



Convention on the Conservation of Migratory Species of Wild Animals

Secretariat provided by the United Nations Environment Programme



16TH MEETING OF THE CMS SCIENTIFIC COUNCIL

Bonn, Germany, 28-30 June 2010

UNEP/CMS/ScC16/Inf.11.1

Agenda Item 9.0

CALL FOR INFORMATION IN FOLLOW-UP OF CMS RESOLUTION 9.18 ON BY-CATCH

(Response received from Robert Kennedy, Executive Secretary, Commission for the Conservation of Southern Bluefin Tuna)

In considering this information, please be aware that the CCSBT is an unusual RFMO in that it is a single species RFMO (southern bluefin tuna – SBT) and it does not have a convention area. Instead, CCSBT is responsible for SBT fishing wherever SBT occurs.

- (a) Policy and management of migratory species by-catch
- The CCSBT has an Ecologically Related Species Working Group (ERSWG) that usually meets every two years to discuss matters relating to by-catches from fishing for SBT. I have attached the terms of reference of this group (“TORs for ERSWG.doc”) for your information.
 - The attached document “CCSBT 4-1 Attachment U.doc” is a recommendation that was adopted by the CCSBT in 1997. Points “3” and “4” of this document set the tori line requirements of the CCSBT.
 - The attached document “Recommendation_ERS.pdf” is a more recent recommendation (2008) adopted by the CCSBT in relation to Ecologically Related Species. To help better understand this recommendation, I advise you that over 90% of global SBT catch is usually caught in the convention areas of the two RFMOs (IOTC and WCPFC) mentioned in this recommendation.
- (b) Data on migratory species by-catch in the fisheries for which you have responsibility
- By-catch data is collected and maintained by the individual CCSBT Members. Data is collected through both fishing log books and scientific observer programs. The Secretariat does not maintain a central database for by-catches. The CCSBT has a set of scientific observer program standards (available at : http://www.ccsbt.org/docs/pdf/about_the_commission/observer_program_standards.pdf), including a target 10% coverage, but the data is not provided to the Secretariat. Data is only available as summaries provided in national reports and scientific papers to meetings of the ERSWG.
- (c) Assessments of the impacts...
- Most assessments have been on a Member specific basis as opposed to the global impacts of the SBT fishery. An attempt was made at the last ERSWG meeting to produce scaled

For reasons of economy, documents are printed in a limited number, and will not be distributed at the meeting. Delegates are kindly requested to bring their copy to the meeting and not to request additional copies.

global estimates of ERS mortality from the SBT fishery. However, data limitations prevented this from being achieved at that meeting. For the next ERSWG meeting, Members have been encouraged to conduct risk assessments (priority on seabirds & sea turtles) using methodologies suitable for data poor situations. In addition, the CCSBT has encouraged Members to annually assess their impacts on ERS and report their interactions with ERS (including mortalities) and scaling methods for producing total mortality in their national reports to the CCSBT.

- For your information, the latest ERSWG report is available at: http://www.ccsbt.org/docs/pdf/meeting_reports/ccsbt_16/Report_of_ERSWG8.pdf.

- (d) Adoption of monitoring, control and surveillance measures...
 - CCSBT's MCS measures are almost entirely devoted to SBT catches. However, the scientific observer program, is important for the collection and verification of ERS data. In addition, the attached ERS Recommendation includes a requirement for Members and Cooperating Non-Members to report annually to the Compliance Committee on the action they have taken pursuant to the first 3 paragraphs of the recommendation.

- (e) Best practices on the basis of any performance reviews...
 - A performance review of the CCSBT was conducted in 2008. You will find the report of the performance review working group at: http://www.ccsbt.org/docs/pdf/meeting_reports/ccsbt_15/report_of_PRWG.pdf. An independent review of the performance review is available at: http://www.ccsbt.org/docs/pdf/meeting_reports/ccsbt_15/PerformanceReview_IndependentExpertsReport.pdf. Both identified that CCSBT needed to improve its performance in relation to ERS. The attached ERS Recommendation was part of CCSBT's response to this need.

For your information, the 5 tuna RFMO (CCSBT, ICCAT, IOTC, IATTC, WCPFC) are holding a joint workshop from 23-25 June 2010 on bycatches in the tuna RFMOs. This workshop and papers being produced for this workshop will of no doubt be of interest to CMS. Information is available from the joint tuna organisations web site at: <http://www.tuna-org.org/RFMOsAus1.htm>.

**TERMS OF REFERENCE FOR THE WORKING GROUP ON
ECOLOGICALLY RELATED SPECIES (ERS)**

(adopted at the Second Annual Meeting (12 – 15 September 1995))

Terms of Reference for the Working Group on Ecologically Related Species (ERS)

1. The Ecologically Related Species Working Group will report to the Commission through the Scientific Committee. The Scientific Committee may provide comments to the Commission on the reports (including advice and recommendations) of the Ecologically Related Species Working Group.
2. To provide information and advice on issues relating to species associated with southern bluefin tuna (SBT) (ecologically related species), with specific reference to:
 - a) species (both fish and non-fish) which may be affected by SBT fisheries operations;
 - b) predator and prey species which may affect the condition of the SBT stock.
3. (a) With respect to species identified in 2 a) above, to monitor trends and review existing information and relevant research, including but not limited to studies on:
 - (i) the population biology of ecologically related species;
 - (ii) the identification of factors affecting populations of ecologically related species;
 - (iii) the assessment of the SBT and other fisheries effects on ecologically related species and of the proportion of the SBT and other fisheries effects to the overall effects;
 - (iv) modification to gear and operational aspects of the SBT fishery to minimise the effects on ecologically related species
- (b) With respect to species identified in 2 b) above, to monitor trends and review existing information and relevant research, including but not limited to studies on:
 - (i) the population biology of ecologically related species;
 - (ii) the identification of factors affecting population of ecologically related species;
 - (iii) the assessment of the effects of ecologically related species on the condition of the SBT stock
4. To provide recommendations on data collection programs and research projects with respect to species and issues identified in 2 above, including recommendations on research priorities and estimated costs of such research.
5. To provide advice on measures to minimise fishery effects on ecologically related species, including but not limited to gear and operational modifications.
6. To provide advice on other measures which may enhance the conservation and management of ecologically related species.
7. To review these terms of reference and to recommend to the Commission changes as and when appropriate.

8. To co-operate and liaise with relevant experts, scientists (from Convention parties and elsewhere) and inter-governmental and non-governmental organisations, in data collection and analysis on ecologically related species subject to the provisions of the data handling criteria (Annex1).
9. To respond to requests for advice on specific matters from the Commission.

Annex 1 Data Handling Criteria for the Ecologically Related Species (ERS) Working Group

1. Collection of Data and Samples

- a) The ERS Working Group will provide recommendations on the information required and advice on how to collect the relevant data and samples.
- b) The collection of data on and samples of ERS should follow agreed data collection protocols consistent with those of the Scientific Committee, and those of the relevant national authority.
- c) The collection of data and samples of ERS should be conducted in a way that does not interfere with the safe and smooth operation of the vessels.

2. Management of the Data and Samples

- a) The ERS Working Group shall use procedures that ensure strict confidentiality in the use and distribution of data.
- b) Unless otherwise agreed, samples of ERS collected on the high seas will be held by the flag States; that flag States should facilitate access by other interested scientists to the ERS samples.
- c) Participants in the ERS working group should assist each other's work by sharing data and samples on ERS.

3. Analyses of Data and Samples

Analyses of the data and samples on behalf of the Commission may be conducted by scientists from the Convention Parties and other relevant experts designated by the ERS Working Group.

4. Consideration of the Results of the Analyses

Results of analyses which use data and samples collected under these criteria will not be published without the consent of the parties who provide the data and samples.

Attachment U

**RECOMMENDATIONS TO THE COMMISSION RELATING TO
ECOLOGICALLY RELATE SPECIES**

the Commission:

1. adopts the ERSWG2 report (including attachments A-F);
2. notes and supports the position of all Commission parties in using Tori poles in all long-line SBT fisheries below 30 degrees south;
3. requires mandatory use by all Commission parties of Tori poles in all long-line SBT fisheries below 30 degrees south;
4. requests non parties to adopt mandatory use of Tori poles in all long-line SBT fisheries below 30 degrees south'
5. notes and supports the continuing cooperative work on investigating the impacts of night setting on SBT CPUE, safety, operational feasibility and other relevant issues, and the effectiveness of other mitigation measures such as underwater setting;
6. requests that members of the ERSWG facilitate such cooperative work as mentioned in point 5, and review and report progress to ERSWG3 and CCSBT5;
7. approves the holding of ERSWG3 prior to CCSBT Scientific Committee meeting and no later than June 1998;
8. adopts the draft agenda (attached) for ERSWG3;
9. requests non parties to attend ERSWG3 as observers and provide information on seabird captures in SBT fisheries to the Commission for consideration at ERSWG3;
10. notes that all parties will make their best efforts to provide comments on draft technical papers prior to ERSWG3;
11. notes that an educational package for fishers should be developed at ERSWG3;
12. notes the hard work of the ERSWG2 and in particular thanks the efforts of the chair, Dr Burke Hill of Australia

Final 11/9/97

Ecologically Related Species Working Group Meeting 3, 1998

Draft Agenda

1. Introduction
2. Appointment of Rapporteurs
3. Arrangements for the Meeting
4. Adoption of the Agenda
5. Developing and Testing of Mitigation Measures
 - Report on night setting and other mitigation measures
6. Research
7. Development of Educational Material for Fishers
8. Collection and exchange of data
 - Reports on other international activities
9. Future Work Program
10. Adoption of the Report
11. Close of the Meeting

The following draft papers are currently available to be discussed under the agenda items specified.

Agenda Item 5

Research Plan to Evaluate Effect of Day/Night Setting on SBT CPUE (*TechP2*)

Guidelines for Design and Deployment of Tori Poles (*TechP1*)

Agenda Item 6

Research Priorities for Mitigation Measures (*TechP3*)

Mitigation Research Plan for Parties to CCSBT (*TechP4*)

Agenda Item 7

Example List of Information to be Distributed to Fishers (*TechP6*)

Agenda Item 8

Protocol for Seabird Data Exchange (*TechP8*)

Proforma for Reporting Public Relations & Education Information to CCSBT (*TechP5*)

Scientific Process for the Collaborative Assessment of Seabird Bycatch (*TechP7*)

Final 11/9/97

Recommendation to Mitigate the Impact on Ecologically Related Species of Fishing for Southern Bluefin Tuna

(adopted at the Fifteenth Annual Meeting – 14-17 October 2008)

The Extended Commission for the Conservation of Southern Bluefin Tuna,

Concerned that some seabird species, notably albatrosses and petrels, are threatened with global extinction,

Mindful that fishing for southern bluefin tuna can also cause incidental harm to other species such as sea turtles and sharks,

Recalling the definition of ecologically related species in Article 2 of the Convention for the Conservation of Southern Bluefin Tuna,

Further recalling the requirement in Article 5(2) of the Convention for the Conservation of Southern Bluefin Tuna that the Parties shall expeditiously provide to the Commission for the Conservation of Southern Bluefin Tuna data on, *inter alia*, ecologically related species.

Determined to mitigate incidental harm to ecologically related species caused by fishing for southern bluefin tuna,

Noting the importance of harmonising conservation and management measures with other organisations responsible for managing international fisheries, as agreed at the Kobe Meeting of Joint Tuna RFMOs on 26 January 2007,

Reaffirming the recommendation at the seventh meeting of the Ecologically Related Species Working Group (ERSWG) held in Tokyo from 3 to 6 July 2007, that Members and Cooperating Non-Members will provide national reports on their interactions with ecologically related species in southern bluefin tuna fisheries to the ERSWG,

Recommends that:

1. Members and Cooperating Non-Members will, to the extent possible, implement the International Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries (IPOA-Seabirds), the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks), and the FAO Guidelines to reduce sea turtle mortality in fishing operations (FAO-Sea turtles), if they have not already done so.
2. Members and Cooperating Non-Members will comply with all current binding and recommendatory measures aimed at the protection of ecologically related species, including seabirds, sea turtles and sharks, from fishing, which are adopted from time to time:
 - a) by the Indian Ocean Tuna Commission, when fishing in its Convention area, and

- b) by the Western and Central Pacific Fisheries Commission, when fishing in its Convention area,

irrespective of whether the Member or Cooperating Non-Member concerned is a member of the relevant Commission or otherwise cooperates with it.

3. Members and Cooperating Non-Members will collect and report data on ecologically related species to the Extended Commission and/or its subsidiary bodies as appropriate, including the Ecologically Related Species Working Group. Further, the undertaking described in paragraph 2 will include a commitment to comply with measures adopted by the Indian Ocean Tuna Commission and the Western and Central Pacific Fisheries Commission on the collection and reporting of data in relation to ecologically related species. Data confidentiality shall be protected under the rules that apply in those Commissions.

4. Members and Cooperating Non-Members will report annually to the Compliance Committee of the Extended Commission on the action they have taken pursuant to paragraphs 1, 2 and 3 of this recommendation.

5. The Secretariat of the CCSBT is authorised to collect and exchange relevant data concerning ecologically related species with the Secretariat of the Indian Ocean Tuna Commission and the Secretariat of the Western and Central Pacific Fisheries Commission.

6. The Extended Commission will review the operation of this Recommendation with a view to enhancing the protection of ecologically related species from the impacts of fishing for southern bluefin tuna.

7. The Extended Commission and/or its subsidiary bodies as appropriate will undertake an assessment of the risks to ecologically related species posed by fishing for southern bluefin tuna. The Extended Commission will consider how these risks are mitigated by the adoption of measures described at section 2, and will consider whether any additional measures to mitigate risk are required.

Commission for the Conservation of
Southern Bluefin Tuna



みなまぐる保存委員会

CCSBT Scientific Observer Program
Standards

TABLE OF CONTENTS

1. BACKGROUND

2. OBJECTIVES

3. RESPONSIBILITY FOR PROGRAM OPERATION

4. COVERAGE

5. LEVELS OF SCIENTIFIC OBSERVER COVERAGE

6. ASSIGNMENT OF SCIENTIFIC OBSERVERS TO VESSELS

7. TAGGING PROGRAM

8. RECRUITMENT AND TRAINING

9. THE OBSERVED VESSEL

10. INFORMATION AND DATA

11. REPORTING

12. CONFIDENTIALITY OF DATA AND INFORMATION

LIST OF ATTACHMENTS

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

1. BACKGROUND

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

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

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

To facilitate implementation, the 6th Scientific Committee agreed that:-

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

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

CCSBT8 endorsed the 6th Scientific Committee's proposals in October 2001.

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

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

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

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

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

2. OBJECTIVES

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

The objectives of the standards are:

1. To provide a framework for the alignment of members’ scientific observer programs with the objectives of the SRP.
2. To standardize scientific observer programs across fleets and fisheries among members.
3. To specify minimum standards for the development of a scientific observer program for members without a program.

All members are expected to adapt their respective programs taking into account the standards but recognizing that members may have additional requirements they wish to maintain in their respective programs.

3. RESPONSIBILITY FOR PROGRAM OPERATION

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

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

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

4. COVERAGE

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

5. LEVELS OF SCIENTIFIC OBSERVER COVERAGE

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

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

In order to approach 10% coverage in some strata (e.g., specific vessel-types in certain areas and

1

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

times) it may be necessary to have higher than 10% coverage in other strata.²

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

6. ASSIGNMENT OF SCIENTIFIC OBSERVERS TO VESSELS

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

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

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

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

7. TAGGING PROGRAM

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

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

8. RECRUITMENT AND TRAINING

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

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

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

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

Qualifications of Observers

Scientific Observers for the program should have the following attributes:

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

Independence / Integrity

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

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

Scientific Observer Training

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

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

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

Recruitment of Observers

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

Exchange of observers between members and recruiting some observers from non-members should be encouraged to improve consistency and transparency in the program. Responsibility for implementing observer exchanges would reside with members and the exchanges would be organised between relevant members and non-members as appropriate

9. THE OBSERVED VESSEL

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

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

10. INFORMATION AND DATA

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

- A. Details of the observed vessel, including its size, capacity and equipment.
- B. Summary of the observed trip, which will include information such as the observer name, dates of embarkation and disembarkation.
- C. Comprehensive catch, effort and environmental information for each set that occurred while the observer was on-board the vessel, regardless of whether the set/haul was actually observed. This includes the target species, location fished and quantity of gear used.
- D. Observed catch information for each period of observation, including the time at start and end of observation, the number of hooks observed, the observed catch in number and weight for SBT and all other species caught to the extent possible.
- E. Biological measurements taken of individual SBT, as much as possible, including its condition, length, weight, sex and details of samples (otoliths, scales, gonads, etc.) that were taken from the SBT for later analysis.
- F. SBT tag recovery information, including, both tag numbers (actual tags also to be provided), date, location, length, weight, sex, details of samples taken (e.g. otoliths), and whether or not the tags were spotted during a period of fishing that was being observed.

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

A detailed description of the proposed information to be collected for each of the above categories is provided in Attachment 1. Hierarchies for prioritising the collection of data by species caught and SBT data are at Annex 1.

11. REPORTING

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

12. CONFIDENTIALITY OF DATA AND INFORMATION

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

Type and Format of Scientific Observer Data

A) Details of the observed vessel and gear

The vessel details are recorded only once for an entire trip

All fishing:

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

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

Longliners only:

- Material of mainlines (Nylon, Cotton thread, Other)
- Material of branchlines (Nylon, Cotton thread, Other)
- Material of buoylines (Nylon, Cotton thread, Other)
- Tori Pole used (Y/N)
- Bait thrower/line shooter used (Y/N)

Purse seiners only:

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

B) Summary of the observed trip

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

- Date observer disembarked (translatable to 24 hour clock, UTC to the day)

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

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

All fishing:

- Date and time at start of Set (translatable to 24 hour clock, UTC)
- Date and time at end of Set (translatable to 24 hour clock, UTC)
- Date and time at start of Retrieval (translatable to 24 hour clock, UTC)
- Date and time at end of Retrieval (translatable to 24 hour clock, UTC)
- Location at start of Set (latitude+N/S and longitude+E/W to a minute of accuracy)
- Wind speed (with unit) and direction (N, NNE, NE, etc.) of the operation
- At the period of the wind measured for operation (e.g. Noon, start of set etc.)
- Sea surface temperature (degrees Celsius, to 1 decimal place) at start of Set
- Intended target species⁴

Longlining:

- Location at end of Set (latitude+N/S and longitude+E/W to a minute of accuracy)
- Direction of line set (eg straight, curved)⁵
- Wind speed (with unit) and direction (N, NNE, NE, etc.)
- (Comment: It is enough to collect the temperature at the start of set) At the period of the location and wind are measured for the operation (e.g. noon, start of set etc.)
- Direction of line set (straight, curved)
- Actually used mainline length (km)
- Actually used branchline length (m)
- Actually used buoyline length (m)
- Intended depth of the shallowest hook (m)
- Intended depth of the deepest hook (m)
- Number of hooks
- Number of baskets

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

- Percentage of bait by bait categories that were Fish, Squid, Artificial, and Other
- Bait status (live or dead)
- Total number by species⁴ of SBT, and other tuna and tuna-like species caught, retained or discarded.
- Total processed weight (kg) and Processed State⁶ by species⁴ of SBT, and other species caught. (i.e. all fish, birds, turtles etc.)

Purse Seining:

- Spotter plane used (Y/N). If used:
 - Time (translatable to 24 hour clock, UTC) and location aircraft began search
 - Time (translatable to 24 hour clock, UTC) and location aircraft ended search
 - Number, location of schools spotted by aircraft
 - Estimated size of each school spotted by the aircraft
 - Total searched distance
- Bird Radar used (Y/N)
- Logbook number and type
- Start and end Time spent for searching (from xx:xx to yy:yy translatable to 24 hour clock, UTC), location and total searched distance
- School finder (plane/vessel)
- Chumming boat used (yes/no)
- Chum status (Alive/Dead)

⁴ All species should be reported with FAO species codes, or using National codes and providing a translation table to FAO species codes.

⁵ Codes will be used to describe the type of line set, eg. S=straight, C=curved, U=u-shaped.

⁶ RD=round/whole, GG=gilled and Gutted, DR=dressed etc., as per TIS codes.

- Amount of chum used
- Start and end time for chumming (translatable to 24 hour clock, UTC)
- Start and end time for net shooting (translatable to 24 hour clock, UTC)
- Start and end time for net hauling (translatable to 24 hour clock, UTC)
- Start and end location for net shooting
- Start and end location for net hauling
- Light attraction used (yes/no)
- Total of wattage of lights used
- Start and end time for light attraction
- School type (e.g., shoaling/surface, FAD/debris associated)
- Length (m) of net set
- Height (m) of the net
- Number of net skiffs used
- Date and time that transfer to tow cage commenced
- Identification number of the tow cage to which the SBT were transferred
- Name of Carrier Boat that received the fish
- Estimated catch per set, species composition
- Estimated weight (kg) and/or number by species of SBT and other species caught
- Estimated weight of SBT caught alive
- Estimated weight and/or number of SBT dead during operation

Cage Towing:

- Name of carrier boat
- Tow cage identification number
- Cage depth (metres)
- Cage ring diameter (metres)
- Cage mesh size (in centimetres)
- Cage has second or predator net (Y/N)
- Number of divers used
- Chute fitted in cage (Y/N)
- Effective tow speed (km/hour)
- If the catch was received from fishing operations, then for each catcher boat from which SBT were transferred, record:
 - Name of catcher boat
 - Call sign of catcher boat
 - Date and time (translatable to 24 hour clock, UTC) transfer started
 - Estimated weight of SBT transferred (tonnes)/dead SBT before transfer
- If the catch was received from another tow cage, then, record:
 - Name of the carrier boat from which the SBT came
 - Identification number of the tow cage from which the SBT came
 - Date and time (translatable to 24 hour clock, UTC) transfer started.
 - Estimated weight of SBT transferred (tonnes)/dead SBT before transfer
- Date and time (translatable to 24 hour clock, UTC) and place that tow finished
- Total weight of SBT mortalities per day from commencement of towing to end of transfer to farm
- Total number of SBT mortalities per day from commencement of towing to end of transfer to farm

D) Observed catch information

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

Longlining:

- Date and time at the start of the observation period (translatable to 24 hour clock, UTC)
- Date and time at the end of the observation period (translatable to 24 hour clock, UTC)
- Number of hooks observed
- Total number by species⁴ of caught and retrieved retained during the observed period
- Total processed weight (kg) by species⁴ and Processed State⁶ of all species caught and retained during the observed period
- Total number and weight when possible (whole weight, in kilograms) by species⁴ caught but discarded during the observed period and life status.

Purse Seining:

The entire purse seining shooting and hauling operation should be observed

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

Cage Towing:

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

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

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

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

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

- Species⁴
- Life status category⁷
- Length (for SBT, fork length measured on straight length, rounded up to the centimetre⁸)
- Length unit
- Length code (fork length, eye fork, etc.)
- Length, lower jaw-fork length

⁷ The observer program will, as a minimum, distinguish the following life status categories: dead and damaged; dead and undamaged; alive and vigorous; and unknown.

⁸ Length should be rounded (not truncated) to the nearest centimeter. For example, 62.4cm becomes 63cm and 62.5cm becomes 63cm (63 cm for both cases).

- Whole weight (kg), if possible. This is the measured weight before processing as opposed to a calculated whole weight.
- Processed weight (kg)
- Processed State⁶
- Sex (F=female, M=male, I=indeterminate, D= not examined)
- Samples taken, specifying:
 - A unique identification number given to the sample,
 - The type of samples taking, including: whole specimen, or samples of otoliths, scales, vertebrae, stomach, muscle, tissue, gonads, etc.)

F) SBT Tag recovery information

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

- Observer's name
- Vessel's name
- Vessel's call sign
- Vessel flag
- Collect and provide the actual tags
- Tag colour
- Tag numbers (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing)
- Date and time of capture (UTC)
- Location of capture (latitude+N/S and longitude+E/W to 1 minute of accuracy)
- Length (fork length, rounded up to the nearest centimetre⁸)
- Processed Weight (kg.)
- Processed State⁶
- Details of samples taken, specifying:
 - A unique identification number given to the sample,
 - The type of samples taking, including: whole specimen, or samples of otoliths, scales, vertebrae, stomach, muscle, tissue, gonads, etc.)
- Sex (F=female, M=male, I=indeterminate, D=not examined)
- Condition of recaptured fish and their life status
- Whether the tags were found during a period of fishing that was being observed (Y/N)
- Reward information (e.g., name and address where to send reward)

HIERARCHIES FOR DATA COLLECTED BY SPECIES AND SBT DATA

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

The flow of the main data collection activities are:

Fishing operation information

- All vessel and shot information

Monitoring of hauls

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

Biological sampling

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

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

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

“tunas” means all *Thunnus* species except SBT

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

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

REPORT COMPONENTS

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

A. Observer Training

An overview of observer training conducted, including:

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

B. Scientific Observer Program Design and Coverage

Details of the design of the observer program, including:

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

Details of observer coverage of the above fleets, including:

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

C. Observer Data Collected

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

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

D. Tag Return Monitoring

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

E. Problems Experienced

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