



Australian Government
Bureau of Rural Sciences

**REVIEW OF INTERNATIONAL INSTRUMENTS
RELEVANT TO ECOLOGICALLY RELATED SPECIES:
DATA REQUIREMENTS AND RECOMMENDATIONS
FOR SHARKS AND SEABIRDS**

by

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Review of international instruments relevant to ecologically related species: data requirements and recommendations for sharks and seabirds

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ABSTRACT

This paper was prepared for the sixth meeting of the Ecologically Related Species Working Group of the CCSBT, Taiwan, 20–23 February 2006. The paper provides an overview of relevant international instruments to assist CCSBT members in the development of recommendations to monitor and reduce the impact of SBT fishing on ecologically related species (ERS). Specifically, the paper focuses on (i) data requirements to assist in monitoring and assessing the impact of tuna fishing on ERS, and (ii) recommendations for reducing bycatch of sharks and seabirds.

Brief overviews are presented of ten key international instruments and a listing of other relevant bodies which recommend actions relevant to ERS. The key instruments include:

1. **The International Plan of Action for the Conservation and Management of Sharks (IPOA-SHARKS)** encourages States to adopt a national plan of action for the conservation and management of shark stocks (NPOA-SHARKS) if their vessels conduct directed fisheries for sharks or if their vessels regularly catch sharks in non-directed fisheries. States should also strive to cooperate through regional fisheries organisations with a view to ensuring the sustainability of shark stocks, including, the development of subregional or regional shark plans.
2. **The International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-SEABIRDS)** encourages States to adopt a national plan of action for reducing the incidental catch of seabirds in longline fisheries (NPOA-SEABIRDS) where there is concern about the occurrence of incidental catches of seabirds. States should also strive to cooperate through regional fisheries organisations to reduce the incidental catch of seabirds in longline fisheries.
3. **The Convention on the Conservation of Migratory Species of Wild Animals (CMS), including the Agreement of the Conservation of Albatrosses and Petrels (ACAP)**, encourages all Parties to mitigate known threats to the conservation of albatross and petrel populations. The CMS considers the incidental catch of seabirds during longline fishing operations as the most significant threat to albatrosses. In relation to fishing activities under the auspices of a regional fisheries organisation, the Parties shall consider information and evaluations from that organisation, and shall adopt, in its area of competence, the measures agreed by that organisation for reducing the incidental taking of albatrosses and petrels.
4. **The Convention on Biological Diversity (CBD)** is dedicated to promoting sustainable development, and encourages cooperation between Parties in developing methods for the sustainable use of biological resources.
5. **The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)** aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. All international trade of species listed under CITES must first be authorised through a licensing system. The Conference of the Parties to the Convention (Twelfth Meeting, Santiago, Chile, 3-15 November 2002) resolution on Conservation and Management of Sharks urges Regional Fisheries Management Organisations to take steps to undertake the research, training, data collection, data analysis and shark management plan development outlined by FAO as necessary to implement the IPOA-SHARKS.
6. **The Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)** aims to conserve marine life of the Southern Ocean. All fishing and associated activities in the area to which this Convention applies shall be conducted in accordance with the provisions of the Convention. This includes adhering to conservation measures to reduce the incidental mortality of seabirds during longline fishing and data reporting requirements on bycatch, including fine-scale catch and effort for all species, by species.

7. **International Commission for the Conservation of Atlantic Tunas (ICCAT)** has conducted assessments of blue shark and mako shark bycatch. In 2005 their Sub-Committee on Bycatch recommended that Contracting Parties and non-Contracting Parties (collectively termed CPCs) continue to develop and conduct observer programs to collect accurate data on shark and other bycatch, report on total catches (landings and discards), institute mitigation measures to reduce or eliminate bycatch interactions and undertake that further research on shark bycatch and biology.
8. **Indian Ocean Tuna Commission (IOTC)** in 2005 adopted recommendations on incidental mortality of seabirds, including: that all CPCs should report on the status of their NPOA-Seabirds and be urged to implement the IPOA-SEABIRDS, should collect and provide information on interactions with seabirds and when feasible the Scientific Committee should assess the impact of incidental seabird catch. The resolution on the conservation of sharks was also adopted in 2005, including that all CPCs: shall annually report shark catch data, shall take measures to require their fishers fully utilise their retained shark catch, shall require their vessels to not have fins onboard that total more than 5 percent of the weight of shark on board, encourage the release of live sharks, and undertake research to make fishing gears more selective, such as avoiding use of wire trace.
9. **Inter-American Tropical Tuna Commission (IATTC)** in 2005, adopted a resolution on incidental mortality of seabirds that all CPCs should report on their NPOA-SEABIRDS and are urged to implement the IPOA-SEABIRDS and when feasible assess the impact of incidental catch, including the identification of geographic areas where there could be interactions. The resolution on the conservation of sharks was also adopted in 2005 including, that each CPC: should establish and implement an NPOA-Sharks, take measures to require their fishers fully utilise any retained shark catch, shall require their vessels to not have fins onboard that total more than 5 percent of the weight of shark on board, encourage release of live sharks, undertake research to make fishing gear more selective and annually report catches, effort, landings and trade by species and provide any historic data. In 2006 the Scientific Committee with provide preliminary assessment of stock status of key species.
10. **Western and Central Pacific Fisheries Commission (WCPFC)** in 2005 considered and will soon adopt recommendations on incidental mortality of seabirds including call for all Members and Cooperating Non-Members (CCMs) to implement the IPOA-SEABIRDS and report on this, collect and provide information on interactions with seabirds, take steps necessary to ensure comprehensive recording and monitoring of seabird interactions. The draft resolution on non-target fish species was also considered in 2005 and will soon be adopted including: that all CCMs shall encourage fishers to avoid capture of, and prompt release of all non-target species, the WCPFC will seek advice on steps to improve information, including enhancing observer and port sampling programs, review of mitigation measures for non-target and review mitigation measures.

Other relevant bodies (international tuna research and management organisations and tuna related sites) which recommend general/specific actions relevant to: (i) data requirements to assist in assessing and monitoring the impact of tuna fishing, and/or (ii) recommendations for reducing bycatch of ERS are also listed. These include Pacific Islands Forum Fisheries Agency (**FFA**), South Pacific Regional Environment Programme (**SPREP**), Secretariat of the Pacific Community (**SPC**), Asia-Pacific Economic Cooperation (**APEC**), Northwest Atlantic Fisheries Organisation (**NAFO**), North Pacific Fishery Management Council (**NPFMC**), Organisation for the Protection of Responsible Tuna Fisheries (**OPRT**), Pacific Islands Forum Secretariat (**PIFS**), High Seas Task Force, Food and Agriculture Organisation (**FAO**) and the Division of Ocean Affairs and the Law of the Sea (**DOALOS**).

INTRODUCTION

This paper was prepared for the sixth meeting of the Ecologically Related Species Working Group of the CCSBT, Taiwan, 20–23 February 2006, to provide an overview of relevant international instruments to assist CCSBT members in the development of recommendations to monitor and reduce the impact of SBT fishing on ecologically related species (ERS).

This paper focuses on existing international agreements and arrangements relevant to ERS, in particular: (i) data requirements to assist in monitoring and assessing the impact of tuna fishing on ERS, and (ii) recommendations for reducing bycatch of sharks and seabirds. Brief overviews are presented for ten key international instruments: International Plan of Action for the Conservation and Management of Sharks (**IPOA-SHARKS**), International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (**IPOA-SEABIRDS**), Convention on the Conservation of Migratory Species of Wild Animals (**CMS**), including the Agreement of the Conservation of Albatrosses and Petrels (**ACAP**), Convention on Biological Diversity (**CBD**), Convention for the Conservation of Antarctic Marine Living Resources (**CCAMLR**), Convention on International Trade in Endangered Species of Wild Flora and Fauna (**CITES**), International Commission for the Conservation of Atlantic Tunas (**ICCAT**), Indian Ocean Tuna Commission (**IOTC**), Inter-American Tropical Tuna Commission (**IATTC**) and Western and Central Pacific Fisheries Commission (**WCPFC**).

Furthermore, it lists other international tuna research and management organisations and tuna related sites including: Pacific Islands Forum Fisheries Agency (**FFA**), South Pacific Regional Environment Programme (**SPREP**), Secretariat of the Pacific Community (**SPC**), Asia-Pacific Economic Cooperation (**APEC**), Northwest Atlantic Fisheries Organisation (**NAFO**), North Pacific Fishery Management Council (**NPFMC**), Organisation for the Protection of Responsible Tuna Fisheries (**OPRT**), Pacific Islands Forum Secretariat (**PIFS**), High Seas Task Force, Food and Agriculture Organisation (**FAO**) and Division of Ocean Affairs and the Law of the Sea (**DOALOS**).

This brief review aims to facilitate ERSWG6 deliberations and emphasis the need for action. The CCSBT Convention 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). Furthermore, the terms of reference for the ERSWG specifically includes the provision of recommendations on data collection programs with respect to ERS species (TOR 4). The ERSWG shall also provide information and advice on issues relating to species associated with SBT, with specific reference to species (both fish and non-fish) which may be affected by SBT fisheries operations (TOR 2a); advice on measures to minimise fishery effects on ERS, including but not limited to gear and operational modifications (TOR 5); and advice on other measures which may enhance the conservation and management of ERS (TOR 6).

INTERNATIONAL INSTRUMENTS

1. International Plan of Action for the Conservation and Management of Sharks (IPOA-SHARKS)

Summary: The objective of the IPOA-SHARKS is to ensure the conservation and management of sharks and their long-term sustainable use. Extended members of the CCSBT, which are also members of FAO, include Japan, Australia, New Zealand, the Republic of Korea, and the Philippines. Japan and Australia have completed their NPOA-SHARKS. States should report on the progress of assessment, development and implementation of their NPOA-SHARKS as part of their biennial reporting to FAO on the Code of Conduct for Responsible Fisheries.

Origin

- The IPOA-SHARKS is a voluntary instrument developed by the FAO in recognition of the expanding global catches of sharks and their potential negative impacts on shark populations articulated during CITES Resolution Conf. 9.17. The IPOA-SHARKS

reflects the prevailing view that it is necessary to better manage directed shark catches and fisheries in which sharks constitute a significant bycatch.

- The IPOA-SHARKS was adopted by the 23rd session of COFI in 1999.
- It has been elaborated within the framework of the Code of Conduct for Responsible Fisheries as envisaged by Article 2 (d).

Objective

The objective of the IPOA-SHARKS is to ensure the conservation and management of sharks and their long-term sustainable use. Specific aims are to:

- Ensure that shark catches from directed and non-directed fisheries are sustainable.
- Assess threats to shark populations, determine and protect critical habitats and implement harvesting strategies consistent with the principles of biological sustainability and rational long-term economic use.
- Identify and provide special attention, in particular to vulnerable or threatened shark stocks.
- Improve and develop frameworks for establishing and co-ordinating effective consultation involving all stakeholders in research, management and educational initiatives within and between States.
- Minimise unutilised incidental catches of sharks.
- Contribute to the protection of biodiversity and ecosystem structure and function.
- Minimise waste and discards from shark catches in accordance with article 7.2.2 (g) of the Code of Conduct for Responsible Fisheries (e.g., requiring the retention of sharks from which fins are removed), and encourage full use of dead sharks.
- Facilitate improved species-specific catch and landings data and monitoring of shark catches.
- Facilitate the identification and reporting of species-specific biological and trade data.

Implementation

- States should adopt a national plan of action for conservation and management of shark stocks (NPOA-SHARKS) if their vessels conduct directed fisheries for sharks or if their vessels regularly catch sharks in non-directed fisheries.
- Each State is responsible for developing, implementing and monitoring its NPOA-SHARKS.
- States should report on the progress of assessment, development and implementation of their NPOA-SHARKS as part of their biennial reporting to FAO on the Code of Conduct for Responsible Fisheries.
- Extended members of the CCSBT, which are also members of FAO, include Japan, Australia New Zealand, the Republic of Korea and the Philippines (*and South Africa and Indonesia, noting that these two countries are currently negotiating CCSBT relations*).
- To date, Japan and Australia are the only countries that have completed their NPOA-SHARKS.

Recommendations from NPOA-SHARKS regarding data requirements and shark bycatch relevant to ERS in CCSBT

Australia (extracted and modified from Australia's NPOA-SHARKS)

Objectives

- Ensure that shark catches from target and non-target fisheries are sustainable.
- Minimise unutilised incidental catches of sharks.
- To minimise waste and discards from shark catches in accordance with article 7.7.2 (g) of the Code of Conduct for Responsible Fishing (FAO 1995) (e.g., requiring the retention of sharks from which fins are removed).

Actions

- Assess current management arrangements for sharks against the objectives of this NPOA-SHARKS and the issues that this plan seeks to address. In particular, assess whether these arrangements are consistent with ecological sustainability of sharks and a precautionary approach, and are enforceable.
- Assess current management arrangements for listed threatened shark species against the requirements of recovery plans for those species; and address any deficiencies within 12 months of that assessment.

- Assess the effectiveness of current shark bycatch reduction measures in reducing shark mortality, paying particular attention to: the effectiveness of limits and bans on retention of shark byproduct; and the effectiveness of "generic" limits on shark byproduct in non-target fisheries; address any deficiencies identified in these assessments; and encourage the adoption of effective shark bycatch reduction measures.
- Assess whether finning bans, requiring fins to be landed when either attached to or accompanied by trunks, are being implemented effectively and are achieving their objectives; and identify any deficiencies and address these.

Japan (extracted from Japan's NPOA-SHARKS)

- Establish the following system in the management of shark resources:
 - i) a group of experts will make assessment of shark resources on a regular basis and report to a committee composed of scientists, administrators and fishers.
 - ii) based on the above assessment, discussion will be made at the committee regarding the need for management measures and have the decisions reflected in the NPOA-SHARKS.
- Continue surveys and research for development of new ways of use aimed at higher-level use of shark resources.

Website

- http://www.fao.org/figis/servlet/static?dom=org&xml=ipoa_sharks.xml

2. International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-SEABIRDS)

Summary: The objective of the IPOA-SEABIRDS is to reduce the incidental catch of seabirds in longline fisheries where this occurs. Extended members of the CCSBT, which are also members of FAO, include Japan, Australia, New Zealand, the Republic of Korea, and the Philippines. Japan have completed their NPOA-SEABIRDS. Australia has completed a final draft, but has yet to submit it to FAO. Countries should report on the progress of assessment, development and implementation of their NPOA-SEABIRDS as part of their biennial reporting to FAO on the Code of Conduct for Responsible Fisheries.

Origin

- The IPOA-SEABIRDS is a voluntary instrument developed by the FAO in recognition of an increased awareness about the incidental catch of seabirds in longline fisheries and its potential negative impact on seabird populations.
- The IPOA was adopted by 23rd session of COFI in 1999.
- It has been elaborated within the framework of the Code of Conduct for Responsible Fisheries as envisaged by Article 2 (d).

Objective

The objective of the IPOA-SEABIRDS is to reduce the incidental catch of seabirds in longline fisheries where this occurs. Specific aims are to:

- Prescribe appropriate mitigation methods. These should have a proven efficiency, and be cost-effective for the fishing industry. If effectiveness of mitigation measures can be improved by combining different mitigation measures or devices, it is likely that each State will find it advantageous to implement a number of different measures that reflect the need and particular circumstances of their specific longline fishery.
- Contain plans for research and development, including those aiming to:
 - develop the most practical and effective seabird deterrent device;
 - improve other technologies and practices which reduce the incidental capture of seabirds;
 - undertake specific research to evaluate the effectiveness of mitigation measures used in the longline fisheries, where this problem occurs.

- Prescribe means to raise awareness among fishers, fishing associations and other relevant groups about the need to reduce the incidental catch of seabirds in longline fisheries where this occurs; National and International Plans of Action and other information on the incidental catch of seabirds in longline fisheries; and to promote the implementation of the NPOA-SEABIRDS among national industry, research and its own administration.
- Provide information about technical or financial assistance for reducing the incidental catch of seabirds.
- Preferably describe the design and implementation of outreach programmes for fishers, fisheries managers, gear technologists, maritime architects, shipbuilders, and conservationists and other interested members of the public. These programmes should aim at improving the understanding of the problem arising from incidental catch of seabirds and the use of mitigation measures.
- Prescribe programmes for the collection of reliable data to determine the incidental catch of seabirds in longline fisheries and the effectiveness of mitigation measures. Such programmes may make use of onboard observers.

Implementation

- States should adopt a National Plan of Action for reducing the incidental catch of seabirds in longline fisheries (NPOA-SEABIRDS) if there is concern about the occurrence of incidental catches of seabirds.
- States, within the framework of their respective competencies and consistent with international law, should strive to cooperate through regional and subregional fisheries organisations or arrangements, and other forms of cooperation, to reduce the incidental catch of seabirds in longline fisheries.
- Data collected by States should, where appropriate, be made available to, and discussed within the framework of, relevant subregional and regional fisheries organisations and FAO. International collaboration on data collection and data sharing systems for stock assessments is particularly important in relation to transboundary, straddling, highly migratory and high seas shark stocks.
- In implementing the IPOA-SEABIRDS States recognise that cooperation among States which have important longline fisheries is essential to reduce the incidental catch of seabirds given the global nature of the issue. States should strive to collaborate through FAO and through bilateral and multilateral arrangements in research, training and the production of information and promotional material.
- Each State is responsible for the design, implementation and monitoring of its NPOA-SEABIRDS.
- States should report on the progress of the assessment, development and implementation of their NPOA-SEABIRDS as part of their biennial reporting to FAO on the Code of Conduct for Responsible Fisheries.
- Extended members of the CCSBT, which are also members of FAO, include Japan, Australia, New Zealand, the Republic of Korea and the Philippines (*and South Africa and Indonesia, noting that these two countries are currently negotiating CCSBT relations.*).
- To date, Japan is the only country that has completed their NPOA-SEABIRDS. Australia has compiled a final draft but this has not yet been submitted to FAO. New Zealand NPOA is in preparation (*and South Africa which has submitted their draft NPOA to FAO*)

It is important to note that IPOA-SEABIRDS identifies optional technical and operational measures to reduce incidental catch of seabirds. To reduce the incidental catch of seabirds, it is essential to reduce the number of encounters between seabirds and baited hooks. The options listed below, if used singularly, or in combination, could improve mitigation effectiveness. The IPOA-SEABIRDS states that the list below should not be considered mandatory or exhaustive and FAO shall maintain a data base of measures that are in use or under development.

Technical measures

- Increase the sink rate of baits:
 - Weighting the longline gear to increase the sinking speed of baited hooks and reduce their exposure time to seabirds.
 - Thawing bait to overcome buoyancy problems and/or puncturing swim bladders.
 - Line-setting machine to increase line sinking rate by removing line tension during gear deployment.
- Below-the-water setting chute, capsule, or funnel to prevent access by seabirds to baited hooks by setting line under water.
- Bird-scaring line positioned over or in the area where baited hooks enter the water
- to prevent seabirds access to baited hooks where they enter the water. The bird scaring line is designed to discourage birds by preventing their access to baited hooks. Design specifications may vary by vessel, fishing operation, and location and are critical to its effectiveness. Streamer lines and towing buoys are examples of these techniques.
- Bait casting machine to place bait in area protected by a bird scaring line and outside the turbulence caused by the propeller and the ship's wake.
- Bird-scaring curtain to deter seabirds from taking baited hooks during the haul.
- Artificial baits or lures to reduce palatability or availability of baits.
- Hook modification to utilise hook types that reduce the probability of birds getting caught when they attack a baited hook.
- Acoustic deterrent to deter birds from the longline using acoustic signals, such as high frequency, high volume, distress call, etc. (Low probability of being effective).
- Water cannon to conceal baited hooks by using high pressure water (no definite conclusion).
- Magnetic deterrent to perturb the magnetic receptors of the birds by creating magnetic fields (No indication of effect in practical experiments).

Operational Measures

- Reduce visibility of bait, this includes setting during hours of darkness (night setting) and reducing illumination of baited hooks in the water.
- Reduce the attractiveness of the vessels to seabirds; materials (e.g. fish discards, garbage) should be discharged from vessels at a time, or in a way that reduces the availability to birds and is less likely to cause them harm. This includes avoiding the dumping of discarded fish, offal, fish heads, etc. with embedded hooks. If dumping offal is unavoidable, it should be done on the opposite side of the vessel to where lines are being set or in such a manner that birds are not attracted to the vessel (e.g. at night).
- Area and seasonal closures, to avoid concentrations of breeding or foraging seabirds.
- Preferential licensing to vessels that use mitigation measures that do not require compliance monitoring.
- Release live birds.

Recommendations from NPOA-SEABIRDS regarding data requirements and seabird bycatch relevant to ERS in CCSBT

Australia (extracted from Australia's draft NPOA-SEABIRDS modified)

Objectives

The overarching objective is to reduce the incidental catch of seabirds in longline fisheries where this occurs.

The specific objectives of the Seabird-plan are:

- 1. To mitigate seabird interactions in longline fisheries using safe, practical and cost-effective methods that do not negatively impact on other species.**

Action

1.1 All Australian Government-managed longline fisheries known to have an adverse impact on seabirds are to implement mitigation measures prescribed under the Threat Abatement Plan (TAP). (refer to information paper: CCSBT-ERS/0602/Infor 04).

1.2 In all State/Territory-managed longline fisheries found to have an adverse impact on seabirds after the adoption of this Plan, initiate action immediately to ensure effective bycatch reduction methods are adopted and introduced.

1.3 As appropriate, introduce voluntary or mandatory measures required under Action 1.1 and 1.2 that are safe, practical, cost-effective and able to be monitored and enforced.

2. To obtain an accurate understanding of: where interactions between seabirds and longline fisheries occur; the magnitude and type of interactions; and, the performance of bycatch mitigation measures where these are applied, including impacts on both target and non-target species.

Action

2.1 Collect data on seabird bycatch in all longline fisheries.

2.2 Validate seabird bycatch logbook data in those fisheries which pose a moderate to high risk to seabirds and, where resources permit, validate the accuracy of logbook reporting in those fisheries which pose a low risk.

2.3 Analyse seabird bycatch data collected from logbooks and other methods on a regular basis to assess the effectiveness of mitigation measures and improve knowledge of seabird-longline interactions.

2.4 Ensure that all seabirds killed by Australian longline fisheries operating in the Australian Fishing Zone or on the high seas are to be reported to the appropriate management authority.

2.5 Ensure that details of all banded seabirds killed on longlines are reported to the Australian Bird and Bat Banding Scheme.

2.6 Where regulations permit, collect all birds killed on longlines for analysis. Birds are to be stored on board the vessel in a manner that will limit decay of the specimen and meet Australian Quarantine and Inspection Service regulations, and be transported to an identified storage and analysis facility.

3. To raise the awareness of longline operators and the general community of the need to mitigate seabird bycatch.

Action

3.1 Introduce a comprehensive and coordinated education and awareness programme for longline fishers with a particular focus on legislative requirements in relation to seabird interaction and effective use of mitigation and seabird handling techniques.

4. To increase stakeholder knowledge of effective bycatch mitigation strategies and to provide an effective method to communicate the results of relevant research to fisheries managers, extension services and longline operators.

Action

4.1 Introduce a community education strategy to inform the public of the NPOA-Seabirds and the testing of various mitigation measures by fishers.

4.2 Report regularly on progress of implementation of the NPOA-Seabirds to an implementation committee and interested parties.

4.3 Regularly communicate the results of mitigation trials nationally.

4.4 Promote the need for seabird bycatch mitigation to other relevant countries through appropriate international fisheries and conservation fora.

4.5 Communicate the results of research on seabird behaviour, biology and population status relevant to bycatch threats nationally and through international conservation fora.

5. To encourage a commitment from longline operators to adopt effective methods to mitigate seabird bycatch.

Action

5.1 Encourage third party accreditation of fisheries (eg. Environmental Management Systems, Marine Stewardship Council).

5.2 Consider providing preferential access conditions to fishers that demonstrate competence in seabird bycatch mitigation (in reference to the TAP).

5.3 Ensure that where mandatory bycatch mitigation measures exist, penalties for not complying are adequate.

6. To determine the level of risk each longline fishery may interact with seabirds at the regional level.

Action

6.1 Map seabird distribution data in regions within the AFZ and assess the risk to seabird populations from interactions with longline fishing operations.

7. To monitor the uptake of mitigation measures by fishers and ensure, where mandatory measures are in place, that compliance programmes and penalties are adequate.

Action

7.1 Assess compliance to ensure that mandatory measures are being implemented.

7.2 Pursue appropriate action where mandatory measures are not implemented.

7.3 Assess the level of uptake of seabird bycatch mitigation measures.

8. In consultation with stakeholders, encourage and provide for research into the development of new and improved seabird mitigation measures.

Action

8.1 The Stakeholder Reference Group and the TAP Team will collaborate in setting research priorities.

8.2 Enable stakeholders to collaborate in the development of new mitigation measures, rigorous trialling and refinement of existing measures.

9. To continue research into reducing interactions between longline fisheries and seabirds.

Action

9.1 Assess the impacts of all longline fishing methods on seabird populations and the significance of these compared to other impacts on seabird populations.

9.2 Assess the impacts of effective seabird bycatch mitigation measures on other species, particularly threatened species.

9.3 Assess the impact of measures developed to reduce the bycatch of other species eg. (turtles, sharks) on seabird species.

9.4 Undertake studies of the population status and foraging distribution of seabirds vulnerable to the effects of longline fishing.

9.5 Catalogue seabird distribution data in regions within the AFZ and assess the risk to seabird populations from interactions with fishing operations.

The Seabird-plan objectives are to be achieved through four key areas:

- Data collection and monitoring (Objective 1)
- Education, training and publicity (Objectives 2, 3)
- Recommendation of mitigation measures (Objectives 4, 5 and 6)
- Research and development (Objective 7, 8 and 9)

Japan (extracted from Japan's NPOA-SEABIRDS)

- Implement measures to minimize incidental catch of seabirds in accordance with the following basic policy, also taking into account the presence and behaviour of seabirds in specific areas as well as the location of breeding grounds:
 - i) The experiences accumulated by fishers over a long period of time in implementing measures to reduce incidental seabird catches should be respected. Fishers should be encouraged to improve and implement such measures voluntarily.
 - ii) In so far as practicable, avoidance measures that have high selectivity and are environmentally safe and cost effective should be developed.
 - iii) Consideration should be given to reducing operational burdens and risks to fishers.

1. Distant-water longline tuna fishery, near-shore longline tuna fishery, and coastal longline tuna fishery

(A) Southern bluefin tuna fishery area

Japan already requires fishing vessels targeting southern bluefin tuna to use bird scaring streamers (the tori-pole streamer) in order to avoid incidental catches of seabirds. In addition to this, the following measures will be taken:

- a) Every effort should be made to release birds which are still alive when brought onboard the vessel and, if possible, remove the hook to avoid further injury to the bird.

- b) Disposal of offal from the vessels during line setting should be avoided as much as possible. In unavoidable cases, methods to avoid further attraction of seabirds to baited hooks should be employed, such as setting the line from the opposite end of the vessel.
- c) One or more of the following avoidance measures should be applied, taking into account the presence and approach of seabirds to the vessel and sea conditions:
- (i) in bait casting, the use of weighted branch lines or cones which enable bait to sink as quickly as possible after line setting;
 - (ii) the use of an automatic bait-casting machine and properly thawed bait;
 - (iii) night line setting;
 - (iv) blue dyed bait;
 - (v) waterjet devices; and
 - (vi) side setting.

(B) Pacific Ocean north of 20 degrees north

The following measures shall be taken by longline tuna fishing operations north of 20 degrees north in the Pacific Ocean.

- a) Every effort should be made to release birds which are still alive when brought onboard the vessel and, if possible, remove the hook to avoid further injury to the bird.
- b) Disposal of offal from the vessels during line setting should be avoided as much as possible. In unavoidable cases, methods to avoid further attraction of seabirds to baited hooks should be employed, such as setting the line from the opposite end of the vessel.
- c) One or more of the following avoidance measures should be applied, taking into account the presence and approach of seabirds to the vessel and sea conditions:
- (i) the use of streaming devices (the tori-pole streamer) or other impediments to settling on the sea surface, such as buoys and wooden boards, which will obstruct interactions between seabirds and bait at the time of line setting;
 - (ii) night line setting;
 - (iii) the use of weighted branch lines or cones which enable bait to sink as quickly as possible after line setting;
 - (iv) the use of an automatic bait-casting machine or properly thawed bait (For distant-water longline tuna fisheries, both of them are necessary);
 - (v) blue dyed bait;
 - (vi) water-jet devices; and
 - (vii) side setting.

(C) Torishima Island Special Area (within 20 nautical miles of Torishima Island) (October-May)

In Torishima Island Special Area, in addition to the requirement to implement mitigation measure (B)(c)(i) above, one or more measures from (B)(c)(ii) to (vii) must be taken from October through May.

(D) Other areas

In areas other than those mentioned above, efforts should be made to take appropriate mitigation measures if there is concern about the occurrence of incidental catch of seabirds.

2. Other longline fishing

Fishers are requested to take the following measures with respect to other longline fisheries operating in Japan's coastal/offshore areas:

- a) Every effort should be made to release birds which are still alive when brought onboard the vessel and, if possible, remove the hook to avoid further injury to the bird.
- b) Disposal of offal from the vessels during line setting should be avoided as much as possible. In unavoidable cases, methods to avoid further attraction of seabirds to baited hooks should be employed, such as setting the line from the opposite end of the vessel.
- c) If operations are conducted between October and May in the Torishima Island Special Area, avoidance measure (i) below is required and one or more of measures (ii)-(vii) should be implemented, taking into account the presence and approach of seabirds to the vessel and sea conditions:
- (i) the use of streaming devices (the tori-pole streamer) or other impediments to settling on the sea surface, such as buoys and wooden boards, which will obstruct interactions between seabirds and bait at the time of line setting;
 - (ii) night line setting,
 - (iii) the use of weighted branch lines or cones which enable bait to sink as quickly as possible after line setting;
 - (iv) the use of an automatic bait-casting machine and properly thawed bait;
 - (v) blue dyed bait;
 - (vi) water-jet devices, and
 - (vii) side setting.

Website

- http://www.fao.org/figis/servlet/static?dom=org&xml=ipoa_seabirds.xml

3. The Convention on the Conservation of Migratory Species of Wild Animals (CMS) including the Agreement of the Conservation of Albatrosses and Petrels (ACAP)

Summary: The objective of the CMS is to conserve migratory species of wild animals throughout their range, by providing strict protection for species and habitats of endangered animals and by promoting international agreements for the protection of migratory species that require or would benefit significantly from international cooperation. Extended members of the CCSBT, which are also members of CMS, include Australia, New Zealand and the Philippines (MoU Signatory). The incidental catch of seabirds during longline fishing operations is considered the most significant threat to albatrosses. Under the ACAP, an Action Plan has been developed which describes a number of conservation measures to be implemented by Parties to stop, or reverse, population declines by coordinating action between Range States to mitigate known threats to albatross and petrel populations, including reducing incidental mortalities in fisheries.

Origin

- The CMS is an inter-governmental treaty concerned with the conservation of wildlife and habitats on a global scale.
- The CMS was concluded under the United Nations Environment Programme, which provides and administers the CMS Secretariat.

Objective

- The objective of the CMS is to conserve migratory species of wild animals throughout their range, by providing strict protection for species and habitats of endangered animals listed in CMS Appendix I and by promoting international agreements for the protection of migratory species that require or would benefit significantly from international cooperation, listed in CMS Appendix II.

Implementation

- The CMS acts as a framework Convention. Agreements made under the CMS may range from legally binding treaties (Agreements) to less formal instruments (Memoranda of Understanding), and can be adapted to the requirements of particular regions.
- Several Agreements have been concluded to date under the CMS including 'Albatrosses and Petrels' (ACAP) which was in force in 2004.
- Species of seabirds reported incidentally caught in SBT fishing grounds, listed as migratory species threatened with extinction, include wandering albatross (*Diomedea exulans*), royal albatross (*Diomedea epomophora*), black-browed albatross (*Diomedea melanophris*), Buller's albatross (*Diomedea bulleri*), shy albatross (*Diomedea cauta*), yellow-nosed albatross (*Diomedea chlororhynchos*), grey-headed albatross (*Diomedea chrysostoma*), sooty albatross (*Phoebastria fusca*), light-mantled sooty albatross (*Phoebastria palpebrate*), southern giant petrel (*Macronectes giganteus*), northern giant petrel (*Macronectes halli*), grey petrel (*Procellaria cinerea*) and white-chinned petrel (*Procellaria aequinoctialis*).
- The only species of shark reported incidentally caught in SBT fishing grounds, listed as migratory species conserved through agreements, is the great white shark (*Carcharodon carcharias*).
- Extended members of the CCSBT, which are also members of CMS, include Australia, New Zealand, and the Philippines (MoU Signatory) (*and South Africa, noting that this country is currently negotiating CCSBT relations.*).

Recommendations from CMS regarding data requirements, and seabird and shark bycatch, relevant to ERS in CCSBT

Agreement of the Conservation of Albatrosses and Petrels (ACAP)

- The incidental catch of seabirds during longline fishing operations is considered the most significant threat to albatrosses.
- Albatrosses and petrels are susceptible to threats operating throughout their range and it is unlikely that conservation action by one nation will be effective. International cooperation on aspects of albatross and petrel conservation enhances the prospects for successful conservation measures across their migratory range.

- The Agreement aims to stop or reverse population declines by coordinating action between Range States to mitigate known threats to albatross and petrel populations.
- To achieve this ACAP includes an Action Plan which describes a number of conservation measures to be implemented by Parties. Conservation measures to be implemented include research and monitoring, reducing of incidental mortality in fisheries, eradicating of non-native species at breeding sites and reducing of disturbances, habitat loss and pollution.
- The Agreement recognises that there are existing international instruments that contain some conservation measures relevant to seabirds, such as the Convention for the Conservation of Antarctic Marine Living Resources and the FAO International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. It also recognises the importance of building cooperative and coordinated working relationships with these organisations.

Website

- http://www.cms.int/species/acap/acap_bkrd.htm

4. Convention on Biological Diversity (CBD)

Summary: The objectives of the CBD are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Extended members of the CCSBT, which are also members of CBD, include Japan, Australia, New Zealand, the Republic of Korea and the Philippines.

Origin

- In 1992, at the United Nations Environment Programme held in Rio Earth Summit, world leaders agreed on a comprehensive strategy for 'sustainable development'.
- One of the key agreements adopted at Rio was the Convention on Biological Diversity.

Objective

- The objectives of the CBD are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

Implementation

- The Conference of the Parties (COP) identified fisheries operations as one of the five main impacts on marine and coastal ecosystems.
- The COP initiated work on seven thematic work programmes, including 'marine and coastal biodiversity'.
- Arising from concern for the conservation and sustainable use of marine and coastal biodiversity, the Parties to the Convention on Biological Diversity agreed on a program of action for implementing the Convention. The programme, called 'Jakarta Mandate on Marine and Coastal Biological Diversity' was adopted in 1995. Through its programme of work, adopted in 1998, and reviewed and updated in 2004, the Convention focuses on integrated marine and coastal area management, the sustainable use of living resources, marine and coastal protected areas, mariculture and alien species.
- The programme of work on Marine and Coastal Biodiversity aims to assist the implementation of the Jakarta Mandate at the national, regional and global level. It identifies key operational objectives and priority activities within the five key programme elements, namely: implementation of integrated marine and coastal area management, marine and coastal living resources, marine and coastal protected areas, mariculture and alien species and genotypes.

- Apart from the seven thematic work programmes, various cross cutting issues were also introduced to bring cohesion to the work of the Convention as they provide the substantive bridges or links between the thematic programmes, notably 'Sustainable Use of Biodiversity', 'Impact Assessment' and 'Ecosystem Approach'.
- Extended members of the CCSBT, which are also members of CBD, include Japan, Australia, New Zealand, the Republic of Korea and the Philippines (*and South Africa and Indonesia, noting that these countries are currently negotiating CCSBT relations.*).

Recommendations from CBD regarding data requirements, and sharks and seabird bycatch relevant to ERS in CCSBT

A. Sustainable Use of Biodiversity

- Article 10 of the CBD sets the sustainable use agenda for Parties, which should:
 - i) *Integrate* consideration of the conservation and sustainable use of biological resources into national decision-making;
 - ii) *Adopt* measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity;
 - iii) *Protect* and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements;
 - iv) *Support* local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced; and
 - v) *Encourage* cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.
- Practical principles and related operational guidelines relating to the sustainable use of biodiversity were adopted at the seventh meeting of the COP in 2004:
 1. Supportive policies, laws, and institutions are in place at all levels of governance and there are effective linkages between these levels.
 2. Recognizing the need for a governing framework consistent with international/national laws, local users of biodiversity components should be sufficiently empowered and supported by rights to be responsible and accountable for use of the resources concerned.
 3. International, national policies, laws and regulations that distort markets which contribute to habitat degradation or otherwise generate perverse incentives that undermine conservation and sustainable use of biodiversity, should be identified and removed or mitigated.
 4. Adaptive management should be practiced, based on:
 - a) Science and traditional and local knowledge;
 - b) Iterative, timely and transparent feedback derived from monitoring the use, environmental, socio-economic impacts, and the status of the resource being used; and
 - c) Adjusting management based on timely feedback from the monitoring procedures.
 5. Sustainable use management goals and practices should avoid or minimize adverse impacts on ecosystem services, structure and functions as well as other components of ecosystems.
 6. Interdisciplinary research into all aspects of the use and conservation of biological diversity should be promoted and supported.
 7. The spatial and temporal scale of management should be compatible with the ecological and socio-economic scales of the use and its impact.
 8. There should be arrangements for international cooperation where multinational decision-making and coordination are needed.
 9. An interdisciplinary, participatory approach should be applied at the appropriate levels of management and governance related to the use.
 10. International, national policies should take into account:
 - a) Current and potential values derived from the use of biological diversity;
 - b) Intrinsic and other non-economic values of biological diversity; and
 - c) Market forces affecting the values and use.
 11. Users of biodiversity components should seek to minimize waste and adverse environmental impact and optimize benefits from uses.

12. The needs of indigenous and local communities who live with and are affected by the use and conservation of biological diversity, along with their contributions to its conservation and sustainable use, should be reflected in the equitable distribution of the benefits from the use of those resources.
13. The costs of management and conservation of biological diversity should be internalized within the area of management and reflected in the distribution of the benefits from the use.
14. Education and public awareness programmes on conservation and sustainable use should be implemented and more effective methods of communications should be developed between and among stakeholders and managers.

B. Impact Assessments

- Guidelines have been developed to assist Parties in incorporating biodiversity-related issues into environmental impact assessment and strategic environmental assessment legislation and procedures.
- **With respect to consideration of mitigation measures relevant to fisheries, the guidelines state** (COP7 - Decision VI/7): "If the evaluation process concludes that the impacts are significant, the next stage in the process is to propose mitigation ideally drawn together into an "environmental management plan". The purpose of mitigation in environmental impact assessment is to look for better ways to implement project activities so that negative impacts of the activities are avoided or reduced to acceptable levels and the environmental benefits are enhanced, and to make sure that the public or individuals do not bear costs which are greater than the benefits which accrue to them. Remedial action can take several forms, i.e. avoidance (or prevention), mitigation (including restoration and rehabilitation of sites), and compensation (often associated with residual impacts after prevention and mitigation)."

C. Ecosystem Approach

- The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.
- The seventh meeting of the Conference of the Parties agreed that the priority at this time should be on facilitating implementation of the ecosystem approach and welcomed additional guidelines to this effect (Decision VII/11).

Website

- <http://www.biodiv.org/default.shtml>

5. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Summary: The objective of CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Extended members of the CCSBT, which are also members of CITES, include Japan, Australia, New Zealand, the Republic of Korea and the Philippines. All international trade of species listed under CITES must first be authorised through a licensing system. The Conference of the Parties to the Convention (Twelfth Meeting, Santiago, Chile, 2002) resolution on Conservation and Management of Sharks urges Regional Fisheries Management Organisations to take steps to undertake the research, training, data collection, data analysis and shark management plan development outlined by FAO as necessary to implement the IPOA-SHARKS.

Origin

- CITES is an international agreement between Governments that aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival, to which States/Countries adhere to CITES on a voluntary basis.
- CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union) and in force in 1975.
- The CITES Secretariat is administered by United Nations Environment Programme.

Objective

- The objective of CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
- CITES provides a framework to be respected by each State/Country, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level.
- CITES is legally binding on the all member States/Countries; however, it does not take the place of national laws.

Implementation

- CITES operates by subjecting international trade in specimens of selected species to certain controls. All import, export, re-export and introduction from the sea of species covered by the Convention has to be authorized through a licensing system.
- Each State/Country to the Convention must designate one or more Management Authorities in charge of administering that licensing system and one or more Scientific Authorities to advise them on the effects of trade on the status of the species.
- The only species of shark reported incidentally caught in SBT fishing grounds, listed under CITES, is the great white shark (*Carcharodon carcharias*). No seabird species reported incidentally caught in SBT fishing grounds are listed under CITES.
- Extended members of the CCSBT, which are also members of CITES, include Japan, Australia, New Zealand, the Republic of Korea and the Philippines (*and South Africa and Indonesia, noting that these countries are currently negotiating CCSBT relations.*).

Recommendations from CITES regarding data requirements, and shark and seabird bycatch relevant to ERS in CCSBT

The Conference of the Parties to the Convention (Twelfth Meeting, Santiago, Chile, 3-15 November 2002) addressed shark conservation and management, i.e., Resolution Conf. 12.6: Conservation and management of sharks.

The following decisions were made by the Conference of the Parties to the Convention:

- AGREES that a lack of progress in the development of the FAO IPOA-Sharks is not a legitimate justification for a lack of further substantive action on shark trade issues within the CITES forum;
- INSTRUCTS the CITES Secretariat to raise with FAO concerns regarding the significant lack of progress in implementing the IPOA-Sharks, and to urge FAO to take steps to actively encourage relevant States to develop NPOA-Sharks;
- DIRECTS the Animals Committee to critically review progress towards IPOA-Sharks implementation (NPOA-Sharks) by major fishing and trading nations, by a date one year before the 13th meeting of the Conference of the Parties to CITES;
- DIRECTS the Animals Committee to examine information provided by range States in shark assessment reports and other available relevant documents, with a view to identifying key species and examining these for consideration and possible listing under CITES;
- ENCOURAGES Parties to obtain information on implementation of IPOA-Sharks from their fisheries departments, and report directly on progress to the CITES Secretariat and at future meetings of the Animals Committee;
- URGES FAO COFI and Regional Fisheries Management Organisations to take steps to undertake the research, training, data collection, data analysis and shark management plan development outlined by FAO as necessary to implement the IPOA-Sharks;
- ENCOURAGES Parties to contribute financially and technically to the implementation of the IPOA-Sharks;
- DIRECTS the Animals Committee to make species-specific recommendations at the 13th meeting and subsequent meetings of the Conference of the Parties if necessary on improving the conservation status of sharks and the regulation of international trade in these species;
- RECOMMENDS that Parties continue to identify endangered shark species that require consideration for inclusion in the Appendices, if their management and conservation status does not improve; and

- REQUESTS Management Authorities to collaborate with their national Customs authorities to expand their current classification system to allow for the collection of detailed data on shark trade including, where possible, separate categories for processed and unprocessed products, for meat, cartilage, skin and fins, and to distinguish imports, exports and re-exports. Wherever possible these data should be species-specific.

Website

- <http://www.cites.org/>

6. Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)

Summary: The objective of the Convention is to conserve marine life of the Southern Ocean (this does not exclude harvesting carried out in a rational manner). Extended members of the CCSBT, which are also members of CCAMLR, include Japan, Australia, New Zealand and the Republic of Korea. All fishing and associated activities in the area to which this Convention applies shall be conducted in accordance with the provisions of the Convention. This includes adhering to conservation measures to reduce the incidental mortality of seabirds during longline fishing and data reporting requirements on bycatch, including fine-scale catch and effort for all species, by species.

Origin

- The Convention for the Conservation of Antarctic Marine Living Resources came into force in 1982, as part of the Antarctic Treaty System, in pursuance of the provisions of Article IX of the Treaty.
- This Convention applies to the Antarctic marine living resources of the area south of 60° South latitude and to the Antarctic marine living resources of the area between that latitude and the Antarctic Convergence which form part of the Antarctic marine ecosystem.
- Antarctic marine living resources means the populations of fin fish, molluscs, crustaceans and all other species of living organisms, including birds, found south of the Antarctic Convergence.

Objective

- The objective of the Convention is to conserve marine life of the Southern Ocean. However this does not exclude harvesting carried out in a rational manner.
- Management follows an 'ecosystem' approach, taking into account the complex relationships between organisms and physical processes that constitute the Antarctic marine ecosystem.
- Management strives to follow a 'precautionary' approach. This means that CCAMLR collects the data it can, then scrutinize the extent and effect of the uncertainties and gaps in such data before making a management decision.

Implementation

- The Commission follows a regulatory framework to manage each fishery via which it implements catch limits and/or other measures. It also adopts measures aimed at minimising any potential impact that fishing activities may exert on non-target species.
- CCAMLR established the Ad hoc Working Group on Incidental Mortality Arising from Longline Fishing (WG-IMALF) in 1992. In 2001, the group changed its name to the Ad hoc Working Group on Incidental Mortality Associated with Fishing (WG-IMAF) after it changed its terms of reference to include incidental mortality associated with trawl fishing.
- The enforcement of management measures is generally the responsibility of individual members, but the Commission, through various publications, aims to encourage compliance with measures.
- Extended members of the CCSBT, which are also members of CCAMLR, include Japan, Australia, New Zealand and the Republic of Korea (*and South Africa, noting that this country is currently negotiating CCSBT relations.*).

Recommendations from CCAMLR regarding data requirements and seabird bycatch, relevant to ERS in CCSBT

CONSERVATION MEASURE 24-02 (2005):

Longline weighting for seabird conservation

(Species-seabirds; Area-selected; Season-all; Gear-longline)

In respect of fisheries in Statistical Sub-areas 48.6, 88.1 and 88.2 and Statistical Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b and 58.5.2, paragraph 4 of Conservation Measure 25-02 shall not apply only where a vessel can demonstrate its ability to fully comply with one of the following protocols.

Protocol A (for vessels monitoring longline sink rate with Time-Depth Recorders (TDRs) and using longlines to which weights are manually attached):

A1. Prior to entry into force of the licence for this fishery and once per fishing season prior to entering the Convention Area, the vessel shall, under observation by a scientific observer:

- i) set a minimum of two longlines with a minimum of four TDRs on the middle one-third of each longline, where:
 - a) for vessels using the auto longline system, each longline shall be at least 6 000 m in length;
 - b) for vessels using the Spanish longline system, each longline shall be at least 16 000 m in length;
 - c) for vessels using the Spanish longline system, with longlines less than 16 000 m in length, each longline shall be of the maximum length to be used by the vessel in the Convention Area;
 - d) for vessels using a longline system other than an autoline or Spanish longline system, each longline shall be of the maximum length to be used by the vessel in the Convention Area.
- ii) randomise TDR placement on the longline, noting that all tests should be applied midway between weights;
- iii) calculate an individual sink rate for each TDR when returned to the vessel, where:
 - a) the sink rate shall be measured as an average of the time taken for the longline to sink from the surface (0 m) to 15 m;
 - b) this sink rate shall be at a minimum rate of 0.3 m/s;
- iv) if the minimum sink rate is not achieved at all eight sample points (four tests on two longlines), continue the testing until such time as a total of eight tests with a minimum sink rate of 0.3 m/s are recorded;
- v) all equipment and fishing gear used in the tests is to be to the same specifications as that to be used in the Convention Area.

A2. During fishing, for a vessel to be allowed to maintain the exemption to night-time setting requirements (paragraph 4 of Conservation Measure 25-02), regular longline sink monitoring shall be undertaken by the CCAMLR scientific observer. The vessel shall cooperate with the CCAMLR observer who shall:

- i) attempt to conduct a TDR test on one longline set every twenty-four hour period;
- ii) every seven days place at least four TDRs on a single longline to determine any sink rate variation along the longline;
- iii) randomise TDR placement on the longline, noting that all tests should be applied halfway between weights;
- iv) calculate an individual longline sink rate for each TDR when returned to the vessel;
- v) measure the longline sink rate as an average of the time taken for the longline to sink from the surface (0 m) to 15 m.

A3. The vessel shall:

- i) ensure that all longlines are weighted to achieve a minimum longline sink rate of 0.3 m/s at all times whilst operating under this exemption;
- ii) report daily to its national agency on the achievement of this target whilst operating under this exemption;

iii) ensure that data collected from longline sink rate tests prior to entering the Convention Area and longline sink rate monitoring during fishing are recorded in the CCAMLR-approved format¹ and submitted to the relevant national agency and CCAMLR Data Manager within two months of the vessel departing a fishery to which this measure applies.

Protocol B (for vessels monitoring longline sink rate with bottle tests and using longlines to which weights are manually attached):

B1. Prior to entry into force of the licence for this fishery and once per fishing season prior to entering the Convention Area, the vessel shall, under observation by a scientific observer:

- i) set a minimum of two longlines with a minimum of four bottle tests (see paragraphs B5 to B9) on the middle one-third of each longline, where:
 - a) for vessels using the auto longline system, each longline shall be at least 6 000 m in length;
 - b) for vessels using the Spanish longline system, each longline shall be at least 16 000 m in length;
 - c) for vessels using the Spanish longline system, with longlines less than 16 000 m in length, each longline shall be of the maximum length to be used by the vessel in the Convention Area;
 - d) for vessels using a longline system other than an autoline or Spanish longline system, each longline shall be of the maximum length to be used by the vessel in the Convention Area;
- ii) randomise bottle test placement on the longline, noting that all tests should be applied midway between weights;
- iii) calculate an individual sink rate for each bottle test at the time of the test, where:
 - a) the sink rate shall be measured as the time taken for the longline to sink from the surface (0 m) to 10 m;
 - b) this sink rate shall be at a minimum rate of 0.3 m/s;
- iv) if the minimum sink rate is not achieved at all eight sample points (four tests on two longlines), continue the testing until such time as a total of eight tests with a minimum sink rate of 0.3 m/s are recorded;
- v) all equipment and fishing gear used in the tests is to be to the same specifications as that to be used in the Convention Area.

B2. During fishing, for a vessel to be allowed to maintain the exemption to night-time setting requirements (paragraph 4 of Conservation Measure 25-02), regular longline sink rate monitoring shall be undertaken by the CCAMLR scientific observer. The vessel shall cooperate with the CCAMLR observer who shall:

- i) attempt to conduct a bottle test on one longline set every twenty-four hour period;
- ii) every seven days conduct at least four bottle tests on a single longline to determine any sink rate variation along the longline;
- iii) randomise bottle test placement on the longline, noting that all tests should be applied halfway between weights;
- iv) calculate an individual longline sink rate for each bottle test at the time of the test;
- v) measure the longline sink rate as the time taken for the longline to sink from the surface (0 m) to 10 m.

B3. The vessel shall:

- i) ensure that all longlines are weighted to achieve a minimum longline sink rate of 0.3 m/s at all times whilst operating under this exemption;
- ii) report daily to its national agency on the achievement of this target whilst operating under this exemption;
- iii) ensure that data collected from longline sink rate tests prior to entering the Convention Area and longline sink rate monitoring during fishing are recorded in the CCAMLR-approved format¹ and submitted to the relevant national agency and CCAMLR Data Manager within two months of the vessel departing a fishery to which this measure applies.

B4. A bottle test is to be conducted as described below.

Bottle Set Up

B5. 10 m of 2 mm multifilament nylon snood twine, or equivalent, is securely attached to the neck of a 500–1 000 ml plastic bottle² with a longline clip attached to the other end. The length measurement is taken from the attachment point (terminal end of the clip) to the neck of the bottle, and should be checked by the observer every few days.

B6. Reflective tape should be wrapped around the bottle to allow it to be observed in low light conditions and at night.

Test

B7. The bottle is emptied of water, the stopper is left open and the twine is wrapped around the body of the bottle for setting. The bottle with the encircled twine is attached to the longline³, midway between weights (the attachment point).

B8. The observer records the time at which the attachment point enters the water as t^1 in seconds. The time at which the bottle is observed to be pulled completely under is recorded as t^2 in seconds⁴. The result of the test is calculated as follows:

$$\text{Longline sink rate} = 10 / (t^2 - t^1).$$

B9. The result should be equal to or greater than 0.3 m/s. These data are to be recorded in the space provided in the electronic observer logbook.

Protocol C (for vessels monitoring longline sink rate with either (TDR) or bottle tests, and using internally weighted longlines with integrated weight of at least 50 g/m and designed to sink instantly with a linear profile at greater than 0.2 m/s with no external weights attached):

C1. Prior to entry into force of the licence for this fishery and once per fishing season prior to entering the Convention Area, the vessel shall, under observation by a scientific observer:

- i) set a minimum of two longlines with either a minimum of four TDRs, or a minimum of four bottle tests (see paragraphs B5 to B9) on the middle one-third of each longline, where:
 - a) for vessels using the auto longline system, each longline shall be at least 6 000 m in length;
 - b) for vessels using the Spanish longline system, each longline shall be at least 16 000 m in length;
 - c) for vessels using the Spanish longline system, with longlines less than 16 000 m in length, each longline shall be of the maximum length to be used by the vessel in the Convention Area;
 - d) for vessels using a longline system other than an autoline or Spanish longline system, each longline shall be of the maximum length to be used by the vessel in the Convention Area;
- ii) randomise TDR or bottle test placement on the longline;
- iii) calculate an individual sink rate for each TDR when returned to the vessel, or for each bottle test at the time of the test, where:
 - a) the sink rate shall be measured as an average of the time taken for the longline to sink from the surface (0 m) to 15 m for TDRs and the time taken for the longline to sink from the surface (0 m) to 10 m for bottle tests;
 - b) this sink rate shall be at a minimum rate of 0.2 m/s;
- iv) if the minimum sink rate is not achieved at all eight sample points (four tests on two longlines), continue the testing until such time as a total of eight tests with a minimum sink rate of 0.2 m/s are recorded;
- v) all equipment and fishing gear used in the tests is to be to the same specifications as that to be used in the Convention Area.

C2. During fishing, for a vessel to be allowed to maintain the exemption to night-time setting requirements (paragraph 4 of Conservation Measure 25-02), regular longline sink rate monitoring shall be undertaken by the CCAMLR scientific observer. The vessel shall cooperate with the CCAMLR observer who shall:

- i) attempt to conduct a TDR or bottle test on one longline set every twenty-four hour period;

- ii) every seven days conduct at least four TDR or bottle tests on a single longline to determine any sink rate variation along the longline;
- iii) randomise TDR or bottle test placement on the longline;
- iv) calculate an individual longline sink rate for each TDR when returned to the vessel or each bottle test at the time of the test;
- v) measure the longline sink rate for bottle tests as the time taken for the longline to sink from the surface (0 m) to 10 m, or for TDRs the average of the time taken for the longline to sink from the surface (0 m) to 15 m.

C3. The vessel shall:

- i) ensure that all longlines are set so as to achieve a minimum longline sink rate of 0.2 m/s at all times whilst operating under this exemption;
- ii) report daily to its national agency on the achievement of this target whilst operating under this exemption;
- iii) ensure that data collected from longline sink rate tests prior to entering the Convention Area and longline sink rate monitoring during fishing are recorded in the CCAMLR-approved format¹ and submitted to the relevant national agency and CCAMLR Data Manager within two months of the vessel departing a fishery to which this measure applies.

¹ Included in the scientific observer electronic logbook.

² A plastic water bottle that has a 'stopper' is needed. The stopper of the bottle is left open so that the bottle will fill with water after being pulled under water. This allows the plastic bottle to be re-used rather than being crushed by water pressure.

³ On autolines attach to the backbone; on the Spanish longline system attach to the hookline.

⁴ Binoculars will make this process easier to view, especially in foul weather.

CONSERVATION MEASURE 25-02 (2005)^{1, 2}:

Minimisation of the incidental mortality of seabirds in the course of longline fishing or longline fishing research in the Convention Area
(Species-seabirds; Area-all; Season-all; Gear-longline)

The Commission,

- *Noting* the need to reduce the incidental mortality of seabirds during longline fishing by minimising their attraction to fishing vessels and by preventing them from attempting to seize baited hooks, particularly during the period when the lines are set,
 - *Recognising* that in certain subareas and divisions of the Convention Area there is also a high risk that seabirds will be caught during line hauling,
 - *Adopts* the following measures to reduce the possibility of incidental mortality of seabirds during longline fishing.
1. Fishing operations shall be conducted in such a way that hooklines³ sink beyond the reach of seabirds as soon as possible after they are put in the water.
 2. Vessels using autoline systems should add weights to the hookline or use integrated weight hooklines while deploying longlines. Integrated weight (IW) longlines of a minimum of 50 gm or attachment to non-IW longlines of 5 kg weights at 50 to 60 m intervals are recommended.
 3. Vessels using the Spanish method of longline fishing should release weights before line tension occurs; weights of at least 8.5 kg mass shall be used, spaced at intervals of no more than 40 m, or weights of at least 6 kg mass shall be used, spaced at intervals of no more than 20 m.
 4. Longlines shall be set at night only (i.e. during the hours of darkness between the times of nautical twilight^{4, 5}). During longline fishing at night, only the minimum ship's lights necessary for safety shall be used.
 5. The dumping of offal is prohibited while longlines are being set. The dumping of offal during the haul shall be avoided. Any such discharge shall take place only on the opposite side of the vessel to that where longlines are hauled. For vessels or fisheries where there is not a requirement to retain offal on board the vessel, a system shall be implemented to remove fish hooks from offal and fish heads prior to discharge.
 6. Vessels which are so configured that they lack on-board processing facilities or adequate capacity to retain offal on board, or the ability to discharge offal on the opposite side of the vessel to that where longlines are hauled, shall not be authorised to fish in the Convention Area.

7. A streamer line shall be deployed during longline setting to deter birds from approaching the hookline. Specifications of the streamer line and its method of deployment are given in the appendix to this measure.
8. A device designed to discourage birds from accessing baits during the haul of longlines shall be employed in those areas defined by CCAMLR as average-to-high or high (Level of Risk 4 or 5) in terms of risk of seabird by-catch. These areas are currently Statistical Subareas 48.3, 58.6 and 58.7 and Statistical Divisions 58.5.1 and 58.5.2.
9. Every effort should be made to ensure that birds captured alive during longlining are released alive and that wherever possible, hooks are removed without jeopardising the life of the bird concerned.
10. Other variations in the design of mitigation measures may be tested on vessels carrying two observers, at least one appointed in accordance with the CCAMLR Scheme of International Scientific Observation, providing that all other elements of this conservation measure are complied with⁶. Full proposals for any such testing must be notified to the Working Group on Fish Stock Assessment (WG-FSA) in advance of the fishing season in which the trials are proposed to be conducted.

¹ Except for waters adjacent to the Kerguelen and Crozet Islands

² Except for waters adjacent to the Prince Edward Islands

³ Hookline is defined as the groundline or mainline to which the baited hooks are attached by snoods.

⁴ The exact times of nautical twilight are set forth in the Nautical Almanac tables for the relevant latitude, local time and date. A copy of the algorithm for calculating these times is available from the CCAMLR Secretariat. All times, whether for ship operations or observer reporting, shall be referenced to GMT.

⁵ Wherever possible, setting of lines should be completed at least three hours before sunrise (to reduce loss of bait to/catches of white-chinned petrels).

⁶ The mitigation measures under test should be constructed and operated taking full account of the principles set out in WG-FSA-03/22 (the published version of which is available from the CCAMLR Secretariat and website); testing should be carried out independently of actual commercial fishing and in a manner consistent with the spirit of Conservation Measure 21-02.

APPENDIX TO CONSERVATION MEASURE 25-02

1. The aerial extent of the streamer line, which is the part of the line supporting the streamers, is the effective seabird deterrent component of a streamer line. Vessels are encouraged to optimise the aerial extent and ensure that it protects the hookline as far astern of the vessel as possible, even in crosswinds.
2. The streamer line shall be attached to the vessel such that it is suspended from a point a minimum of 7 m above the water at the stern on the windward side of the point where the hookline enters the water.
3. The streamer line shall be a minimum of 150 m in length and include an object towed at the seaward end to create tension to maximise aerial coverage. The object towed should be maintained directly behind the attachment point to the vessel such that in crosswinds the aerial extent of the streamer line is over the hookline.
4. Branched streamers, each comprising two strands of a minimum of 3 mm diameter brightly coloured plastic tubing or cord, shall be attached no more than 5 m apart commencing 5 m from the point of attachment of the streamer line to the vessel and thereafter along the aerial extent of the line. Streamer length shall range between minimums of 6.5 m from the stern to 1 m for the seaward end. When a streamer line is fully deployed, the branched streamers should reach the sea surface in the absence of wind and swell. Swivels or a similar device should be placed in the streamer line in such a way as to prevent streamers being twisted around the streamer line. Each branched streamer may also have a swivel or other device at its attachment point to the streamer line to prevent fouling of individual streamers.
5. Vessels are encouraged to deploy a second streamer line such that streamer lines are towed from the point of attachment each side of the hookline. The leeward streamer line should be of similar specifications (in order to avoid entanglement, the leeward streamer line may need to be shorter) and deployed from the leeward side of the hookline.
6. Plastic tubing should be of a type that is manufactured to be protected from ultraviolet radiation.

CONSERVATION MEASURE 23-04 (2000)^{1,2} : Monthly Fine-Scale Catch and Effort Data Reporting System for Trawl, Longline and Pot Fisheries

(Species: all except krill, Area: all, Season: all, Gear: all)

The Commission hereby adopts the following conservation measure in accordance with Conservation Measure 31-01, where appropriate.

This conservation measure is invoked by the conservation measures to which it is attached.

1. Specification of 'target species' and 'by-catch species' referred to in this conservation measure shall be made in the conservation measure to which it is attached.
2. At the end of each month each Contracting Party shall obtain from each of its vessels the data required to complete the CCAMLR fine-scale catch and effort data form (trawl fisheries Form C1, longline fisheries Form C2, or pot fisheries Form C5). It shall transmit those data in the specified format to the Executive Secretary not later than the end of the following month.
3. The catch of all target and by-catch species must be reported by species.
4. The numbers of seabirds and marine mammals of each species caught and released or killed must be reported.
5. Should a Contracting Party fail to transmit the fine-scale catch and effort data to the Executive Secretary in the appropriate form by the deadline specified in paragraph 2, the Executive Secretary shall issue a reminder to the Contracting Party. If at the end of a further two months those data have still not been provided, the Executive Secretary shall notify all Contracting Parties of the closure of the fishery to vessels of the Contracting Party which has failed to supply the data as required.

¹ Except for waters adjacent to the Kerguelen and Crozet Islands

² Except for waters adjacent to the Prince Edward Islands

Website

- <http://www.ccamlr.org/>

7 International Commission for the Conservation of Atlantic Tunas (ICCAT)

Summary: The objective of the ICCAT is to undertake a range of work required for the study and management of tunas and tuna-like fishes in the Atlantic. Extended members of the CCSBT, which are also members of ICCAT, include Japan, the Republic of Korea and the Philippines. In 2005 their Sub-Committee on Bycatch recommended that Contracting Parties and non-Contracting Parties continue to develop and conduct observer programs to collect accurate data on shark and other bycatch, report on total catches (landings and discards), institute mitigation measures to reduce or eliminate bycatch interactions and undertake that further research on shark bycatch and biology.

Origin

- The International Commission for the Conservation of Atlantic Tunas is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas.
- The organisation was established in 1969, at a Conference of Plenipotentiaries, which prepared and adopted the International Convention for the Conservation of Atlantic Tunas, signed in Rio de Janeiro, Brazil, in 1966.

Objective

- The objective of the ICCAT is to undertake a range of work required for the study and management of tunas and tuna-like fishes in the Atlantic. Such studies include research on biometry, ecology, and oceanography, with a principal focus on the effects of fishing on stock abundance.
- The Commission's work requires the collection and analysis of statistical information relative to current conditions and trends of the fishery resources in the Convention area.

- The Commission also undertakes work in the compilation of data for other fish species that are caught during tuna fishing (bycatch, principally sharks) in the Convention area, and which are not investigated by another international fishery organisation.

Implementation

- The Commission carries out the objectives set forth in the 1966 International Convention for the Conservation of Atlantic Tunas.
- The Commission can, on the basis of scientific evidence provided by SCRS and of other relevant information, adopt Recommendations and Resolutions aimed at maintaining the populations of ICCAT species at levels which will permit maximum sustainable catch.
- The Conservation and Management Measures Compliance Committee of the ICCAT reviews all aspects of compliance with ICCAT conservation and management measures in the ICCAT Convention Area, with particular reference to compliance with such measures by ICCAT Contracting Parties.
- Extended members of the CCSBT, which are also members of ICCAT, include Japan, the Republic of Korea and the Philippines (*and South Africa, noting that this country is currently negotiating CCSBT relations.*).

Recommendations from ICCAT regarding data requirements, and shark and seabird bycatch relevant to ERS in CCSBT

1. Executive Summary for sharks: 10/2005 (SHK-4. Management Recommendations)

The Commission directed in [Rec. 04-10] that in “2005, the SCRS shall review the assessment of shortfin mako sharks (*Isurus oxyrinchus*) and recommend management alternatives for consideration by the Commission.” This review was undertaken and as such the Committee cannot rule out the possibility that the current shortfin mako shark biomass in the North Atlantic is below the biomass that can support MSY. Should the Commission wish to improve the status of this stock, measures to reduce fishing mortality should be taken. Shortfin mako sharks are taken in a broad range of fisheries, both as targeted catch and as bycatch, and our knowledge of overall catch levels is inadequate. As such, there is no basis for recommending catch limits for this stock. Although technical measures such as modifications to fishing gear, restrictions on fishing areas and times, minimum or maximum sizes for allowable retained catch might prove beneficial, without more detailed information gathered through research programs designed to estimate the potential benefits of such measures, the Committee recommends that reductions in fleet capacity and effective effort could provide the most direct benefit to shortfin mako sharks.

2. Assessment reports for sharks: Report of the 2004 inter-sessional meeting of the ICCAT sub-committee on bycatches: shark stock assessment (Tokyo, Japan, 14-18 June 2004)

The primary objective for the 2004 Inter-sessional meeting of the ICCAT Sub-Committee on By-Catches was to conduct stock assessments of Atlantic blue shark (*Prionace glauca*) and shortfin mako (*Isurus oxyrinchus*) stocks, including a review of their biology, a description of the fisheries, analyses of the state of the stocks and outlook, analyses of the effects of current regulations, and recommendations for statistics and research. Due to limitations on quantity and quality of the information available for the stock assessment of blue shark and shortfin mako, the assessment was considered very preliminary in nature. The Group recommends that, should the Commission wish improved advice on the status of these and other by-catch species, as well as advice on the likely impacts of the tuna fisheries on these species, larger monitoring and research investments directed at sharks in particular, and other by-catch species in general, need be made.

Executive Summary on bycatch (10/2005):

Recommendations reported by the Sub-Committee on By-catches in 2005.

- The Sub-Committee recommends that the Commission hire a *By-catch Coordinator* at the Secretariat and to encourage Contracting Parties and Cooperating non-Contracting Parties, Entities or Fishing Entities to enhance their scientific delegations to include experts in seabird and turtle biology and population dynamics

- ii) Given that improvements in the ICCAT shark database can only be achieved if the Parties *increase infrastructure investment* into monitoring the overall catch composition and disposition of the overall catch of sharks and other by-catch species, the Sub-Committee recommends that, should the Commission wish improved advice on the status of these and other by-catch species, larger research investment should be made. This investment should include, as a minimum, *participation in Working Group meetings by national scientists* who have knowledge of the fleets impacting on these species.
- iii) The Sub-Committee recommends that Contracting Parties and Cooperating non-Contracting Parties, Entities or Fishing Entities continue to develop and *conduct observer programs* for their own fleets to collect accurate data on shark and other catches on species, including discards. It is important to provide a basis for quantifying by-catch levels.
- iv) The Commission has started to take measures to *reduce fishing capacity*, which may indirectly help reduce the magnitude of by-catch species such as sharks, turtles and birds. The Sub-Committee recommends that mitigation measures which have been demonstrated to reduce or eliminate interactions of by-catch species with tuna fisheries should be instituted by CPCs. The Sub-Committee also encourages further research into fishing gear modifications that can lead to reductions in by-catch. The following is a list of additional recommendations pertinent to the conduct of the Sub-Committee's business:
- v) The Sub-Committee recommends that data reporting *include total catches* (landings and discards).
- vi) Due to the uncertainties in the basic catch information, more *research into stock assessment methodologies that fully utilise the available data, including the tagging data*, such as proposed in Col. Vol. Sci. Pap. ICCAT, (58(3): 1073-1086 (2005) is recommended. These efforts should make use of the all of the available tagging study results. The Sub-Committee noted that the available shark tagging data from several Parties is already held at the Secretariat, but that results of one large-scale tagging study (Col. Vol. Sci. Pap. ICCAT, 58(3): 1171-1178 (2005) have yet to be incorporated into the ICCAT shark tagging database. The SubCommittee recommends that the Secretariat request these data from the appropriate source.
- vii) In addition to making use of the tagging data, *better use of historic effort patterns from the tuna fisheries* might be useful in improving advice on the status of these and other by-catch species. The Sub-Committee recommends that the Sub-Committee on Statistics review the available data and develop a method to raise the nominal reported effort statistics to the reported Task I catch data for the range of tuna fleets in the ICCAT area of responsibility.
- viii) The Sub-Committee also recommends that Parties be encouraged to conduct *data mining research to estimate historical catch (including discarded catch) and size/sex frequency of the catches* from the full range of fleets impacting these species.
- ix) The Sub-Committee further recommends that *standardized CPUE patterns from major fishing fleets*, such as those of the EC-Spain, EC-Portugal, etc., be provided.
- x) The Sub-Committee also recommends *making broader use of trade statistics (fins, etc.)* to extend the historical time series of estimates of removals. If using trade statistics, the Sub-Committee recommends use of species- and fleet-specific fin to weight conversion ratios as stated in the response to the Commission on Recommendation 04-10.
- xi) The Sub-Committee further recommends continued *research into the use of historic measures of relative abundance*, such as those potentially available from exploratory fishing surveys conducted in the 1950s.
- xii) Information available on movement patterns for blue and other sharks in the South Atlantic is relatively sparse. *Increased tagging efforts* (including the application of electronic tags) throughout the Atlantic, but *especially in the southern hemisphere*, are recommended. Cooperative research between ICCAT Parties and other Regional Fisheries Management Organisations with interest in shark and other by-catch species is especially needed because of the wide-ranging and highly migratory nature of these stocks. Such cooperative research might best be coordinated through ICCAT, and the Sub-Committee recommends the Commission again consider funding a by-catch coordinator position at the Secretariat to deal with shark and other by-catch issues.
- xiii) A number of uncertainties remain regarding basic life-history characteristics of blue shark and shortfin mako. There remain questions on the reproductive cycle for blue sharks which, if addressed through research, may result in more certain stock evaluations into the future. For shortfin mako, our understanding of life history traits is much less refined than for blue sharks and considerable improvement in understanding of mako

shark biology should result from intensified research on this species. The Sub-Committee thus recommends increased research into the life history of these species.

Website

- <http://www.iccat.es/>

8. Indian Ocean Tuna Commission (IOTC)

Summary: The objective of the IOTC is to promote cooperation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilisation of stocks covered by this Agreement and encouraging sustainable development of fisheries based on such stocks. Extended members of the CCSBT, which are also members of IOTC, include Japan, Australia, the Republic of Korea and the Philippines. In 2005 IOTC adopted recommendations on incidental mortality of seabirds, including: that all contracting/non-contracting Parties should report on the status of their NPOA-Seabirds and be urged to implement the IPOA-SEABIRDS; should collect and provide information on interactions with seabirds; and when feasible the Scientific Committee should assess the impact of incidental seabird catch. The resolution on the conservation of sharks was also adopted in 2005, including that all contracting/non-contracting Parties: shall annually report shark catch data; shall take measures to require their fishers fully utilise their retained shark catch; shall require their vessels to not have fins onboard that total more than 5 percent of the weight of shark on board; encourage the release of live sharks; and undertake research to make fishing gears more selective, such as avoiding use of wire trace.

Origin

- The Agreement for the Establishment of the IOTC was adopted by the FAO Council at its Hundred and Fifth Session in Rome on 25 November 1993. The Agreement entered into force on the accession of the tenth Member on 27 March 1996.
- The IOTC is an intergovernmental organisation established under Article XIV of the FAO constitution. It is mandated to manage tuna and tuna-like species in the Indian Ocean and adjacent seas.

Objective

- The objective of the IOTC is to promote cooperation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilisation of stocks covered by this Agreement and encouraging sustainable development of fisheries based on such stocks.

Implementation

- In order to achieve these objectives, the Commission has the following functions and responsibilities, in accordance with the principles expressed in the relevant provisions of the United Nations Convention on the Law of the Sea:
 - to keep under review the conditions and trends of the stocks and to gather, analyse and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries based on the stocks covered by this Agreement;
 - to encourage, recommend, and coordinate research and development activities in respect of the stocks and fisheries covered by this Agreement, and such other activities as the Commission may decide appropriate, including activities connected with transfer of technology, training and enhancement, having due regard to the need to ensure the equitable participation of Members of the Commission in the fisheries and the special interests and needs of Members in the region that are developing countries;
 - to adopt, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks covered by this Agreement and to promote the objective of their optimum utilisation throughout the Area;
 - to keep under review the economic and social aspects of the fisheries based on the stocks covered by this Agreement bearing in mind, in particular, the interests of developing coastal states.

- Extended members of the CCSBT, which are also members of IOTC, include Japan, Australia, the Republic of Korea and the Philippines (*and South Africa and Indonesia, noting that these countries are currently negotiating CCSBT relations and are also listed as cooperating non-contracting IOTC parties*).

Recommendations from IOTC regarding data requirements, and sharks and seabird bycatch, relevant to ERS in CCSBT

1. Recommendation 05/09 On incidental mortality of seabirds (Recommendation adopted in 2005)

The Indian Ocean Tuna Commission (IOTC),

- TAKING INTO ACCOUNT the FAO International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries;
- RECOGNISING the need to evaluate the incidental mortality of seabirds during longline fishing operations for tunas and tuna-like species;
- NOTING that fisheries other than longline fisheries targeting tuna and tuna-like species may also contribute to the incidental mortality of seabirds;
- FURTHER NOTING that other factors, such as swallowing marine debris, are also responsible for seabird mortality.
- RECOMMENDS, in accordance with paragraph 8 of Article IX of the Agreement, that:
 1. Contracting Parties and Cooperating non-Contracting Parties (hereinafter referred to as "CPCs") should inform the Scientific Committee, if appropriate, and the Commission of the status of their National Plans of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries. The Commission should urge CPCs to implement, if appropriate, the International Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries if they have not yet done so.
 2. CPCs should be encouraged to collect and voluntarily provide the Scientific Committee with all available information on interactions with seabirds, including incidental catches in all fisheries under the purview of IOTC.
 3. When feasible and appropriate, the Scientific Committee should present to the Commission an assessment of the impact of incidental catch of seabirds resulting from the activities of all the vessels fishing for tunas and tuna-like species, in the IOTC Area.
 4. CPCs are encouraged to support developing countries in their implementing the FAO International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries.

2. Resolution 05/05 concerning the conservation of sharks caught in association with fisheries managed by IOTC (Resolution adopted in 2005)

The Indian Ocean Tuna Commission (IOTC):

- RECALLING that the United Nations Food and Agriculture Organisation (FAO) International Plan of Action of Sharks calls on States, within the framework of their respective competencies and consistent with international law, to cooperate through regional fisheries organisations with a view to ensuring the sustainability of shark stocks as well as to adopt a National Plan of Action for the conservation and management of sharks (defined as elasmobranchs);
- CONSIDERING that many sharks are part of pelagic ecosystems in the IOTC area, and that tunas and tuna-like species are captured in fisheries targeting sharks;
- RECOGNISING the need to collect data on catch, effort, discards and trade, as well as information on the biological parameters of many species, in order to conserve and manage sharks;
- ADOPTS, in accordance with paragraph 1 of Article IX of the IOTC Agreement that:
 1. Contracting Parties, Cooperating non-Contracting Parties (CPCs) shall annually report data for catches of sharks, in accordance with IOTC data reporting procedures, including available historical data.
 2. In 2006 the Scientific Committee (in collaboration with the Working Party on Bycatch) provide preliminary advice on the stock status of key shark species and propose a research plan and timeline for a comprehensive assessment of these stocks.
 3. CPCs shall take the necessary measures to require that their fishermen fully utilise their entire catches of sharks. Full utilisation is defined as retention by the fishing vessel of all parts of the shark excepting head, guts and skins, to the point of first landing.

4. CPCs shall require their vessels to not have onboard fins that total more than 5 percent of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5 percent ratio through certification, monitoring by an observer, or other appropriate measures.
5. The ratio of fin-to-body weight of sharks described in paragraph 4 shall be reviewed by the scientific committee and reported back to the Commission in 2006 for revision, if necessary.
6. Fishing vessels are prohibited from retaining on board, transshipping or landing any fins harvested in contravention of this Resolution.
7. In fisheries that are not directed at sharks, CPCs shall encourage the release of live sharks, especially juveniles and pregnant sharks, to the extent possible, that are caught incidentally and are not used for food and/or subsistence.
8. CPCs shall, where possible, undertake research to identify ways to make fishing gears more selective (such as the implications of avoiding the use of wire traces).
9. CPCs shall, where possible, conduct research to identify shark nursery areas.
10. The Commission shall consider appropriate assistance to developing CPCs for the collection of data on their shark catches.
11. This resolution applies only to sharks caught in association with fisheries managed by the IOTC.
12. This provision to apply without prejudice to many artisanal fisheries which traditionally do not discard carcasses.

Website

- <http://www.iotc.org/English/index.php>

9. Inter-American Tropical Tuna Commission (IATTC)

Summary: The objective of the IATTC is to conserve and manage fisheries for tunas and other species taken by tuna-fishing vessels in the eastern Pacific Ocean. Extended members of the CCSBT, which are also members of IATTC, include Japan and the Republic of Korea. In 2005, adopted a resolution on incidental mortality of seabirds that all contracting/non-contracting Parties should report on their NPOA-SEABIRDS and are urged to implement the IPOA-SEABIRDS and when feasible assess the impact of incidental catch, including the identification of geographic areas where there could be interactions. The resolution on the conservation of sharks was also adopted in 2005 including, that each contracting/non-contracting Party: should establish and implement an NPOA-Sharks, take measures to require their fishers fully utilise any retained shark catch, shall require their vessels to not have fins onboard that total more than 5 percent of the weight of shark on board, encourage release of live sharks, undertake research to make fishing gear more selective and annually report catches, effort, landings and trade by species and provide any historic data. In 2006 the Scientific Committee with provide preliminary assessment of stock status of key species.

Origin

- The IATTC was established by international convention in 1950.

Objective

- The objective of the IATTC is to conserve and manage fisheries for tunas and other species taken by tuna-fishing vessels in the eastern Pacific Ocean.

Implementation

- The work of the IATTC staff is divided into two programs, the Tuna-Billfish Program and the Tuna-Dolphin Program.
- The principal responsibilities of the Tuna-Billfish Program are:
 - to study the biology of the tunas and related species of the eastern Pacific Ocean with a view to determining the effects that fishing and natural factors have on their abundance;
 - to recommend appropriate conservation measures so that the stocks of fish can be maintained at levels which afford maximum sustainable catches;
 - to collect information on compliance with Commission resolutions.

- Extended members of the CCSBT, which are also members of IATTC, include Japan and the Republic of Korea.

Recommendations from IATTC regarding data requirements, and sharks and seabird bycatch relevant to ERS in CCSBT

RESOLUTION C-05-01: RESOLUTION ON INCIDENTAL MORTALITY OF SEABIRDS

The Inter-American Tropical Tuna Commission (IATTC):

- TAKING INTO ACCOUNT the FAO International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries;
- RECOGNISING the need to evaluate the incidental mortality of seabirds during longline fishing operations for tunas and tuna-like species;
- NOTING that fisheries other than longline fisheries targeting tuna and tuna-like species may also contribute to the incidental mortality of seabirds;
- FURTHER NOTING that other factors, such as swallowing marine debris, are also responsible for seabird mortality.
- RECOMMENDS AS FOLLOWS:

1. Each IATTC Party, cooperating non-Party, fishing entity or regional economic integration organisation (collectively "CPCs") should inform, if appropriate, the Commission of the status of its National Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries. The Commission should urge CPCs to implement, if appropriate, the International Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries if they have not yet done so.
2. CPCs should be encouraged to collect and voluntarily provide the Commission with all available information on interactions with seabirds, including incidental catches in all fisheries under the purview of IATTC.
3. When feasible and appropriate, the Working Group on Stock Assessment should present to the Commission an assessment of the impact of incidental catch of seabirds resulting from the activities of all the vessels fishing for tunas and tuna-like species, in the eastern Pacific Ocean. This assessment should include an identification of the geographic areas where there could be interactions between longline fisheries and seabirds.

RESOLUTION C-05-03: RESOLUTION ON THE CONSERVATION OF SHARKS CAUGHT IN ASSOCIATION WITH FISHERIES IN THE EASTERN PACIFIC OCEAN

The Inter-American Tropical Tuna Commission (IATTC):

- RECALLING that the United Nations Food and Agriculture Organisation (FAO) International Plan of Action for the Conservation and Management of Sharks calls on States, within the framework of their respective competencies and consistent with international law, to cooperate through regional fisheries organisations with a view to ensuring the sustainability of shark stocks as well as to adopt a National Plan of Action for the conservation and management of sharks;

- CONSIDERING that many sharks are part of pelagic ecosystems in the Convention area, and that sharks are captured in fisheries targeting tunas and tuna-like species;
- RECOGNISING the need to collect data on catch, effort, discards, and trade, as well as information on the biological parameters of many species, as part of shark conservation and management;
- CONCERNED that an extensive unregulated shark fishery is reported to be conducted in the eastern Pacific Ocean (EPO) by a large number of shark-fishing vessels, including some slightly smaller than 24 m length overall, about which the Commission has little information;
- NOTING that the IATTC has adopted, in its Consolidated Resolution on Bycatch, a requirement for fishermen on purse-seine vessels to release unharmed non-target species, to the extent practicable, including sharks, and that governments with longline fleets also provide the required bycatch information as soon as possible;
- BELIEVING that specific measures to be respected by vessels of all fishing gears are necessary for the conservation of sharks in the EPO;

RESOLVES AS FOLLOWS:

1. Each Party and co-operating non-party, co-operating fishing entity or regional economic integration organisation (collectively "CPCs") should establish and implement a national plan of action for conservation and management of shark stocks, in accordance with the *FAO International Plan of Action for the Conservation and Management of Sharks*.

2. In 2006, the IATTC, in cooperation with scientists of CPCs and, if possible, the Western and Central Pacific Fisheries Commission, shall provide preliminary advice on the stock status of key shark species and propose a research plan for a comprehensive assessment of these stocks.
3. CPCs shall take the measures necessary to require that their fishers fully utilise any retained catches of sharks. Full utilization is defined as retention by the fishing vessel of all parts of the shark excepting head, guts, and skins, to the point of first landing.
4. CPCs shall require their vessels to have onboard fins that total no more than 5 percent of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5 percent ratio through certification, monitoring by an observer, or other appropriate measures.
5. The ratio of fin-to-body weight of sharks described in paragraph 4 shall be reviewed by the Working Group on Stock Assessment and reported back to the Commission in 2006 for revision, if necessary.
6. Fishing vessels are prohibited from retaining on board, transshipping, landing or trading in any fins harvested in contravention of this Resolution.
7. In fisheries for tunas and tuna-like species that are not directed at sharks, CPCs shall encourage the release of live sharks, especially juveniles, to the extent practicable, that are caught incidentally and are not used for food and/or subsistence.
8. CPCs shall, where possible, undertake research to identify ways to make fishing gears more selective.
9. CPCs are encouraged, where possible, to conduct research to identify shark nursery areas.
10. The Commission shall consider appropriate assistance to developing CPCs for the collection of data on shark catches.
11. Each CPC shall annually report data for catches, effort by gear type, landing and trade of sharks by species, where possible, in accordance with IATTC reporting procedures, including available historical data. CPCs shall send to the IATTC Secretariat, by May 1, at the latest, a comprehensive annual report of the implementation of this Resolution during the previous year.
12. Paragraphs 2-11 of this resolution apply only to sharks caught in association with fisheries managed by IATTC.

Website

- <http://www.iattc.org/>

10. Western and Central Pacific Fisheries Commission (WCPFC)

Summary: The objective of WCPFC is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the 1982 Convention and the Agreement. Extended members of the CCSBT, which are also members of WCPFC, include Australia, New Zealand and the Republic of Korea. In 2005 considered and will soon adopt recommendations on incidental mortality of seabirds including call for all Members and Cooperating Non-Members (CCMs) to implement the IPOA-SEABIRDS and report on this, collect and provide information on interactions with seabirds, take steps necessary to ensure comprehensive recording and monitoring of seabird interactions. The draft resolution on non-target fish species was also considered in 2005 and will soon be adopted including: that all CCMs shall encourage fishers to avoid capture of, and prompt release of all non-target species, the WCPFC will seek advice on steps to improve information, including enhancing observer and port sampling programs, review of mitigation measures for non-target and review mitigation measures.

Origin

- The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean was opened for signature at Honolulu in 2000 and came in force in 2004.
- Simultaneously with the adoption of the Convention, the participants in the Multilateral High-Level Conference (MHLC) also adopted a resolution establishing a Preparatory Conference for the Establishment of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific

Ocean. The Preparatory Conference aimed to establish the organisational and financial framework for the new Commission and its subsidiary bodies, as well as facilitate the future work of the Commission.

- The inaugural session of the Commission for the Conservation and Management of Highly Migratory Fish Stocks was held at Pohnpei in December 2004. The first regular session of the Scientific Committee took place at Noumea, New Caledonia in

Objective

- The objective of WCPFC is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the 1982 Convention and the Agreement.

Implementation

- The Commission shall have international legal personality and such legal capacity as may be necessary to perform its functions and achieve its objectives. The privileges and immunities which the Commission and its officers shall enjoy in the territory of a Contracting Party shall be determined by agreement between the Commission and the member concerned.
- The Commission shall make suitable arrangements for consultation, cooperation and collaboration with other relevant intergovernmental organisations, particularly those which have related objectives and which can contribute to the attainment of the objective of this Convention, such as the Commission for the Conservation of Antarctic Marine Living Resources, the Commission for the Conservation of Southern Bluefin Tuna, the Indian Ocean Tuna Commission and the Inter-American Tropical Tuna Commission.
- Extended members of the CCSBT (including formal non-members), which are also members of WCPFC include Australia, New Zealand and the Republic of Korea. Japan and the Philippines are observers (*and Indonesia, noting that this country is currently negotiating CCSBT relations*).

Recommendations from WCPFC regarding data requirements, and shark and seabird bycatch, relevant to ERS in CCSBT

DRAFT NON STATUS RESOLUTION BY WCPFC ON INCIDENTAL MORTALITY OF SEABIRDS (WCPFC2-2005/DP. 06, 2005, agreed to but not yet adopted)

Proposal Submitted by FFA Members The Commission For The Conservation And Management Of Highly Migratory Fish Stocks In The Western And Central Pacific Ocean:

Resolves as follows:

1. Commission Members, Cooperating Non-Members, and participating Territories (called CCMs) shall, as appropriate, implement the International Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries (IPOA-Seabirds) if they have not already done so.
2. CCMs shall advise the Commission on their implementation of the IPOA-Seabirds, including, as appropriate, the status of their National Plans of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries.
3. CCMs shall provide the Commission with all available information on interactions with seabirds, including incidental catches in all fisheries to which the WCPF Convention applies.
4. The Scientific Committee should take the steps necessary to ensure comprehensive recording and monitoring of seabird interactions in the Convention area; the Technical and Compliance Committee shall monitor the progress of members in compliance with this resolution and report to the Commission, and develop relevant compliance strategies for the further consideration of the Commission.

DRAFT NON STATUS RESOLUTION BY WCPFC ON BYCATCH (WCPFC2-2005/DP. 05, 2005, agreed to but not yet adopted)

Proposal Submitted by FFA Members The Commission For The Conservation And Management Of Highly Migratory Fish Stocks In The Western And Central Pacific:

Ocean Resolves as follows:

1. Commission Members, Cooperating Non-Members, and participating Territories (called CCMs) shall encourage fishers targeting tuna species to avoid the capture of, and promptly release unharmed, to the extent practicable, all non-target species which are taken incidentally, noting the importance for sustainable livelihoods in developing states and territories of species such as mahi mahi, rainbow runner and wahoo.
2. To seek advice on the practical steps required to improve scientific information and understanding on the impact on non-target species by fishing to which the Convention applies, including enhancing observer and port sampling programmes for this purpose.
3. To undertake a review of measures for mitigating the impacts of fishing on non-target species, including measures applied by Commission Members.
4. The Scientific Committee and the Technical and Compliance Committee should work collaboratively on the activities described in paragraphs 2 and 3 above, and provide advice to the Commission on the implementation of such measures.

CONVENTION ON THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN

Relative to reducing bycatch of non-target species, the Conventions WCPFC will:

1. assess the impacts of fishing, other human activities and environmental factors on target stocks, non-target species, and species belonging to the same ecosystem or dependent upon or associated with the target stocks;
2. adopt measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target species, both fish and non-fish species, (hereinafter referred to as non-target species) and impacts on associated or dependent species, in particular endangered species and promote the development and use of selective, environmentally safe and cost-effective fishing gear and techniques;
3. adopt measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target species, both fish and non-fish species, (hereinafter referred to as non-target species) and impacts on associated or dependent species, in particular endangered species and promote the development and use of selective, environmentally safe and cost-effective fishing gear and techniques;
4. collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programmes; and
5. take into account, inter alia, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distributions of fishing mortality and the impact of fishing activities on non-target and associated or dependent species, as well as existing and predicted oceanic, environmental and socio-economic conditions; and
6. develop data collection and research programmes to assess the impact of fishing on non-target and associated or dependent species and their environment, and adopt plans where necessary to ensure the conservation of such species and to protect habitats of special concern.
7. Where the status of target stocks or non-target or associated or dependent species is of concern, members of the Commission shall subject such stocks and species to enhanced monitoring in order to review their status and the efficacy of conservation and management measures. They shall revise those measures regularly in the light of new information.
8. encourage and promote cooperation in scientific research, taking into account the provisions of article 246 of the 1982 Convention, in order to improve information on highly migratory fish stocks, non-target species, and species belonging to the same ecosystem or associated with or dependent upon such stocks in the Convention Area;
9. review the results of research and analyses of target stocks or non-target or associated or dependent species in the Convention Area;

10. report to the Commission its findings or conclusions on the status of target stocks or non-target or associated or dependent species in the Convention Area;
11. make reports and recommendations to the Commission as directed, or on its own initiative, on matters concerning the conservation and management of and research on target stocks or non-target or associated or dependent species in the Convention Area;
12. assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or dependent upon or associated with the target stocks;
13. The operator shall record and report vessel position, catch of target and non-target species, fishing effort and other relevant fisheries data in accordance with the standards for collection of such data set out in Annex I of the Agreement.

Website

- <http://www.wcpfc.org/>

8. Other relevant bodies (International Tuna Research and Management Organisations and tuna related sites)

The following bodies also provide general/specific actions relevant to: (i) data requirements to assist in assessing and monitoring the impact of tuna fishing on ERS, and/or (ii) recommendations for reducing bycatch of ERS (e.g., sharks and seabirds):

- Pacific Islands Forum Fisheries Agency (**FFA**): <http://www.ffa.int/>
- South Pacific Regional Environment Programme (**SPREP**): <http://www.sprep.org.ws/>
- Secretariat of the Pacific Community (**SPC**): <http://www.spc.org.nc/>
- Asia-Pacific Economic Cooperation (**APEC**): <http://www.apec.org/>
- Northwest Atlantic Fisheries Organisation (**NAFO**): <http://www.nafo.ca/>
- North Pacific Fishery Management Council (**NPFMC**): <http://www.fakr.noaa.gov/npfmc/>
- Organisation for the Protection of Responsible Tuna Fisheries (**OPRT**): <http://www.forumsec.org/index.cfm>
- Pacific Islands Forum Secretariat (**PIFS**): http://www2.convention.co.jp/maguro/e_maguro/index.html
- High Seas Task Force: <http://www.high-seas.org/>
- Food and Agriculture Organisation (**FAO**): <http://www.fao.org/fi/default.asp>
- Division of Ocean Affairs and the Law of the Sea (**DOALOS**): <http://www.un.org/Depts/los/index.htm>

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Note: Information presented in this paper was largely extracted from the relevant websites listed in the body of the text and is not intended to be exhaustive.