



INFORME DE LA 7ª REUNIÓN DEL GRUPO DE TRABAJO DE ECOSISTEMAS Y CAPTURAS ACCIDENTALES (WPEB) DE LA COMISIÓN ATUNERA DEL OCÉANO ÍNDICO (IOTC).

North Malé Atoll, República de Maldivas, del 24 al 27 de octubre de 2011

F. Javier Ariz Tellería

Introducción

La reunión del WPEB de la IOTC se celebró en la República de Maldivas, del 24 al 27 de octubre de 2011, a continuación y en el mismo lugar en el que se desarrolló el WPTT. Asistieron un total de 45 científicos, en una gran mayoría de países costeros del Océano Índico muchos de los cuales fueron apoyados económicamente por la IOTC. Participaron científicos de: Maldivas, EU, Comores, Mozambique, Seychelles, Japón, Australia, BIOT (UK), Corea del Sur, R.P. China, Taiwan, India, Kenia, Tanzania, Malasia, Madagascar, personal de la IOTC y de ONGs. Como científico representante de la UE participó Alain Fonteneau (ex IRD). Por parte de la UE-España participaron Hilario Murua de AZTI, Juan José Areso (Oficina Española de Pesca en Seychelles) y Javier Ariz (IEO).

En esta reunión, en los últimos años de carácter anual, se procede a revisar la nueva información, que sobre las especies accesorias y medioambientales, se ha suministrado a la secretaría de la IOTC y por los países participantes en la pesquería así como los progresos en la aplicación de las recomendaciones que la Comisión ha elaborado sobre ecosistemas y capturas accesorias.

En este informe se incluyen, fundamentalmente, los resultados de los análisis y discusiones realizadas por el WPEB así como algunas de las recomendaciones (no todas, ya que son muy numerosas) que se formulan al Comité Científico para que sean asumidas por el mismo y trasladadas, si así se considera, a la Comisión.

En el anexo 1 se presenta el orden del día de la reunión y los documentos presentados a la misma.

Si se desea información más detallada sobre alguno de los puntos del orden del día o alguno de los documentos, ponerse en contacto por correo electrónico con: Javier.ariz@ca.ieo.es. Se espera contar con el informe detallado dentro de poco tiempo.

1.- Revisión de los datos disponibles en ecosistemas y capturas accesorias.

En primer lugar se analizaron las resoluciones en vigor que afectan a estas especies y las posibles inconsistencias en su actual redacción (en particular el término "Bycatch"), con objeto de que el Comité Científico y la Comisión desarrollen un cuadro de definiciones de términos científicos para que sean empleados en las resoluciones de la IOTC.

En la tabla adjunta se muestran las resoluciones de la IOTC que hacen referencia a estos grupos de especies (especies no objetivo de las pesquerías):



<p>Sharks</p> <p>IOTC Resolution 05/05: <i>Concerning the conservation of sharks caught in association with fisheries managed by IOTC</i></p> <p>IOTC Resolution 10/02: <i>Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's)</i></p> <p>IOTC Resolution 10/12: <i>On the conservation of THRESHER SHARKS (family Alopiidae) caught in association with fisheries in the IOTC area of competence</i></p>	<p>Paragraph 1: CPCs shall annually report data for catches of sharks, in accordance with IOTC data reporting procedures, including available historical data.</p> <p>Paragraph 3: The provisions, applicable to tuna and tuna-like species, shall also be applicable to the most commonly caught shark species and, where possible, to the less common shark species.</p> <p>Paragraph 1: This measure shall apply to all fishing vessels on the IOTC Record of authorised Vessels.</p> <p>Paragraph 4: CPCs shall encourage their fishermen to record incidental catches as well as live releases. These data will be then kept at the IOTC secretariat.</p> <p>Paragraph 7: The Contracting Parties, Co-operating non-Contracting Parties, especially those directing fishing activities for sharks, shall submit data for sharks, as required by IOTC data reporting procedures (including estimates of dead discard and size frequencies), in advance of the 2011 Scientific Committee meeting.</p>
<p>Seabirds</p> <p>IOTC Resolution 10/06: <i>On reducing the incidental bycatch of seabirds in longline fisheries</i></p> <p>IOTC Resolution 10/02: <i>Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's)</i></p>	<p>Paragraph 7: CPCs shall provide to the Commission, as part of their annual reports, all available information on interactions with seabirds, including bycatch by fishing vessels carrying their flag or authorised to fish by them. This is to include details of species where available to enable the Scientific Committee to annually estimate seabird mortality in all fisheries within the IOTC area of competence.</p> <p>Paragraph 3:The provisions, applicable to tuna and tuna-like species, shall also be applicable to the most commonly caught shark species and, where possible, to the less common shark species. CPCs are also encouraged to record and provide data on species other than sharks and tunas taken as bycatch.</p>
<p>Marine turtles</p> <p>IOTC Resolution 09/06: <i>On Marine Turtles</i></p> <p>IOTC Resolution 10/02: <i>Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's)</i></p>	<p>Paragraph 2: CPCs shall collect (including through logbooks and observer programs) and provide to the Scientific Committee all data on their vessels' interactions with marine turtles in fisheries targeting the species covered by the IOTC Agreement. CPCs shall also furnish available information to the Scientific Committee on successful mitigation measures and other impacts on marine turtles in the IOTC Area, such as the deterioration of nesting sites and swallowing of marine debris.</p> <p>Paragraph 3:The provisions, applicable to tuna and tuna-like species, shall also be applicable to the most commonly caught shark species and, where possible, to the less common shark species. CPCs are also encouraged to record and provide data on species other than sharks and tunas taken as bycatch.</p>
<p>Marine mammals</p> <p>IOTC Resolution 10/02: <i>Mandatory statistical requirements for IOTC Members and Cooperating Non-Contracting Parties (CPC's)</i></p>	<p>Paragraph 3:The provisions, applicable to tuna and tuna-like species, shall also be applicable to the most commonly caught shark species and, where possible, to the less common shark species. CPCs are also encouraged to record and provide data on species other than sharks and tunas taken as bycatch.</p>

En el Anexo 2 se muestra información detallada sobre los datos suministrados al secretariado de la IOTC sobre las distintas especies que analiza el WPEB.

2. Nueva información en biología, ecología, pesquerías y datos medioambientales relacionados con ecosistemas y especies accesorias.

En este punto se presentaron diversos documentos e informes de diversas reuniones (como el simposio celebrado sobre anzuelos circulares (Miami, EE.UU., mayo 2011). En este punto se realizaron numerosas recomendaciones, entre las que cabe destacar: a) desarrollar una guía de



identificación y características de anzuelos circulares, b) elaborar un manual en el que se establezcan los procedimientos a seguir con las tortugas capturadas por el palangre y c) que la secretaría confeccione y distribuya carteles de identificación de: tortugas marinas, aves marinas y tiburones. En este punto y en los siguientes (en función de la especie o grupo de especies) se analizó el estado actual de los distintos planes de acción de las diversos países.

3. Tiburones y rayas.

Se presentaron diversos trabajos de los pesquerías en las que se capturan estas especies: Mozambique, Madagascar, Maldivas, UE Cerco, UE Portugal palangre, Seychelles; igualmente se presentaron documentos más específicos sobre algunas especies de tiburones, programas de investigación y posibles medidas de mitigación (en pesquerías en las que los tiburones no se consideran especies objetivo): EU Francia cerco, EU Portugal palangre, La Reunión, Sudáfrica, y Japón.

Los científicos portugueses presentaron también diversos resultados sobre la relación encontrada entre el peso de las aletas y el peso vivo y peso de la carcasa de tiburones, constatando que el actual valor que se aplica para esta relación es inferior al real. Estos resultados se encuentran muy próximos a los obtenidos por investigadores españoles, en trabajos anteriores, en tiburones del Océano Indico.

Se recomendó que se revisara la lista de especies de tiburones de la resolución 10/02 con objeto de incluir otras especies que se capturan comúnmente así como la lista de especies que deberían anotarse en los cuadernos de pesca (cerco, palangre y artes de enmalle). Ambas listas se incluyen en los cuadros siguientes:

Common name	Species	Code
Manta and devil rays	Mobulidae	MAN
Whale shark	<i>Rhincodon typus</i>	RHN
Thresher sharks*	<i>Alopias spp.</i>	THR
Mako sharks	<i>Isurus spp.</i>	MAK
Silky shark	<i>Carcharhinus falciformis</i>	FAL
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	OCS
Blue shark	<i>Prionace glauca</i>	BSH
Hammerhead shark	Sphyrnidae	SPY
Other Sharks and rays		SKH

For longline:	For gillnet:
<ul style="list-style-type: none"> - Blue Shark (<i>Prionace glauca</i>) - Mako Sharks (<i>Isurus spp.</i>) - Porbeagle Shark (<i>Lamna nasus</i>) - Silky sharks (<i>Carcharhinus falciformis</i>) - Oceanic Whitetip Shark (<i>Carcharhinus longimanus</i>) - Hammerhead Sharks (Sphyrnidae) - Thresher Sharks (<i>Alopias spp.</i>) - Other sharks - Other rays 	<ul style="list-style-type: none"> - Blue Shark (<i>Prionace glauca</i>) - Mako Sharks (<i>Isurus spp.</i>) - Silky sharks (<i>Carcharhinus falciformis</i>) - Oceanic Whitetip Shark (<i>Carcharhinus longimanus</i>) - Hammerhead Sharks (Sphyrnidae) - Thresher Sharks (<i>Alopias spp.</i>) - Tiger shark (<i>Galeocerdo cuvier</i>) - Mantas and devils rays (Mobulidae) - Other sharks - Other rays
For purse-seine:	
<ul style="list-style-type: none"> - Oceanic Whitetip Shark (<i>Carcharhinus longimanus</i>) - Silky sharks (<i>Carcharhinus falciformis</i>) - Mantas and devils rays (Mobulidae) - Other sharks 	



Al igual que sucede en las áreas de la IATTC y la WCPFC, el tiburón *Carcharhinus longimanus* parece que ha sufrido una disminución en su abundancia, por lo que se recomienda su liberación cuando se encuentra vivo así como emprender la evaluación de esta especie.

Se elaboró el siguiente cuadro sobre el estado de las diversas especies de tiburones y el estatus otorgado por IUCN (para el conjunto del Océano Índico y cada una de sus cuencas. Oriental y occidental, EIO y WIO respectivamente), para información y consideración por el Comité Científico:

Nombre Común en IOTC	Scientific name	IUCN threat status		
		Global status	WIO	EIO
Blue shark	<i>Prionace glauca</i>	Near Threatened	–	–
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	Vulnerable	–	–
Scalloped hammerhead shark	<i>Sphyrna lewini</i>	Endangered	Endangered	Least concern
Shortfin mako shark	<i>Isurus oxyrinchus</i>	Vulnerable	–	–
Silky shark	<i>Carcharhinus falciformis</i>	Near Threatened	Near Threatened	Near Threatened
Bigeye thresher shark	<i>Alopias superciliosus</i>	Vulnerable	–	–
Pelagic thresher shark	<i>Alopias pelagicus</i>	Vulnerable	–	–

4. Aves marinas

Por lo que respecta a las especies de este grupo, se presentaron diversos documentos con nueva información, tanto biológica como de otro tipo, sobre albatros y petreles en los territorios de Francia, sobre el Plan de Acción de Francia, modelización del impacto de las pesquerías de LL, interacciones de aves con el LL suministrados por observadores japoneses, estudios de mitigación en el palangre llevados a cabo por científicos sudafricanos, y nueva información sobre la efectividad de las medidas actuales de mitigación. En este sentido, parece que el mejor resultado se consigue con una mezcla de las actuales medidas (lances nocturnos, espantapájaros y lastrado de los anzuelos). También se decidió insistir en la confección de guías de identificación de aves y el entrenamiento de observadores en la identificación de las mismas.

Sobre el estado de las poblaciones de aves marinas, se preparó la tabla, que se muestra a continuación, para que sea considerada por el Comité Científico.

Nombre común	Nombre científico	Estado IUCN
Albatros		
Atlantic Yellow-nosed Albatross	<i>Thalassarche chlororhynchus</i>	Endangered
Black-browed albatross	<i>Thalassarche melanophrys</i>	Endangered
Indian yellow-nosed albatross	<i>Thalassarche carteri</i>	Endangered
Shy albatross	<i>Thalassarche cauta</i>	Near Threatened
Sooty albatross	<i>Phoebastria fusca</i>	Endangered
Tristan albatross	<i>Diomedea dabbenena</i>	Critically Endangered
Wandering albatross	<i>Diomedea exulans</i>	Vulnerable
White-capped albatross	<i>Thalassarche steadi</i>	Near Threatened
Petreles		
Cape/Pintado petrel	<i>Daption capense</i>	Least Concern
Great-winged petrel	<i>Pterodroma macroptera</i>	Least Concern
Grey petrel	<i>Procellaria cinerea</i>	Near Threatened



Northern giant-petrel	<i>Macronectes halli</i>	Least Concern
White-chinned petrel	<i>Procellaria aequinoctialis</i>	Vulnerable
Otros		
Cape gannet	<i>Morus capensis</i>	Vulnerable
Flesh-footed shearwater	<i>Puffinus carneipes</i>	Least Concern

Se solicitó a la Secretaría que actualice hasta 2010 la información que posee sobre aves marinas y que, en forma de informe ejecutivo, sea presentada al Comité Científico.

5. Tortugas marinas

Al igual que para los otros grupos de especies, se presentó nueva información sobre biología, distribución y medidas de mitigación (anzuelos circulares en el caso del palangre y FADs ecológicos en el caso del cerco).

Por lo que se refiere a las notificaciones a la secretaria de los niveles o tasas de interacción de estas especies con las distintas pesquerías, las mismas son prácticamente nulas, por lo que no se puede hacer recomendaciones específicas al Comité Científico, y únicamente se decidió incorporar la siguiente tabla adjunta para la consideración del mismo:

Common name	Scientific name	IUCN threat status
Flatback turtle	<i>Natator depressus</i>	Data deficient
Green turtle	<i>Chelonia mydas</i>	Endangered
Hawksbill turtle	<i>Eretmochelys imbricata</i>	Critically Endangered
Leatherback turtle	<i>Dermochelys coriacea</i>	Critically Endangered
Loggerhead turtle	<i>Caretta caretta</i>	Endangered
Olive ridley turtle	<i>Lepidochelys olivacea</i>	Vulnerable

6. Mamíferos marinos

Sobre estas especies no se recibe prácticamente ninguna información. Se señalaron interacciones en pesquerías de artes de enmalle, practicadas por algunos países ribereños, pero no se encuentran bien documentadas. Por lo que se refiere a la flota europea de cerco y debido a algunas informaciones que señalaban la interacción con mamíferos marinos, los científicos europeos se ofrecieron a presentar una revisión de la interacción que supone este hecho en las pesquerías de cerco; interacción que se produce con ballenas que, generalmente, quedan fuera del cerco cuando se realiza la maniobra. En este sentido, se propuso una recomendación para que este análisis sea presentado el próximo año.

7. Otros temas

Se revisó la nueva información recibida sobre depredación y enfoque global del ecosistema (evaluación de riesgo ecológico) en el contexto de la gestión en ORPs. En este sentido, el WPEB recomendó la presencia/invitación de un experto para la próxima reunión de este grupo.



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Se recomendó la contratación, por la IOTC, de un investigador para que se haga cargo de todos los temas referentes a “Bycatch” y para contribuir al desarrollo del programa regional de observadores.

Se reeligió como presidente del WPEB (por dos años) al actual presidente Dr. Charles Anderson y se eligió de vicepresidente al Dr. Evgeny Romanov.

Santa Cruz de Tenerife 11 de noviembre de 2011

Javier Ariz Tellería

Distribución:

IEO

Sr. Director General del Instituto Español de Oceanografía, Sr. Subdirector General de Investigación Jefatura del Área de Pesca, Sr. Coordinador de Túnidos, Administración del COC.

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Anexo 1.- Orden del día y relación de documentos presentados.



Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien



IOTC-2011-WPEB07-01a

**DRAFT AGENDA FOR THE SEVENTH WORKING PARTY ON ECOSYSTEMS
AND BYCATCH**

18 August 2011

Date: 24–27 October 2011

Location: Paradise Island Resort, Lankanfinolhu,
North Malé Atoll, Maldives

Time: 09:00 – 17:00 daily

1. **OPENING OF THE MEETING** (Chair)
2. **ADOPTION OF THE AGENDA** (Chair)
3. **OUTCOMES OF THE THIRTEENTH SESSION OF THE SCIENTIFIC COMMITTEE** (SC Chair)
4. **OUTCOMES OF THE FIFTEENTH SESSION OF THE COMMISSION** (Secretariat)
5. **UPDATE ON THE KOBE PROCESS** (Chair)
6. **PROGRESS ON THE RECOMMENDATIONS OF WPEB06** (Chair)
7. **REVIEW OF DATA AVAILABLE ON ECOSYSTEMS AND BYCATCH**
 - 7.1 Review of the statistical data available for ecosystems and bycatch species (Secretariat)
 - 7.2 Data from other sources (papers from CPCs)
 - 7.3 Regional Observer Scheme (Secretariat)
 - 7.4 Develop recommendations to the Scientific Committee.
8. **NEW INFORMATION ON BIOLOGY, ECOLOGY, FISHERIES AND ENVIRONMENTAL DATA RELATING TO ECOSYSTEMS AND BYCATCH SPECIES**
 - 8.1 Review new information on the biology, stock structure, their fisheries and associated environmental data (CPC papers).
 - 8.2 Circle Hook symposium (Secretariat)
9. **SHARKS AND RAYS**
 - 9.1 Review of new information on the status of sharks
 - 9.2 Review of any National Plans of Action relating to reduction of shark bycatch in tuna fisheries
 - 9.3 Research programmes on sharks
 - 9.4 Improvement on shark identification
 - 9.5 Stock indicators / ERA on sharks
 - 9.6 Shark fin to body weight ratio
 - 9.7 Shark bycatch mitigation
 - Effect of terminal gear on shark by-catch: leaders (wire vs. monofilament), hooks (circle vs. tuna vs. J-hooks). Review of regional research results and/or open discussion / results from other oceans.
 - Best practices of shark handling / live release: circle hooks, wire leaders, live release. Shark post-release mortality in the PS and LL fisheries.
 - 9.8 Review of Resolutions and Recommendations on sharks:
 - Resolution 05/05 *Concerning the conservation of sharks caught in association with fisheries managed by IOTC*
 - Resolution 10/12 *On the Conservation of Thresher Sharks (Family Alopiidae) caught in Association with Fisheries in the IOTC Agreement Area.*
 - 9.9 Develop recommendations to the Scientific Committee
 - 9.10 Update of shark species Executive Summaries (Chair).
10. **SEABIRDS**
 - 10.1 Review of new information on the status of seabirds



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- 10.2 Review of any new National Plans of Action for reducing incidental catches of seabirds in longline fisheries
 - 10.3 Research on interaction between seabirds and tuna fisheries in the Indian Ocean
 - 10.4 Identification sheets for observers
 - 10.5 Review of Resolutions and Recommendations on seabirds:
 - Recommendation 05/09 *On incidental mortality of seabirds*
 - Resolution 10/06 *On Reducing the Incidental Bycatch of Seabirds in Longline Fisheries.*
 - 10.6 Develop recommendations to the Scientific Committee
 - 10.7 Update of seabird Executive Summary (Chair).
- 11. MARINE TURTLES**
- 11.1 Review of new information on the status of marine turtles
 - 11.2 Research on effect of marine turtles mitigating measures
 - 11.3 Review of any national management plans/strategies for the reduction of marine turtle bycatch in tuna fisheries
 - 11.4 Research on interaction between turtles and tuna fisheries in the Indian Ocean
 - 11.5 To develop recommendation on appropriate mitigation measures
 - 11.6 To develop guidelines for appropriate handling and release
 - 11.7 To develop regional standards for data collection, exchange and training
 - 11.8 To produce a marine turtle Identification Guide
 - 11.9 Review of Resolutions and Recommendations on turtles:
 - Recommendation 05/08 *On sea turtles*
 - Resolution 09/06 *On marine turtles*
 - 11.10 Develop recommendations to the Scientific Committee
 - 11.11 Update of marine turtle Executive Summary (Chair).
- 12. MARINE MAMMALS**
- 12.1 Research programmes on marine mammals
 - 12.2 Develop recommendations to the Scientific Committee.
- 13. OTHER BYCATCH AND BYPRODUCT SPECIES**
- 13.1 Research programmes on other species
 - 13.2 Develop recommendations to the Scientific Committee.
- 14. DEPREDAATION**
- 14.1 Review of available data and new information on depredation
 - 14.2 Requirement for improvement of the data on depredation
 - 14.3 Possible consequences of depredation on stock assessment
 - 14.4 Review of Resolutions and Recommendations on depredation:
 - Resolution 00/02 *On A Survey Of Predation Of Longline Caught Fish*
 - 14.5 Develop recommendations to the Scientific Committee.
- 15. ECOSYSTEM APPROACHES**
- 15.1 Ecological Risk Assessment (ERA) for bycatch monitoring, analysis and management, in an RFMO context
 - 15.2 Ecological interactions
 - 15.3 Develop recommendations to the Scientific Committee.
- 16. RESEARCH RECOMMENDATIONS AND PRIORITIES**
- 16.1 Develop a draft work plan.
- 17. OTHER BUSINESS**
- 17.1 Development of priorities for an Invited Expert/s at the next Working Party on Ecosystems and Bycatch meeting
 - 17.2 Date and place of the Eighth Session of the Working Party on Ecosystems and Bycatch
 - 17.3 Election of a Chairperson and Vice-Chairperson for the next biennium
 - 17.4 Review of the draft, and adoption of the Report of the Seventh Session of the Working Party on Ecosystems and Bycatch.



DRAFT LIST OF DOCUMENTS

LAST UPDATED: 25 OCTOBER 2011

Document	Title	Availability
IOTC-2011-WPEB07-01a	Draft agenda of the Seventh Working Party on Ecosystems and Bycatch	✓(19 July)
IOTC-2011-WPEB07-01b	Draft annotated agenda of the Seventh Working Party on Ecosystems and Bycatch	✓(15 September)
IOTC-2011-WPEB07-02	Draft list of documents	✓(15 September)
IOTC-2011-WPEB07-03	Outcomes of the Thirteenth Session of the Scientific Committee (Secretariat)	✓(19 July)
IOTC-2011-WPEB07-04	Outcomes of the Fifteenth Session of the Commission (Secretariat)	✓(19 July)
IOTC-2011-WPEB07-05	Report of the First Bycatch Joint Tuna Technical Working Group (Chair)	✓(22 August)
IOTC-2011-WPEB07-06	Recommendations arising from the KOBE III meeting (Secretariat)	✓(22 August)
IOTC-2011-WPEB07-07	Progress made on the recommendations of WPEB06 (Secretariat and Chair)	✓(28 September)
IOTC-2011-WPEB07-08	Review of the statistical data available for the bycatch species (M. Herrera and L. Pierre — Secretariat)	✓(7 October)
IOTC-2011-WPEB07-09	Update on the Regional Observer Scheme (Secretariat)	✓(6 October)
IOTC-2011-WPEB07-10	Outcomes of the Circle Hook Symposium 4-6 May 2011, Miami, USA (Secretariat)	✓(6 October)
IOTC-2011-WPEB07-11	Status of the development of identification cards for sharks, seabirds and marine turtles (Secretariat)	✓(7 October)
IOTC-2011-WPEB07-12	Status of development and implementation of National Plans for Action for Seabirds and Sharks (Secretariat)	✓(30 September)
IOTC-2011-WPEB07-13	Review of current Conservation and Management Measures relating to ecosystems and bycatch (Secretariat and Chair)	✓(2 September)
IOTC-2011-WPEB07-14	Status of sharks in the Indian Ocean (Secretariat)	✓(4 October)
IOTC-2011-WPEB07-15	Status of marine turtles in the Indian Ocean (Secretariat)	✓(30 September)
IOTC-2011-WPEB07-16	Status of seabirds in the Indian Ocean (Secretariat)	✓(30 September)
IOTC-2011-WPEB07-17	Outline of climate and oceanographic conditions in the Indian Ocean: an update to August 2011 (F. Marsac)	✓(13 October)
IOTC-2011-WPEB07-18	A simple, relatively inexpensive method of ocean' surface layer temperature profiling (E. Romanov, J-F. Ternon, E. Richard, P. Bach, A. Le Turc, J-P Lamoureaux)	✓(9 October)
IOTC-2011-WPEB07-19	Bycatch in tuna longline fishery in the Indian EEZ around Andaman and Nicobar Islands (A.B. Kar, K. Govindaraj, G.V.A. Prasad and L. Ramalingam)	✓(13 October)
IOTC-2011-WPEB07-20 Rev1	Bycatch landings in Mauritius for 2009/2010 (A. Sheik Mamode)	✓(13 October)
IOTC-2011-WPEB07-21	Bycatch of tuna fishing vessels – Pakistan (S. Hussain)	✓(16 October)
IOTC-2011-WPEB07-22	Reduction of Marine mammals, Sea birds and turtles bycatch in Tuna fishing (R. Shahifar, Sh. Ghasemi and F. Barati)	✓(9 October)
IOTC-2011-WPEB07-23 Rev_1	Bycatch and Discards of the French Tuna Purse Seine Fishery during the 2003-2010 Period Estimated through the Observer Programme. (P. Chavance, J.M. Amande, R. Pianet, E. Chassot, A. Damiano)	✓(23 October)
IOTC-2011-WPEB07-24	Sharks caught as by catch in Mozambican waters (B. Palha de Sousa)	✓(10 October)
IOTC-2011-WPEB07-25	An overview of approaches used to assess the status of shark populations: experiences from the USA and ICCAT in the Atlantic Ocean (E. Cortes)	✓(9 October)
IOTC-2011-WPEB07-26	Sharks caught as bycatch by malagasy national fleet in the Madagascar waters (D.M. Rahombanjanahary)	✓(30 September)



IOTC-2011-WPEB07-02

Document	Title	Availability
IOTC-2011-WPEB07-27	Shark longline fishery in the northern Maldives (R.C. Anderson, M.S. Adam and M.R. Saleem)	✓(20 October)
IOTC-2011-WPEB07-28	Survival rate of silky sharks (<i>Carcharhinus falciformis</i>) caught incidentally onboard French tropical purse seiners (F. Poisson, A.L. Vernet, J.D. Filmalter, M. Goujon and L. Dagorn)	✓(11 October)
IOTC-2011-WPEB07-29	Areas with high bycatch of silky sharks (<i>Carcharhinus falciformis</i>) in the western Indian Ocean purse seine fishery (M.J. Amandé, N. Bez, N. Konan, H. Murua, A. Delgado de Molina, P. Chavance and L. Dagorn)	✓(11 October)
IOTC-2011-WPEB07-30	Preliminary observations on the by-catch of elasmobranchs caught by the Portuguese longline fishery in the Indian Ocean: biology, ecology and fishery (R. Coelho, P.G. Lino and M.N. Santos)	✓(18 October)
IOTC-2011-WPEB07-31	At-haulback mortality of elasmobranchs caught on the Portuguese longline swordfish fishery in the Indian Ocean (R. Coelho, P.G. Lino and M.N. Santos)	✓(28 September)
IOTC-2011-WPEB07-32	Spatial and temporal patterns in blue shark (<i>Prionace glauca</i>) catch in South African longline fisheries (K. Jolly, C. da Silva, A. Jarre and C.A. Attwood)	✓(3 October)
IOTC-2011-WPEB07-33	Standardized CPUE for blue shark caught by Japanese tuna longline fishery in the Indian Ocean, 1971-1993 and 1994-2010 (Y. Hiraoka and K. Yokawa)	✓(19 October)
IOTC-2011-WPEB07-34	Standardized CPUE of shortfin mako shark (<i>Isurus oxyrinchus</i>) caught by Japanese longliners in the Indian Ocean in the period between 1994 and 2010 (A. Kimoto, Y. Hiraoka, T. Ando and K. Yokawa)	✓(20 October)
IOTC-2011-WPEB07-35	Trends of standardized CPUE of oceanic whitetip shark (<i>Carcharhinus longimanus</i>) caught by Japanese longline fishery in the Indian Ocean (Y. Semba and K. Yokawa)	✓(19 October)
IOTC-2011-WPEB07-36	Standardized CPUE of major shark species caught by the Portuguese longline fishery in the Indian Ocean (R. Coelho, P.G. Lino and M.N. Santos)	✓(10 October)
IOTC-2011-WPEB07-37	Observations on the ratio between fin and body weights for the blue shark caught by the Portuguese longline fleet in the Indian Ocean (M.N. Santos, R. Coelho, J. Fernandez-Carvalho and P.G. Lino)	✓(22 September)
IOTC-2011-WPEB07-38	New information on distribution of albatrosses and petrels breeding in the Indian Ocean and assessment of potential overlap with IOTC fisheries (K. Delord and H. Weimerskirch)	✓(6 October)
IOTC-2011-WPEB07-39	National Action Plan for the conservation of the Amsterdam albatross <i>Diomedea amsterdamensis</i> : potential risks from long line fisheries in the IOTC zone (H. Weimerskirch, K. Delord and J.B. Thiebot)	✓(6 October)
IOTC-2011-WPEB07-40	Preliminary view of bycatch hotspot: bycatch distribution in the IOTC area of the southern hemisphere (Y. Inoue, K. Yokawa, H. Minami and D. Ochi)	✓(20 October)
IOTC-2011-WPEB07-41	Modelling work on Crozet wandering albatrosses and impact of longline fisheries in the IOTC zone (G. Tuck, R. Thompson, C. Barbraud, K. Delord, M. Louzao and H. Weimerskirch)	✓(19 October)
IOTC-2011-WPEB07-42	Observer Programmes in RFMOs: a perspective from the BirdLife International Global Seabird Programme (R. Wanless and C. Small)	✓(19 October)
IOTC-2011-WPEB07-43	Review of seabird bycatch mitigation measures for pelagic longline fisheries (ACAP)	✓(28 September)
IOTC-2011-WPEB07-44	Summary best practice advice for reducing the impact of pelagic longline gear on seabirds (ACAP)	✓(28 September)
IOTC-2011-WPEB07-45	Odontocete bycatch and depredation in longline fisheries: a review of available literature and of potential solutions (D.J. Hamer, S.J. Childerhouse and N.J. Gales)	✓(27 September)
IOTC-2011-WPEB07-46	Withdrawn	Withdrawn
IOTC-2011-WPEB07-47	Species composition of fish assemblage based on observer data in the southwestern Indian Ocean (J. Zhu, X. Dai and L. Xu)	✓(30 September)
IOTC-2011-WPEB07-48	Report on bycatch from tuna longline fishing operation eastern Indian Ocean by SEAFDEC Research Vessels Year 2005-2011 (S. Promjinda and I. Chanrachkij)	✓(11 October)



IOTC-2011-WPEB07-02

Document	Title	Availability
IOTC-2011-WPEB07-49 Rev_1	PROSPER Project: first year of operations. Preliminary results of ecosystem and bycatch studies in the waters of Reunion and Tromelin Islands (E. Romanov, P. Bach and E. Richard, J.-F. Ternon, A. Le Turc)	✓(11 October)
IOTC-2011-WPEB07-50	Progress made on the Implementation of the Seychelles National Plan of Action for the Conservation and Management of Sharks – 2007 (E. Socrate)	✓(24 October)
IOTC-2011-WPEB07-51	Species composition and richness of the pelagic ecosystem based on EU PS observer data in the Southwestern Indian Ocean (N. Lezama1, H. Murua, J. Ruiz, P. Chavance, A. Delgado de Molina)	✓(23 October)
IOTC-2011-WPEB07-52	An update of the EU MADE Project (L. Dagorn)	✓(3 October)
IOTC-2011-WPEB07-53	Review of IOTC discussions and recommendations for shark conservation in the Indian Ocean (D.S. Kirby, C. Van Der Geest, H. Patterson, K. Cheshire, C. McCloud)	✓(4 October)
IOTC-2011-WPEB07-54	Preliminary report of 2010 weighted branchline trials in the tuna joint venture fishery in the South African EEZ (E. Melvin, T. Guy and N. Sato)	✓(8 October)
IOTC-2011-WPEB07-55	CPC reporting of bycatch data as per IOTC Conservation and Management Measures (Secretariat)	✓(10 October)
IOTC-2011-WPEB07-56	Status of shark fisheries in the Maldives (H. Sinan, M.S. Adam and R.C. Anderson)	✓(19 October)
IOTC-2011-WPEB07-57	Shark bycatch in the pelagic longline fishery along Ninety East Ridge taken by research vessel (P. Chaidee and N. Darumas)	✓(16 September)
	INFORMATION PAPERS	
IOTC-2011-WPEB07-INF01	An integrated approach to determining the risk of over-exploitation for data-poor pelagic Atlantic sharks (C. Simpfendorfer, E. Cortés, M. Heupel, E. Brooks, E. Babcock, J. Baum, R. McAuley, S. Dudley, J. Stevens, S. Fordham and A. Soldo)	✓(3 August)
IOTC-2011-WPEB07-INF02	An indicator-based analysis of key shark species based on data held by SPC-OPF (S. Clarke, S. Harley, S. Hoyle and J. Rice)	✓(3 August)
IOTC-2011-WPEB07-INF03	Analysis of North Pacific Shark Data from Japanese Commercial Longline and Research/Training Vessel Records (S. Clarke, K. Yokawa, H. Matsunaga and H. Nakano)	✓(3 August)
IOTC-2011-WPEB07-INF04	A Status Snapshot of Key Shark Species in the Western and Central Pacific and Potential Mitigation Options (S. Clarke)	✓(3 August)
IOTC-2011-WPEB07-INF05	A Proposal for a Process for Designating WCPFC Key Shark Species for Data Provision and Assessment (S. Clarke)	✓(3 August)
IOTC-2011-WPEB07-INF06	A Progress Report on the Shark Research Plan (S. Clarke, S. Harley, L. Protoy and P. Williams)	✓(3 August)
IOTC-2011-WPEB07-INF07	Analyses of Catch Data for Oceanic Whitetip and Silky Sharks reported by Fishery Observers in the Hawaii-based Longline Fishery in 1995–2010 (B. Walsh and S. Clarke)	✓(3 August)
IOTC-2011-WPEB07-INF08	Chondrichthyan guide for fisheries managers: A practical guide to mitigating chondrichthyan bycatch (H.M. Patterson and M.J. Tudman)	✓(5 August)
IOTC-2011-WPEB07-INF09	Fisheries and Aquaculture Reviews and Studies – Sharks (J. Musick and S. Musick)	✓(25 August)
IOTC-2011-WPEB07-INF10	The future of sharks: A review of action and inaction (M. Lack and G. Sant)	✓(25 August)
IOTC-2011-WPEB07-INF11	Best practices to mitigate seabird bycatch in longline, trawl and gillnet fisheries—efficiency and practical applicability (S. Lokkeborg)	✓(25 August)
IOTC-2011-WPEB07-INF12	Bycatch of highsea longline fisheries and measures taken by Taiwan: Actions and challenges (H.-Wen Huang)	✓(25 August)
IOTC-2011-WPEB07-INF13	Smart Tuna Hook (Anon)	✓(25 August)
IOTC-2011-WPEB07-INF14	First documented southern transatlantic migration of a blue shark <i>Prionace glauca</i> tagged off South Africa (C. da Silva, S.E. Kerwath, C. Wilke, M. Meyer and S.J. Lamberth)	✓(2 September)
IOTC-2011-WPEB07-INF15	Tagging-recapture activities of large pelagic sharks carried out by Spain or in collaboration with the tagging programs of other countries (J. Mejuto, B. García-Cortés and A. Ramos-Cartelle)	✓(15 September)
IOTC-2011-WPEB07-INF16	Blue shark record – Information on first transoceanic migration of blue shark in the Indian Ocean (Anonymous)	✓(15 September)



IOTC-2011-WPEB07-02

Document	Title	Availability
IOTC-2011-WPEB07-INF17	From monsoons to mantas: seasonal distribution of <i>Manta alfredi</i> in the Maldives (R.C. Anderson, M.S. Adam and J.I. Goes)	✓(15 September)
IOTC-2011-WPEB07-INF18	Seeing Spots: Photo-identification as a Regional Tool for Whale Shark Identification (K. Brooks, D. Rowat, S.J. Pierce, D. Jouannet and M. Vely)	✓(16 September)
IOTC-2011-WPEB07-INF19	Occurrence of whale shark (<i>Rhincodon typus</i>) in the Indian Ocean: A case for regional conservation (D. Rowat)	✓(16 September)
IOTC-2011-WPEB07-INF20	Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales (B.P. Wallace, A.D. DiMatteo, B.J. Hurley, E.M. Finkbeiner, A.B. Bolten, M.Y. Chaloupka, B.J. Hutchinson, F.A. Abreu-Grobois, D. Amoroch, K.A. Bjorndal, J. Bourjea, B.W. Bowen, R.B. Duenas, P. Casale, B.C. Choudhury, A. Costa1, P.H. Dutton, A. Fallabrino, A. Girard, M. Girondot, M.H. Godfrey, M. Hamann, M. Lopez-Mendilaharsu, M.A. Marcovaldi, J.A. Mortimer, J.A. Musick, R. Nel, N.J. Pilcher, J.A. Seminoff, S. Troeng, B. Witherington and R.B. Mast)	✓(20 September)
IOTC-2011-WPEB07-INF21	Hawksbill turtle monitoring in Cousin Island Special Reserve, Seychelles: an eight-fold increase in annual nesting numbers (Z.C. Allen, N.J. Shah, A. Grant, G.-D. Derand and D. Bell)	✓(20 September)
IOTC-2011-WPEB07-INF22	Loggerheads and leatherbacks in the Western Indian Ocean (G.R. Hughes)	✓(20 September)
IOTC-2011-WPEB07-INF23	Global Conservation Priorities for Marine Turtles (B.P. Wallace, A.D. DiMatteo, A.B. Bolten, M.Y. Chaloupka, B.J. Hutchinson, F.A. Abreu-Grobois, J.A. Mortimer, J.A. Seminoff, D. Amoroch, K.A. Bjorndal, J. Bourjea, B.W. Bowen, R. B. Duenas, P. Casale, B.C. Choudhury, A. Costa1, P.H. Dutton, A. Fallabrino, E.M. Finkbeiner, A. Girard, M. Girondot, M. Hamann, B.J. Hurley, M. Lopez-Mendilaharsu, M.A. Marcovaldi, J.A. Musick, R. Nel, N.J. Pilcher, S. Troeng, B. Witherington, R.B. Mast)	✓(1 October)
IOTC-2011-WPEB07-INF24	Protection of leatherback turtles (<i>Dermochelys coriacea</i>) from fishing impacts in the Indian Ocean (C. van der Geest and J. Davey)	✓(4 October)
IOTC-2011-WPEB07-INF25	Marine turtles in Mozambique: The development of an effective conservation and management programme (A. Costa1, H. Motta, M.A.M. Pereira, E.J.S. Videira, C.M.M. Louro and J. João)	✓(12 October)
IOTC-2011-WPEB07-INF26	Monitoring, tagging and conservation of marine turtles in Mozambique: annual report 2010/11 (E.J.S Videira, M.A.M Pereira and C.M.M. Louro)	✓(12 October)
IOTC-2011-WPEB07-INF27	Report on the conservation status of marine turtles in Mozambique (C.M.M. Louro, M.A.M. Pereira and A.C.D. Costa)	✓(12 October)
IOTC-2011-WPEB07-INF28	Shark research programme currently being carried out at IPIMAR (M.N. Santos and R. Coelho)	ppt. presentation at meeting
IOTC-2011-WPEB07-INF29	Report for 2010 on exhaustive data collected by observers on board largest pelagic longliners based in La Reunion (P. Bach, E. Romanov, N. Rabearisoa, S. Akbaraly and A. Sharp)	ppt. presentation at meeting
IOTC-2011-WPEB07-INF30	Mitigating whale by-catch and depredation in pelagic longline fisheries using physical deterrence at the hook (D.J. Hamer, S.J. Childerhouse, S.G. Candy and N.J. Gales)	✓(11 October)
IOTC-2011-WPEB07-INF31	Report of the BOBLME sharks Working Group. 5-7 July 2011 – Malé, Madives) (BOBLME)	✓(18 October)
IOTC-2011-WPEB07-INF32	Potential impact of drift nets fisheries on Indian ocean ecosystems? (A. Fonteneau)	✓(24 October)
IOTC-2011-WPEB07-INF33	Bomb radiocarbon dating of the Indian Ocean blue shark <i>Prionace glauca</i> : a preliminary test of ageing accuracy. (E. Romanov, S. Campana)	✓(24 October)



SHARKS

Parties having provided data for industrial fleets:

- Surface: EU-France; EU-Spain
- Longline: Australia; Belize; China; Taiwan,China; EU-France; EU-Portugal; EU-Spain; EU-UK; France; Indonesia; Japan; Kenya; Republic of Korea; Malaysia; Mauritius; Oman; Philippines; Seychelles; South Africa; Thailand; Uruguay
- Driftnet: Pakistan

Remarks: As above, there is need to define for which shark species reporting of catch is obligatory so as the remaining species can be inferred

Catch-and-effort data for MOST COMMON SHARK species

Applies to: All CPC

Time period: 2006 and later years

Deadline: June (December) 30th of year following that for which data are due

Report to: IOTC Secretariat

Binding status: Obligatory

Parties having provided data for industrial fleets:

- Surface: Nil
- Longline: China; Taiwan,China; EU-Portugal; EU-UK; Japan; Philippines; Seychelles; South Africa;
- Driftnet: Nil

Remarks: Same as above. Minima requirements for operational catch-and-effort data include provisions for the following species of sharks, by fishery:

- Longline and gillnet: Blue Shark (*Prionace glauca*); Porbeagle Shark (*Lamna nasus*); Mako Sharks (*Isurus spp.*); Oceanic Whitetip Shark (*Carcharhinus longimanus*); Hammerhead Sharks (*Sphyrna spp.*); Other sharks (by species, where possible, in particular: Thresher Sharks (*Alopias spp.*); Tiger Shark (*Galeocerdo cuvier*); Crocodile Shark (*Pseudocarcharias kamoharai*); Other Requiem sharks (*Carcharhinus spp.*); Great White shark (*Carcharodon carcharias*); Pelagic stingray (*Pteroplatytrygon violacea*))
- Purse seine: Not specified; where possible, data by species for: Whale Shark (*Rhincodon typus*); Oceanic Whitetip Shark (*Carcharhinus longimanus*); Silky shark (*Carcharhinus falciformis*)
- Pole-and-line: Not specified; recorded as other species (sharks are seldom caught by baitboats)
- Other gears: There are no requirements for operational catch-and-effort data for gears other than the above.

However, it is not clear if the above species are those for which reporting of catch-and-effort data is due.

Catch-and-effort data for OTHER SHARK species

Applies to: All CPC

Time period: 2006 and later years

Deadline: June (December) 30th of year following that for which data are due

Report to: IOTC Secretariat

Binding status: Voluntary

Parties having provided data for industrial fleets:

- Surface: Nil
- Longline: China; Taiwan,China; EU-France; EU-Portugal; EU-UK; Japan; Republic of Korea; Malaysia; Mauritius; Oman; Seychelles; South Africa; Sri Lanka; Thailand; Uruguay
- Driftnet: Nil

Remarks: As above, there is need to define for which shark species reporting of catch-and-effort data is obligatory so as the remaining species can be inferred

Size frequency data for MOST COMMON SHARK species

Applies to: All CPC

Time period: 2006 and later years

Deadline: June (December) 30th of year following that for which data are due

Report to: IOTC Secretariat

Binding status: Obligatory

Parties having provided data for industrial fleets:

- Surface: Nil
- Longline: Japan; Republic of Korea; Seychelles; South Africa; Sri Lanka;
- Driftnet: Nil

Remarks: There is no definition for “most common species of sharks” and therefore it is not clear which species are covered by this requirement

Size frequency data for OTHER SHARK species

Applies to: All CPC

Time period: 2006 and later years

Deadline: June (December) 30th of year following that for which data are due

Report to: IOTC Secretariat

Binding status: Voluntary

Parties having provided data for industrial fleets:

- Surface: Nil
- Longline: Indonesia; Japan; Republic of Korea; Seychelles; South Africa; Sri Lanka;



SHARKS	
	<ul style="list-style-type: none"> • Driftnet: Nil <p><i>Remarks:</i> As above, there is need to define for which shark species reporting of size frequency data is obligatory so as the remaining species can be inferred</p> <p>Estimates of amounts of THRESHER SHARKS discarded dead and size frequency distribution of discards</p> <p><i>Applies to:</i> CPC having vessels in the IOTC Record of Authorized vessels <i>Time period:</i> 2010 and later years <i>Deadline:</i> IOTC Scientific Committee Meeting in December 2011 <i>Report to:</i> IOTC Scientific Committee <i>Binding status:</i> Obligatory <i>Parties having provided data:</i> Not applicable; first report due for December 2011.</p> <p><i>Remarks:</i> It is unclear if it is required to collect size data on all discards or only on dead discards; collecting size frequency data on thresher sharks before release may compromise survival of those specimens that are caught alive (rates of mortality at capture have been estimated at around 50% in the Atlantic Ocean)</p> <p>Reports from scientific observers onboard vessels 24m LOA or greater under the IOTC Regional Observer Scheme</p> <p><i>Applies to:</i> CPC having vessels 24m LOA or greater in the IOTC Record of Authorized vessels <i>Time period:</i> Since July 2010 <i>Deadline:</i> No later than 150 days after the end of each observer trip <i>Report to:</i> IOTC Secretariat <i>Binding status:</i> Obligatory <i>Parties having provided data:</i> None</p> <p><i>Remarks:</i> Some of the contents of the observer report will be reviewed by the IOTC Scientific Committee in 2011 but this should not preclude IOTC parties from providing observer reports as per the standards currently in place.</p> <p>Reports from scientific observers onboard vessels less than 24m LOA under the IOTC Regional Observer Scheme</p> <p><i>Applies to:</i> CPC having vessels less than 24m LOA in the IOTC Record of Authorized vessels <i>Time period:</i> Progressive implementation to achieve recommended levels of coverage by January 2013 <i>Deadline:</i> No later than 150 days after the end of each observer trip <i>Report to:</i> IOTC Secretariat <i>Binding status:</i> Obligatory <i>Parties having provided data:</i> None</p> <p><i>Remarks:</i> As above</p>
OTHER SPECIES	
	<p>Estimates of total incidental catches of SEABIRDS from longline fisheries</p> <p><i>Applies to:</i> CPC having longline fisheries in the IOTC Area <i>Time period:</i> 2011 and later years <i>Deadline:</i> IOTC Scientific Committee Meetings, included in the National Report <i>Report to:</i> IOTC Scientific Committee each year <i>Binding status:</i> Obligatory <i>Parties having provided data for industrial fleets:</i> Not applicable; first report due for December 2012.</p> <p><i>Remarks:</i> Requirements do not include reporting of incidental catches by species or area, in particular area fished with respect to the 25°S latitude boundary. There is also need to identify for which species of seabirds, out of the many occurring in the Indian Ocean, reporting of data by species is considered to be a priority. Estimation of total levels of bycatch of seabirds by IOTC longline fisheries will be compromised or not possible unless requirements are extended to account for this.</p> <p>Estimates of total incidental catches of SEABIRDS, by species, from all years and fisheries</p> <p><i>Applies to:</i> All CPC <i>Time period:</i> All years <i>Deadline:</i> IOTC Scientific Committee Meetings, included in the National Report <i>Report to:</i> IOTC Scientific Committee each year <i>Binding status:</i> Voluntary <i>Parties having provided data for industrial longline fleets:</i> Australia; China; EU-France; EU-Spain; EU-UK; France; South Africa</p> <p><i>Remarks:</i> Same as above.</p> <p>Estimates of total incidental catches of MARINE TURTLES</p> <p><i>Applies to:</i> All CPC <i>Time period:</i> 2010 and later years <i>Deadline:</i> IOTC Scientific Committee Meetings <i>Report to:</i> IOTC Scientific Committee each year <i>Binding status:</i> Obligatory <i>Parties having provided data for industrial fleets:</i></p> <ul style="list-style-type: none"> • Surface: EU-France; EU-Spain • Longline: Australia; China; EU-France; EU-Spain; EU-UK; France • Driftnet: Nil <p><i>Remarks:</i> Requirements do not include reporting of incidental catches by species or area. Estimation of total levels of bycatch of marine turtles by IOTC fisheries will be compromised or not possible unless requirements are extended to account for this.</p> <p>Estimates of total incidental catches of OTHER SPECIES</p> <p><i>Applies to:</i> All CPC <i>Time period:</i> 2006 and later years <i>Deadline:</i> June (December) 30th of year following that for which data are due <i>Report to:</i> IOTC Secretariat <i>Binding status:</i> Voluntary</p>



SHARKS	
	<p><i>Parties having provided data for industrial fleets:</i> Several parties have provided data concerning this requirement.</p> <p><i>Remarks:</i> This group refers to species of very different nature, including marine mammals, and other groups of other marine species. For the sake of clarity it would be better to clarify which species or species groups are the focus of this requirement. It would also be better to create specific requirements for marine mammals, along the lines of those created for Seabirds or marine turtles.</p> <p>Reports from scientific observers onboard vessels 24m LOA or greater under the IOTC Regional Observer Scheme</p> <p>Reports from scientific observers onboard vessels less than 24m LOA under the IOTC Regional Observer Scheme</p> <p><i>Remarks:</i> Refer to Table 1 (SHARKS)</p>

STEPS TO IMPROVE THE CERTAINTY OF FISHERIES STATISTICS FOR SHARKS, SEABIRDS, MARINE TURTLES AND SEABIRDS

SHARKS		
Data / information / work required	Fishery	Major fleets involved
Retained catches:		
Historical catch-and-effort information	Driftnet fisheries operated on the high seas	Pakistan and Iran
	Gillnet and longline fisheries operated on the high seas	Sri Lanka
	Deep-freezing longline fisheries for tunas	Japan, Taiwan,China, and South Korea
	Fresh-tuna longline fisheries for tunas	Indonesia, Taiwan,China, and Malaysia
	Longline fisheries targeting swordfish	EU-Spain
Historical catch level estimates by species and year	Fresh-tuna and/or deep-freezing longliners	Taiwan,China, Indonesia, Japan, South Korea
	Driftnet fisheries operated on the high seas	Pakistan and Iran
	Fisheries operated in coastal waters	India, Indonesia, Madagascar, Sri Lanka, and Yemen
	Purse seine	EU (before 2003 and after 2007) and the Seychelles (all time period)
Discard levels:		
Estimates of historical discard levels for sharks by species and year	All industrial longline fisheries	EU, Japan, Taiwan,China, Indonesia and South Korea
	All industrial purse seine fisheries	EU (excluding 2003-07), Iran, Japan, Seychelles, and Thailand
	All gillnet fisheries operated on the high seas	Pakistan, Iran, and Sri Lanka
Size frequency data:		
Size frequency data for the most commonly caught shark species	All industrial fleets, notably longline and driftnet fleets	EU, Malaysia, Indonesia Pakistan, Iran, and Sri Lanka
All historical size frequency data available for the most commonly caught shark species data available	All industrial fleets, notably longline and driftnet fleets	Japan, Taiwan,China, and South Korea Pakistan, Iran, and Sri Lanka
Biological data:		
Data 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	Taiwan,China, Indonesia, and Japan
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.	All industrial longline fisheries	Longline: Taiwan,China, Japan, Indonesia, Malaysia, Philippines, EU-Spain, EU-Portugal, Seychelles and South Korea
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.		
Research on the effect of seabird bycatch mitigation measures.		
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.	All industrial longline fisheries	Taiwan,China, India, Indonesia, Japan, Republic of Korea, Malaysia, Oman, Philippines, and Seychelles
	All gillnet fisheries operated on the high seas	Pakistan, Sri Lanka, and Iran
	All gillnet fisheries operated in coastal waters	India, Indonesia, Oman and Yemen
	Industrial purse seine fleets	EU (before 2003), Seychelles, Iran, Japan and Thailand
MARINE MAMMALS		



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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
Provision of data collected through observer programmes, as specified by the Commission.	Gillnet fisheries on the high seas	Iran, Pakistan, Sri Lanka