



WCPFC8
Eighth Regular Session
5th December – 9th December 2011
Koror, PALAU

KOBE III RECOMMENDATIONS

SCIENCE AND BYCATCH

WCPFC8-2011/15
23 October 2011

ISSUES:

1. KOBE III was held in La Jolla, USA in July 2011. The science recommendations and the outcomes of the Joint technical Bycatch Working Group are for the consideration of the Commission. These can also be found at <http://www.tuna-org.org/Kobe3.htm>.

DECISION/ENDORSEMENT(S):

2. WCPFC8 is invited to comment on the Science recommendations from KOBE III and of the Joint Technical Bycatch Working Group (JTBWG), noting that the KOBE II recommendations are being implemented for the major part by the Commission.

DISCUSSION:

3. The consolidated recommendations for Science taken from the above website for Kobe III along with the TCC paper on the JTBWG are attached for information.

**KOBE III RECOMMENDATIONS
LA JOLLA
JULY 2011**

I. Science

(1) Recognizing that the five tuna Regional Fisheries Management Organizations (tRFMOs) have different data confidentiality rules, and noting this might curb the exchange of data across tRFMOs, Kobe III participants recommended that tRFMO Secretariats cooperate to develop common data confidentiality rules and a draft protocol for data sharing. The protocol will specify the types of data to be shared, how it can be used, and who can have access to it.

(2) Emphasizing the potential of the Kobe II Strategy Matrix (K2SM) to communicate efficiently among all stakeholders and to assist in the decision-making process according to different levels of risk, but also recognizing that substantial uncertainties still remain in the assessments, Kobe III participants recommended that the Scientific Committees and Bodies of the tRFMOs develop research activities to better quantify the uncertainty and understand how this uncertainty is reflected in the risk assessment inherent in the K2SM.

(3) Recognizing that a Management Strategy Evaluation (MSE) process needs to be widely implemented in the tRFMOs in the line of implementing a precautionary approach for tuna fisheries management, it is recommended that a Joint MSE Technical Working Group be created and that this Joint Working Group work electronically, in the first instance, in order to minimize the cost of its work.

Bycatch Working Group

(4) In accordance with the Terms of Reference for the Joint Technical Bycatch Working Group (JTBWG), which were adopted at the Kobe II Bycatch Workshop, Kobe III participants welcomed the report of the first meeting of the JTBWG and recommended that it be transmitted to each tRFMO for its consideration. The report of the bycatch working group is attached (Annex 1).

(5) The WCPFC adopted the recommendations of Kobe 11 of which the JTBWG was a proposal at WCPFC7. The paper prepared by the Secretariat for TCC is included for your consideration at this meeting as it outlines the decision of the first meeting of the JTBWG and includes on pages 3-4 the potential work and issues for WCPFC.



TECHNICAL AND COMPLIANCE COMMITTEE

Seventh Regular Session

28 September - 4 October 2011

Pohnpei, Federated States of Micronesia

BY-CATCH MITIGATION WORKSHOP

WCPFC-TCC7-2011/26

2 September 2011

Paper prepared for Secretariat

**PROGRESS ON IMPLEMENTATION OF THE KOBE II RECOMMENDATION AND
REPORT OF THE FIRST MEETING OF THE KOBE PROCESS JOINT
TECHNICAL WORKING GROUP ON BYCATCH, LA JOLLA, CA, JULY 11, 2011**

WCPFC-SC7-2011/EB-WP-14 Rev 1



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**PROGRESS ON IMPLEMENTATION OF THE KOBE II RECOMMENDATION AND
REPORT OF THE FIRST MEETING OF THE KOBE PROCESS JOINT
TECHNICAL WORKING GROUP ON BYCATCH, LA JOLLA, CA, JULY 11, 2011**

WCPFC-SC7-2011/EB-WP-14

Revision 1 (26 July 2011)

WCPFC Secretariat¹

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1. Bycatch Joint Technical Working Group: Workplan requirements for WCPFC

I. Appointment of Chair

Simon Nicol (WCPFC Science Provider) was appointed chair of the working and will provide this service on behalf of WCPFC for the 12 month workplan. The future of the working group will be determined by the RFMOs at this point as per the TOR for the working group (see section 3).

II. Workplan

Harmonisation of data collection

The working group will identify the minimum data standards and data fields that should be collected across all RFMOs with a view to allowing interoperability.

WCPFC Requirement: Nomination of persons from each observer program to participate in identifying minimum data fields and definitions

Development of harmonized identification guides and release protocols

1. Seabird identification: the tuna Secretariats will provide ACAP with existing seabird identifications, and ACAP will develop a standardized identification guides. The drafts of the identification guides will be reviewed by the Working Group working group and Tuna RFMO working groups.
2. Shark identification: the Working Group, with WCPFC and ICCAT taking the lead, will harmonize guidance for shark identification, in collaboration with the IUCN shark specialist group and others. (Note-- IATTC shark ID guide is available in its website, and it provides a useful model for observer use).
3. Sea Turtle identification: The Secretariats will provide the Working Group Chair with the materials currently in use for turtle identification so these can be harmonized and distributed to all tuna RFMOs.
4. The Working Group should consider a process to develop harmonized marine mammal identification guides for the fisheries for which they are not available.

WCPFC Requirement: SPC guides to be made available. Submission of other guides used in WCPFC by October 1, 2011

Identify and recommend research priorities & prioritization of collaborative work

Provisional list of research activities has been identified. All RFMOs to review and revise the draft list by 31 December 2011. The BMIS to be modified to include this list. The list should also include current and upcoming research conducted or supported by tuna RFMOs. This would help to avoid overlap and ensure the efficient use of limited research resources. The list might include an outline, timetable and contacts for the research program, i.e. who is

doing what, where and when. Such information would also be useful for scientists in government and academia, as well as NGOs.

WCPFC Requirement: BMIS to be modified. WCPFC secretariat to provide list to working group chairs. WCPFC to designate/employ a dedicated bycatch staff person to work collaboratively with other RFMOs to promote bycatch related work

Progress BMIS information sharing website

The Working Group agreed to meet to develop a centralized bibliographic bycatch database that includes information on mitigation, bycatch conservation and management measures adopted by the RFMOs and past assessments undertaken by RFMOs; with the effort will be led by ICCAT, IOTC, and WCPFC.

WCPFC Requirement: BMIS to be modified to accommodate additional RFMO information. Existing Bibliographies (BMIS/ICCAT) to be synchronised

Sharks

The Working Group will collaborate on ecological risk assessments by RFMOs for sharks. The working group also discussed the incidence of whale and marine mammal interactions with purse seine fisheries across RFMOs. There was discussion upon the commonality of this issue for all RFMOs.

WCPFC Requirement: WCPFC to assist CCSBT and IOTC with upcoming ERAs for sharks. WCPFC to collaborate with IATTC on shark ERA /assessment in the Pacific Ocean. WCPFC to provide whale shark and marine mammal interaction rates with purse seine fisheries to technical working group if requested.

2. RECOMMENDATIONS FROM THE KOBE II WORKSHOP ON BYCATCH

Participants in the Kobe II Bycatch Workshop support bringing the following recommendations forward to the respective RFMOs as regards bycatch across five taxa (seabirds, sea turtles, finfish, marine mammals, and sharks):

RECOMMENDATION	WCPFC Progress
I. Improving assessment of bycatch within T-RFMOs	
1. RFMOs should assess the impact of fisheries for tuna, tuna like and other species covered by the conventions on bycatch by taxon using the best available data.	Productivity Susceptibility Analyses completed Key shark species nomination process drafted Assessment of status of key shark species. Quantitative assessment of impacts on seabirds, turtles, finfish and marine mammals not undertaken as yet
2. RFMOs should consider adopting standards for bycatch data collection which, at a minimum, allows the data to contribute to the assessment of bycatch species population status and evaluation of the effectiveness of bycatch measures. The data should allow the RFMOs to assess the level of interaction of the fisheries with bycatch species.	Regional Observer Program standards that specify minimum data fields to be supplied to WCPFC. PIRFO and Philippines (Vietnam, Indonesia to follow) have harmonised data fields and forms. Catch estimates for non-target species computed annually and used in qualitative ERAs. Formal assessment on whether standards are adequate to assess the level of interaction of the fisheries with bycatch species not yet undertaken
3. Encourage the participation of appropriate scientists in relevant T-RFMO working groups to conduct and evaluate bycatch assessments and proposed mitigation strategies	Implemented with WCPFC

<p>4. Implement/enhance observer and port sampling programs with sufficient coverage to quantify/estimate bycatch and require timely reporting to inform mitigation needs and support conservation and management objectives, addressing practical and financial constraints</p>	<p>CMM for 100% PS observer coverage CMM for 5% LL observer coverage Formal assessment on what coverage is representative and sufficient to quantify/estimate bycatch interactions and report upon mitigation needs to support conservation and management objectives not undertaken as yet</p>
<p>II. Improving ways to mitigate/reduce bycatch within T-RFMO</p>	
<p>5. RFMO measures should reflect adopted international agreements, tools and guidelines to reduce bycatch, including the relevant provisions of the FAO Code of Conduct, the IPOAs for Seabirds and Sharks, the FAO guidelines on sea turtles, the best practice guidelines for IPOAs for seabirds, and the precautionary approach and ecosystem approaches.</p>	<p>Implemented with WCPFC</p>
<p>6. For populations of concern including those evaluated as depleted, RFMOs should develop and adopt immediate, effective management measures, for example, prohibition as appropriate on retention of such species where alternative effective sustainability measures are not in place.</p>	<p>Implemented with WCPFC</p>
<p>7. Evaluate the effectiveness of current bycatch mitigation measures, and their impact on target species catch and management, and identify priorities for action and gaps in implementation, including enforcement of current measures and capacity building needs in developing states</p>	<p>Implemented with WCPFC</p>
<p>8. Seek binding measures or strengthen existing mitigation measures, including the development of mandatory reporting requirements for bycatch of all five taxa across all gear types and</p>	<p>Implemented with WCPFC</p>

fishing methods where bycatch is a concern; and	
9. Identify research priorities, including potential pilot projects to further develop and evaluate the effectiveness of current or proposed bycatch mitigation measures, working with fishers, fishing industry, IGOs and NGOs, universities and others as appropriate, and facilitate a full compendium of information regarding mitigation techniques or tools currently in use, e.g. building on the WCPFC Bycatch Mitigation Information System.	Task of the Joint t-RFMO Bycatch Technical Working Group BMIS operational
10. Due to the conservation status of certain populations and in accordance with priorities in the RFMO areas, expedite action on reducing bycatch of threatened and endangered species.	Implemented with WCPFC
11. Adopt the following principles as the basis for developing best practice on bycatch avoidance and mitigation measures and on bycatch conservation and management measure (1) binding, (2) clear and direct,(3) measureable, (4) science-based, (5) ecosystem-based, (6) ecologically efficient (reduces the mortality of bycatch), (7) practical and safe, (8) economically efficient, (9) holistic, (10) collaboratively developed with industry and stakeholders, and (11) fully implemented.	Implemented with WCPFC
III. Improving cooperation and coordination across RFMOs	
12. As a matter of priority, establish a joint T-RFMO technical working group to promote greater cooperation and coordination among RFMOs with the attached Terms of Reference. The RFMOs are encouraged to expedite the formation of the joint working	Established and WCPFC current chair

group.	
13. Actively develop collaborations between relevant fishing industry, IGOs and NGOs, universities and others as appropriate, and RFMOs to assess the impact of bycatch on the five taxa, study the effectiveness of bycatch mitigation measures, and further the understanding of population dynamics of species of conservation concern; and	Implemented with WCPFC
14. Develop the long-term capacity of T-RFMOs to coordinate and cooperate for data collection, assessment of bycatch, outreach, education, and observer training, including establishing a process to share information on current bycatch initiatives and potential capacity building activities	Component of BMIS
15. RFMOs are encouraged to report progress to Kobe III on the formation and on progress against the recommendations in part I and II of this workshop report.	Reported to first meeting of joint t-RMFO bycatch technical working group
IV. CAPACITY BUILDING FOR DEVELOPING COUNTRIES	
16. Acknowledging the additional or new requirements of bycatch mitigation and the need to build further capacity for implementation, in carrying out the recommendations in I, II, and III above, consider capacity building programs for developing countries to assist in their implementation. Establish a list of existing capacity building programs related to bycatch issues (see attached Appendix 2 for example) to avoid duplication where possible and facilitate coordination of new capacity building programs.	Implemented with WCPFC

3. Bycatch Joint Technical Working Group: Terms of Reference

The Bycatch Joint Technical Working Group (WG) should be small in nature so as to work more efficiently (e.g. 2-3 representatives from each Tuna RFMO). The WG will support, streamline, and seek to harmonize the bycatch related activities of Ecosystems/Bycatch working groups. The WG will have the ability, where necessary, to consult and work with other experts including those from fishing industry, IGOs and NGOs. The findings/recommendations of the WG will be considered by each RFMO, including, as appropriate, their technical bodies, in accordance with the procedures of each RFMO. The RFMOs may provide feedback to the WG as necessary. To the extent possible, the WG will meet electronically.

Terms of Reference:

- 1) Identify, compare and review the data fields and collection protocols of logbook and observer bycatch data being employed by each Tuna RFMO. Provide guidance for improving data collection efforts (e.g., information to be collected) and, to the extent possible, the harmonization of data collection protocols among Tuna RFMOs.
- 2) Identify species of concern that, based on their susceptibility to fisheries and their conservation status, require immediate action across Tuna RFMOs. Review all available information on these species and identify their data needs.
- 3) Review and identify appropriate qualitative and quantitative species population status determination methods for bycatch species.
- 4) Review data analyses to identify all fishery and non-fishery (e.g. oceanographic and physical) factors contributing to bycatch, taking into account the confidentiality rules of each RFMO.
- 5) Review existing bycatch mitigation measures including those adopted by each Tuna RFMO and consider new mitigation research findings to assess the potential utility of such measures in areas covered by other Tuna RFMOs taking into consideration differences among such areas.
- 6) Review and compile information on bycatch research that has been already conducted or is currently underway to delineate future research priorities and areas for future collaboration.
- 7) The duration of the WG will depend on the needs and requests of the Tuna RFMOs.

4. Report of the First Meeting of the Bycatch Joint Technical Working Group, La Jolla, CA, July 11, 2011

The first meeting of the Bycatch Joint Technical Working Group (WG) was held in La Jolla, CA on July 11, 2011. Note: this record of the meeting reflects discussion on a range of issues throughout the day and some recommendations were not fully developed and as such will require further discussion within individual tuna RFMOs. The Kobe process is not a decision making forum and all recommendations are for discussion and decision by individual tuna RFMOs.

I. Opening of the meeting

Prof. Glenn Hurry welcomed the participants. The meeting included representatives from each of the Tuna Regional Fisheries Management Organizations (RFMOs) and invited taxa experts (Appendix A-- List of Participants)

II. Appointment of Chair

Prof. Glenn Hurry was appointed chair of the working group.

III. Appointment of Rapporteur

Cleo Small and Nina Young were appointed as rapporteurs.

IV. Adoption of the Agenda

Professor Hurry reviewed the draft agenda, and stated that he would like to prioritize discussion of data and 4 or 5 additional issues that could be developed in greater detail to take to the Kobe III meeting. Professor Hurry emphasized the need to recommend practical issues for tuna RFMOs to take onboard. The agenda was adopted (Appendix B)

V. Review of the Kobe II Bycatch Meeting Report, including Terms of Reference for the Joint Tuna RFMO Technical Bycatch Working Group

The WG reviewed the terms of reference and based on the report of the Kobe II Bycatch Meeting, the WG group agreed to focus its discussion on the following areas.

- a. Data, including reporting accuracy, compliance and the role of observers
- b. Gaps in mitigation technologies
- c. Development and deployment of mitigation technologies
- d. Information to and collaboration with to fleets
- e. Capacity building shortfalls

VI. Update on Tuna RFMO Bycatch Conservation and Management Measures

The RFMO representatives and taxa experts provided an update on work conducted on bycatch including conservation and management measures and their priorities for making progress on bycatch within tuna RFMOs.

1. **WCPFC ,Paul Dalzell and Simon Nicol:** WCPFC has implemented conservation and management measures for sharks, sea birds, and sea turtles over the past five years.

The WCPFC Ecosystem and Bycatch Working Group Chair, Dalzell, noted that the key issue that dominates discussions is the lack of data on bycatch species and the inability to evaluate bycatch against the population of the species. For example, no information exists on abundance, age structure, and distribution for most bycatch species; therefore it is difficult to evaluate fishery impacts relative to species abundance. It was noted that most observer data came from the metropolitan distant water fishing nations, but even this was heavily skewed by the large volume of data from the Hawaii longline fishery, which only catches a small fraction of the total Western & Central Pacific Ocean (WCPO) tuna catch. The implementation of observer programs on WCPO purse seine and longline vessels was a welcome development, but there would likely to be problems with data quality which will compromise estimates of fleet-wide bycatch totals, especially for the longline fisheries where the target coverage rate was 5% annually. Simon Nicol described two WCPFC has informational databases (1) the bycatch information mitigation system (BMIS), which has a full compilation of references, a section documenting technical mitigation measures, and information on target and bycatch species; and (2) a shark tagging database (STAGIS) for the Pacific Ocean which should prove useful for estimation of movement and mortality rates. The major need is data, as information on bycatch is generally lacking across all of the bycatch species

2. **IOTC, Dr. Francis Marsac:** Lack of data is equally a problem in the Indian Ocean, especially since 50% of the catch comes from the artisanal fleets which are insufficiently monitored. The IOTC, in 2007 and 2008, designed a new observer form to collect bycatch respectively from purse seine and longline fisheries. In 2010, IOTC began implementation of the regional observer scheme, with an observer coverage target of 5% of all fisheries by 2013. The Scientific Committee proposed to the Commission full utilization of catch and the requirement to have shark fins naturally attached to the body, as to replace the current 5% fin:body ratio, but this proposal was not adopted by the Commission. In 2010, the IOTC adopted a provision for thresher sharks that required no retention or sale by commercial or recreation fleet. The IOTC is working with the IATTC to develop and harmonize its shark identification guide, but this should be done across RFMOs. In 2009, the IOTC adopted a sea turtle resolution which included the FAO guidelines for bycatch mitigation and release of sea turtles, collection of information, requirement for live release and the use of dehookers, line cutters, and finfish bait. To assist in implementation of these requirements, the IOTC is preparing sea turtle identification sheets in collaboration with IOSEA. Research is underway on 'ecological FADs' to reduce turtle entanglement. In 2008, IOTC adopted a sea bird mitigation measure that requested that longliners use at least two mitigation measures south of 30 degrees south; in 2010 the IOTC extended the boundary to south of 25 degrees south. Discussion is underway to remove line shooter from the list of mitigation measures. Finally, with regard to marine mammals depredation of catch in the surface longline fishery is of particular interest, as depredation in some cases may be as high as 20% of catch. In the purse seine fishery, interactions with whales must be further evaluated. ERAs are planned.

3. **ICCAT, Josu Santiago:** The ICCAT established its Sub-Committee on By-catch and Shark Species Group in 1995. In 2005 it was created a Sub-Committee on Ecosystems, which replaced two earlier Subcommittees on Environment and Bycatch. The work of the SCRS has included assessments in 2004 and 2008 for blue sharks and short fin mako and a joint ICCAT-ICES assessment of porbeagle in 2009, a new assessment for shortfin mako will be conducted in 2012. In 2008, ICCAT undertook an ERA for 9 shark species, and this ERA will be updated for 18 species of sharks in 2012. In 2010 a productivity and susceptibility analysis on species caught in Atlantic tuna fisheries was also conducted. In 2010 a metadata base on by-catch bibliography was created. The ICCAT manual includes descriptions of blue, short-fin mako and porbeagle, and more sharks species will be included in the future. Also identification sheets for the main Atlantic shark species have been published. In 2009, ICCAT finalized its seabird assessment and made recommendations to strengthen the current 2007 seabird mitigation and other measures. In 2010, ICCAT adopted mitigation measures to reduce the effect of tuna fisheries on sea turtles and reporting requirements to undertake an assessment of impacts of tuna fisheries on turtles in 2012. Ten active recommendations and 6 resolutions for bycatch conservation and management have been adopted-- 2 sea birds, 13 sharks, 2 sea turtles. Shark stock assessments have been conducted by the SCRS on the base of data submitted, since 1995 as part of the ICCAT general statistics request (Task I and Task II). Other bycatch assessments rely on data submitted by the CPCs and consultations with taxa experts. The lack of data and low observer coverage in the purse seine and longline fisheries are obstacles to estimating total bycatch for species with overlapping and/or non homogeneous distribution. Observer data is supplemented with data from market and port sampling.
4. **IATTC, Martin Hall:** The IATTC requires 100% coverage in purse seine fleet and has 18-19 years of data at this level, and lower coverage from 1979. There have been almost no data available from the industrial longline fleet, but a requirement for 5% coverage in the longline fleet has been adopted in 2011. There is a large artisanal fleet in the ETP that targets many species including tuna and sharks. Collection of data from artisanal fleets should be a focus of capacity building in tuna RFMOs. Dolphin bycatch mitigation in the purse seine fishery has resulted in dramatic reduction in dolphin mortality, while cetacean interactions in the longline fleet are poorly documented. In the Eastern Tropical Pacific (ETP) the main shark species of concern are silky sharks and oceanic whitetips. IATTC has developed a robust shark identification system, and has adopted prohibitions on finning. In 2011, IATTC adopted a measure for oceanic white tips, the populations of which have declined substantially. A generic resolution requiring full retention of sharks, and release as soon as possible did not pass. The issue of the bycatch of silky sharks, which have declined by more than 70%, remains to be addressed. For manta rays, identification is difficult, release is possible but handling and release methods need to be developed, as do those for whale sharks. For sea turtles, bycatch in the purse seine fishery is not a critical problem (<20 green/black and olive ridley sea turtles per year were killed in 2010; most turtles captured were released alive). There is a significant bycatch of sea turtles in artisanal longline fisheries in the ETP; to address this

bycatch a partnership program with WWF and several nations has promoted the use of circle hooks and the use of release standards. The IATTC has produced (and it is available on its website) a video detailing how to handle and release sea turtles. IATTC has conservation and mitigation measures for sea turtles but still information on status and trends is not available for the current year. Spatial distribution data, especially the inter-nesting habitat would be useful to develop some management measures. IATTC with the Overseas Fishery Cooperation Foundation of Japan studied the causes of sea turtle entanglement in lines of polypropylene and polyethylene, materials with positive buoyancy, and found a simple and cheap solution that is being tested at a larger scale by the government of Ecuador. A minimum set of tools and instruments to handle sea turtles and dehook them was adopted, and vessels should carry this set. In 2011, IATTC adopted a new sea bird resolution; however, more bycatch data are needed from the longline fishery. To address the bycatch of small tunas, IATTC adopted a special closure to reduce the bycatch of small bigeye tuna and it also requires full retention of tuna with the exception of tuna unfit for human consumption. Research on sorting grids shows promise for the release of small tunas, and other small pelagic fishes. Research on acoustics is being carried on in a cruise sponsored by ISSF.

5. **CCSBT, Bob Kennedy:** CCSBT situation unique because single species with no convention area. Bluefin tuna is caught in the convention areas of the IOTC, ICCAT, WCPFC—so any conservation and management measures in those RFMOs are binding on respective CCSBT members. CCSBT, like other RFMOs, also suffers from a lack of adequate data on bycatch. CCSBT has adopted a target observer coverage rate of 10%, which is implemented through national observer programs-- this limits what analysis can be undertaken. Within CCSBT there is no centralized database as the data are maintained by the national programs and nations provide their bycatch assessments. The Ecologically Related Species (ERS) group focuses mostly on the longline fishery as there is no FAD fishing within the purse seine fishery for bluefin tuna. Interactions in the longline fishery are low for marine mammals and sea turtles, but data are lacking from Indonesia. The focus of bycatch mitigation has been primarily on sea birds and sharks. The Ecologically Related Species WG will meet in April 2012. ERSWG will meet next April. CCSBT is in the process of updating its shark and sea bird identification guides.

Taxa Comments

6. **Doug Hykle, IOSEA:** IOSEA has 32 member states around the Indian Ocean, and members have reported data on sea turtle bycatch, implementation of mitigation measures, and turtle tracking data in their respective national reports. A regional assessment of leatherback turtles has been published and one for loggerheads is being finalized. It was noted that IOSEA's parent body, CMS, is undertaking a bycatch study on turtles, with a focus on artisanal fisheries, and this may be useful to the WG. IOSEA is involved/collaborates with the IOTC WPEB, and feels that this group is under-resourced.

7. **Jack Frazier, IOSEA Advisory Committee:** For me what is important is collaboration: specialists and other organizations can support tuna RFMOs in identifying and resolving bycatch issues. This may involve commissioning experts and universities. There is also the need to be clear on the definition of 'bycatch', and the wider ecosystem issues including incidental catch. In addition, there is a critical need to understand socio-economic factors in relation to bycatch.
8. **Sandra Andraka, WWF:** WWF has undertaken a sea turtle program in the Eastern Pacific since 2005, working with artisanal fleets in 9 countries. Progress varies between countries, but work has involved over 400 vessels, undertaking experiments on C versus J hooks, using forms developed by IATTC, standardized across the region. Work is underway to fill gaps in knowledge of overall bycatch rates. Two issues are (i) the need to build national capacity in relation to observer programs, and (ii) that there may be limited availability of mitigation devices (e.g. circle hooks) in country which restricts implementation. It was noted that while there is no single mitigation recommendation for sea turtle bycatch mitigation, a common need is for fisheries to have tools for release, and training for fishermen to use these
9. **Warren Papworth, ACAP:** Seabird bycatch mitigation has the advantage of good databases, including the ACAP breeding site databases, ACAP species assessments, and BirdLife International tracking database. There is also a good understanding of bycatch mitigation. However, there are limited bycatch data from high seas fisheries, and next to no information on compliance with mitigation requirements, nor mechanism to collect these data. It was noted that ACAP have a database and national reporting system that could be made available to tuna RFMOs. A strength of this Joint tuna RFMO bycatch group is its global focus, which is necessary to address bycatch of migratory species such as albatrosses. The Terms of Reference emphasize the importance of data and data accessibility.
10. **Ed Melvin, Washington Sea Grant:** Ed has worked on seabird bycatch for many years across a range of gear types, most recently working with Japan in South Africa. Research demonstrates that seabird bycatch mitigation is possible even in the most difficult areas, by using a combination of night setting, line weighting and bird scaring (tori) lines. It was noted that a high proportion of seabird bycatch can come from secondary interactions, which underlines the importance of line weighting. Funding is essential for progress. It was also noted that appropriate seabird bycatch mitigation may differ between the north and south hemisphere, with surface foragers dominating in the northern hemisphere. Compliance is a key issue, more information is needed on the successes and failures of implementation.
11. **Cleo Small, BirdLife International:** BirdLife has been working with the tuna RFMOs since 2005, working closely with the ecosystem and bycatch working groups. Inputs include the albatross and petrel tracking database, inputs into the seabird ERAs in ICCAT, WCPFC and IOTC, and data on observer standards. BirdLife also has operates the Albatross Task Force, which works directly with fishermen in 7 countries in South America and Southern Africa, increasing uptake of mitigation measures, training observers and undertaking mitigation research. Suggestions for practical issues that this Joint tuna RFMO Bycatch WG could take forward include harmonizing observer

data standards and establishing interoperable databases, and recommending a joint tuna RFMO bycatch research program, dedicated ecosystem/bycatch staff in each Secretariat, and pilot projects for electronic video observer programs.

12. **Sonja Fordham, Shark Advocates International:** A key issue is that sharks are both bycatch and targeted species. Rays and skates must be considered as well as sharks. There is a problem of new markets for Chinese medicine and meat. Priorities are to improve data, but also taking action in cases where available data are already sufficient to demand action. There is a key need for capacity building in developing countries, as lack of capacity is used as reasons not to adopt conservation and management measures. Another issue is the adoption of measures with loopholes that significantly reduce the effectiveness of measures, while giving an impression of making progress. Across the board, there is a need for further bans on retention of most vulnerable shark species, and development of protocols for handling and releasing sharks. Landing sharks with fins naturally attached has clear benefits of species identification and assessments. Agrees that pilot studies for video monitoring are important, including for compliance. A comparison of existing tuna RFMO shark data collection requirements would be useful.
13. **Eric Gilman, Hawaii Pacific University:** Our research team focuses primarily on gear technology approaches to bycatch mitigation in tuna fisheries. Two in-progress studies of relevance to the tuna RFMO bycatch working group are: a performance assessment of global RFMOs' governance of bycatch and discards, which will be published as an IUCN technical report in late 2011; and (ii) the development of tuna product procurement specifications for retail and supplier partners of the international NGO, Sustainable Fisheries Partnership. The group also noted the existence of FAO Fisheries Circular 1025 (<http://www.fao.org/docrep/010/a1426e/a1426e00.htm>), produced by Eric and colleagues at FAO in 2007, reviews progress in addressing bycatch of seabirds and sea turtles by RFMOs, and that it would prove useful to the tuna RFMO bycatch working group to have this document updated and expanded to cover other vulnerable bycatch species groups.

VI. Discussion and Recommendations of the WG

The WG had broad discussions in the areas of data including:

- Standardization in data collection protocols, data sharing, improving data accuracy, observer training and certification; noting that all RFMOs and taxa experts indicated that data was the major issue for management and mitigation.
- Sharks, including ecological risk assessment, stock assessment and bycatch, emerged as a key issue for immediate consideration within RFMOs with participants noting that the issue was broader than bycatch and needed to acknowledge that full stock assessment should be conducted for those shark species where data are available. For those species lacking data, consistent with the FAO IPOA-Sharks, a precautionary, science-based conservation and management measures for sharks should be taken in fisheries within each tuna RFMO, including as appropriate: (1)

measures to improve the enforcement of existing finning bans; (2) prohibitions on retention of particularly vulnerable or depleted shark species, based on advice from scientists and experts; (3) concrete management measures in line with best available scientific advice with priority given to overfished populations; (4) precautionary fishing controls on a provisional basis for shark species for which there is no scientific advice; and (5) measures to improve the provision of data on sharks in all fisheries and by all gears.

- Collaborative research; with members noting the importance of websites and data bases to share information and in this context the importance of the WCPFC Bycatch Management Information System, the ICCAT database and an independent data base on bibliographies (e.g., IOSEA has an extensive online sea turtle bibliography as well as a list of projects in the 32 Signatory States) were noted and later agreement was reached to further to integrate them into the WCPFC website.
- Collaborative partnerships; were noted by many working group members as the best way to facilitate research and to develop mitigation measures and that these partnerships worked well when RFMOs, industry and NGOs worked in partnership and collaboration.
- Compliance; this was seen as an issue for members as they were unsure, given the lack of reporting by some nations, if mitigation and management measures had been adopted and implemented properly and as such it was difficult at a later time to assess their effectiveness. . It was also pointed out that there need to be clear and compelling incentives for compliance to work, and that sanctions alone are insufficient.
- Bycatch in artisanal fleets; this was described as a different issue to data collection in industrial fleets and as such needed different approaches and has other challenges for data collection and extension exist.
- Measures to harmonization and develop handling and release standards were needed urgently and priority should be attached to their development. . However it was noted that there are different ocean species and practices that need consideration and that handling and release standard should be species specific and take into consideration differences in oceans, gear type, and fishing operations.

The definition of bycatch

The group had some discussion on the definition of bycatch in relation to the scope of issues to be addressed by this WG, recognizing that there are differing definitions of 'bycatch', 'discards' and 'incidental catch', that these include species that are fully utilized, with economic and socio-cultural value, as well as discards of target and non-target species. The group agreed that its scope included finfish and shark species, and that the term 'bycatch' may not capture it all sufficiently, but that the focus of the group was on those species which weren't part of the list of species to be managed by the tuna RFMOs. It was also emphasized that without a clear understanding of the 'ecosystem approach' to fishing, there can be no clear understanding of 'bycatch'. The group acknowledged that further definition may be needed at a future time.

The Working Group focused its discussion and recommendations on data harmonization, sharks, collaboration and research, provisional list of research priorities, and finally the future of the WG and its work plan. The following recommendations were developed.

A. Data Collection and Harmonization Recommendations

1. The Working Group agreed that there should be minimum data standards, with data fields that are collected across all RFMOs with a view to allowing interoperability.
2. All members of all RFMOs are encouraged to improve the quality of data collection system to improve fisheries and bycatch assessments.
3. All members of all RFMOs are strongly encouraged to share data or information within RFMOs collected from observer and log book programs for the purposes of bycatch management and research.
4. The Working Group will prepare a short report on data harmonization using all existing data forms from all tuna RFMOs by December 31, 2011. To facilitate this process, the IATTC forms will be circulated for a comparison with the other tuna RFMOs.
5. Noting that there is a working group to be convened between IATTC and WCPFC on data harmonization, including bycatch, the Working Group recommends involving the other tuna RFMOs at this workshop.
6. Seabird identification: the tuna Secretariats will provide ACAP with existing seabird identifications, and ACAP will develop a standardized identification guides. The drafts of the identification guides will be reviewed by the Working Group working group and Tuna RFMO working groups.
7. Shark identification: the Working Group, with WCPFC and ICCAT taking the lead, will harmonize guidance for shark identification, in collaboration with the IUCN shark specialist group and others. (Note-- IATTC shark ID guide is available in its website, and it provides a useful model for observer use).
8. Sea Turtle identification: The Secretariats will provide the Working Group Chair with the materials currently in use for turtle identification so these can be harmonized and distributed to all tuna RFMOs.
9. The Working Group should consider a process to develop harmonized marine mammal identification guides for the fisheries for which they are not available.

Note: One member expressed the view that the amount of data and information which observers are requested to collect in each tuna RFMO is almost reaching the limit of the ability of a single observer to collect all of the information. Thus, in the future, the Working Group may want to consider reducing or improving the efficiency of data collection, and improving the availability of data through the exchange of information among tuna RFMOs. It was further noted, that while the training of observers is critical to the effective implementation of observer program and the acquisition of quality data, observer training takes time and requires financial resources. Finally, it was noted that data sharing should be conducted within the range of confidentiality defined by each tuna RFMO.

B. Shark Recommendations

The Working Group noted that sharks are often targeted as well as taken as incidental catch, and that this discussion includes all elasmobranchs including sharks, rays and skates. The Working Group notes the previous Kobe recommendations on shark, and these should not be lost in any further discussion on sharks.

1. The Working Group is concerned with the practice of intentional sets on whale sharks, in RFMOs where there is evidence of the practice occurring, and recommends that tuna RFMOs initiate research to determine the impact and outcome of this practice.
2. RFMOs should conduct risk assessment processes to develop their priorities for shark species which may need further assessment or mitigation. RFMOs may wish to consider the WCPFC key shark nomination processes (Appendix C).
3. [RFMOs require their members and CPCs to record in the logbooks the number of sharks discarded]*the Working Group to determine intersessionally.
4. RFMOs should take action to improve data collection on sharks and manta and devil rays in targeted industrial and artisanal fisheries. As an example, the Working Group noted that a fins naturally attached requirement would improve species identification and enforcement and should be considered as part of existing shark finning bans.
5. RFMOs should consider supporting studies to investigate post-release survival of sharks in longline fisheries in relation to hook type and duration of set, among other factors.
6. RFMOs should consider supporting studies to further develop shark bycatch mitigation strategies for longline fisheries.
7. RFMOs should evaluate the costs and benefits of banning the use of wire leaders in tuna longline fisheries.
8. RFMOs should develop handling and release protocols for all sharks and manta and devil rays, taking into consideration the safety of the crews.

a. Discussion Regarding Sharks

For the sharks, it was noted that the only ICCAT has conducted full stock assessments, which are for blue shark, short-fin mako shark and porbeagle. In the course of these stock assessments, the historical catches were estimated using a variety of methods, and CPUEs estimated using catch and effort data of longline were also reported from varieties of fleets. Where data are available, full stock assessments should be a goal within tuna RFMOs. Where data are not available, ecological risk assessments can be used to highlight the most vulnerable species. The current work underway in the WCPFC will also add significantly to the knowledge of shark data, assessment and status. IATTC and IOTC also have work underway on shark species, despite limited data. It was suggested that the best way to evaluate the quality of data maybe to attempt to conduct a quantitative stock assessment with the available data. Sensitivity to outcomes of assessments based on limited data assumptions needed for estimating stock status would then be useful for identifying additional data requirements to reduce uncertainty in stock status evaluations. There was

considerable discussion of the fact that sharks are more likely to be retained than the other species being discussed by the Working Group (marine mammals, sea turtles, seabirds) and that interest in sharks varies among Parties and fleets, from targets to welcome secondary catch to species that should be avoided.

C. Collaboration and Research Recommendations

1. The Working Group agreed to meet to develop a centralized bibliographic bycatch database that includes information on mitigation, bycatch conservation and management measures adopted by the RFMOs and past assessments undertaken by RFMOs; with the effort will be led by ICCAT, IOTC, and WCPFC.
2. Each RFMO should designate/employ a dedicated bycatch staff person to work collaboratively with other RFMOs to promote bycatch related work.
3. The Working Group should consider meeting in person every three years to prioritize research in line with the TOR of the Working Group.
4. The Working Group in consultation with experts should undertake a review of ecological risk assessments used by the RFMOs and provide recommendations to standardize these assessments across RFMOs

a. Discussion Regarding Collaboration and Research

The Working Group also noted the importance of genetic studies to determine stock structure and surveys to measure/monitor stock status and trends of rarely caught, protected, and biologically sensitive species.

D. Provisional List of Research Priorities

The Working Group developed the following provisional list of research priorities that will be further developed and refined at subsequent meetings of the Working Group.

- Sea turtle bycatch mitigation and distribution
- Post-release survival of sharks, manta and devil rays, sea turtles, and seabirds
- Best practices for handling and release techniques of all taxa listed above
- Shark bycatch mitigation, primarily in longlines and also purse seines and gillnets
- Seabird bycatch mitigation in artisanal fisheries
- Sorting grids for small fish, tunas and other species
- Economic benefits of reducing bycatch
- Multi-taxa impacts of bycatch mitigation measures
- Assess impacts of gillnets/driftnet fishing on bycatch species
- Rate of marine mammal depredation and its relation to bycatch in longline fisheries
- Review of Ecological Risk Assessment methods
- Research to improve life history parameters, including biological parameters on all bycatch species.
- Evaluate the feasibility of video and other electronic monitoring and other technology in the context of tuna RFMO.
- Pursue observer coverage and adequate sampling of artisanal fisheries

VII. Future of the Joint Bycatch Working Group and Work Plan

The Working Group agreed to meet electronically every 3 months and to meet in person whenever possible in conjunction with Kobe meetings or in the absence of Kobe meeting every three years. Over the next several years the Working Group proposes the following work plan:

- Harmonization of data collection
- Development of harmonized identification guides and release protocols
- Identify and recommend research priorities
- Prioritization of collaborative work
- Progress BMIS information sharing website
- Funding sources
- Compliance with data reporting requirements

In accordance with the Bycatch Joint Technical Working Group: Terms of Reference, the Working Group hereby forwards its report, recommendations, provisional list of research priorities, and work plan for consideration by each RFMO, including, as appropriate, their technical bodies, in accordance with the procedures of each RFMO. The Working Group noted that the discussions and conclusions from this meeting in no way supercede or take away from the "Proposals for Immediate Action" from Kobe 2 and the Kobe 2 Bycatch Workshop. The Working Group looks forward to receiving feedback from the RFMOs as it continues its work.

Appendix A

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Appendix B

Agenda

First Meeting of the Joint Tuna RFMO Technical Bycatch Working Group
La Jolla, CA
July 11, 2011

Agenda

1. Opening of the Meeting
2. Appointment of Chair
3. Appointment of Rapporteur
4. Adoption of the Agenda
5. Review of the Kobe II Bycatch Meeting Report, including Terms of Reference for the Joint Tuna RFMO Technical Bycatch Working Group
6. Update on tuna RFMO bycatch conservation and management measures
7. Review existing bycatch data collection requirements of the Tuna RFMOs, including data fields and collection protocols of logbook and observer bycatch data
8. Recommendations to be presented at Kobe III
 - a. *Provide guidance, to the extent possible, on the harmonization of data collection protocols among Tuna RFMOs. I will check but think US is pulling this together*
 - b. *As time allows, recommendations on the harmonization of conservation and management measures across RFMOs*
9. Develop a Workplan for future meetings of working group
 - a. *Plan should include, inter alia, the following elements:*
 - i. *Further discussions on data protocols and harmonization, including guidance for improving data collection efforts (e.g., information to be collected) within individual RFMOs and among RFMOs collectively*
 - ii. *Review existing bycatch measures by each Tuna RFMO*
10. *Review existing bycatch mitigation measures adopted by each Tuna RFMO*
11. *Consider new mitigation research findings to assess the potential utility of such measures in areas covered by other Tuna RFMOs taking into consideration differences among such areas.*
12. *Identify species of concern that, based on their susceptibility to fisheries and their conservation status, require immediate action across Tuna RFMOs.*

13. *As appropriate, develop recommendations to improve bycatch management within and amongst RFMOs*

- i. Review and identify appropriate qualitative and quantitative species population status determination methods for bycatch species.*
 - ii. Review data analyses to identify all fishery and non-fishery (e.g. oceanographic and physical) factors contributing to bycatch, taking into account the confidentiality rules of each RFMO.*
 - iii. Review and compile information on bycatch research that has been already conducted or is currently underway to delineate future research priorities and areas for future collaboration.*
- b. Discuss appropriate role for observers at future meetings*

14. Other Matters

15. Adoption of Report

16. Adjournment

Appendix C Process for Key Shark Species Designation

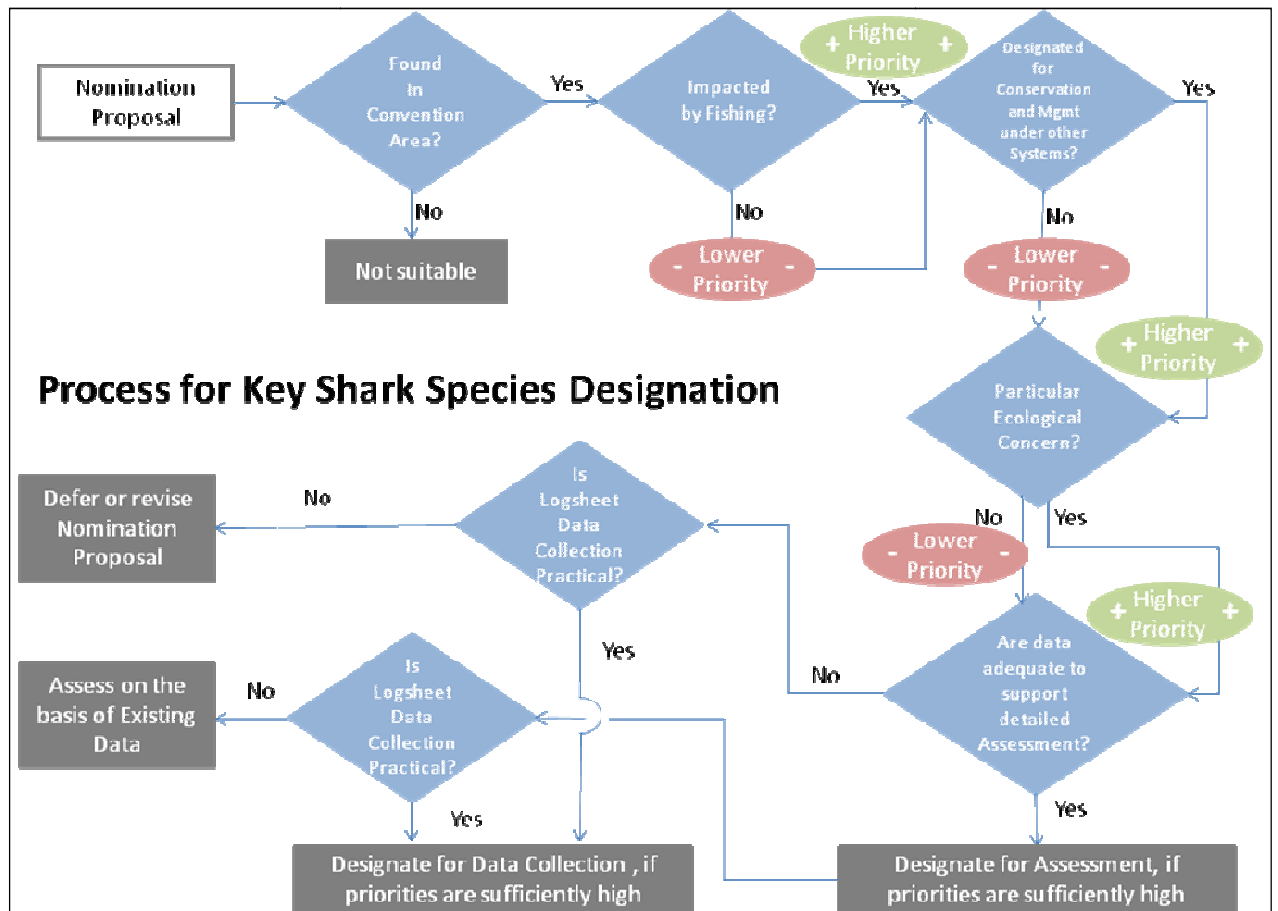


Figure 1. Flowchart illustrating a qualitative process based on factors (blue diamonds) to be considered in designation of key shark species for the WCPFC, and how these considerations lead to one of five outcomes (gray rectangles). Clarke, S. 2011. A Proposal for a Process for Designating WCPFC Key Shark Species for Data Provision and Assessment. Secretariat of the Pacific Community. WCPFC-SC7-2011/EB-WP-05.