
PROGRESS ON THE RECOMMENDATIONS OF WPEB06

PREPARED BY: IOTC SECRETARIAT AND CHAIR, 28 SEPTEMBER 2011

PURPOSE

To provide an update on the progress made in implementing the recommendations from previous Working Party on Ecosystems and Bycatch (WPEB) meetings, and to provide alternative recommendations for the consideration and potential endorsement by participants.

BACKGROUND

At the Sixth Session of the WPEB (WPEB06), participants agreed on a series of actions to be taken by participants, CPCs, and the Secretariat on a range of issues. The subsequent table developed and agreed to by the WPEB also contained specific responsibilities for those who were expected to undertake the tasks recommended, as well as a series of deadlines.

DISCUSSION

The Rules of Procedure of the Scientific Committee (SC) include the following seven core tasks, which are to be supported by the various Working Parties.

- a) recommend policies and procedures for the collection, processing, dissemination and analysis of fishery data;
- b) facilitate the exchange and critical review among scientists of information on research and operation of fisheries of relevance to the Commission;
- c) develop and coordinate cooperative research programmes involving Members of the Commission in support of fisheries management;
- d) assess and report to the Commission on the status of stocks of relevance to the Commission and the likely effects of further fishing and of different fishing patterns and intensities;
- e) formulate and report to the sub-commission, as appropriate, on recommendations concerning conservation, fisheries management and research, including consensus, majority and minority views;
- f) consider any matter referred to by the Commission;
- g) to carry out other technical activities of relevance to the Commission.

Noting the core tasks of the SC, and hence the WPEB, and the fact that the SC, Commission and CPCs in general have struggled to implement previous recommendations from the WPEB, the Secretariat and Chair undertook a review and subsequent revision of recommendations from the WPEB06 meeting in an attempt to provide clearer direction and delegation of responsibility for each recommendation.

The revised recommendations are contained in Attachment A for the consideration and potential endorsement by the WPEB.

RECOMMENDATION

That the Working Party on Ecosystems and Bycatch:

- 1) **NOTE** the progress made in implementing the recommendations of the Sixth Session of the WPEB, and consider the proposed draft revisions to those recommendations yet to be completed.
- 2) **AGREE** to the revised recommendations, and for these to be combined with any new recommendations arising from WPEB07, noting that these will be provided to the Scientific Committee for their endorsement.

ATTACHMENTS

Attachment A: Progress made on the recommendations of WPEB06.

ATTACHMENT A:

PROGRESS MADE ON THE RECOMMENDATIONS OF WPEB06

#	Recommendation	Year Issued	Revise (Y/ N)	Revision of recommendation	Responsibility	Due date
	Data					
1	The WPEB expressed strong concern about the lack of implementation of IOTC measures concerning bycatch data collection and reporting by most IOTC CPCs, noting that it is impossible for the WPEB to fulfil its mandate without appropriate data. Therefore the WPEB urged all countries concerned to address the issues identified on Table 2 as soon as possible, requesting the IOTC Secretariat to assist countries in the implementation of these activities, where required and possible. <i>Progress: no progress</i>	2006	Y	Noting that despite the mandatory reporting requirements detailed in Resolutions 08/04, 09/06, 10/02 and 10/06, bycatch data remain largely unreported by CPCs, thus the WPEB RECOMMENDED that the Compliance Committee and the Commission take steps to ensure that CPCs fulfil their bycatch reporting obligations.	Compliance Committee via the SC	2012
2	The WPEB recommended the actions described in Table 2, Table 3, Table 4 and Table 5 [see end of this document] be taken to improve the standing of the data on non-tuna species currently available at the Secretariat. <i>Progress: recent catch and size data for sharks were received from Japan, Korea). However, no data has been received for seabird, marine turtles or marine mammals. This recommendation has been incorporated into other revised recommendations throughout this document.</i>	2009	N	–	–	–
3	The WPEB recommended that, in addition to the implementation of the Regional Observer Scheme, the collection of scientific data by all other means available including auto-sampling (collection of data by trained crew) and electronic monitoring (sensors and video cameras) be encouraged and developed. <i>Progress: no progress reported to the Secretariat</i>	2010	Y	The WPEB RECOMMENDED that, in addition to the implementation of the Regional Observer Scheme, the collection of scientific data by all other means available including auto-sampling (collection of data by trained crew) and electronic monitoring (sensors and video cameras) be encouraged and developed, and for CPCs to report on progress at the next WPEB meeting.	All CPCs	2012
4	The WPEB noted that Resolution 10/04 does not require that detailed observer data be submitted to IOTC. However, in order for the scientists of the WPEB to undertake comprehensive analysis on bycatch such data are required, and the WPEB recommended that all	2010	Y	Noting that Resolution 11/04 currently does not require detailed observer data to be submitted to the IOTC, the WPEB RECOMMENDED that the Resolution be modified so that all the data gathered by national observer programs be submitted to	Commission via the SC	S16-2012

	the data gathered by national observer projects should be submitted to the Secretariat. <i>Progress: nil.</i>			the IOTC Secretariat so that the WPEB can undertake comprehensive analysis on bycatch interactions with fisheries for tuna and tuna-like species in the Indian Ocean.		
	Sharks					
5	The majority of the WPEB proposed that sharks be landed with fins attached (which includes partially cut and folded). <i>Progress: Nil.</i>	2009	Y	Noting that the best way to reduce or avoid the practice of shark finning in the IOTC Convention area, to ensure accurate catch statistics, and to facilitate the collection of biological information, the WPEB RECOMMENDED that all sharks be landed with fins attached (which includes partially cut and folded), and for this to be achieved through the replacement of IOTC resolution 05/05 (5% shark fin:body weight ratios).	Commission via the SC	S16-2012
6	The majority of the WPEB proposed to update the list in Resolution 08/04 of shark species requiring mandatory reporting in longline logbooks. <i>Progress: Nil.</i>	2009	Y	The WPEB RECOMMENDED that the list of shark species in Resolution 08/04 <i>concerning the recording of catch by longline vessels in the IOTC areas</i> be changed to the following: <ul style="list-style-type: none"> • Blue Shark, <i>Prionace glauca</i> • Mako Sharks, <i>Isurus</i> spp. • Porbeagle, <i>Lamna nasus</i> • Great White Shark, <i>Carcharodon carcharias</i> • Crocodile Shark, <i>Pseudocarcharias kamoharai</i> • Thresher Sharks, <i>Alopias</i> spp • Tiger Shark, <i>Galeocerdo cuvier</i> • Oceanic Whitetip shark, <i>Carcharhinus longimanus</i> • Other Requiem Sharks, <i>Carcharhinus</i> spp. • Hammerhead Sharks, <i>Sphyrna</i> spp. • Other Sharks • Pelagic Stingray, <i>Pteroplatytrygon violacea</i> 	Commission via the SC	S16-2012
7	The WPEB reiterated the need for better collection and reporting of catch (including historical data), landings and biological data on sharks. <i>Progress: Limited data provided to the Secretariat.</i>	2010	Y	Noting that the information on retained catches and discards of sharks contained in the IOTC database remains very incomplete for most fleets, and that catch-and-effort as well as size data are essential to assess the status of shark stocks, the WPEB RECOMMENDED all CPCs to collect and report catches of sharks (including historical data), landings and biological data on sharks so that more detailed analysis can be undertaken for the next WPEB meeting.	All CPCs	2012
8	The WPEB recommended work to collect data and conduct research which could contribute towards and assessment of whale sharks and to explore the potential for further work on manta rays. <i>Progress: no progress reported to the Secretariat</i>	2010	N	–	–	–
9	The WPEB recommended work to identify catch and catch rate	2009	N	–	–	–

	trends and any other indicators of stock status of sharks. <i>Progress: progress to be reported during WPEB07</i>					
10	The WPEB recommended that the IOTC Secretariat complete the shark ID cards before its next meeting. <i>Progress: Sharks ID cards were completed</i>	2009	Y	The WPEB NOTED the final shark identification cards developed by the Secretariat with the assistance of various shark experts, and RECOMMENDED that these be distributed to CPCs before the end of 2011, to improve shark identification.	Secretariat	Before end 2011
11	The WPEB noted the need for expertise in shark assessment, and recommended the participation of appropriate experts at its next session. <i>Progress: Dr. Evgeny Romanov and Dr. Enric Cortes were nominated and selected as Invited Experts for the WPEB07, and Dr. Rui Coelho from Portugal-EU will participate to the WPEB07. Priorities for Invited Experts for 2012 will be determined during WPEB07.</i>	2010	N	–	–	–
12	The WPEB recommended that research programmes be continued on the major pelagic species (namely blue sharks, silky sharks and oceanic whitetip sharks) and that the possibilities of using a wide range of research techniques (including tags of all types, genetics, stable isotopes), be explored to provide information required for stock assessments. <i>Progress: some research activities on sharks were conducted within the EU funded MADE project. Research priorities to be developed at the WPEB07.</i>	2010	N	–	–	–
13	The WPEB recommended that all IOTC CPCs should start or complete their NPOA-sharks. <i>Progress: Update provided in paper IOTC-2011-WPEB07-12</i>	2009	Y	The WPEB NOTED the current status of development and implementation of Nation Plans of Actions for sharks as provided in Appendix X and RECOMMENDED that all CPCs without an NPOA-Sharks expedite the development and implementation of their NPOA-Sharks, and to report progress to the WPEB in 2012, recalling that NPOA-Sharks are a framework that should facilitate estimation of shark catches and development and implementation of appropriate management measures, which should also enhance the collection of bycatch data and compliance with IOTC Resolutions.	All CPCs	2012
14	The WPEB recommended that peer-reviewed reviews of the literature relating to pelagic sharks and their fisheries be undertaken to make such information more readily and widely accessible. <i>Progress: no progress reported to the Secretariat.</i>	2010	Y	The WPEB NOTED that there is extensive literature available on pelagic sharks fisheries and interactions with fisheries targeting tuna and tuna-like species, and RECOMMENDED that the Secretariat facilitate a review of this literature, for presentation at the next WPEB meeting.	Secretariat	2012
15	The WPEB supported research on mitigation techniques, including	2010	N	–	–	–

	the initiatives of the EU and ISSF. <i>Progress: ISSF has started a large project on bycatch and mitigation and mitigation measures in the Pacific Ocean and in the Indian Ocean. MADE is currently working on mitigation measures for sharks within tuna fisheries. Progress to be reported during WPEB07</i>					
16	The WPEB recommended that the IOTC should continue to collaborate with Kobe process and with the CMS MoU on sharks. <i>Progress: A bycatch joint Technical working group was held in La Jolla (USA) in July 2011 and IOTC attended. No progress has been made with CMS MoU.</i>	2010	Y	The WPEB RECOMMENDED that the Secretariat maintain its involvement in the KOBE process and to lead and/or facilitate the IOTCs involvement with the Bycatch Joint Technical Working Group.	Secretariat	BJTWG02
17	The WPEB recommended that the IOTC Secretariat should engage a staff member for bycatch issues (with draft TORs to be developed for the SC). <i>Progress: Nil.</i>	2010	Y	NOTING the recommendation of the first BJTWG meeting and the KOBE II process, that an additional staff member be hired at each tRFMO to deal with bycatch issues, the WPEB RECOMMENDED that a Fisheries Officer be employed at the IOTC Secretariat to focus on issues that include bycatch.	Commission via SC	S16 - 2012
	Seabirds					
18	The WPEB recommended that following the Level 1 Risk Assessment, work commence on a Level 2 or possibly Level 3 Risk Assessment to highlight areas of elevated risk to the high priority species. A highly quantified model-based Level 3 analysis would require the provision of additional resources. <i>Progress: progress to be reported during WPEB07</i>	2010	N	–	–	–
19	The WPEB recommended that the Secretariat finalize the production of seabird identification sheets. <i>Progress: the ID cards were completed</i>	2009	Y	The WPEB NOTED the final seabird identification cards developed by the Secretariat with the assistance of various seabird experts, and RECOMMENDED that these be distributed to CPCs before the end of 2011, to improve seabird identification.	Secretariat	End of 2011
20	The WPEB proposed a revision to Resolution 10/06 <i>On Reducing the Incidental Bycatch of Seabirds in Longline Fisheries</i> to take into account the new scientific information on the negative impacts of line shooters on sink rates, and consequent risk that this poses to seabird bycatch, on the effectiveness of line weighting regimes and the absence of any scientific information on the effectiveness of offal discard management in reducing incidental mortality of seabirds, noting that more scientific information may be provided during the Scientific Committee. <i>Progress: to be presented during WPEB07</i>	2010	Y	The WPEB RECOMMENDED that Resolution 10/06 <i>On Reducing the Incidental Bycatch of Seabirds in Longline Fisheries</i> be revised to take into account the scientific information on the negative impacts of line shooters on sink rates, and consequent risk that this poses to seabird bycatch, on the effectiveness of line weighting regimes and the absence of any scientific information on the effectiveness of offal discard management in reducing incidental mortality of seabirds. >>>Specific changes to be developed at WPEB07 (see last year's text at end of this document)	Commission via the SC	S16-2012

21	The WPEB recommended that the National Action Plan for Amsterdam Albatross, currently being finalized by France, be submitted to the WPEB for review in 2011. <i>Progress: to be presented during WPEB07</i>	2010	N	–	–	–
22	The WPEB encouraged CPCs to develop systems, such as retention of carcasses for later identification, or establish photo identification processes, to improve identification of seabirds to species level. <i>Progress: no progress reported to the Secretariat</i>	2010	N	–	–	–
23	The WPEB recommended that CPCs conducting gillnet and driftnet fishing should collect information on seabird interactions and report back to at WPEB 2011. In addition the WPEB should review the study of bycatch in global gillnet and driftnet fisheries, which is currently being undertaken by the Convention on Migratory Species (CMS), and consider recommendations and findings relevant to IOTC fisheries. <i>Progress: to be reported during WPEB07</i>	2010	N	–	–	–
24	The WPEB recommended that CPCs fulfil their FAO obligation to assess the need for NPOA-seabird and develop plans if appropriate. To assist in this the Secretariat should prepare a table summarising progress towards the development of NPOA-Seabirds by CPCs for the next Scientific Committee. <i>Progress: Update provided in paper IOTC-2011-WPEB07-12</i>	2009	Y	The WPEB NOTED the current status of development and implementation of Nation Plans of Actions for seabirds as provided in Appendix <u>X</u> and RECOMMENDED that all CPCs without an NPOA-Seabirds expedite the completion and implementation of their NPOA-Seabirds in 2012.	CPCs with no NPOA	2012
	Marine turtles					
25	The WPEB recommended to carry forward recommendations from 2009 that have yet to be completed (<i>i.e.</i> purse-seine fisheries to use ecological and biodegradable FADs, longline vessel are equipped with the necessary tools to remove hooks from turtles to ensure safe release and minimize post-release mortality). E.g.: That net material used on FADs should be replaced with materials such as non-plastic ropes or non-plastic hoods or straps that will not entangle sea turtles. The WPEB recommended complete conversion to the use of ecological FADs as soon as possible and that these FADs are made of biodegradable materials. The use of circle hooks be extended to shallow-set tuna longlines in particular All longline vessels to be equipped with the necessary tools to remove hooks from turtles to ensure safe release and minimize post-	2009	Y	The WPEB RECOMMENDED that the development and adoption of improved FAD designs to reduce the incidence of entanglement of marine turtles, including the use of biodegradable materials, be undertaken by the main fleets using FADs. The WPEB RECOMMENDED that circle hooks be used in shallow-set tuna longline fisheries in the Indian Ocean, noting that the adoption of such a measure should remain flexible as the most appropriate approach to marine turtle bycatch mitigation is likely to vary for particular fleets, as other measures may be more effective in this region and may be dependent on the characteristic of a fleet. The WPEB RECOMMENDED that further research into the effectiveness of circle hooks adopt a multi-species approach, so as to avoid, as far as possible, promoting a mitigation measure for one bycatch taxon that might exacerbate bycatch problems	All CPCs using FADs	2012

	release mortality.			for other taxa. The WPEB NOTED that para 6a of Resolution 09/06 states that: “CPCs with longline vessels that fish for species covered by the IOTC Agreement shall: (a) Ensure that the operators of all longline vessels carry line cutters and de-hookers in order to facilitate the appropriate handling and prompt release of marine turtles caught or entangled, and that they do so in accordance with IOTC Guidelines to be developed. CPCs shall also ensure that operators of such vessels are required to carry and use, where appropriate, dip-nets, in accordance with guidelines to be adopted by the IOTC.		
26	The WPEB recommended to select the fisheries with the highest bycatch rates and to direct the recommendations in particular to those fleets and countries. <i>Progress: to be developed during WPEB07</i>	2010	Y	The WPEB RECOMMENDED that the Scientific Committee note that the lack of data from CPCs on interactions and mortalities of marine turtles in the Indian Ocean is a significant concern, resulting in an inability of the WPEB to estimate levels of marine turtle bycatch. The WPEB RECOMMENDED that the Scientific Committee note that there is an urgent need to quantify the effects of fisheries for tuna and tuna-like species in the Indian Ocean on non-target species, and it is clear that little progress on obtaining and reporting data on interactions with marine turtles has been made. This data is imperative to allow the IOTC to respond and manage the adverse effects on marine turtles, and other bycatch species.	Scientific Committee	SC14
27	The WPEB encouraged that more research is conducted on longline mitigation measures, and a review of information on interactions and mitigation measures is conducted. <i>Progress: ISSF as started a large project on bycatch and mitigation and mitigation measures in the Pacific Ocean and in the Indian Ocean. MADE is currently working on mitigation measures for sharks within tuna fisheries. To be considered in research priorities agenda item.</i>	2010	N	–	–	–
28	The WPEB recommended that more cooperation is developed between the IOTC Secretariat, its CPCs and IOSEA, in particular with regard to review and exchange available information on tuna fisheries-turtle interactions and mitigation. It also recommended that distant water fishing nations should join the MoU, which had initially been directed toward Indian Ocean coastal countries. <i>Progress: The Secretariat and IOSEA have been cooperating for the</i>	2010	N	–	–	–

	<i>development of the marine turtles ID cards.</i>					
29	The WPEB recommended that the comprehensive 'Assessment of the conservation status of the leatherback turtle in the Indian Ocean and South-East Asia', prepared by IOSEA in 2006, be reviewed, especially with regard to its recommended follow-up. <i>Progress: no progress reported to the Secretariat</i>	2012	Y	The WPEB RECOMMENDED that the comprehensive 'Assessment of the conservation status of the leatherback turtle in the Indian Ocean and South-East Asia', prepared by IOSEA in 2006, be reviewed, especially with regard to its recommended follow-up.	IOSEA	2012
30	The WPEB recommended that the sea turtles identification sheets should be finalized by the Secretariat before the next Session of the WPEB, in cooperation with other relevant organisations. <i>Progress: completed</i>	2009	Y	The WPEB NOTED the final marine turtle identification cards developed by the Secretariat with the assistance of various marine turtle experts, and RECOMMENDED that these be distributed to CPCs before the end of 2011, to improve marine turtle identification.	Secretariat All CPCs	End of 2011
31	The WPEB recommended that a matrix is developed in order to follow the implementation of the IOTC Recommendations and Resolutions related to bycatch and in particular to the sea turtles in the different CPCs. <i>Progress: Country-based Compliance Report have been prepared and presented during the last session of the CoC. To be developed during WPEB07.</i>	2010	N	–	–	–
32	The WPEB recommended that more turtle experts should participate at the next Session of the WPEB. <i>Progress: participation to be assessed during WPEB07</i>	2009	Y	Noting that the Western Indian Ocean Marine Science Association (WIOMSA) meeting was being held at the same time as WPEB07 and the participation of marine turtle experts was limited, the WPEB RECOMMENDED that the timing of the next WPEB meeting be communicated to the organisers of the WIOMSA meeting as early as possible by the IOTC Secretariat, so that marine turtle experts could participate at the next Session of the WPEB.	Secretariat	2012
33	The SC also recalled its recommendation from 2009 that Resolution 09/06 does apply to leatherback turtles in its entirety, and that the term 'hard-shelled' should be removed from Resolution 09/06 when the resolution is revised. <i>Progress: no progress</i>	2009	Y	Noting that paragraph 4 of Resolution 09/06 on marine turtles currently refers to 'hard shelled turtles', which could potentially be read to exclude leatherback turtles, and noting the WPEB and the Scientific Committee's previous agreement that the resolution does apply to leatherback turtles in its entirety, the WPEB RECOMMENDED that the Commission revise Resolution 09/06 on marine turtles so that the term 'hard-shelled' be deleted and replaced by 'marine' to ensure application to all marine turtle species.	Commission via SC	S16-2012
	Marine mammals					
34	The WPEB recommended that countries with tuna driftnet fisheries to study and report on cetacean bycatch. <i>Progress: information to be reported during WPEB07 by</i>	2010	Y	Noting that the IOTC Secretariat has received limited information to date on marine mammal interactions with driftnet fisheries in the Indian Ocean, the WPEB RECOMMENDED	Iran Pakistan	2012

	<i>participants from Iran, Pakistan and Sri Lanka</i>			that Iran, Pakistan and Sri Lanka to report all interactions between marine mammals and driftnet fisheries in the Indian Ocean.	Sri Lanka	
35	The WPEB recommended that available whale data from the European purse-seine fishery to be reviewed and analysed. <i>Progress: no progress reported to the Secretariat. To be reported at the WPEB07</i>	2010	N	–	–	–
36	The WPEB recommended that marine mammal experts, for example from NGOs and IGOs with an interest in the Indian Ocean such as International Whaling Commission, to be encouraged to participate in future meetings of the WPEB. <i>Progress: Invited expert proposed but not selected. Participation to be assessed during WPEB07 but likely to be limited.</i>	2010	N	–	–	–
	Other taxa					
37	The WPEB encouraged further work on other fish species commonly caught as bycatch in the purse-seine fisheries, <i>i.e.</i> oceanic triggerfish, rainbow runners, dolphin fish, <i>etc.</i> <i>Progress: the current EU funded project MADE is working on this issue and shall report progress during WPEB07</i>	2010	N	–	–	–
38	The WPEB encouraged research on anchored FADs and their effect on bycatch. <i>Progress: no progress reported to the Secretariat</i>	2010	Y	Noting the potential negative impacts of fish aggregation devices (FADs) on bycatch in fisheries for tuna and tuna-like species in the Indian Ocean, the WPEB RECOMMENDED that CPCs utilizing anchored FADs (Maldives, French Territories (La Réunion), Mauritius) undertake research aimed as assessing the effect of anchored FADs on bycatch, and for the results to be reported to the next session of the WPEB.	Maldives La Réunion Mauritius	2012
39	The WPEB recommended that any data collected in Maldives on anchored FADs is made available to researchers. <i>Progress: no progress reported to the Secretariat</i>	2010	Y	Combine with 38 above.	–	–
	Depredation					
40	The WPEB recommends that: <ul style="list-style-type: none"> An amendment be made to Resolution 08/04: Appendix II, Section 2-2 CATCH/CAPTURES, with the addition of the following text: “ 2) For each species, number of individuals damaged by sharks or cetaceans should be given in brackets after the number of individual caught. Numbers of damaged fish should not to be included with the number of individuals caught, 	2009	Y	The WPEB RECOMMENDED that Resolution 08/04 concerning the recording of catch by longline fishing vessels in the IOTC area be amended to include a requirement for the recording of data on depredation, which would allow the WPEB to analyze and monitor the depredation issues within the longline fisheries, noting that depredation rates may be an important input into stock assessment models.	Commission via SC	S16-2012

	<p>which are considered as non-damaged individuals.”</p> <ul style="list-style-type: none"> A second amendment be made to Resolution 08/04: Appendix II, Section 2-4 REMARKS/REMARQUES, with the addition of the following text: “ 3) Each depredation event (damage of the catch by sharks or cetaceans) should be carefully documented in the remarks. The cause of damage may be identified by sighting of predators in the vicinity of the vessel/gear or by post-mortem traces on damaged fish; this should be indicated in the remarks. Sightings information should include the number of individual predators seen in the vicinity of the gear/vessel.” <p><i>Progress: no progress.</i></p>			<p>Proposed amendment:</p> <ul style="list-style-type: none"> An amendment be made to Resolution 08/04: Appendix II, Section 2-2 CATCH/CAPTURES, with the addition of the following text: “ 2) For each species, number of individuals damaged by sharks or cetaceans should be given in brackets after the number of individual caught. Numbers of damaged fish should not be included with the number of individuals caught, which are considered as non-damaged individuals.” A second amendment be made to Resolution 08/04: Appendix II, Section 2-4 REMARKS/REMARQUES, with the addition of the following text: “ 3) Each depredation event (damage of the catch by sharks or cetaceans) should be carefully documented in the remarks. The cause of damage may be identified by sighting of predators in the vicinity of the vessel/gear or by post-mortem traces on damaged fish; this should be indicated in the remarks. Sightings information should include the number of individual predators seen in the vicinity of the gear/vessel.” 		
41	<p>The WPEB recommended that more research and monitoring is conducted on the subject of depredation in the Indian Ocean.</p> <p><i>Progress: progress to be reported during WPEB07</i></p>	2009	Y	<p>The WPEB RECOMMENDED that the main longline fleets in the Indian Ocean (Taiwan,China, Japan, Indonesia, EU,Spain, EU,Portugal) carry out research and monitoring programs to determine the level of depredation, and that results are presented at the next session of the WPEB in 2012.</p>	Taiwan,China, Japan, Indonesia, EU,Spain, EU,Portugal	2012
	Ecosystem approaches					
42	<p>The WPEB recommended that the ERA undertaken last year on bycatch of sharks in the purse-seine fishery should be updated for next year and recommended that as priority an ERA should be undertaken on sea turtle bycatch within the purse-seine fishery.</p> <p><i>Progress: progress to be reported during the WPEB07</i></p>	2010	Y	<p>Noting with concern the high levels of shark byproduct and bycatch reported in many National Reports to the Scientific Committee, and considering that future management decisions would benefit from collated bycatch data in an attempt to quantify cumulative bycatch impacts, the WPEB RECOMMENDS that research be undertaken as a high priority to assess the cumulative impacts of IOTC fishing operations on bycatch species, with a particular emphasis on shark species, noting that the data required to do this is already present in the National Reports of CPCs.</p>	Scientific Committee	SC14

From the report of the 6th Session of the WPEB:

Table 1. Steps to improve the certainty of fisheries statistics for SHARKS

Data / information / work required	Fishery	Major fleets involved
Retained catches:		
Historical catch-and-effort information	Fresh-tuna and/or deep-freezing longliners	Taiwan,China, Indonesia, Japan, China, Seychelles, Malaysia, Oman, Philippines, South Korea and India.
	Longliners targeting swordfish	EU-Spain, Seychelles
	Artisanal fisheries with large catches of pelagic sharks	Sri Lanka, Pakistan, Iran, Indonesia, Yemen
Historical catch level estimates by species and year	Fresh-tuna and/or deep-freezing longliners	Taiwan,China, Indonesia, Japan, South Korea
	Purse seine	EC and the Seychelles (before 2003)
Logbook coverage set to produce acceptable levels of precision (CV to be initially set at less than 20%) in the catch-and-effort statistics for the main species of sharks.	All industrial fleets	
Research on identification of shark species from fins and processed body parts.	All fleets	
Discard levels:		
Implementing levels of observer coverage as requested by the Commission (<i>i.e.</i> 5% of the fishing events on Industrial fisheries and 5% of the fishing trips on artisanal fisheries).	All fleets	
Estimates of historical discard levels for sharks by species and year	All industrial fleets	
Size frequency data:		
Collecting and reporting size frequency information for the main shark species caught by their fisheries, including all historical data available	All industrial fleets, notably longline fleets	
Observers collecting size frequency data for main shark species, including discards	All industrial fleets	
Biological data:		
Collecting data that can be used to derive length-weight keys (where appropriate by season and sex), ratios of fin-to-body weight, non-standard measurements-fork length keys and processed weight-live weight keys.	All fleets	
Research required while fins are unloaded detached from carcasses:		
Identification of sharks through fins validated by using DNA techniques The use of shark fins to derive catch estimates in weight by species/species group and fishery. The use of shark fins to derive length frequencies by species.	All fleets	

Table 2. Steps to improve the certainty of statistics on incidental catches of SEABIRDS

Data / information / work required	Fishery	Major fleets involved
Provision of historical data on incidental catches of seabirds, by species and fishing area, indicating the type of mitigation measure/s used in each case.	Industrial longline fisheries	Longline: Taiwan,China, Japan, Indonesia, Malaysia, Philippines, Spain, Portugal, Seychelles and South Korea Iran, Pakistan, Sri Lanka
Provision of data collected through observer programmes, as specified by the Commission.		
Detailed estimation of seabird bycatch, by species and year, including the precision of such estimates.	All fisheries using gillnets on the high seas	
Research on the effect of seabird bycatch mitigation measures.		

Table 3. Steps to improve the certainty of statistics on incidental catches of MARINE TURTLES

Data / information / work required	Fishery	Major fleets involved
Provision of data collected through observer programmes and estimates of total levels of bycatch of marine turtles, as specified by the Commission.	Countries having industrial longline fisheries	China, Taiwan,China, Indonesia and Japan
	Gillnet / gillnet-longline	Gillnet fisheries operating on the high seas (Pakistan and Iran) Gillnet fisheries operating in coastal waters (India, Indonesia, Oman and Yemen) Gillnet/longline fishery of Sri Lanka
	Industrial purse seine fleets	EU (before 2003), Seychelles, Iran, Japan and Thailand
Further research on interactions between Fish Aggregating Devices (FADs) and marine turtles, including mortality rates by species, area and type of FAD used	Industrial purse seine fleets	EU, Seychelles, Iran, Japan, Thailand
Further research on marine turtle bycatch mitigation measures for longline fisheries, e.g. examination of setting techniques and hook types.	Countries having industrial longline fisheries	Taiwan,China, Indonesia and Japan
Initiate research on marine turtle bycatch monitoring and mitigation measures for gillnet fisheries	Gillnet fisheries on the high seas	Iran, Pakistan and Sri Lanka
	Coastal gillnet fisheries	India, Indonesia, Oman and Yemen

Table 4. Steps to improve the certainty of statistics on incidental catches of MARINE MAMMALS

Data / information / work required	Fishery	Major fleets involved
Provision of historical data on incidental catches of marine mammals, by species and fishing area.	Industrial longline fisheries	Longline: Taiwan,China, Japan, Indonesia, Malaysia, Philippines, Spain, Portugal, Seychelles and South Korea Iran, Pakistan, Sri Lanka
Provision of data collected through observer programmes, as specified by the Commission.	Gillnet fisheries on the high seas	

The following proposed changes to Resolution 10/06 reflect the recommendations of the WPEB, with some reservations expressed by a few scientists.

Paragraph 3.

CPCs shall ~~as soon as possible and, at the latest before 1 November 2010, ensure that all longline vessels fishing south of 25°S use at least two of the mitigation measures in Table 1 below, including at least one from Column A. Vessels shall not use the same measure from Column A and Column B. Until 31 October 2010, CPCs shall ensure that all longline vessels fishing south of 30°S use at least two of the mitigation measures in Table 1 below, including at least one from Column A. Vessels shall not use the same measure from Column A and Column B~~

Paragraph 7.

CPCs shall provide to the Commission, as part of their annual reports, information on how they are implementing this measure and all available information on interactions with seabirds, including bycatch by fishing vessels carrying their flag or authorised to fish by them. This is to including details of species where available to enable the Scientific Committee to annually estimate seabird mortality in all fisheries within the IOTC area of competence. CPCs are encouraged to develop systems, such as retention of carcasses for later identification, or establish photo identification processes, to improve identification of seabirds to species level.

Table 1. Seabird mitigation measures

Weighted branch lines
Night setting with minimum deck lighting
Bird-scaring lines (Tori Lines)
Blue-dyed squid bait

The specification of the weighted branch line measure in Annex 1 should be replaced by the following scheme:

- 40 grams weight attached at the hook; or
- 60 grams weight within 1 metre of the hook; or
- 98 grams weight within 2 metres of the hook.