

*Annex 11****REPORT OF THE SHARK TASKFORCE GROUP MEETING***

International Scientific Committee for Tuna and Tuna-like Species  
in the North Pacific Ocean

15 July 2010  
Victoria, Canada

**1.0 Welcome and Introduction**

A one day meeting of the International Scientific Committee – Shark Task Force Group (STFG) was held on July 15, 2010, in advance of the 10<sup>th</sup> Meeting of the ISC Plenary in Victoria, Canada.

Nineteen (19) participants from Japan, the United States, and Korea and a participant from the WCPFC attended the meeting. One participant from the IATTC attended remotely by conference line (Attachment 1). SPC sent its regrets for not being able to attend the meeting.

The STFG Chair, Kotaro Yokawa, welcomed all participants to the meeting and provided background on the formation of the STFG and the objectives of the meeting.

In 2008, the WCPFC agreed to prepare stock assessments of key pelagic sharks (blue, oceanic whitetip, short- and longfin mako, silky, and bigeye, common, and pelagic thresher sharks). In 2009, the scientific committee of WCPFC (SC) reviewed the available information of these key shark species at its 5<sup>th</sup> regular session, including results of a north Pacific blue shark stock assessment that included data through 2002. After reviewing the information from the SC, the Northern Committee of WCPFC (NC) requested that the ISC evaluate the possibility of conducting stock assessments of the key shark species designated by WCPFC in the north Pacific, especially blue and shortfin mako sharks. In response, the ISC established a STFG to undertake the tasks entrusted by the NC.

The objectives of the Shark Task Force Group meeting were:

- 1) To review the availability of catch, effort and size data by species for sharks caught in tuna and tuna-like fisheries of the North Pacific.
- 2) To review current research that may provide information on relevant biological parameters (e.g. growth, maturity, fecundity, tagging, fishery-independent surveys, etc.) by each nation for use in shark stock assessments.

- 3) Decide on a list of shark species, including the ones already provided by the WCPFC and NC, that may be considered for shark stock assessments under the ISC.
- 4) For the list of species, designate each species into one of three categories:
  - Category 1)* The ones whose stock assessments should be conducted by ISC
  - Category 2)* The ones whose stock assessments should be conducted by IATTC or WCPFC SC but upon which ISC will offer some scientific support; ISC will collaborate with IATTC or WCPFC SC to conduct the stock assessments.
  - Category 3)* The ones whose stock assessments have recently been or are planned to be conducted by IATTC or WCPFC.
- 5) Provide information to the ISC Plenary regarding the ISC's role in shark assessments to help make decisions regarding the ISC scientific WGs workloads.

Three documents were distributed to the working group (Attachment 2).

## **2.0 Adoption of Agenda**

A provisional agenda was circulated prior to the meeting for comments. A new item 4.1 was added "Review of research activity". It was agreed to modify Section 6.1 to "Produce a list of stocks to consider for stock assessments and selection of priority stock(s) for ISC shark stock assessments." This item preceded categorization of stocks, so became section 5. Sections 6.2 and 6.3 were removed from the agenda because the STFG recognized that without direction from the ISC Plenary about whether the ISC will move forward on shark assessments, and without a newly formed group to conduct assessments, the schedule and assignments could not be made. The revised agenda was adopted for the meeting (Attachment 3).

## **3.0 Appointment of Rapporteurs**

Dean Courtney and Suzy Kohin were assigned as rapporteurs.

## **4.0 Review of information about key shark species captured in the North Pacific**

### **4.1 Review of research activity**

#### **USA**

Suzy Kohin and Dean Courtney provided an oral presentation on research being conducted by the National Marine Fisheries Service (NMFS) on sharks in the Pacific. Annual abundance surveys are conducted in the Southern California nursery areas for common thresher, shortfin mako and blue sharks. Conventional, electronic and oxytetracycline (OTC) tagging studies are being conducted on a number of species including shortfin mako, blue shark, threshers, silky and oceanic whitetip sharks. For age validation, more than 50 of each shortfin mako, blue and common thresher shark OTC-tagged vertebrae are being processed and in combination with size data from fisheries and surveys, will provide growth models for these species. Population genetic studies are being conducted on several species to determine stock structure. Diet studies are

providing interesting insights into inter-annual differences in prey availability linked with climate and oceanographic effects. Shark bycatch studies include research on using shark deterrents on longlines, assessing post-release survival, and measuring shark and target species capture rates with circle hooks. Statistical models are being developed to determine discard rates from logbooks and standardize CPUE for the various fisheries. In addition, research is being conducted to accurately categorize the occurrence of pelagic shark species captured in U.S. fisheries, and to determine the vulnerability of pelagic shark species to U.S. fisheries based on analysis of shark productivity and susceptibility to fishing

## **Japan**

Hideki Nakano provided an oral presentation on shark research being conducted at the National Research Institute of Far Seas Fisheries since the early 1990s. Regarding biological studies, growth equations for blue, shortfin mako, silky and oceanic whitetip sharks were developed and published. The distribution and reproductive parameters of pelagic shark species were also investigated. For research on migration and movement of sharks, tagging studies have been conducted since the late 1990s. In addition, research with pop-up and satellite tags was conducted for whale sharks in the southern part of Japan. To monitor stock status of pelagic sharks, catch and effort data have been collected and examined; analyses show fluctuations in catch rates by pelagic longline gears in terms of standardized CPUE analysis using GLM modeling.

## **Discussion**

The STFG discussed the need to determine the stock distribution in order to help prioritize assessments and also help parameterize spatial structure for stock assessments if the ISC decides to move forward on assessments. Genetics and tagging may be valuable for stock structure determination. The STFG was impressed by the extent of research being conducted on sharks in the USA and Japan and acknowledged that the information may provide useful data for stock assessments.

**4.2 - 4.4** Review availability of annual catch/discard time series, catch/discard and effort, size frequency and other biological data.

## **USA**

Dean Courtney and Suzy Kohin provided an oral presentation on the availability of U.S. shark fishery catch, logbook and size data. Annual shark landings data from the U.S. is available by species by fishery since 1981. The major U.S. fisheries with shark catch are the shallow-set swordfish fishery, the deep-set tuna fishery, and the California based drift gillnet fishery. With the exception of the drift gillnet fishery that targeted common thresher sharks from 1979 through the 1980s, sharks are not targeted. Nonetheless, several species have market value and are landed. The species caught in greatest numbers for all fisheries combined include blue, bigeye thresher, shortfin mako, silky, oceanic whitetip and common thresher sharks. Logbook data for catch and effort are available

since 1981 for the drift gillnet fishery and since 1990 for the longline fisheries. Observer programs have been in place for the drift gillnet fishery (current coverage 20%) and the California-based longline fishery (current coverage 100%) since 1990, and for the Hawaii-based longline fisheries since 1995 (current coverage 20% for tuna trips and 100% for swordfish trips) providing fishery catch, discard, size and sex data for sharks. Regulatory changes that may have affected fishery effort and catch and verification of logbook data with observer and market data will need to be considered when developing CPUE indices. Representative size frequency data are available for common thresher, shortfin mako and blue sharks from fisheries observers and port sampling programs.

## Japan

Hideki Nakano provided an oral presentation on the availability of Japan shark fishery catch, logbook and size data. The Japanese started to collect catch statistics of pelagic sharks by species in 1994 with the voluntary support of fishermen. The longline fisheries are estimated to consist of the greatest catch followed by the trolling and driftnet fisheries. Annual landings have been roughly 25,000 to 35,000 mt since 1992. The species landed in greatest numbers are blue, salmon and shortfin mako sharks. Logbook data of longline fishing activity submitted voluntarily by fishermen are available for shark catch and effort since 1952 as combined shark catch and it was further broken down to species level in 1994. Additional catch composition, catch/effort, and size data are available from fisheries High School training vessels and the surveys conducted by Japan Marine Resources Research Center (JAMARC) between the late 1970s through the mid 1990s. A size sampling program at fisheries ports for shortfin mako was initiated in 2005 and for blue sharks in 2009. A few problems with the logbook data may be due to ambiguity with the common names of sharks reported by fishermen. For example the common names for salmon and pelagic thresher sharks (translated to “mouse” and “rat” in English) are similar. Filtering of the logbook data has been conducted based on the reporting rates consisting mainly of blue sharks catch that are retained versus the lower reporting rates consisting mainly of shortfin mako catch and blue sharks are discarded, using the approximate species catch composition of roughly 80% blue sharks. A CPUE index from the filtered logbook data was used in a joint NRIFS/NMFS stock assessment of blue sharks.

Kotaro Yokawa presented paper **ISC/10/STF-1/01**: Outline of the catch and effort data of main shark species collected by the volunteer base from Japanese offshore and distant-water longliners in the north Pacific. National Research Institute of Far Seas Fisheries, with the support by Fisheries Agency of Japan, has been collecting catch and effort data of main shark species from Japanese longliners in the North Pacific on a volunteer basis. The format of the data is roughly the same as the Japanese log-books for tuna longline fisheries. The data collection for blue shark, mako shark and porbeagle (salmon shark) started in 1994, and oceanic whitetip shark and thresher sharks in 1999. The basic analysis of these data indicated that the coverage of this volunteer based catch and effort data was larger than 70% of the total number of active vessels throughout the period of data collection. This indicates that these data may contribute to the stock assessment of recorded shark stocks in the North Pacific. Though the collected catch data has

information of number and processed weight, the style of processing shark seems to vary by species, area, season or vessels. Thus, the estimation of total catch should need some analysis of the data. In addition, these shark data contain only information on retained shark catch, and this may affect the estimation of historical trends of abundances of sharks.

## **Korea**

Jae-Bong Lee and Joon-Taek Yoo reported on Korea shark landings data. Since 1971 data are available for total shark catch not identified by species level for the Korea distant water longline fishery.

## **IATTC**

On behalf of Cleridy Lennert-Cody, K. Yokawa provided a summary of **ISC/10/STF-1/02**: IATTC Informal Document to the ISC Shark Task Force group meeting, July 15<sup>th</sup>, 2010 Victoria Canada. Under the Antigua Convention, which comes into effect in August, 2010, the IATTC staff is obligated to provide management advice on shark populations found in the Eastern Pacific Ocean (EPO). Assessment efforts have already begun on silky and oceanic whitetip sharks. A technical workshop on sharks will be held August 30, 2010, and invitations have been sent to IATTC member States and Cooperating non-parties and others, including members of the WCPFC. In the EPO, sharks are taken in the purse-seine and longline fisheries and in some coastal fisheries. IATTC observers onboard large purse-seine vessels (>363 mt) have been collecting relevant data since 1993. A summary of available data indicates that both catch and effort data are available for large purse-seine vessels since 1993. Effort data for small purse-seine vessels (<364 mt) and pelagic longline vessels are available since 1993. Since 2005, information on shark size frequency and release condition are available for the large purse-seine vessels. Given its mandate under the Antigua Convention, the IATTC intends to proceed with stock assessments on silky shark and oceanic whitetip shark stocks in the EPO. Also, IATTC staff recommends that any decisions about the assessment of other shark stocks in the EPO be made in consultation with the IATTC. The IATTC looks forward to collaborating with the ISC and the SPC in many areas of research and analysis.

## **Discussion**

The STFG discussed all the data available for U.S., Japan, Korea and IATTC fisheries and noted that quite a lot of information is available for several species, specifically shortfin mako and blue shark.

### **5.0 Development of work plan: Produce a list of stocks to consider for stock assessments and selection of priority stock(s) for ISC shark stock assessments**

The STFG prepared a list of key shark species captured in the North Pacific fisheries to be assigned into 4 categories: (1) Stocks whose stock assessments could be conducted under

leadership of the ISC; (2) Stocks whose stock assessments are better conducted with ISC collaboration under leadership of an RFMO; (3) Stocks whose stock assessments are better conducted under leadership of an RFMO without ISC collaboration; (4) Stocks for which there is currently insufficient information. The STFG expressed interest in monitoring Category 4 species for future consideration. In making the category recommendations, STFG members considered staffing, data availability, workload, and ability of members to sustain involvement in ISC shark assessment while meeting their other obligations to the ISC and avoiding duplication of assessment by collaboration with RFMOs. In this regard, a table of pros and cons related to ISC involvement in shark assessments was circulated to the STFG for consideration during the meeting (Attachment 4).

### **6.0 Categorization of stocks of key shark species captured in the North Pacific**

In categorizing species for shark assessments, the STFG considered both the WCPFC list of key species and the NC request to focus on blue shark *Prionace glauca* and shortfin mako shark *Isurus oxyrinchus* in the North Pacific, as well as considering a few additional species that are caught in north Pacific fisheries for tuna and tuna-like species in relatively high numbers. The results of the categorization are shown in the following table.

Species	(1) Stocks whose stock assessments could be conducted under leadership of the ISC	(2) Stocks whose stock assessments are better conducted with ISC collaboration under leadership of an RFMO	(3) Stocks whose stock assessments are better conducted under leadership of an RFMO without ISC collaboration	(4) Stocks for which there is currently insufficient information
Blue shark <i>Prionace glauca</i>	<b>Category 1</b>			
Shortfin mako <i>Isurus oxyrinchus</i>	<b>Category 1</b>			
Bigeye thresher <i>Alopias superciliosus</i>	<b>Category 1 or 2</b>			
Pelagic thresher <i>A. pelagicus</i>	<b>Category 1 or 2</b>			
Silky shark <i>C. falciiformis</i>		<b>Category 2</b>		
Oceanic whitetip <i>Carcharhinus longimanus</i>		<b>Category 2</b>		
Hammerhead Sharks <i>Sphyrna sp.</i>		<b>Category 2 or 3</b>		
(Common) Thresher shark <i>A. vulpinus</i>			<b>Category 3</b>	
Longfin mako <i>I. paucus</i>				<b>Category 4</b>
Salmon shark <i>Lamna ditropis</i>				<b>Category 4</b>
Crocodile shark <i>Pseudocarcharias kamoharai</i>				<b>Category 4</b>

## **7.0 Other matters**

None

## **8.0 Clearing of report**

Content of the draft report was provisionally accepted at 5:45 on July 15. A revised draft will be circulated by e-mail to allow participants a final review. The Final Report will be prepared by Monday, July 19.

## **9.0 Adjournment**

The STFG Chair thanked all the participants and the meeting was adjourned at 5:45.



## Attachment 1. List of Participants

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## **Attachment 2.**

### **Shark Task Force Meeting Papers**

#### **WORKING PAPERS**

- ISC/10/STF-1/01                      Outline of the catch and effort data of main shark species collected by the volunteer base from Japanese offshore and distant-water longliners in the north Pacific  
Kotaro Yokawa ([yokawa@fra.affrc.go.jp](mailto:yokawa@fra.affrc.go.jp))
- ISC/10/STF-1/02                      IATTC Informal Document to the ISC Shark Task Force group meeting, July 15<sup>th</sup>, 2010 Victoria Canada

#### **INFORMATIONAL DOCUMENT**

- ATTACHMENT 4                      Table of pros and cons related to ISC involvement in shark assessments

## **Attachment 3.**

### **Adopted Agenda**

#### **INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE SPECIES IN THE NORTH PACIFIC (ISC)**

#### **ISC SHARK TASK FORCE WORKSHOP**

**July 15, 2010**

**Victoria, B.C., Canada**

- 1. Welcome and Introduction**
- 2. Adoption of agenda**
- 3. Appointment of rapporteurs**
- 4. Review of information about key shark species captured in the North Pacific**
  - 4.1. Review of research activity
  - 4.2. Review availability of annual catch/discard time series
  - 4.3. Review availability of catch/discard and effort data
  - 4.4. Review availability of size frequency data and other biological information
- 5. Development of work plan**
  - 5.1. Produce a list of stocks to consider for stock assessments and selection of priority stock(s) for ISC shark stock assessments.
- 6. Categorization of stocks of key shark species captured in the North Pacific**
  - 6.1. Stocks whose stock assessments should be conducted by ISC
  - 6.2. Stocks whose stock assessments should be conducted by other RFMO with ISC support/collaboration.
  - 6.3. Stocks whose stock assessments should be conducted by other RFMO.
- 7. Other matters**
- 8. Clearing of report**
- 9. Adjournment**

## Attachment 4.

### Pros and Cons Table

Table of pros and cons related to ISC involvement in shark assessments.

Shark Assessment	(1) ISC lead in conducting the stock assessment	(2) ISC cooperate with other organizations beginning to address the need and let them lead	(3) ISC do nothing because other RFMOs are meeting the need fully.
Staff	Two people will be needed from each member nation (1 lead, 1 backup)	To be determined	To be determined; depends on member countries
Data Availability	Most catch and effort data may already be available directly from ISC member countries	Data compiled cooperatively by member countries of ISC and RFMOs?	Data provided by an RFMO.... But each member nation will still be required to compile shark data separately for RFMOs
Work load	ISC Travel (1 or 2 meetings per year) ISC data (1 staff per country, Full time/Part time) compiling fishery data, gathering estimates of biological parameters, conducting research to fill gaps, workshops, etc.; costs above member contribution will be listed for each, as appropriate.	Same ISC Travel? (1 or 2 meetings per year)  Less staff time required to compile ISC data because some species will be the responsibility of other RFMOs?	No ISC Travel No ISC data required ... But each member nation will still be required to compile shark data separately for RFMOs
Will need another meeting?	Yes, Develop priority list of species for stock assessment within ISC (Priority species will be the species with available data for assessment)	Yes? Will still need to develop a priority list of species for stock assessment in cooperation with other RFMOs.... But a cooperative list may contain species that are not a priority for the ISC...	No  But each member nation will still be required to compile shark data separately for RFMOs
Can ALL members sustain involvement	Unknown	Unknown	Yes