Commission for the Conservation of
Southern Bluefin Tuna

みなみまぐろ保存委員会

CCSBT–ESC/1509/06

Report from the Eleventh Meeting of the Ecologically Related Species Working Group

Purpose

To consider the Report of the Eleventh Meeting of the Ecologically Related Species Working Group (ERSWG 11).

The ERSWG met from 3-6 March 2015. The full report of the ERSWG 11 meeting is provided to the Extended Scientific Committee as CCSBT-ESC/1509/Rep02.

Referral of ERS matters for consideration by CCSBT subsidiary bodies

The ERSWG referred the following matters for consideration by CCSBT subsidiary bodies:

- The Report of ERSWG11 and the revised draft of the Scientific Observer Program Standards has been referred to the Extended Scientific Committee (ESC) for its consideration.
- A table of recommendations prepared by the ERSWG in response to the ERS relevant recommendations of the 2014 CCSBT Performance Review, has been referred to the Strategy and Fisheries Management Working Group for its consideration.
- A request from the ERSWG has been provided to the Compliance Committee to collate information from Members on the types of information collected on bycatch mitigation measures under compliance programs for SBT vessels (e.g. port inspections and other monitoring and surveillance programs). This information would be provided to the ERSWG for scientific purposes only associated with assessing total seabird mortality and may lead to feedback to the Compliance Committee on the collection of better data for scientific purposes.

Recommendations and Advice to the Extended Commission from ERSWG 11

The ERSWG provided the following recommendations and advice for consideration by the Extended Commission:

- The ERSWG reiterated its advice with regards to seabirds in paragraphs 125, 129 and 139 of the ERSWG 9 report. *These paragraphs are provided at **Annex A**.*
- The ERSWG has finalised its revision of the Scientific Observer Program Standards and recommends that the revised standards be adopted by the Extended Commission. *The revised standards are provided at **Annex B**. Tracked changes in these standards are the recommended changes from CCSBT's current Scientific Observer Program Standards.*

- Under the CCSBT Rules and Procedures, the timeframe for CCSBT meeting reports becoming public can prevent their timely use by working groups of other RFMOs[1] and the ERSWG recommends that earlier release of ERSWG meeting reports be supported, particularly as ERSWG meetings are often out of phase with meetings of the Extended Commission. *The Secretariat will be proposing an amendment to the CCSBT Rules of Procedure to address this problem.*
- Approval be granted to provide the SMMTG[2] report to ICCAT[3], the other tuna RFMOs and ACAP[4] before their next bycatch working group meetings. *This request was provided to CCSBT Members intersessionally, but there was no consensus for early release of the SMMTG report.*
- The ERSWG commented on the considerable benefits obtained through the close collaboration with ACAP and the high importance of ACAP's contributions to the ERSWG. The meeting therefore endorsed and strongly supported the proposed MoU between ACAP and the CCSBT.

Other Activities of the ERSWG

At its 2013 meeting, the ERSWG recommended that the SMMTG be formed to provide advice to the ERSWG on feasible, practical, timely, and effective technical approaches for measuring and monitoring the effectiveness of seabird mitigation measures in SBT longline fisheries. The SMMTG met from 4-6 November 2014. The SMMTG recommendations were supported by the ERSWG with some modifications and are provided at **Annex C**. The ERSWG considered the future of the SMMTG and noted that it had successfully addressed its terms of reference and that any necessary future work will be picked up by other processes including projects under the ABNJ Tuna Project[5], work of the ERSWG and possible future joint work of the tuna RFMOs. The ERSWG thanked Japan for initiating and hosting the SMMTG and Birdlife International for its support of the meeting, including co-funding, drafting the scoping paper and co-Chairing the meeting.

The ERSWG endorsed two draft proposals by Birdlife International which will be submitted for funding under Birdlife International's component of the ABNJ Tuna Project. One proposal was aimed at capacity development for the analysis of seabird data. The other was aimed at a joint tuna RFMO workshop to progress assessment across tuna RFMOs. The ERSWG endorsed these proposals as a potentially effective way to evaluate effectiveness of seabird conservation measures, facilitate the assessment of cumulative impacts, and improve skills that could be applied to a range of other bycatch species.

The ERSWG recommended an approach to provide for a comprehensive analysis of porbeagle shark stock status. In order to allow access to a broader range of data sets than would be available through ERSWG members alone, the ERSWG requested the 'GEF ABNJ Tuna Project Technical Coordinator - Sharks and Bycatch' to progress an assessment of the southern hemisphere porbeagle stock(s) with the ERSWG and across the joint tuna RFMOs. The ERSWG Chair wrote to the Global Coordinator of the Common Oceans (ANBJ) Tuna Project to seek support for this work. The Global Coordinator responded supportively and provided the ERSWG with a proposed workplan for this activity which has been circulated to

[1] Regional Fisheries Management Organisations
[2] CCSBT's Effectiveness of Seabird Mitigations Measures Technical Group
[3] International Commission for the Conservation of Atlantic Tunas
[4] Agreement on the Conservation of Albatrosses and Petrels
[5] Common Oceans Areas Beyond National Jurisdiction Tuna Project

all the tuna RFMOs for their consideration. Most Members and one Cooperating Non-Member have indicated their willingness to participate in the assessment.

Timing of the next ERSWG meeting

The ERSWG did not reach consensus on a date for its next meeting. Some Members recommended holding the next meeting 18 months after ERSWG 11. This would be during August 2016 to take advantage of considerable cost savings that can be achieved by holding the ERSWG and ESC meetings back to back. Other Members preferred to hold the next ERSWG meeting at a later time, to be decided around mid-2016, due to the heavy workload of numerous ERS meetings with other tuna RFMOs. This option would most likely result in the next ERSWG meeting being held during 2017.

Prepared by the Secretariat

Annex A

Extract of paragraphs 125, 129 and 139 from the Report of the Ninth Meeting of the Ecologically Related Species Working Group

125. The meeting agreed that the current scientific advice on what constitutes best practice mitigation measures is to use all three mitigation measures, namely line weighting, night setting (i.e. setting after nautical twilight and before nautical dawn) and bird streamer lines.

129. The meeting noted that the need to adopt effective mitigation measures was urgent given the threatened and declining population status of many of the seabirds taken incidentally in SBT fisheries. In this regard, the meeting agreed that, currently, no single mitigation measure can reliably prevent the incidental mortality of seabirds in pelagic longline fisheries. The meeting recognised that all three measures should be applied in high risk areas, to reduce the incidental mortality of seabirds to the lowest possible levels. The meeting recognised that other factors such as safety, practicality and the characteristics of the fishery should also be recognised. The meeting agreed that it was also important to regularly review new monitoring and research data and on the basis of such review to refine mitigation measures as required.

139. The meeting made the following recommendations for consideration by the Extended Commission:

- That the format in **Attachment 4** be used for future Annual reports to the ERSWG (Agenda item 2.1).
- That data reporting by Members and CNMs be standardised (as recommended at paragraphs 8 - 11) to allow better monitoring of the level of seabird bycatch and to allow approximate estimates of total seabird mortality in SBT fisheries to be made at future ERSWG meetings. The meeting further recommended that such reporting should be harmonised with other RFMOs to the extent possible (Agenda item 5.1.1).
- That the ERA process identified in CCSBT-ERS/1203/09 be used by the ERSWG for seabirds in future (Agenda item 5.1.3)
- That the Extended Commission note the considerable progress in recent years on mitigation research for pelagic longline fisheries when deciding future bycatch mitigation measures, especially with respect to new or improved mitigation measures, including line weighting and hybrid tori lines (Agenda item 5.1.5)
- That the independent Chair be tasked with liaising with the Joint Tuna RFMO Bycatch Working Group on the issues identified in paragraphs 20,49,53,69 and 109.
- On the basis of concerns about seabird populations, continued reports of widespread and substantial captures of seabirds in SBT fisheries and the results of recent research reflected in the ACAP advice on best practice, the meeting recommended to Extended Commission that implementation of more effective mitigation measures based on best practice is urgently required (Agenda item 6.4.2).

Commission for the Conservation of
Southern Bluefin Tuna

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DRAFT REVISION OF THE

CCSBT Scientific Observer Program Standards

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LIST OF ATTACHMENTS

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.

4. To provide a minimum set of standards for collection of bycatch data, consistent with international recommendations, and where appropriate to assist in harmonization of bycatch data collection across tuna Regional Fisheries Management Organisations.

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

3. RESPONSIBILITY FOR PROGRAM OPERATION

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

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

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

4. COVERAGE

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

5. LEVELS OF SCIENTIFIC OBSERVER COVERAGE

The Program will have a 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]

[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.

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

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

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

6. ASSIGNMENT OF SCIENTIFIC OBSERVERS TO VESSELS

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

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

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[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 ~~to~~ the fact that the ability of observers to transfer among vessels on the fishing grounds is limited. The factors affecting this include the heterogeneity of the fleet and fishing behaviour.

8. RECRUITMENT AND TRAINING

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

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

Qualifications of Observers

Scientific Observers for the program should have the following attributes:

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

Independence / Integrity

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

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

Scientific Observer Training

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

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

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

Recruitment of Observers

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

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

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

9. THE OBSERVED VESSEL

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

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

10. INFORMATION AND DATA

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

A. Details of the observed vessel, including its size, capacity and equipment.

B. Summary of the observed trip, which will include information such as the observer name and identification number, degree of experience, dates of embarkation and disembarkation.

C. Comprehensive catch, effort and environmental information for each set that occurred while the observer was on-board the vessel, regardless of whether the set/haul was actually observed. This includes the target species, location fished and quantity of gear used.

~~C.~~D. Fishing methods and gear, including mitigation measures in use while fishing. The observer should record/describe mitigation measures, including the configurations that were in use during the observed period. This includes the details of mitigation measures and their use as described in Attachment 1. Where applicable, the absence of mitigation equipment should also be noted.

~~D.~~E. Observed catch information for each period of observation, including the time at start and end of observation, the number of hooks observed, the observed catch in number and weight for SBT and all other species caught to the extent possible.

F. Biological measurements taken of individual SBT, as much as possible, including its condition, length, weight, sex and details of samples (otoliths, scales, gonads, etc.) that were taken from the SBT for later analysis.

~~E.~~G. Information on SBT and ERS not retained should include counts by species and their life status (using the relevant codes as detailed in Attachment 1).

~~F.~~H. SBT tag recovery information, including, both tag numbers (actual tags also to be provided), date, location, length, weight, sex, details of samples taken (e.g. otoliths), and whether or not the tags were spotted during a period of fishing that was being observed.

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

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

11. REPORTING

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

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

12. CONFIDENTIALITY OF DATA AND INFORMATION

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

Attachment 1

Type and Format of Scientific Observer Data

A) Details of the observed vessel and gear

The vessel details are recorded only once for an entire trip

All fishing:

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

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

Longliners only:

- Material of mainlines (Nylon, Cotton thread, Other)
- Material of branchlines (Nylon, Cotton thread, Type of trace, Other)
- Material of buoylines (Nylon, Cotton thread, Other)
- ~~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~~Time of wind measurement for operation (e.g. Noon, start of set etc.)
- Sea surface temperature (degrees Celsius, to 1 decimal place) at start of Set[4]
- Intended target species[5]

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)[6]
- ~~Wind speed (with unit) and direction (N, NNE, NE, etc.)~~
- ~~(Comment: It is enough to collect the temperature at the start of set) At the period of the location and wind are measured for the operation (e.g. noon, start of set etc.)~~
- Direction of line set (straight,curved)
- Actually used mainline length (km)
- Actually used branchline length (m)
- Actually used buoyline length (m)
- Intended depth of the shallowest hook (m)
- Intended depth of the deepest hook (m)
- Type of hooks
- Number of hooks
- Number of baskets
- Seabird mitigation measure used:
    - Line weights used (Y/N)
    - Mass of added line weight (where applicable)
    - Distance between weight and hook (where applicable)
    - Number of tori lines used (where applicable)
    - Estimate of the aerial coverage achieved by tori lines (m)
    - Night setting with minimal deck lighting (Y/N)
    - Bait thrower/line shooter used (Y/N)
    - Dyed Bait (Y/N)
    - Details about management of offal
    - Underwater setting chute (Y/N)
    - Side setting (Y/N)
    - Haul mitigation (Y/N)
        - Branch line/snood haulers
        - Brickle curtain
        - Water cannon
    - Other mitigation measures used
- 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

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[4] It is sufficient to collect the temperature at the start of a set – i.e. at the time the location and wind are measured (e.g. Noon, start of set, etc.).

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

[6] Codes will be used to describe the type of line set, e.g. S=straight, C=curved, U=u-shaped.

- Bait status (live or dead)
- Total number by species[5] of SBT, and other tuna and tuna-like species caught, retained or discarded.
- Total processed weight (kg) and Processed State[7] by species[5] of SBT, and all other species caught. ~~(i.e. all fish, birds, turtles etc.)~~

Purse Seining:

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

Cage Towing:

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

[7] As per processing codes identified in the CCSBT CDS Resolution. ~~RD=round/whole, GG=gilled and Gutted, DR=dressed etc., as per TIS codes.~~

- 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~~prioritise data collection as circumstances prevail on the observed vessel.

Longlining:

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

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[5]) and/or number by species of SBT, and all other species caught, retained or discarded including life status[8,9]
- 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

[8] This includes target species (such as SBT) and all bycatch species such as seabirds, sharks, marine reptiles etc.
[9] Individuals that are discarded with significant injuries and are not considered likely to survive should be included in the number of dead individuals.

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.

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

F) SBT Tag recovery information

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

- Observer's name
- Vessel's name
- Vessel's call sign
- Vessel flag
- Collect and provide the actual tags
- Tag colour
- Tag numbers (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing)
- Date and time of capture (UTC)
- Location of capture (latitude+N/S and longitude+E/W to 1 minute of accuracy)
- Length (fork length, rounded up to the nearest centimetre[11])
- Processed Weight (kg.)
- Processed State[7]
- 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)

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

[11] 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).

- 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)

Annex 1

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)

Monitoring of sets

- To collect counts of seabird abundance around the vessel when setting (using standard counting practices)

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, in particular to facilitate the identification of ERS

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

"other 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.

Attachment 2

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.

Modified SMMTG Recommendations Agreed by ERSWG 11

The modified SMMTG recommendations supported by the ERSWG are shown in bold below.

Provide documents to January 2015 Kobe TWG-BYC Meeting

SMMTG requested that the CCSBT Secretariat submit current CCSBT documents on national reporting requirements and observer information standards to the January 2015 Kobe TWG-Bycatch meeting. (The ERSWG noted that this was done.)

Reviewing Content and Coverage of t-RFMO Seabird CMMs

It was suggested that ERSWG considers developing a work plan which has an increased use of collaborative analyses. These might include joint stock assessment style workshops in which participants bring data and undertake collaborative analyses, bilateral collaboration intersessionally or designating key scientists to undertake analyses of joint datasets. A draft workplan to begin this work with respect to cooperation across tRFMOs will be provided in an Appendix of the finalised scoping paper that will be submitted to ERSWG 11. **(**The final scoping paper included in its Appendix 2, ideas for collaboration across tuna RFMOs on seabird bycatch analyses. These were further developed by ERSWG 11 as two linked preliminary project proposals which were to be finalised by Birdlife International prior to submission for funding as an additional components under Birdlife International's existing ABNJ Tuna Project. One proposal was aimed at capacity development for the analysis of seabird data. The other was aimed at using the skills developed to progress assessments across tuna RFMOs. The ERSWG 11 participants endorsed these proposals as a potentially very effective way to evaluate effectiveness of seabird conservation measures, facilitate the assessment of cumulative impacts, and improve skills that could be applied to a range of other bycatch species.)

Methods for Reviewing Data on t-RFMO Longline Fleets

The workshop agreed that measures of both % longline observer coverage and spatial-temporal representativeness were important metrics of longline observer program data. Spatial and temporal representativeness are needed for developing reliable estimates of seabird capture rates and in particular for understanding and reducing uncertainty in estimates. (ERSWG considered that metrics should be developed on a fleet by fleet basis as it noted that there was substantial variation in reported capture rates among fleets.)

The group recommended that, for the purpose of evaluation, the % coverage of observations be calculated as number of hooks observed per stratum divided by total fishing effort per stratum, and that representativeness should be evaluated using the calculated proportion of strata which have met the relevant target level of observer coverage. (The ERSWG agreed that this metric would be a useful addition to be calculated and reported after the Data Exchange had been completed).

When discussing options for reviewing quality of observer data, it was agreed that the ERSWG currently undertakes such a review. An additional metric of data quality was therefore not considered necessary, but the group noted several activities could help improve the quality of observer data, including:

- **The ACAP-Japan seabird species identification guide, which is planned to be translated into French, Spanish, Korean, Taiwanese, Indonesian and other key languages;**
- **Collecting whole specimens when practical and when not practical collecting biological samples and/or bycatch photos for confirmation of species ID;**
- **Debriefing observers after the trip to elicit more information about the occurrence of high bycatch events;**
- **More detailed guidance on priorities for seabird related tasks, including how to allocate observer time appropriately, recognising multiple demands made on observer time; and**
- **Development of mechanisms to facilitate the collection and analysis of DNA from bycaught birds including reference databases.** (The ERSWG noted these points and incorporated them, where appropriate, into comments on the Observer Standard and its Workplan.)

The group recognised that it would be useful to have a central system by which seabird bycatch photos collected by observers could be validated. Alternatives could include accessing online volunteer networks (such as www.ispotnature.org) or seabird specialists.

Methods to monitor implementation of mitigation measure

CCSBT should share, and encourage other t-RFMOs to share, documents, formats and procedures for observer data collection through a dedicated web portal or through the WCPFC-hosted BMIS[1]. (WCPFC/ABNJ Tuna Project confirmed that BMIS is being developed in a way that will facilitate this kind of sharing).

[1] Bycatch Mitigation Information System.

The ERSWG requests the Compliance Committee to collate information from Members on the types of information collected on bycatch mitigation measures under compliance programs for SBT vessels (e.g. port inspections and other monitoring and surveillance programs). This information should be provided to the ERSWG for scientific purposes associated with assessing total seabird mortality and for feedback to the Compliance Committee on the collection of better data for scientific purposes. The group suggested that CCSBT Members be encouraged to assist in the development of electronic monitoring technologies through participating in trials and reporting back on their experiences.

Methods to measure and monitor the level and impact of seabird bycatch

There should be a tiered approach to measuring and monitoring seabird bycatch and the efficacy of mitigation measures, as per the following:

- **The first tier would entail monitoring based on the agreed annual reporting template. This would include estimates of seabird bycatch per unit fishing effort and total number of seabirds caught.**
- **The annual monitoring should be complemented by periodic (once every three to five years) assessments, using fine-scale information, preferably at a set level and across multiple t-RFMOs if possible, taking into account data confidentiality. This could take the form of a data assessment workshop, at which countries and relevant experts collaboratively undertake the data analyses, or alternatively could involve Members conducting their own analyses according to agreed protocols and contributing the results of these analyses to the assessment process.**

As far as possible assessment methods and efforts should be harmonised across tuna RFMOs so that the cumulative impacts of fishing activities on seabirds can be determined. (ERSWG11 noted that although cross t-RFMO assessments would be valuable, and that it endorsed the newly developed proposals for such assessments to be submitted by Birdlife International noted above, the ERSWG has a responsibility to undertake assessments and provide advice to the EC.)

<u>Development and Testing of Assessment Methods</u>

The planned revisions to the CCSBT seabird risk assessment will identify absolute levels of spatial and temporal risk of seabird bycatch within the CCSBT area. There is currently no definition of what are "high risk" areas. ERSWG11 agreed to address the definition of 'high risk areas' through discussion of papers presented at ERSWG12 and at any joint meetings of the tuna RFMOs. This was considered to be a useful complement to the results of forthcoming New Zealand seabird risk assessment and may facilitate the analysis of seabird bycatch data.

CCSBT should prepare a brief description of the availability and resolution of fishing effort data, including an explicit statement of the assumptions used in raising that data. Options for improving effort data should also be outlined. CCSBT should request that the other t-RFMO Secretariats provide similar summaries. Under the ABNJ Tuna Project, the WCPFC-based BMIS can provide a portal for storing this information and maintaining it in an updated form. The group highlighted the need to understand the degree of overlap in reporting seabird bycatch and associated data to multiple tuna RFMOs. (The ABNJ Tuna Project/WCPFC confirmed that this request can be accommodated by BMIS).

The group agreed that more work is required on potential methods for calculating bycatch rates and extrapolating to total number of birds killed. New Zealand will progress this work in 2015 and an ACAP subgroup will discuss the topic in 2016. CCSBT Members were encouraged to contribute expertise to these ongoing efforts. (New Zealand indicated that it had initiated this work and had begun drafting a paper describing potential methods but sought input from other participants in this process. This activity has been added to the ERSWG's workplan.).

<u>Ways of extending monitoring across other tuna RFMOs</u>

The ERSWG Work Plan shall include the development of estimates of background bycatch rates (pre bycatch mitigation) using retrospective analyses, in order to compare these to current seabird bycatch rates and assess effectiveness of tuna RFMO seabird CMMs. It was noted that these may only be possible for certain regions, and that phased implementation meant there would seldom be a knife-edge transition pre and post implementation. Such an analysis would need to:

- **Identify suitable datasets which have a long enough time series and sufficient levels of observer coverage;**
- **Identify what the seabird CMMs required and when they were implemented; and**
- **Take care not to confound comparisons with changes in fishing gear configurations, areas fished or seasons fished.** (Members expressed varying levels of optimism and assigned different levels of priority to this task. While the outcome will depend on the data available it was noted that high variability between fleets might hamper the combination of fleets for estimation of an area-wide baseline. In such cases, the pre- and post-comparisons would be within specific fleets only).

It was agreed that it would be useful to submit to the June 2015 ICCAT Subcommittee on Ecosystems meeting a proposal for tuna RFMO collaboration on seabird bycatch analyses.

Annual Report Data Exchange Template

ERSWG recommended that the proportion of effort associated with the use of various mitigation measures be added to the Data Exchange Format of the Template for the Annual Report to the Ecologically Related Species Working Group (ERSWG). This would assist in interpreting any trends in the unstandardised catch rate data it contains and in measuring the effectiveness of seabird CMMs. (An amended template was adopted)

The group recommends that the ERSWG review the data included in the annual report template to support improved evaluation of seabird CMMs. (This was accomplished under Agenda Item 3 and the review of CCSBT-ERS/1503/06).

A small working group was convened to discuss the SMMTG's proposal for t-RFMO collaboration on seabird bycatch analyses, including ideas for national capacity building activities.