achieve a final set of recommendations. An ERSWG meeting held in Japan would also provide a valuable opportunity for Japanese fishers to have further understanding on ERS issues.
92. The other Members thanked Japan for its offer to host the meeting and agreed with Japan's proposal. Members considered that the timing of ERSWG7 in one year was appropriate.

93. It was agreed that the next meeting would be held in March 2007 and the Secretariat would fix the exact date for the meeting in consultation with Members.

11.3 Close of meeting

94. The meeting closed at 6:00pm on Thursday 23 February 2006.

List of Attachments

Attachment

- 1 Agenda
- 2 List of Participants
- 3 List of Documents
- 4 Check list of items provided in member's annual reports to ERSWG6
- 5 Summary of RFMO Resolutions Concerning Incidental Catches of Ecologically Related Species
- 6 Joint Australia and New Zealand working papers on reducing the incidental bycatch of seabirds (6a), conservation and sustainable utilization of sharks (6b) and data collection and provision for ERS (6c)
- 7 Draft paper on data collection and provision for ERS for discussion by members at national levels
- 8 Working papers on reducing the incidental bycatch of seabirds (8a), and conservation and sustainable utilization of sharks (8b)
- 9 SBT Stomach Content Sample Locations
- 10 Research Priorities for Mitigation Measures
- 11 ERSWG Operational Framework

Agenda

Sixth Meeting of the Ecologically Related Species Working Group

1. Opening
 - 1.1. Election of the Chair
 - 1.2. Adoption of the Agenda
2. Reports
 - 2.1. Member reports (activities undertaken since last meeting in February 2004)
 - 2.2. Non-members reports
3. Review of Relevant International Instruments
4. Reports of meetings of other organisations relevant to the ERS Working Group
5. Provide information and advice on issues relating to species associated with southern bluefin tuna (SBT) (ecologically related species), with specific reference to:
 - (a) species (both fish and non-fish) which may be affected by SBT fisheries operations
 - (b) predator and prey species which may affect the condition of the SBT stock
6. Education and public relations activities
7. Research Priorities
 - 7.1. Consideration of ERSWG research priorities
 - 7.2. Update of the mitigation measures research table (ERSWG 5 Attachment 4)
 - 7.3. Proposals for future research
8. ERSWG Operational Framework (ERSWG 5 Attachment 5)
 - 8.1. Update of the operational framework
 - 8.2. Consideration of progress in meeting the operational framework
9. Future work program
 - 9.1. Draft Agenda for the next ERSWG meeting
 - 9.2. Inter-sessional work
10. Other business
11. Conclusion
 - 11.1. Adoption of meeting report
 - 11.2. Recommendation of timing of next meeting
 - 11.3. Close of meeting

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Sixth Meeting of the Ecologically Related Species Working Group

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List of Documents
Sixth Meeting of the Ecologically Related Species Working Group

The intended agenda items for papers are indicated in parentheses at the end of each paper's title

(CCSBT-ERS/0602/)

01. Draft Agenda
02. List of Participants
03. Draft List of Documents
04. (Australia) Review of international instruments relevant to ecologically related species data requirements and recommendations for sharks and seabirds.: Stewardson, C., Findlay, J. and Bensley, N. (5.1)
05. (Australia) The impact of pelagic longline fishing on the flesh-footed shearwater *Puffinus carneipes* in Eastern Australia.: Baker, B. and Wise, B. (5.1)
06. (New Zealand) Fish bycatch in the New Zealand's southern bluefin tuna longline fisheries, 2002 – 03and 2003 - 04.: Ministry of Fisheries (5.1 & 5.2)
07. (New Zealand) Incidental capture of seabirds in fishing for southern bluefin tuna in the New Zealand waters in 2003 and 2004.: Susan Waugh and Darryl MacKenzie (5.1)
08. (New Zealand) Preliminary analysis of diet of nine fish species including southern bluefin tuna and ecologically related species.: Ministry of Fisheries (5.2)
09. (New Zealand) A review of methodologies aimed at avoiding and/or mitigation incidental catch of seabirds in longline fisheries.: Leigh Bull (7)
10. (Japan) Estimation of incidental take of seabirds in the Japanese southern bluefin tuna longline fishery in 2003-2004.: Kiyota, M. and Takeuchi, Y. (5.1)
11. (Japan) Influence of blue-dyed bait on catch rates of seabirds and tuna species in the experimental operations of the Japanese southern bluefin tuna longline.: Minami, H. and Kiyota, M. (5.1)
12. (Japan) Update of stomach contents analysis of southern bluefin tuna and by-catch species caught by longline. Itoh, T. (5.2)
13. (Japan) Third International Fishers Forum held in Yokohama, Japan, 2005.: Minami, H. (4)
14. (Japan) Guidance, extension and educational activities for mitigating interactions with ecologically related species in longline fishery. (6)
15. (Japan) Update of standardized CPUE for the main pelagic shark species dominated in the SBT fishery, 1992-2004.: Matsunaga, H. (5.1)

16. (Japan) Tag and release of the pelagic shark species in the SBT fishery, 1998-2005: Matsunaga, H. (5.1)
17. (Taiwan) Preliminary Summary Report on Incidental- and By-Catches in the Southern Region from Taiwanese Observer Data of 2002-2004. Wang, S.P., S.K. Chang, and J.P. Tai (5.1)
18. (Taiwan) A preliminary study on the stomach content of southern bluefin tuna *Thunnus maccoyii* caught by Taiwanese longliner in the central Indian Ocean.: Liu, K.M., W.K. Chen, S.J. Joung, and S.K. Chang (5.2)
19. (Taiwan) Seabird Conservation Education on Board: preliminary training programme for the Taiwanese longline fishermen in Port Louis, Mauritius, 2005. Cheng, C.C. (6)

(CCSBT-ERS/0602/National Reports)

01. (Australia) National Report to ERSWG6 - Australia. (2)
02. (New Zealand) New Zealand Country Report: Ecologically related species in the New Zealand southern bluefin tuna longline fishery, 2002-03 to 2003-04. (2)
03. (Korea) Annual Report of Korea: Ecologically Related Species in Korean SBT Longline Fishery, 2003-2004.: Jin Yeong Kim, Dae-Yeon Moon, Jeong-Rack Koh and Soon-Song Kim.
04. (Japan) National Report of Japan: Overview of researches on ecologically related species in Japanese SBT longline fishery, 2003-2004.: Fisheries Agency of Japan. (2.1)
05. (Taiwan) Annual Report of Taiwan to ERSWG6.: Fisheries Agency of Taiwan. (2.1)

(CCSBT-ERS/0602/Info)

01. (Australia) National Plan of Action for the Conservation and Management of Sharks - Australia.: McLoughlin, K. and Bensley, N (5.1)
02. (Australia) The implementation of the National Plan of Action for the Conservation and Management of Sharks - Australia.: McLoughlin, K. and Bensley, N (5.1)
03. (Australia) The analysis of AFMA seabird mitigation trials – 2001 to 2004.: Lawrence, E., Wise, B. Bromhead, D., Hindmarsh, S., Barry, S. and Findlay, J. (5.1)
04. (Australia) Implementation of Australia's Threat Abatement Plan for the Incidental Catch of Seabirds During Oceanic Longline Fishing Operations.: Baker, G.B and Schubert, M. (5.1)
05. (New Zealand) Summary of recent New Zealand research into tunas and tuna-related species.: Shelton Harley and Neville Smith. (5.1 & 5.2)
06. (Australia) Analysis of albatross and petrel distribution within the CCSBT area: result from the Global *procellariiform* Tracking Database.: Bird Life International (5.1)

07. (Australia) Incidental mortality of mammals and seabirds associated within fishing (ad hoc WG-IMAF Report).: RFMOs, tuna commission and international government organizations. (5.1)
08. (Japan) Review of the Japanese RTMP observer program in the high sea waters in 2003-2004 fishing years.: Kiyota, M. and Minami, H.
09. (Japan) Japan's national plan of action for reducing incidental catch of seabirds in longline fisheries.: Fisheries Agency of Japan.
10. (Japan) Assessment report on the implementation of Japan's national plan of action for reducing incidental catch of seabirds in longline fisheries.: Fisheries Agency of Japan.
11. (Japan) Report on the Assessment of implementation of Japan's national plan of action for the conservation and management of sharks of FAO.: Fisheries Agency of Japan.
12. (Korea) A Summary of the Korean Tuna Fishery Observer Program for the Indian Ocean 2004-2005.: Jin-Yeong Kim, Dae-Yeon Moon, Soon-Song Kim and Jeong-Rack Koh.

(CCSBT-ERS/0602/Rep)

01. Report of the Third Meeting of Ecologically Related Species Working Group (June 1998)
02. Report of the Fourth Meeting of Ecologically Related Species Working Group (November 2001)
03. Report of the Fifth Meeting of Ecologically Related Species Working Group (February 2004)
04. Report of the Tenth Meeting of the Scientific Committee (September 2005)
05. Report of the Twelfth Annual Meeting of the Commission (October 2005)

Check list of items provided in member's annual reports to ERSWG6

	Australia	korea	Taiwan	New Zealand	Japan
1. Introduction	√	√	√	√	√
2. Review of SBT Fisheries	√	√	√	√	√
3. Fisheries Monitoring for Each Fleet	√	√	√	√	√
4. Seabird	√	√	√	√	√
5. Other Non-target Fish	√	√	√	√	√
6. Marine Mammal and Marine Reptile	√	√	√	√	√
7. Mitigation Measures					
<u>Current Measures</u>					
<i>Mandatory Measures for Each Fleet</i>					
* Description of each measure	√	√	√	√	√
* Compliance Monitoring System	√		√	√	√
*Level of Compliance for each measure				√	
<i>Voluntary Measures for Each Fleet</i>					
* Description of each measure	√	√	√	√	√
*Proportion of fleet using each measure and how this proportion was determined					
<u>Measures under Development/Testing</u>					
*Description of each measure being developed and tested	√		√	√	√
*Lead agency undertaking research	√		√		√
*Description of any collaboration	√				
*Results to date	√		√	√	√
*Planned development/testing for next year	√				
*Expected completion date and report to ERSWG	√				
8. Public Relations and Education Activities					
<u>Public Relations Activities</u>					
*media releases	√	√	√	√	√
*information booklets, posters, other written material		√	√	√	√
*video	√		√		√
*public presentations		√	√	√	√
<u>Education</u>					
*crew training, especially ship masters	√	√	√	√	√
*trainee fishers	√	√	√		√
*engineers					
*managers					√
*observers	√	√	√	√	
<u>Information Exchange</u>					
*research					
*educational materials			√		
*other regional fisheries organisations					
*international organisations					
*non-member states and entities				√	
*review of new ideas obtained from crew debriefings or ship fishing reports.					
9. Information on other ERS (non-bycatch) such as prey and predator species		√	√	√	√
10. Others	√	√	√	√	√
11. Summaries of country papers	√			√	

Summary of RFMO Resolutions Concerning Incidental Catches of Ecologically Related Species¹

	ERS Data	Sharks	Seabirds
CCSBT	No	No	Yes - mitigation measure (tori poles)
CCAMLR	Yes - compulsory reporting (monthly) - measures to close the fishery to members who fail to provide data	Yes - compulsory reporting	Yes - compulsory reporting - compulsory mitigation measures, including seasonal closures, streamer lines, night-setting, line weighting and move-on provisions
ICCAT	Yes - sub committee has recommended that accurate ERS data be collected	Yes - currently reviewing an assessment of short fin mako sharks and the Commission is considering management advice in relation to ERS	Yes - sub committee has recommended that accurate ERS data be collected
IOTC	- Contracting Parties to the Commission (CPCs) should voluntarily provide information on seabirds to the committee however providing information on sharks is compulsory	Yes - compulsory reporting (annually) - required to take mitigation measures - defined limits on take eg fin to weight ratios	Yes - members are encouraged to collect and voluntarily provide information
IATTC	Yes - encouraged to collect and voluntarily provide information on seabirds - each CPC shall annually provide data on shark catches	Yes - defined limits on take eg fin to weight ratios	Yes - collect and voluntarily provide information
WCPFC	Yes - CPCs shall provide all information on interactions with seabirds - scientific committee has been asked to undertake all steps necessary to ensure comprehensive recording and	Yes - undertaking review of mitigation measures ²	Yes - Members shall advise the commission on the implementation of the IPOA-Seabirds - undertaking a review of mitigation measures

¹ Note: This table is a summary of the information presented in CCSBT-ERS/0602/04. The Secretariat will update this table for ERSWG7.

	monitoring		
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² The resolution specifically related to sharks was not adopted however the meeting agreed to undertake a review of measures for mitigating the impacts of fishing on non-target species, including measures applied by Commission Members.

Reducing incidental bycatch of seabirds in CCSBT longline fisheries
(joint Australia and New Zealand working paper)

Rationale

Draft recommendations on reducing seabird bycatch were considered by the ERSWG6, and all parties agreed that the following recommendations would be made to the Commission:

Recommendation ERSWG – XXXX
Reducing incidental bycatch of seabirds

- 1. All parties are to reduce seabird bycatch mortality, to less than 0.05 birds/1000 hooks in all fishing areas (defined at a statistical reporting area spatial scale), seasons or fisheries within five years; following the achievement of this level, parties will seek to achieve continual improvement in the level of seabird bycatch.***
- 2. All parties shall develop and implement NPOAs, and provide progress reports to CCSBT on their implementation.***
- 3. Data on seabird interactions shall be collected by observers [and in logbooks] and reported to CCSBT as agreed in the data collection and provision recommendation (ERSWG – XXXX);***
- 4. All vessels shall carry and use tori poles (bird-scaring lines) as appropriate:***
 - Tori poles shall be in accordance with agreed CCSBT guidelines (refer to Appendix A);
 - Tori poles are to be deployed prior to longlines entering the water during all times south of the parallel of latitude 30 degrees South;
 - Vessels will be encouraged to use a second tori pole and bird-scaring line at time of high bird abundance or activity
 - Back up Tori lines will be carried by all vessels and ready for immediate use
- 5. All parties shall ensure that measures that are effective in mitigating seabird bycatch are in use in pelagic longline fishing operations. Possible options include:***
 - Night setting (longlines are to be set after nautical dusk and before nautical dawn);
 - Line weighting (enable the bait to be rapidly taken below the reach of most seabirds) ;
 - Bait thawing (baits should be thawed baits prior to deployment on hooks);
 - Avoid offal (including old bait, discards, fish waste) discharge during line setting and hauling.
- 6. ERSWG should continue to encourage parties to undertake research into new mitigation measures and their effectiveness.***
- 7. The Commission shall develop a Code of Practice for the SBT fleet as a whole, and audit implementation through specified observer protocols. Components of a code should include:***

- Specification of appropriate seabird bycatch mitigation measures, including night-setting, use of tori poles and bird-scaring lines, appropriate offal management, thawing of baits, use of line-weighting, underwater setting measures, blue-dyed bait, protection of hooks during hauling noting that some hooks still carry bait, etc.
- Agreement from operators to ensure all vessel crews are familiar with mitigation measures to be used during setting and hauling of surface longline fishing gear.
- Vessels are encouraged to trial and use additional mitigation measures they consider will reduce the seabird catch. Vessels may be asked to participate in other trials such as line weighting methods.
- Observers shall retain all seabirds observed landed dead on deck and retain for accurate identification. Where retention of whole birds is impractical, retention of head and bills should be undertaken.
- High seabird bycatch events should be considered as triggers to move to a new fishing area, or temporarily halt fishing activity. During times of high bycatch risk, e.g. such as the days immediately before and after the full moon, it may be necessary to deploy additional mitigation devices.
- Encouragement of research and development of new measures to mitigate seabird bycatch.

8. Biennial assesment of bycatch data and risk assesment to facilitate spatial and temporal management of bycatch of seabirds/fishery interactions in the SBT fishery, similar to the process adopted by CCAMLR.

Conservation and sustainable utilisation of sharks taken in SBT fisheries
(joint Australia and New Zealand working paper)

Noting that

- Member are engaged in preparation and implementation of NPOA-sharks
- Shark NPOAs aim to ensure that catches from directed and non-directed fisheries are sustainable and unutilised incidental catches should be minimised
- There is limited information available to assess the impact of shark bycatch across SBT fisheries

We suggest that ERSWG6 **recommends** to the Commission for consideration at CCSBT-13 on the following:

1. that all parties shall ensure data on shark catch and interactions shall be collected by observers and in logbooks and reported to CCSBT as agreed in the data collection and provision recommendation (ERSWG – XXXX)
2. to encourage members in the completion and implementation of their NPOA-sharks and report their progress to the ERSWG;
3. the development of a risk framework to assess the impact of shark bycatch from SBT fisheries.
4. encourage members to cooperate in conducting stock assessments for significant shark bycatch species, including collaborative stock assessments with other RFMO's
5. encourages members to limit catches to sustainable levels or avoid catches of sharks
6. to promote full utilization of retained catches, options could include:
 - Setting trip of overall catch limits;
 - Prohibiting vessels from carrying, retaining, or landing all shark dorsal, pectoral, caudal, pelvic and anal fins that are not attached to their carcass;
 - Setting fin to whole weight ratios for catches to the first point of landing.
7. encourage members to avoid unwanted shark bycatch
8. encourage the release of unwanted shark bycatch in a live state
9. to review points 5 and 6 above on annual basis, based on the outcomes 3 and 4.

Data Collection and Provision for ERS
(joint Australia and New Zealand working paper)

Rationale

Noting the Terms of Reference of the Ecologically Related Species Working Group

“To provide information and advice on issues relating to species associated with southern bluefin tuna (SBT) (ecologically related species), with specific reference to:

- a. Species (both fish and non-fish) which may be affected by SBT fisheries operations*
- b. Predator and prey species which may affect the condition of the SBT stock”*

In accordance with the CCSBT Convention, which acknowledges the importance of collecting scientific information relating to ecologically related species (ERS) and states that parties shall expeditiously provide to the Commission scientific information, fishing catch and effort statistics and other data relevant to the conservation of ERS (Article 5), and that the Commission shall collect and accumulate statistical data relating to ERS (Article 8);

In accordance with the terms of reference for the ERSWG which specifically includes the provision of recommendations on data collection programs with respect to ERS species (TOR 4);

Recognising that data requirements and their importance have been discussed in previous meetings (ERSWG5 Agenda Item 8, paragraph 43) and that it was noted in relation to the assessment of ERS interactions, the ERSWG is yet to achieve the objective of providing the Commission with an estimate of the level of incidental seabird take (ERSWG5 Agenda Item 8, Para. 44);

Recognising that at CCSBT12 there was general agreement on the importance of information on non-target species to aid with interpretation of CPUE data and it was noted that if advice on the management of ERS was not forthcoming from the ERSWG then consideration would need to be given as to whether it would be better to discuss ERS issues as part of annual meetings of the Extended Commission than as a stand alone group (CCSBT12 Agenda Item 18, Para. 121 - 123);

Recommendation ERSWG - XXXX
Collection of data on ERS catch

1. Recording of ERS in logbooks

Catch, both retained and non-retained, of [all species / species of interest to the ERSWG and Commission [put in a list of them as an appendix]], for each fishing

operation, shall be recorded in the logbooks. [The catch shall be recorded by species and, for sharks and seabirds, consistent with the existing CCSBT species identification guides¹]. Catch shall be recorded in numbers and, where applicable weight. The weight should be individual weight or at least total weight (for a given number) and accompanied by a processing code.

2. Recording of ERS by observers

Catch, both retained and non-retained, of [all species / species of interest to the ERSWG and Commission [put in a list of them as an appendix]], for each fishing operation, shall be recorded by observers. The catch shall be recorded at the species level. Catch shall be recorded in numbers and where applicable weight. The weight should be individual weight or at least total weight (for a given number) and accompanied by a processing code.

Observers will also record on a shot by shot basis the use of mitigation devices or practices.

Given the need for observers to collect data on target species and ERS, the ERS should be part of hierarchy of data collection (see Appendix A). The mode in which the observer is working shall be recorded on a shot by shot basis.

The hierarchy would ensure that catch of all species, by species is recorded for each shot (Appendix A). If this is not feasible, an alternative is that for at least one in 10 fishing operations the observer shall only collect information on the catch of all species, including those cut off without being landed. In this case the observer should record whether they are recording all catch for a shot or only catch of particular groups.

Recommendation ERSWG - XXXX Provision of ERS data to the Commission

1. Logbook data

The catch by species in 5° x 5° squares for longline and 1° x 1° squares for all other gears, during each calendar month shall be provided to the Commission for each gear type. This shall be matched to SBT catch and effort reporting.

2. Observer data

The catch by species in 5° x 5° grids for longline and 1° x 1° squares for all other gears, during each calendar month shall be provided to the Commission for each gear type. The mode of the observer shall be reported. This shall be matched to SBT catch and effort reporting.

Proportion of sets where various mitigation devices or practices were used. This would be summarised by 5° x 5° grids for longline and 1° x 1° squares for all

¹ These id guides may need to be improved, this should be discussed with observers and fishers

other gears, during each calendar month shall be provided to the Commission for each gear type.

3. Logbook and observer data transfer and storage

[The data shall be provided as part of the annual data exchange commencing by May 2007 or earlier as agreed by the parties. The Commission shall develop an appropriate database for the storage of ERS data by January 2007.]

4. Provision of historical data

Countries shall report to the Commission on the historical data available for ERS from logbooks, observers and other relevant sources by December 2006. The historical data will be provided to the Commission with the appropriate descriptions (metadata) by December 2007. The data shall include catch by species in 5° x 5° grids, during each calendar month for each gear type. The catch needs to be assigned to SBT effort data.

5. Data access arrangements

The access arrangements to the ERS data will be the same as the Commission's database policy for SBT catch and effort data.

Appendix A
Recommended hierarchy for data collection

1. All vessel and shot information should be collected prior to the collection of catch/biological information

During the Haul

2. Record all species caught
3. Record whether the specimen was retained, landed and discarded or released without landing.
4. Record life status at time of landing and life status at time of release (where applicable)
5. Collect data on length and whole and/or processed weight (including processed state)
6. Check for presence of tags
7. Record sex
8. Collect biological samples
9. Take photos

Hierarchy for data collection by species for items 5-9 above

Species	Mode (1 is the highest priority)
SBT	1
Sharks, Other tunas, billfishes, <i>Gasterochisma</i>	2
All other species (fish, birds, turtles etc)	3

Example of a Species List for fish (including sharks).

Species common

name	Scientific name
Blue shark	<i>Prionace glauca</i>
Albacore	<i>Thunnus alalunga</i>
Ray's bream	<i>Brama brama</i>
Porbeagle shark	<i>Lamna nasus</i>
Dealfish	<i>Trachipterus trachipterus</i>
Lancetfish	<i>Alepisaurus ferox</i> & <i>A. brevirostris</i>
Moonfish	<i>Lampris guttatus</i>
Oilfish	<i>Ruvettus pretiosus</i>
Deepwater dogfish*	Squaliformes
Swordfish	<i>Xiphias gladius</i>
Butterfly tuna	<i>Gasterochisma melampus</i>
Mako shark	<i>Isurus oxyrinchus</i>
Rudderfish	<i>Centrolophus niger</i>
Bigeye tuna	<i>Thunnus obesus</i>
Yellowfin tuna	<i>Thunnus albacares</i>
Striped marlin	<i>Tetrapturus audax</i>
Bigscale pomfret	<i>Taractichthys longipinnis</i>

Thresher shark

Alopias vulpinus

Draft ERS Data Collection and provision requirements
(for discussion by members at national level)

Rationale

Noting the Terms of Reference of the Ecologically Related Species Working Group

“To provide information and advice on issues relating to species associated with southern bluefin tuna (SBT) (ecologically related species), with specific reference to:

- a. Species (both fish and non-fish) which may be affected by SBT fisheries operations*
- b. Predator and prey species which may affect the condition of the SBT stock”*

In accordance with the CCSBT Convention, which acknowledges the importance of collecting scientific information relating to ecologically related species (ERS) and states that parties shall expeditiously provide to the Commission scientific information, fishing catch and effort statistics and other data relevant to the conservation of ERS (Article 5), and that the Commission shall collect and accumulate statistical data relating to ERS (Article 8);

In accordance with the terms of reference for the ERSWG which specifically includes the provision of recommendations on data collection programs with respect to ERS species (TOR 4);

Recognising that data requirements and their importance have been discussed in previous meetings (ERSWG5 Agenda Item 8, paragraph 43) and that it was noted in relation to the assessment of ERS interactions, the ERSWG is yet to achieve the objective of providing the Commission with an estimate of the level of incidental seabird take (ERSWG5 Agenda Item 8, Para. 44);

Recognising that at CCSBT12 there was general agreement on the importance of information on non-target species to aid with interpretation of CPUE data and it was noted that if advice on the management of ERS was not forthcoming from the ERSWG then consideration would need to be given as to whether it would be better to discuss ERS issues as part of annual meetings of the Extended Commission than as a stand alone group (CCSBT12 Agenda Item 18, Para. 121 - 123);

Recommendation ERSWG - XXXX

Collection of data on ERS catch

1. Recording of ERS in logbooks

Catch of (and interactions with) both retained and non-retained species of interest to the ERSWG and Commission¹, shall be recorded in the logbooks for each fishing operation². Catch shall be recorded in numbers and where applicable for retained fish (including sharks), catch weight. The weight should be individual weight or at least total weight (for a given number) and accompanied by a details of the type of processing state (e.g. headed and gutted or whole).

Note: All Members of Extended Commission collect data on retained ERS catch in their logbooks to varying levels of species identification. If Members of Extended Commission are to change their logbooks to meet this data requirement it is recognised that this could take several years.

2. Recording of ERS by observers

Catch of (and interactions with) both retained and non-retained species of interest to the ERSWG and Commission shall be recorded by observers for each fishing operation. The catch shall be recorded at the species level consistent with the existing CCSBT species identification guides³. Catch shall be recorded in numbers and where applicable for retained fish (including sharks), catch weight. The weight should be individual weight or at least total weight (for a given number) and accompanied by a details of the type of processing state (e.g. headed and gutted or whole).

Observers will also record the use of mitigation devices or practices for each fishing operation.

Given the need for observers to collect data on target species and ERS, the ERS should be part of hierarchy of data collection (see Appendix A). The mode in which the observer is working shall be recorded for each fishing operation.

The hierarchy would ensure that for observed effort, catch of all species, by species is recorded for each fishery operation (Appendix A). If this is not feasible, an alternative is that for at least one in 10 fishing operations the observer shall only collect information on the catch of all species, including those cut off without being landed. In this case the observer should record whether they are recording all catch for a shot or only catch of particular groups.

¹ There were differing views about the extent of the list of species of interest. It was noted that this list needs to be developed and could change over time and desired taxonomic level of recording of these species may differ between logbook and observer recorded data

² Fishing operations includes all fishing methods including farming operations

³ These id guides may need to be improved, this should be discussed with observers and fishers

Recommendation ERSWG - XXXX
Provision of ERS data to the Commission

1. Provision of ERS logbook data

The catch and interactions by species (or taxonomic group) in 5° x 5° squares for longline and 1° x 1° squares for all other gears, by each calendar month shall be provided to the Commission for each gear type. This shall be matched to SBT catch and effort reporting.

2. Provision of ERS observer data

The catch and interactions by species in 5° x 5° grids for longline and 1° x 1° squares for all other gears, by each calendar month shall be provided to the Commission for each gear type. The mode of the observer shall be reported. This shall be matched to SBT catch and effort reporting.

Proportion of fishing operations where various mitigation devices or practices were used. This would be summarised by 5° x 5° grids for longline and 1° x 1° squares for all other gears, by each calendar month shall be provided to the Commission for each gear type.

Note: in instances where the provision of data at this spatial scale would result in breaches of domestic confidentiality agreements (e.g. identification of individual vessel operations), data should be provided at the finest possible scale, but no larger than the level of CCSBT Statistical area. Members and Cooperating Non-Members of the Extended Commission were encouraged to consider their domestic obligations regarding confidentiality in light of the CCSBT arrangement regarding confidentiality given the benefits of the ERSWG having these finer scale data for future analysis.

3. Logbook and observer data exchange and storage

The data shall be provided as part of the annual data exchange commencing within a timeframe to allow the ERSWG to begin analysing available data in preparation for its next meeting. The Secretariat shall develop an appropriate database for the storage of ERS data.

Note: it is recognised that the time required to provide logbook data and observer data could differ. Available historical data will also be provided.

4. Data access arrangements

The access arrangements to the ERS data will be consistent with the Commission's data confidentiality policy.

Appendix A
Recommended hierarchy for data collection

1. All vessel and shot information should be collected prior to the collection of catch/biological information

During the Haul

2. Record all species caught
3. Record whether the specimen was retained, landed and discarded or released without landing.
4. Record life status at time of landing and life status at time of release (where applicable)
5. Collect data on length and whole and/or processed weight (including processed state)
6. Check for presence of tags
7. Record sex
8. Collect biological samples
9. Take photos

Hierarchy for data collection by species for items 5-9 above

Species	Mode (1 is the highest priority)
SBT	1
Sharks, Other tunas, billfishes, <i>Gasterochisma</i>	2
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Example of a Species List for fish (including sharks).

Species common name	Scientific name
Blue shark	<i>Prionace glauca</i>
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Porbeagle shark	<i>Lamna nasus</i>
Dealfish	<i>Trachipterus trachipterus</i>
Lancetfish	<i>Alepisaurus ferox</i> & <i>A. brevirostris</i>
Moonfish	<i>Lampris guttatus</i>
Oilfish	<i>Ruvettus pretiosus</i>
Deepwater dogfish*	Squaliformes
Swordfish	<i>Xiphias gladius</i>
Butterfly tuna	<i>Gasterochisma melampus</i>
Mako shark	<i>Isurus oxyrinchus</i>
Rudderfish	<i>Centrolophus niger</i>
Bigeye tuna	<i>Thunnus obesus</i>
Yellowfin tuna	<i>Thunnus albacares</i>
Striped marlin	<i>Tetrapturus audax</i>
Bigscale pomfret	<i>Taractichthys longipinnis</i>
Thresher shark	<i>Alopias vulpinus</i>

Reducing incidental bycatch of seabirds in CCSBT longline fisheries

Rationale

Draft recommendations on reducing seabird bycatch were considered by the ERSWG6, and all parties agreed that the following recommendations would be made to the Commission:

Recommendation ERSWG – XXXX Reducing incidental bycatch of seabirds

1. [[The Extended Commission agree to a goal for the reduction of seabird mortality:

All parties are

- to reduce seabird bycatch mortality, to less than 0.05 birds/1000 hooks in all fishing areas (defined at a statistical reporting area spatial scale), seasons or fisheries within five years; following the achievement of this level, parties will

OR

- seek to achieve a continual improvement reduction in the level of seabird bycatch.]]

2. *All Members and Cooperating Non-Members of the Extended Commission} should develop and implement NPOAs, and provide progress reports to CCSBT on their implementation.*

3. Until such time that agreement is reached on specifications for the collection and provision of ERS data to the Extended Commission, ~~D~~data on seabird interactions ~~shall~~ should be collected by observers ~~[and in logbooks]~~ and reported to CCSBT by CCSBT statistical area and quarter.

~~as agreed in the data collection and provision recommendation (ERSWG – XXXX)];~~

[Until such time that agreement is reached on specifications for the collection and provision of ERS data to the Extended Commission, data on numbers of species-specific seabird catches and interactions (e.g. entanglements and deck strikes) and the use of mitigation devices or practices shall be collected by observers at the level of fishery operation. These data shall be provided to the Extended Commission by CCSBT statistical area for all gears, by each quarter including available historic data.

—4. [As agreed at CCSBT-4 (Attachment U), CCSBT “requires mandatory use by all Commission parties of Tori poles in all long-line SBT fisheries below 30 degrees south” and “requests non parties to adopt mandatory use of Tori poles in all long-line SBT fisheries below 30 degrees south”. Guidelines for the design and deployment of tori lines adopted by the Commission are provided in CCSBT-5 (Attachment 30).

5. *That vessels operating in all longline SBT fisheries:*

- be encouraged to use a second tori pole at time of high bird abundance or activity;
- Carry back up Tori lines, or materials necessary to make one, ready for immediate use

56. All Members and Cooperating Non-Members of the Extended Commission parties shall ensure that one or more measures that are effective in mitigating seabird bycatch are in use in pelagic longline fishing operations below 30 degrees south. If required, in addition to the use of Tori poles, fishermen may choose one or more effective measures depending on the area and / or fishing conditions.

Possible options- include, but are not limited to:

- Night setting (longlines are to be set after nautical dusk and before nautical dawn);
- Line weighting (enable the bait to be rapidly taken below the reach of most seabirds) ;
- Bait thawing (baits should be thawed baits prior to deployment on hooks);
- Avoid offal (including old bait, discards, fish waste) discharge during line setting and hauling.

7. CCSBT should continue to encourage Members and Cooperating Non-Members of the Extended Commission to undertake research into new mitigation measures and their effectiveness.

8. The Extended Commission encourage Members and Cooperating Non-members of the Extended Commission to develop a best practice guide for their SBT fleets, and audit implementation through the collection of observer information.

9. Biennial assessment of bycatch data and risk assessment to facilitate spatial and temporal management of seabird-fishery interactions in the SBT fishery.

Conservation and sustainable utilisation of sharks taken in SBT fisheries

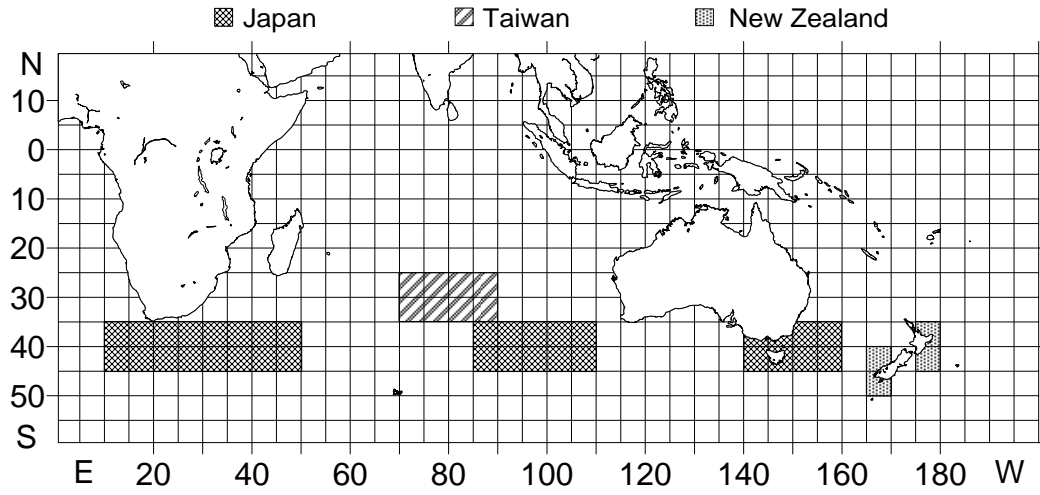
Noting that

- [Members and Cooperating Non-Members of the Extended Commission Member](#) are engaged in preparation and implementation of NPOA-sharks
- Shark NPOAs aim to ensure that catches from directed and non-directed fisheries are sustainable and unutilised incidental catches should be minimised
- There is limited information available to assess the impact of shark bycatch across SBT fisheries

~~We suggest that~~ ERSWG6 **recommends** to the Commission for consideration at CCSBT-13 the following:

1. [Data on shark catch and interactions shall be collected by observers. Observer data and available logbook data on shark catch {and in logbooks} and reported to CCSBT by 5° x 5° grids for longline and 1° x 1° squares for all other gears, by each calendar month shall be provided to the Commission{as agreed in the data collection and provision recommendation (ERSWG — XXXX)}. In instances where the provision of data at this spatial scale would result in breaches of domestic confidentiality agreements (e.g. identification of individual vessel operations), data should be provided at the finest possible scale, but no larger than the level of CCSBT Statistical area.]
2. All Members and Cooperating Non-Members of the Extended Commission should develop and implement NPOAs, and provide progress reports to CCSBT on their implementation;
3. Requests the ERSWG the review existing data on sharks catches, life histories, and abundance trends to assess potential risks to shark populations of shark bycatch from SBT fisheries.
4. CCSBT should assess the status of relevant shark stocks ~~and~~, where appropriate, collaborate in collaboration with other RFMO's
5. encourages Members and Cooperating Non-Members of the Extended Commission to achieve conservation and sustainable utilisation of sharks or avoid catches of unwanted sharks
6. to promote full utilisation of retained catches, options could include:
 - Setting of trip or overall catch limits;
 - Prohibiting vessels from carrying, retaining, or landing all shark dorsal, pectoral, caudal, pelvic and anal fins that are not attached to their carcass;
 - Setting fin to whole weight ratios for catches to the first point of landing.
7. encourage the release of unwanted shark bycatch in a live state
8. Requests that the ERSWG regularly review points 5 and 6, based on the outcomes of 3 and 4 above.

SBT Stomach Content Sample Locations



Research Priorities for Mitigation Measures

In recent years a number of mitigation measures have been developed and are now used by fishers. For some of these measures, further improvements in their effectiveness in minimising incidental capture of seabirds could be made through experimentation. Also the effect on target and non-target fish may need to be assessed for some mitigation measures.

In addition to existing measures, members of the Extended Commission are engaged in research into new measures. There are also a number of possible measures which are not being actively developed, but which exist as concepts.

The ERSWG has prepared a summary of existing and potential mitigation research in table form, for endorsement by the Extended Commission. This table highlights the research currently underway by the members, and helps identify possible areas of collaboration. It is recognised that each member is likely to have different research priorities because of differences between fleets. For this reason, the priorities for each member are shown separately.

The table should be treated as a guide only, and will need to remain flexible. New ideas or results of research are likely to alter country priorities over time. The table could be updated on an annual basis.

Research which is being undertaken by members outside the Extended Commission and which may be of interest to members is included in the table.

ERSWG RESEARCH PRIORITIES FOR MITIGATION MEASURES

Mitigation Measure	Research Need(s)	Method	Country undertaking Research	Member Priorities (high, medium, low)					Opportunities for Collaboration	Past ERSWG Papers
				JP	NZ	AU	KR	TW		
Presently Used										
Night setting	▪ effect on SBT-CPUE	▪ analyse existing databases, at sea experiments,	Australia Japan	med	low ¹	low	med	med	<ul style="list-style-type: none"> ▪ input from fishers ▪ designing experiment ▪ sharing analyses ▪ technical advice 	95/13, 95/29, 95/35, 95/37, 9706/3, 9706/11, 9706/25, 9806/10, 9806/17, 9806/25 0111/34 0111/69
	▪ effect on seabird captures	▪ analyse existing databases	Australia		high	high ²				
	▪ effect on non-target fish	▪ analyse existing databases		low	low	low	med	med		
	▪ effect of light levels on seabird capture (e.g. moon, cloud)			med	low	low	low	med		
	▪ ways to minimise hazards to crew			med	low	low	low	low		
	▪ effect of night setting on crew efficiency			med	low	low	low	low		
Bait-casting machine	▪ effectiveness in combination with tori line	▪ at sea experiments	-	low	low	low	med	low	<ul style="list-style-type: none"> ▪ input from fishers ▪ designing experiment ▪ technical advice ▪ sharing analyses 	95/14 9806/17 9806/25
	▪ effectiveness of different models	▪ at sea experiments	-	low	low	low	low	low		

¹ Night setting is routinely undertaken in New Zealand tuna fisheries so research is not a priority, but New Zealand is willing to collaborate with other CCSBT members and non-members.

² In Australia night setting is mandatory in tuna fisheries operating south of latitude 30°S. Research is necessary to evaluate the need to employ night setting in areas north of 30°S

Mitigation Measure	Research Need(s)	Method	Country undertaking Research	Member Priorities (high, medium, low)					Opportunities for Collaboration	Past ERSWG Papers
				JP	NZ	AU	KR	TW		
Line weighting (mainline and snoods)	<ul style="list-style-type: none"> optimum weighting and position of weights for different gear Effect on SBT CPUE ways to minimise hazards to crew 	<ul style="list-style-type: none"> at sea experiments gear modifications or changes to haul operation 	Australia Japan - USA (Hawaii)	med low med	med med med	high med high	low low low	low low low	<ul style="list-style-type: none"> input from fishers designing experiment technical advice sharing analyses 	95/33 95/39 9806/12 0111/23 0111/24 0111/53 0111/62 0402/Info14
Colouring baits	<ul style="list-style-type: none"> identification of a short-lasting dye effectiveness in reducing seabird captures effect on SBT CPUE Assess theoretically the visibility of blue-dyed baits to seabirds 	<ul style="list-style-type: none"> trials with existing dyes at sea experiment at sea experiment Laboratory experiments 	USA (Hawaii) Japan NZ Aust Aust	high high high	low ¹ low ¹ low ¹	low med low high	low low low low	low low low low	<ul style="list-style-type: none"> input from fishers designing experiment technical advice sharing analyses 	0111/61 0402/08 0402/Info08 0402/Info09 0602/11
Tori lines	<ul style="list-style-type: none"> most effective design for different fleets 	<ul style="list-style-type: none"> at sea experiments advice from fishers 	Japan Australia New Zealand USA (Hawaii)	high	high med	high	med	med	<ul style="list-style-type: none"> input from fishers designing experiment technical advice sharing analyses 	95/13 95/29 9706/15 9706/32 9706/6 9806/9 9806/17 9806/25 0111/34 0111/60 0402/08 0402/Info16 0402/Info17
Sound deterrents	<ul style="list-style-type: none"> effectiveness in reducing seabird captures 	<ul style="list-style-type: none"> at sea experiments 	Japan Australia NZ fisher trials	low	med	low	low	low	<ul style="list-style-type: none"> input from fishers designing experiment technical advice sharing analyses 	

Mitigation Measure	Research Need(s)	Method	Country undertaking Research	Member Priorities (high, medium, low)					Opportunities for Collaboration	Past ERSWG Papers
				JP	NZ	AU	KR	TW		
Side setting	<ul style="list-style-type: none"> feasibility of altering vessel set up effectiveness in reducing seabird captures 	<ul style="list-style-type: none"> advice from vessel designers & fishers at sea experiments 	USA (Hawaii) Japan	high high	low low	low low	low low	low	<ul style="list-style-type: none"> input from fishers sharing analyses technical advice 	
Fish waste management (old bait, discards, waste) and bait retention	<ul style="list-style-type: none"> ways to store used baits on board timing and form of release of used baits & offal to minimise attraction of seabirds 	<ul style="list-style-type: none"> advice from fishers at sea trials advice from fishers at sea trials 	NZ NZ	low low	high high	low low	low low	low	<ul style="list-style-type: none"> sharing advice input from fishers technical advice on offal management technologies 	
Combination of mitigation measures (CMM)	<ul style="list-style-type: none"> effectiveness in reducing seabird captures using CMM effect on SBT CPUE of CMM underwater setting and line weighting tori line and line weighting 	<ul style="list-style-type: none"> at sea experiments at sea experiments at sea trials at sea trials 	Japan Australia Japan Australia Australia	high high low low	high high	high low high	low low low	low	<ul style="list-style-type: none"> designing experiments technical advice sharing analyses input from fishers 	0402/06 0602/11
Under Development										
Underwater setting	<ul style="list-style-type: none"> development of technology best position to place baits effectiveness in reducing seabird captures 	<ul style="list-style-type: none"> advice from hydro-engineers at sea experiments at sea experiments 	NZ Australia USA (Hawaii) Japan NZ NZ Australia	med low low	high high	high low high	low low low	low	<ul style="list-style-type: none"> joint funding between New Zealand and Australia input from fishers designing experiment technical advice sharing analyses 	95/6 9706/13 9706/17 9706/18 9806/32 0111/13 0111/25 0111/54 0402/Info06 0402/Info18
Water cannon	<ul style="list-style-type: none"> effectiveness in reducing seabird captures 	<ul style="list-style-type: none"> at sea experiment 	Japan	low	low	low	low	low	<ul style="list-style-type: none"> input from fishers designing experiment sharing analyses technical advice 	0111/63
Potential/Novel methods										

Mitigation Measure	Research Need(s)	Method	Country undertaking Research	Member Priorities (high, medium, low)					Opportunities for Collaboration	Past ERSWG Papers
				JP	NZ	AU	KR	TW		
Advanced artificial baits/lures	<ul style="list-style-type: none"> ▪ development of lure which is attractive to SBT but not to seabirds ▪ effect on SBT CPUE ▪ effectiveness in reducing seabird captures 	<ul style="list-style-type: none"> ▪ development of technology ▪ trials with farmed tuna ▪ at sea experiment ▪ at sea experiment 		low	low	low	low	low	<ul style="list-style-type: none"> ▪ input from fishers ▪ designing experiment ▪ sharing analyses ▪ technical advice 	
Hook modifications	<ul style="list-style-type: none"> ▪ effect of existing hook designs on capture of seabirds ▪ effect of existing hook design on SBT CPUE ▪ development of new hook that maximises SBT CPUE and minimises seabird capture 	<ul style="list-style-type: none"> ▪ at sea experiments ▪ at sea experiments ▪ development of hook ▪ at sea experiments 		low	low	low	low	low	<ul style="list-style-type: none"> ▪ input from fishers ▪ designing experiment ▪ sharing analyses ▪ technical advice 	
Bait type	<ul style="list-style-type: none"> ▪ assessment of live versus dead bait type ▪ use of thawed (versus frozen) baits 	<ul style="list-style-type: none"> ▪ at sea experiments ▪ analyse existing data sets ▪ at sea trials 	Australia Korea	low	low	high	low	low med	<ul style="list-style-type: none"> ▪ input from fishers 	0402/06
Haul mitigation	<ul style="list-style-type: none"> ▪ identify extent of haul captures and related environmental/operational factors ▪ identify possible mitigation methods ▪ test efficacy of methods in reducing captures 	<ul style="list-style-type: none"> ▪ analyse existing datasets ▪ fisher advice ▪ scientist input ▪ at sea experiments 			high				<ul style="list-style-type: none"> ▪ input from fishers ▪ designing experiment ▪ sharing analyses ▪ technical advice 	
Use of fish oil deterrent	<ul style="list-style-type: none"> ▪ identify range of species deterrent is effective for ▪ develop alternative deployment methods ▪ identify effective ingredients 	<ul style="list-style-type: none"> ▪ at sea trials ▪ at sea trials ▪ chemical analyses ▪ at sea trials 	New Zealand		med				<ul style="list-style-type: none"> ▪ input from fishers ▪ sharing analyses ▪ technical advice ▪ collaborative trials ▪ sharing results 	

Mitigation Measure	Research Need(s)	Method	Country undertaking Research	Member Priorities (high, medium, low)					Opportunities for Collaboration	Past ERSWG Papers
				JP	NZ	AU	KR	TW		
Area closures (temporal and spatial)	<ul style="list-style-type: none"> effectiveness in reducing seabird bycatch 	<ul style="list-style-type: none"> analyse existing data sets collect and analyse comparative spatial data 	Australia	low	med	high	low	low	<ul style="list-style-type: none"> input from fishers sharing analyses 	0402/06

ERSWG OPERATIONAL FRAMEWORK

The Commission requires the ERSWG to provide information and advice based on research which:

- determines the nature and extent of ERS interactions in SBT fisheries
- determines the effects of SBT and other fisheries on ERS
- assesses current or potential measures to reduce ERS captures
- assesses predator and prey species which may affect the condition of the SBT stock

The ERSWG also has a role in the development of advice on best practice for educational activities. The ERSWG will provide advice and recommendations on these issues and on research priorities to the Commission through the Scientific Committee.

The following table details an operational framework for consideration and endorsement by the Commission. This framework is intended to be an evolving one. Work areas included in the table are considered to be of high priority for the ERSWG, and will form the basis for key discussions and output from ERSWG meetings. This does not preclude discussion of other items.

The framework will be reviewed at ERSWG meetings, where items and information can be added, deleted or modified, taking account of the degree of progress of the projects.

Commission Requirements (Broad Areas of Work)	Relevant Terms of Reference	Research Questions/ Objective	Input	ERSWG Process	Outputs	Time Frame	Status
CURRENT WORK PRIORITIES FOR THE ERSWG							
A) Assessment of ERS interactions with SBT fisheries	2(a) 3(a) (iii)	1) Provision of estimates of bycatch and/or incidental take of seabirds and other species taken in SBT fisheries.	Relevant sections from members' annual reports to the ERSWG, scientific papers and/or data as appropriate.	Each member provides necessary papers and/or data in electronic format to the Secretariat for distribution four weeks in advance of the ERSWG. Papers submitted later shall be considered by the ERSWG following discussion between the chair and parties. An agenda item at the ERSWG is dedicated to review of the papers presented and/or analyses of data and the development of a section for inclusion in the report to the Commission.	Report from ERSWG to Commission which synthesises information provided by members, provides advice on, and identifies, areas of further research and cooperation, including potential mitigation measures.	ERSWG 7	Annual and ongoing
B) Development of an agreed methodology for estimating seabird bycatch		Assessing the effects of SBT fishing on ERS	Members to prepare alternative methodologies for consideration at ERSWG7	Intersessional work on methodologies for describing seabird catch or estimating total captures for the fishery to be developed. Submission of viable alternative methods to ERSWG7, that fit within the data provision and submission requirements of the agreement.	Agreed method of reporting seabird captures, and if required agreed methodology for estimating or extrapolating these across all fishing effort	ERSWG7	

Commission Requirements (Broad Areas of Work)	Relevant Terms of Reference	Research Questions/ Objective	Input	ERSWG Process	Outputs	Time Frame	Status
	5, 6	2) What factors influence seabird captures in SBT fisheries?	Relevant sections from members' annual reports to the ERSWG, scientific papers and/or data as appropriate.	<p>Each member provides necessary papers and/or data in electronic format to the Secretariat for distribution four weeks in advance of the ERSWG. Papers submitted later shall be considered by the ERSWG following discussion between the chair and parties.</p> <p>An agenda item at the ERSWG is dedicated to review of the papers presented and/or analyses of data and the development of a section for inclusion in the report to the Commission.</p>	Advice on key factors which influence seabird bycatch, those factors warranting further investigation and, potential mitigation measures.	ERSWG 7	—
C) Development and Assessment of Effectiveness of Mitigation Measures	3(a) (iv), 5	<p>1) How can the design and deployment of tori lines be optimised to minimise seabird captures?</p> <p>2) Development of blue-dyed bait.</p> <p>3) Research on effect on SBT-CPUE of night setting.</p>	Relevant sections from members' annual reports to the ERSWG, scientific papers and/or data as appropriate and information from fishers.	<p>Each member provides necessary papers and/or data in electronic format to the Secretariat for distribution four weeks in advance of the ERSWG. Papers submitted later shall be considered by the ERSWG following discussion between the chair and parties.</p> <p>An agenda item at the ERSWG is dedicated to review of the papers presented and/or analyses of data and the development of a section for inclusion in the report to the Commission.</p>	<p>Advice on amendments or improvements to the guidelines for tori pole design and deployment (ERSWG3 Attachment 6).</p> <p>Advice on additional measures including multiple mitigation measures.</p>	ERSWG 7	—

Commission Requirements (Broad Areas of Work)	Relevant Terms of Reference	Research Questions/ Objective	Input	ERSWG Process	Outputs	Time Frame	Status
D) ERS Interactions with SBT	2(b), 3(b)	1) Identification of 'other' ERS. 2) Identification of SBT food and ecological relationships. 3) promote cooperative studies on ecological interactions 4) research on the stomach contents of SBT at various stages, including pre-recruitment stage. 5) Review of effect of prey species abundance on SBT stock, especially pre-recruitment stage.	Relevant sections from members' annual reports to the ERSWG, and scientific papers etc.	Exchange and accumulate data on ecological interactions of SBT and its relationships between population dynamics	Identification of key ecological factors which affect SBT stock fluctuation and recruitment		
E) Education and Public Relations	5, 6	1) Promote awareness of ERS issues to fishers. 2) Promote awareness of appropriate use of tori lines.	Relevant sections from members' annual reports to the ERSWG, and scientific papers etc. Update of information on Albatross taxonomy.	Exchange of members' views and information to occur intersessionally. Re-draft ERS seabird pamphlet to reflect updated taxonomy prior to next re-print of the pamphlet. ACAP secretariat to provide updated albatross taxonomy following completion of work by ACAP's Taxonomy Working Group	Re-drafted ERS seabird pamphlet. Advice on appropriate education and public relations needs. Advice on appropriate taxonomy provided.	Prior to next re-print of pamphlet.	

Commission Requirements (Broad Areas of Work)	Relevant Terms of Reference	Research Questions/ Objective	Input	ERSWG Process	Outputs	Time Frame	Status
FUTURE WORK AREAS OF HIGH PRIORITY FOR ERSWG							
F) Proposals for Future Research or Activities¹	4		Research plan(s). Results of the review of scientific papers.	Review of research plans.	Recommendations to the Commission. Research questions / proposals.		Annual
G) Agreement on data exchange		Monitoring of ERS interactions	Members to prepare recommendations prior to ERSWG7			ERSWG7	

¹ Once a research proposal under F) and G) is agreed by the ERSWG and CCSBT, the relevant research question or objective from the proposal would move up into current work priorities section of the table.