Developing a multi-year Seabird Strategy

Introduction

The Ecologically Related Species Working Group commenced consideration of a multi-year seabird strategy at its twelfth meeting (ERSWG12). ERSWG12 decided that the strategy should identify, among other things, research, monitoring needs, actions for reducing uncertainty and associated risks, and the recommendations from the *Report of the Effectiveness of Seabird Mitigation Measures Technical Group* (CCSBT-ERS/1503/Rep1) (the SMMTG Report), as modified by ERSWG11 (CCSBT-ESC/1509/Rep2, Att. 4).

The Extended Commission for the Conservation of Southern Bluefin Tuna has since adopted a *Resolution to align CCSBT's Ecologically Related Species measures with those of other tuna RFMOs* (CCSBT25: Noumea, New Caledonia, 15–18 October 2018). This binding Ecologically Related Species (ERS) measure requires CCSBT Members to implement the ERS measures of other relevant Regional Fisheries Management Organisations (RFMOs) as part of the CCSBT's determination to mitigate incidental harm to ERS caused by fishing for southern bluefin tuna (SBT).

CCSBT Members recognise and are concerned that some seabird species, notably some albatross and petrel species, are threatened with global extinction. Advice provided by the Agreement on the Conservation of Albatrosses and Petrels (ACAP) to ERSWG13 (CCSBT-ERS/1905/22 at [46]) reinforced the conservation crisis highlighted by ACAP at its recent Advisory Committee and Working Group meetings. ACAP provided an update about the IUCN Red List of Threatened Species. Of the 18 species of albatross that overlap with the SBT fisheries, the IUCN lists one as critically endangered (CR), seven as Endangered (EN), five as Vulnerable (VU), four as Near Threatened (NT), and one as Least Concern (LC). Of the seven ACAP-listed species of petrels that overlap with SBT fisheries, the IUCN lists one as EN, three as VU, one as NT, and two as LC. Overall, 44% of the albatross and petrel species that overlap with the SBT are declining, 24% are stable, 20% are increasing and for 12% the trend is unknown.

Modified recommendations from Seabird Mitigation Measures Technical Group (SMMTG) Report

The Seabird Mitigation Measures Technical Group (SMMTG) identified potential methods for monitoring the effectiveness of seabird Conservation and Management Measures (CMMs) developed by tuna RFMOs. While relevant CMMs included provisions for reviewing the effectiveness of the measure, methods and criteria for the review had not yet been established. The SMMTG sought to identify feasible, practical, timely and effective approaches, and to consider options for enhancing harmonisation between tuna RFMOs, consistent with the Kobe process and related initiatives (**ANNEX B**).

The recommendations within the SMMTG Report were endorsed, with modifications, at ERSWG11. Relevant aspects of the recommendations have been adapted in developing the multi-year seabird strategy. Additional elements are included consistent with the *International Plan of Action for reducing incidental catch of seabirds* (IPOA-S) (FAO 1999) and associated best practice technical guidelines (BPTG) (FAO 2009).

ERSWG13 considered CCSBT-ERS/1905/12 on developing a multi-year seabird mitigation strategy. The paper proposed an overarching objective and outlined additional elements of the strategy while also providing actions against specific objectives with proposed timeframes. ERSWG13 continued consideration of the strategy and agreed to an overall objective and five specific objectives (CCSBT-ERS/1905/Rep). ERSWG13 agreed to continue work intersessionally on the development of the multi-year seabird strategy including by developing a draft list of strategic actions under each of the specific objectives (see **ANNEX A**).

ANNEX A

Seabird Strategy

COMMENT: ERSWG Members will need first to decide whether a reconsideration of the Overall Objective and Specific Objectives is appropriate within the limited time available at ERSWG14, and online format of the meeting.

Overall objective

This strategy's overall objective is:

> To reduce or eliminate seabird bycatch, such that SBT fisheries do not impose a significant adverse impact on seabirds.

Japan: Suggests amending the Overall Objective to limit its scope to 'threatened seabirds':

> To reduce or eliminate seabird bycatch, to the extent as such that SBT fisheries do not impose a significant adverse impact on threatened seabirds.

COMMENT: The recommendations of the agreed SMMTG Report are not constrained to 'threatened' seabirds.

To achieve the overall objective, the following specific objectives have been developed consistent with the International Plan of Action for Reducing Incidental Catch of Seabirds, and associated Best Practice Technical Guidelines (BPTGs), that recommend RFMOs establish attainable objectives that lead to ongoing reductions in seabird mortality (FAO 1999, 2009).

> *Objective 1*: To reduce the level of impact of seabird bycatch by SBT fishing operations on seabird populations.

Japan: Suggests amending Objective 1 to distinguish it from the Overall Objective and limit its scope to 'threatened seabird species':

> *Objective 1*: To monitor and evaluate the progress in reducing the level of impact of bycatch by SBT fishing operations on populations of threatened seabird species.

COMMENT: The recommendations of the agreed SMMTG Report are not constrained to 'threatened' seabirds.

Objective 2: To ensure the collection of timely, reliable, representative data to support accurate regular estimations of total seabird mortality in SBT fisheries and its impact on seabird populations.

Japan: Suggests amending Objective 2 to limit its scope to 'threatened seabird species':

Objective 2: To ensure the collection of timely, reliable, representative data to support accurate regular estimations of total seabird mortality in SBT fisheries and its impact on populations of threatened seabird species.

Objective 3: To develop and refine, in collaboration with industry and ACAP, practical, cost-effective and safe seabird bycatch mitigation technologies and techniques.

COMMENT: Innovation in seabird bycatch mitigation will provide demonstrable, evidence-based, technologies and techniques that will, if widely implemented, reduce the significant adverse impact of longline fishing on seabirds.

Japan: Suggests deletion of Objective 3.

New Zealand: Suggests amending Objective 3 to refer more generally to 'environmental organisations'.

Objective 3: To develop and refine, in collaboration with industry and environmental organisations, practical, cost-effective and safe seabird bycatch mitigation technologies and techniques.

Objective 4: To develop and refine compliance approaches to ensure fleet-wide compliance with seabird bycatch mitigation measures required while conducting fishing for SBT.

COMMENT: Objective 4 gives effect to an express recommendation of the SMMTG Report. The objective has a primary focus on ensuring fleet-wide compliance with seabird bycatch mitigation measures. Continuous improvement in compliance approaches is a core element of ensuring the effectiveness of seabird CMMs (combined with education of fishers and monitoring of fishing operations).

New Zealand: Suggests replacing Objective 4 to improve its clarity:

Objective 4: To enhance monitoring and enforcement of mitigation requirements to ensure compliance.

Objective 5: To enhance education and outreach programs highlighting the importance of mitigating seabird interactions while fishing, and advocating effective implementation of mitigation measures.

Guiding principles

COMMENT: ERSWG Members will need first to decide whether the inclusion of Guiding Principles are an essential aspect of the Seabird Strategy and if these should be considered at ERSWG14 or deferred to a future meeting of the Working Group.

COMMENT: One way to quickly deal with the issue of guiding principles is to indicate that the Seabird Strategy will be implemented by CCSBT Members taking account of the General Principles of the *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea Convention of 10 December 1982 Relating to the Conservation and Management of Highly Migratory Fish Stocks and Straddling Fish Stocks* (UN Fish Stocks Agreement).

Japan: While there is no fundamental disagreement against the points listed here, we found the list as a mixture of different levels of concept (e.g. #6 as sub-rule of #2, also #5 as sub-rule of #1; #7 not a guiding principle in establishing strategy but guidance at the time of action) as well as some confusion (e.g. #3 and #4). Considering a balance between time and efforts that would be required to clean up the text and to reach agreement .vs. added value of this section, we propose to delete this section. When needed, key principles can be included into the preamble part.

New Zealand: Queried this section as a whole and the amount of pushback that it may generate versus its relative importance. Might be a better more strategically to drop entirely.

The development of the Seabird Strategy is based on the following accepted guiding principles. These guiding principles highlight the underlying context by which the Seabird Strategy will be implemented:

> *Principle 1*: **Application of the Precautionary Approach** — the absence of scientific certainty should not be a reason for postponing measures to mitigate the incidental catch of seabirds.

> *Principle 2:* **Using Best Available Science** — where information is not complete the best available science will be used.

Japan: Suggests that Principle 2 is one of principles of precautionary approach.

COMMENT: The General Principles of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea Convention of 10 December 1982 Relating to the Conservation and Management of Highly Migratory Fish Stocks and Straddling Fish Stocks expressly distinguish between using best available science (Article 5(b)) and the application of the precautionary approach (Article 5(c), (6)).

Principle 3: N**on-reporting and inaccurate reporting** — failure to report, and inaccurate reporting of incidental catch of seabirds in SBT fisheries constitute Illegal, Unreported and Unregulated Fishing (IUU Fishing).

Japan: Principle 3 is not the scope for ERSWG but for CC.

New Zealand: Current wording of Principle 3 is likely to make some a bit defensive and possibly has some unintended consequences that haven't been fully thought through; particularly in terms of the IUU listings.

New Zealand: Suggests rewording, for example:

Principle 3: **Best Available Science relies on good information** — CCSBT Members will take steps to ensure that bycatch reporting is complete and accurate.

COMMENT: The SMMTG Report expressly includes compliance matters within its scope.

Principle 4: **Social Licence** — the social licence to fish for SBT depends on fishing practices that avoid or minimise the incidental catch of seabirds.

Japan: It is hard to understand the intention of Principle 4.

Principle 5: **Bycatch Impact** — all incidentally caught seabirds in SBT fisheries will be considered as threatened species unless identified to species level.

Japan: Principle 5 is not considered necessary, as almost all highly prioritized seabirds can be identified into species level via the current observer scheme.

New Zealand: Suggests deleting Principle 5, as it is unclear what this was aimed at and it could undermine some existing work.

Principle 6: **Application of Best Practice Mitigation** — SBT fisheries will use best practice technologies and techniques that enable the incidental catch of seabirds during SBT fishing operations to be avoided or minimised.

Principle 7: **Effective Implementation of Best Practice Mitigation** — Measures to mitigate the incidental catch of seabird will be fully and effectively implemented through direct reporting by fishing vessels, and monitoring and surveillance of fishing operations at-sea and in port.

Strategic Actions

The following strategic actions will be undertaken against each of the specific objectives.

Objective 1: To reduce the level of impact of seabird bycatch by SBT fishing operations on seabird populations.

Japan: Suggests amending Objective 1 to distinguish it from the Overall Objective and limit its scope to 'threatened seabird species':

> *Objective 1*: To monitor and evaluate the progress in reducing the level of impact of bycatch by SBT fishing operations on populations of threatened seabird species.

COMMENT: The recommendations of the agreed SMMTG Report are not constrained to 'threatened' seabirds.

Action	Action by	Timeframe
COMMENT: The following action addresses the express requirement for agreed targets for reducing seabird bycatch and seabird bycatch rates within the SMMTG Report: b. periodic fine-scale assessments will determine whether agreed targets for reducing seabird bycatch and seabird bycatch rates on a fleet by fleet basis have been met over time (e.g. 50% reduction within three years, and 95% reduction within five years)—where feasible this should occur across tuna RFMOs, while accounting for data confidentiality. Reduce the incidental catch of seabirds, and where practical eliminate the incidental catch of seabirds during SBT longline fishing operations: a. within three years, the incidental catch of seabirds is reduced by 50%, and by 95% within five years on a fleet by fleet basis, or b. within five years, seabird bycatch rates are less than 0.05 birds per 1000 hooks set and hauled on a fleet by fleet basis. Japan: Considers that previous discussions agreed to shift from the target on total bycatch mortality reduction to focusing the conservation of priority species. Taiwan: Outcome (a) will be difficult for Members that already have low seabird bycatch rates to achieve. New Zealand: Outcomes (a) and (b) seem unrealistic and statistically impossible to demonstrate with any sort of confidence given existing observer requirements.	CCSBT Members	Within the three and five year timeframes indicated.

New Zealand: These are actually (ambitious) objectives, rather than actions. The key action would be to implement highly effective, or best practice, bycatch mitigation measures, with priority to high risk/hotspot areas. The actions as listed here could perhaps be transformed into regularly reported performance measures (i.e. numbers and rates of bycatch) to demonstrate progress towards the objective. A number of key uncertainties do need to be considered though, including choice of baseline (difficult with current limited data), how reductions need to be pro-rated across fleets (i.e. whether good mitigation is already being used or not) and simply being able to measure it (requires reliable data across all fleets which will be years away). Good progress with some of the other actions will be needed to address these uncertainties.		
Evaluate the effectiveness of the seabird CMMs introduced around 2005 by tuna RFMOs, in the context of reducing the overall seabird mortalities, and identify the areas of improvements. The result to be communicate across tuna RFMOs as well as to be utilized as a basis for the next round evaluation. COMMENT: Suggested by Japan.	ERSWG	End of 2023, after that every 5 years.
Agree on the list of priority species and corresponding management targets, taking into account the status of seabird population, distributional overlaps with SBT fisheries, and significance of SBT fisheries in their mortality. COMMENT: Suggested by Japan. Japan: The current definition of SBT fisheries does not make the explicit identification of fisheries that related with threatened seabirds (e.g. cruises/operations where no SBT are caught may not necessarily be reflected in the data even around fishing grounds of SBT for several members). Discussions should be prioritised on appropriate definitions of target fishery for risk assessment of seabirds.	ERSWG, CCSBT	End of 2023.
COMMENT: The following action directly reflects the commitment within SMMTG Report. Develop reliable estimates of seabird bycatch rates, on a fleet by fleet basis using standardised seabird bycatch rate assessment methods and procedures across tuna RFMOs: a. Annual reporting will include total numbers of incidentally caught seabirds by species and seabird bycatch rates per 1000 hooks observed on a fleet-by-fleet basis, as well as by area, season (quarter), and mitigation use.	CCSBT Members	Annually.

b. Undertake periodic fine-scale assessments to determine progress in reducing seabird bycatch rates on a fleet-by-fleet basis across tuna RFMOs, while accounting for data confidentiality. Japan: Suggests deleting action (b) as included in a proposed amended action to update the SEFRA risk assessment (see below).	ERSWG	At each ERSWG.
c. Where data are available, undertake retrospective analyses of seabird bycatch rates that existed before the introduction of seabird CMMs by tuna RFMOs, and resolve any variability arising from changes in fishing practices including gear configurations, areas and seasons fished. Where data are not available, undertake future analyses of seabird bycatch rates from a baseline year of 2022. Japan: Suggests deleting action (c), because it is unclear what is intended. New Zealand: Definitely a key action, but it will require sound data collection across fleets, dependent on progress with some of the other actions below, so probably needs more of a timetable mapped out, rather than just "annually", and again may benefit from a performance measure to track progress (e.g. proportion of fleets/fishing effort with adequate data provided for reliable estimates).	ERSWG	End of 2025.
Share documents, formats and procedures for observer and electronic monitoring, seabird bycatch data collection through a centralised portal, e.g. the Bycatch Mitigation Information System hosted by the Western and Central Pacific Fisheries Commission.	Secretariat	End of 2022.
Develop seabird risk assessment methods and procedures that help to identify spatial and temporal risks of seabird bycatch within each stratum where fishing for SBT occurs. New Zealand: Sees the risk assessment work moving from the development stage to being more of an ongoing monitoring tool within the life of this strategy and this should be the focus of this action. Japan: Suggests amending this action: Update SEFRA seabird risk assessment to evaluate the progress in seabird bycatch mitigation by SBT fisheries and their impacts on seabird populations from the previous assessment in 2019. The results to be communicated across tuna RFMOs.	ERSWG, CCSBT Members	ERSWG15, after that every 5 years.
Establish a robust definition of *high risk* areas that takes into account the precautionary approach.	ERSWG, CCSBT Members	Timetable to be developed.

New Zealand: Proposes a stepwise approach: Step 1 — establish definition of *high risk* areas Step 2 — identify areas that meet definition Step 3 — characterise the nature of the risk in each area Step 4 — develop tailored measures aimed at reducing those risks, e.g. implementation of best practice bycatch mitigation in those areas identified. New Zealand: Implementation would occur over 2-3 years. Japan: Suggests replacing this action with the following: Define *high risk* areas corresponding to the priority species agreed and explore the management options of reducing the operation within the high risk areas as much as practical. The result to be communicated across tuna RFMOs.		
Evaluate the effectiveness of seabird CMMs that are relevant to SBT longline fishing operations, taking into consideration fleet differences and seabird distribution. Japan: Suggests deleting this action, as doable for level of compliance, not possible to do annual evaluation of effectiveness of CMMs. COMMENT: Evaluations would occur every five years beginning with ERSWG15. New Zealand: Effectiveness needs to be clearly linked to an objective, e.g. are they effective to achieve a 95% reduction in bycatch). The Seabird Strategy could then map out follow-on actions, e.g. if not effective, then CCSBT could require mitigation actions above and beyond CMMs from other RFMOs to achieve CCSBT objectives.	ERSWG	ERSWG15, after that every 5 years.
Encourage CCSBT Members to undertake research and development to refine practical, cost-effective and safe seabird bycatch mitigation technologies and techniques. COMMENT: Action included as place-marker from Objective 3.	CCSBT Members	Report at each ERSWG.
Advocate for strengthened seabird CMMs within tuna RFMOs taking account of the best practice advice provided by ACAP. New Zealand: Supports this action, but CCSBT also needs to consider setting higher requirements/expectations for SBT fisheries to meet the objectives set, as progress in other RFMOs could be limited by non-CCSBT Members.	CCSBT Members	Ongoing.

COMMENT: Action included as place-marker from Objective 3.		
Regularly monitor and identify changes in the spatial overlap of fishing effort for SBT and the distribution of seabird species, particularly threatened albatross and petrel species, and inform the relevant fisheries across tuna RFMOs. COMMENT: Action included as place-marker from Objective 3.	ERSWG	At each ERSWG.
Assess the cumulative impacts of fishing for SBT on seabirds, particularly threatened albatross and petrel species, across tuna RFMOs including developing methods for extrapolating seabird bycatch levels and seabird bycatch rates to identify total mortalities and total mortality rates. COMMENT: Action included as place-marker from Objective 3.	ERSWG	At each ERSWG.

Objective 2: To ensure the collection of timely, reliable, representative data to support accurate regular estimations of total seabird mortality in SBT fisheries and its impact on seabird populations.		
Action	Action by	Timeframe
Develop improved techniques for reporting and analysing fishing effort data including concerning any implicit assumptions used when raising data. Japan: Suggests amending this action: Define improved protocols for reporting and analysing fishing effort data in the context of estimating seabird bycatch and its impacts on seabird populations, including concerning any implicit assumptions used when raising data. Japan: Considers that there is also a need to clarify the treatment of longline fishing effort within SBT areas, but not catching SBT	CCSBT Members	End of 2022.
Report and disseminate annually numbers of incidentally caught seabirds by species, total and observed effort, and mitigation use, according to agreed formats and strata. COMMENT: Suggested by Japan.	CCSBT Members, Secretariat	Annually.
Explore options for wider adoption of electronic monitoring systems throughout SBT fisheries.	CCSBT Members	Within two years.

Japan: Suggests amending this action: Explore options for effectively monitoring the implementation of seabird mitigation measures and seabird bycatch through electronic monitoring systems throughout SBT fisheries.		
Explore methodologies and techniques for estimating seabird mortalities in a timely and reliable manner, based on best available information and technologies, and not limited to observers and electronic monitoring. COMMENT: Suggested by Japan	CCSBT Members	Ongoing.
Agree on the CCSBT standard protocols for collecting feather samples and photographing dead bycaught seabirds, based on ACAP guidance. COMMENT: Suggested by Japan.	ERSWG	ERSWG15
Japan: Proposes deletion of this action. New Zealand: The implementation of this action is vital (and a precursor to reporting on and demonstrating various other actions), but could take a long time especially in the current climate, so a timeline may be necessary rather than 'annually'. An important consideration is that various other actions are reliant on having these fundamental data. Determine the spatial and temporal coverage and percentage of longline observers' work, as well as electronic monitoring, directed at observing seabird bycatch: Taiwan: Seeks clarification whether this action would mean on board observers AND electronic monitoring, or on board observers OR electronic monitoring. COMMENT: The latter is envisaged to occur. Taiwan: Seeks clarification about what is meant by monitoring 'directed at observing seabird bycatch'. COMMENT: This refers to the portion of the overall monitoring of fishing operations by observers that concerns seabird bycatch monitoring, and the proportion of electronic monitoring video footage that is reviewed to identify seabird bycatch events. a. Representativeness of observer coverage and electronic monitoring will be based on the proportion of strata that have met the relevant target level of coverage. b. Annual reporting includes the percentage coverage of monitoring as the number of hooks observed for	CCSBT Members CCSBT members	Annually. Annually.

each stratum divided by total fishing effort for each stratum and gaps where additional coverage is needed.		
Update guidance for observers to include electronic monitoring seabird related task priorities including how to allocate time appropriately, recognising the multiple tasks undertaken. Japan: Notes that this action is not applicable for Japan at this moment.	ERSWG	ERSWG15.

Objective 3: To develop and refine, in collaboration with industry and ACAP, practical, cost-effective and safe seabird bycatch mitigation technologies and techniques.

Japan: Suggests deleting Objective 3 and moving the actions to Objective 1.

New Zealand: Suggests amending Objective 3 to refer more generally to 'environmental organisations'.

Action	Action by	Timeframe
Encourage CCSBT Members to undertake research and development to refine practical, cost-effective and safe seabird bycatch mitigation technologies and techniques. COMMENT: Action included as place-marker under Objective 1.	CCSBT Members	Report at each ERSWG.
Advocate for strengthened seabird CMMs within tuna RFMOs taking account of the best practice advice provided by ACAP. New Zealand: Supports this action, but CCSBT also needs to consider setting higher requirements/expectations for SBT fisheries to meet the objectives set, as progress in other RFMOs could be limited by non-CCSBT Members. COMMENT: Action included as place-marker under Objective 1.	CCSBT Members	Ongoing.
Regularly monitor and identify changes in the spatial overlap of fishing effort for SBT and the distribution of seabird species, particularly threatened albatross and petrel species, and inform the relevant fisheries across tuna RFMOs. COMMENT: Action included as place-marker under Objective 1.	ERSWG	At each ERSWG.
Assess the cumulative impacts of fishing for SBT on seabirds, particularly threatened albatross and petrel species, across tuna RFMOs including developing methods for extrapolating seabird bycatch levels and seabird bycatch rates to identify total mortalities and total mortality rates. COMMENT: Action included as place-marker under Objective 1.	ERSWG	At each ERSWG.

Objective 4: To develop and refine compliance approaches to ensure fleet-wide compliance with seabird bycatch mitigation measures required while conducting fishing for SBT.		
Action	Action by	Timeframe
Collate information from compliance programs of CCSBT Members on implementation of seabird bycatch mitigation measures in SBT fisheries on a fleet-by-fleet basis. New Zealand: Considers action a bit confusing and not sure the second part is necessary. COMMENT: Action amended to clarify its focus on reporting by compliance programs.	Secretariat	Annually.
Respond to incidences of high seabird bycatch events: a. Ensure timely reporting of high seabird bycatch events by fishing vessels, observers, and through electronic monitoring. b. Establish protocols for responses to high seabird bycatch events by the affected fishing vessel including at-sea responses and post-trip interviews with observers. Japan: Suggests deleting this action, as these matters will need to be discussed under the responsibility of relevant tuna RFMOs which introduced the CMMs. Japan: Considers that the intention of this action is well understood. However, under the situation where the detection is only limited through observer reporting, direct linkage to management action would be difficult in many aspects. Need to find more pragmatic approach. New Zealand: Queries whether this action should focus on incidence of non-compliance rather than high bycatch events that may or may not be related to non-compliance.	CCSBT Members CCSBT Members	Annually. On occurrence.
Pursue procedures and methods that ensure compliance with seabird CMMs by SBT fishing operators: a. Establish protocols for in-port and transhipment at-sea inspections of seabird mitigation technologies and techniques used by SBT fishing vessels, and implementation of vessel reporting protocols. Japan: Considers approach in action (a) is not effective for monitoring actual implementation of mitigation measures. COMMENT: Action (a) addresses the related express recommendation within the SMMTG Report.	Compliance Committee	End 2023.

b. Develop and implement alternative monitoring and surveillance technologies and techniques including use of electronic monitoring systems and satellite-based technologies. Japan: Suggests deleting this action, as these matters will need to be discussed under the responsibility of relevant tuna RFMOs which introduced the CMMs. New Zealand: The implementation of this action and all monitoring/compliance actions are key. The action may benefit from a timetabled approach, and perhaps the setting of a reportable performance measure.	CCSBT Members	Timeframe to be decided.
Review data collection forms and procedures across tuna RFMOs regarding compliance with seabird CMMs by longline fishing operators and develop harmonised format to communicate and advocate across tuna RFMOs.	Compliance Committee	End of 2023

Objective 5: To enhance education and outreach programs highlighting the importance of mitigating seabird interactions while fishing, and advocating effective implementation of mitigation measures.		
Action	Action by	Timeframe
Share documents, formats and procedures for observer and electronic monitoring, seabird bycatch data collection through a centralised portal, e.g. the Bycatch Mitigation Information System (BMIS) hosted by the Western and Central Pacific Fisheries Commission. COMMENT: Suggested by Japan.	Secretariat	Annually
Pursue collaboration across tuna RFMOs in capacity building in seabird bycatch monitoring and analyses.	CCSBT	Annually.
Establish a depository and protocols for sharing observer data collection forms and procedures across tuna RFMOs. New Zealand: Implementation issues arise.	Secretariat	Timeframe to be decided.
COMMENT: The following action reflects a commitment within the SMMTG report to establish a reference DNA database. Establish and contribute (if data are available) to a reference DNA database for seabird species bycaught during fishing for SBT across tuna RFMOs. Taiwan: We do not collect DNA samples from seabirds presently, but will provide such data, if available, in the future. New Zealand: Implementation issues arise, which may make this timeline unrealistic, e.g. where will DNA database be housed, how DNA analyses be funded, etc.?	CCSBT Members	Timeframe to be decided.
Establish a reference photographic database through a centralised portal, e.g. the Bycatch Mitigation Information System (BMIS) hosted by the Western and Central Pacific Fisheries Commission, for seabird species bycaught during fishing for SBT across tuna RFMOs. This may include involving volunteer networks and seabird specialists. New Zealand: Implementation issues arise. Uncertain whether Secretariat is best placed to hold this library particularly if fisher access is the aim. BMIS might be a better place to start if they don't already have one.	Secretariat	Timeframe to be decided.
Translate ACAP's seabird species identification guide into key languages (e.g. French, Indonesian, Korean, Spanish, and Taiwanese) and disseminate together with the other languages (e.g. English Japanese).	Common Oceans Project II, ACAP	Timeframe to be decided.

Implementation and Evaluation

Effective implementation of the Seabird Strategy will be monitored through direct observer programmes, audited electronic monitoring systems, and other monitoring and compliance approaches at-sea and in port. This will ensure fishing operators fully and effectively implement their seabird bycatch mitigation obligations and accurately report any incidental catch of seabirds. Implementation will require sufficient capacity among individual CCSBT Members, and collectively, to collate, analyse and develop responses that avoid or minimise the incidental catch of seabirds in SBT fisheries.

The ERSWG, with assistance from CCSBT Members, will monitor the effectiveness of the Seabird Strategy. The progress of the Seabird Strategy will be evaluated at intervals of no more than five years, and the strategy will remain in effect until the overall objective is achieved, with particular regard given to the reduction of seabird bycatch levels, and reduction in seabird bycatch rates.

References

FAO (1999) *International Plan of Action for reducing incidental catch of seabirds in longline fisheries.* Rome, Italy

FAO (2009) *Fishing Operations. 2. Best practices to reduce incidental catch of seabirds in capture fisheries.* Rome, Italy

IUCN (International Union for Conservation of Nature (2019) The IUCN Red List of Threatened Species. Version 2018-2. Available at: http://www.iucnredlist.org

ANNEX B

Modified recommendations from Seabird Mitigation Measures Technical Group (SMMTG) Report

1. Develop improved techniques for reporting and analysing fishing effort data including any implicit assumptions used when raising data.

2. Identify and monitor any changes in the spatial overlap of fishing effort for SBT and the distribution of seabird species subject to seabird bycatch in the relevant fisheries across the tuna RFMOs.

3. Evaluate the effectiveness of seabird CMMs.

4. Assess the cumulative impacts of fishing for SBT on seabirds across tuna RFMOs including developing methods for extrapolating seabird bycatch levels and seabird bycatch rates to identify total mortalities and total mortality rates.

5. Determine the spatial and temporal coverage and percentage of longline observer effort directed at observing seabird bycatch:

    a. annual reporting will identify the percentage coverage of observations as the number of hooks observed for each stratum divided by total fishing effort for each stratum

    b. representativeness of observer coverage will be evaluated based on the proportion of strata that have met the relevant target level of observer coverage.

6. Develop reliable estimates of seabird bycatch and seabird bycatch rates including accounting for uncertainty in estimates, on a fleet by fleet basis, and by establishing harmonised seabird bycatch and seabird bycatch rate assessment methods and procedures across tuna RFMOs:

    a. annual reporting will provide reliable estimates of seabird bycatch (total numbers by species) and seabird bycatch rates (seabird bycatch per 1000 hooks observed) on a fleet by fleet basis

    b. periodic fine-scale assessments will determine whether agreed targets for reducing seabird bycatch and seabird bycatch rates on a fleet by fleet basis have been met over time (e.g. 50% reduction within three years, and 95% reduction within five years)—where feasible this should occur across tuna RFMOs, while accounting for data confidentiality

    c. retrospective analyses will allow development of estimates of background seabird bycatch levels and seabird bycatch rates that existed before the introduction of seabird CMMs by tuna RFMOs, and resolve any variability arising from changes in fishing practices including gear configurations, areas and seasons fished.

7. Improve seabird species identification across fleets including by translation of the ACAP seabird species identification guide into key languages (e.g. French, Indonesian, Korean,

Spanish, and Taiwanese) and by establishing a reference library of seabird bycatch photographs to assist observers in identifying bycaught seabirds to specific levels.

8. Improve procedures and methods for photographing and sampling dead bycaught seabirds for DNA analysis, as an additional aid to identifying seabirds to specific levels. The ACAP guides to photographing dead seabirds, and collecting feather samples for DNA analysis provide a template for the improved procedures and methods.

9. Increase information about the occurrence of high seabird bycatch events including by conducting post-trip interviews with observers.

10. Improve guidance for observers on priorities for seabird-related tasks including how to allocate observer time appropriately, recognising the multiple tasks undertaken by observers.

11. Establish a depository and protocols for sharing observer data collection forms and procedures across tuna RFMOs.

12. Establish a reference DNA database for seabird species bycaught during fishing for SBT across tuna RFMOs.

13. Establish a reference photographic database for seabird species bycaught during fishing for SBT across tuna RFMOs. This may include involving volunteer networks and seabird specialists.

14. Review data collection forms and procedures across tuna RFMOs for collecting information about compliance with seabird CMMs by longline fishing operators.

15. Share documents, formats and procedures for observer seabird bycatch data collection through a centralised portal, e.g. the Bycatch Mitigation Information System hosted by the Western and Central Pacific Fisheries Commission.

16. Collate information from CCSBT Members about data collected on seabird bycatch mitigation measures under compliance programs for SBT, including seabird bycatch and seabird bycatch rates on a fleet-by-fleet basis for each strata.

17. Identify improved procedures and methods for ensuring compliance with seabird CMMs by longline fishing operators, including port inspections, inspections during transhipment at sea, electronic monitoring technologies and other monitoring and surveillance techniques and technologies.

18. Improve the seabird risk assessment methods and procedures to help identify spatial and temporal risks of seabird bycatch within each stratum where fishing for SBT occurs.

19. Establish a robust definition of *high risk* areas that takes account of the precautionary approach.

20. Pursue collaboration across tuna RFMOs in capacity building in seabird bycatch monitoring and analyses.