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**Elaboration of technical details regarding shark targeting and shark management  
plans for CMM 2014-05**

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**WCPFC-SC12-2016/EB-WP-05**

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## Abstract

One of the WCPFC's conservation and management measures requires longline fisheries that target sharks to develop a management plan (CMM 2014-05). The measure then tasks the Commission with reviewing the implementation and effectiveness of those management plans. In order to fully operationalize this CMM it is necessary for the Commission to further elaborate some of its technical elements. For this reason, WCPFC12 requested the Secretariat prepare a paper for the consideration of the Scientific Committee and the Technical and Compliance Committee proposing i) a range of possible definitions for longline fisheries targeting sharks, ii) a list of candidate elements to be considered for the development of shark management plans; and iii) a list of elements to be considered for the evaluation of these shark management plans. This paper presents a number of technical and management considerations on these three topics for discussion.

## 1 Introduction

The Western and Central Pacific Fisheries Commission (WCPFC) adopted CMM 2014-05 concerning sharks and longline fisheries effective as of 1 July 2015. The measure has two parts:

- Paragraph 1 requires that CCMs ensure that their vessels either do not use wire branchlines and leaders, or do not use shark lines (branchlines running directly off the longline floats).
- Paragraph 2 requires that CCMs with “fisheries that target sharks in association with WCPFC fisheries” develop and submit management plans to be reviewed by the Scientific Committee and the Commission.

While it is possible that the first part concerning gear restrictions requires a choice that might apply to all vessels within a CCM's fleet or on a vessel-by-vessel basis (Harley & Pilling 2016), the language of the second part concerning shark management plans appears to require action by CCMs on behalf of the portion of their fishing fleet that is targeting sharks. As of the Eleventh Meeting of the WCPFC Scientific Committee (SC11) two members and cooperating non-members (CCMs) had submitted shark fishery management plans: Japan (Government of Japan 2015) and Chinese Taipei (Chinese Taipei Government 2015). These management plans are attached as Annexes A and B.

In attempting to review these submissions, SC11 grappled with questions regarding whether all “fisheries that target sharks in association with WCPFC fisheries” had developed and submitted management plans, whether the contents of the submitted management plans are sufficient, and what criteria the Commission should apply to determine sufficiency (see SC11 Summary Report, paras. 577-581). TCC11 expressed similar concerns (see TCC11 Summary Report (paras. 463-465)). In considering the resulting recommendations of SC11 and TCC11 to develop further guidance for the operationalization of CMM 2014-05, WCPFC12 tasked the Secretariat with preparing a paper on this issue. The scope of the assigned task was agreed as an attachment to the WCPFC12 Summary Report (Annex C (this paper)).

On 13 April 2016, WCPFC Circular 2016/13 requested CCMs to identify any models within their national programmes, or provide other comments or advice, which could inform the development of guidance for CMM 2014-05. Recognizing that the task is less of a technical exercise than an elaboration of policy, the Secretariat was pleased to receive input from the Forum Fisheries Agency (FFA) explaining some of the background to their tabling of the proposal leading to CMM 2014-05 (Annex D). Two salient points are understood from the FFA input. First, the measure was designed to minimize shark interactions with longline fisheries by banning both wire leaders and shark lines, but during discussion of the proposal a compromise was reached allowing CCMs to ban one or the other. Second, the measure was designed to require that fisheries specifically targeting sharks have management plans to ensure that

exploitation rates are sustainable. However, it was not intended that these management plans present an unreasonable burden on flag CCMs.

The remainder of this paper is organized around the three components of the requested guidance:

- Propose a range of possible definitions for "fisheries that target sharks in association with WCPFC fisheries" (with reference to CMM 2014-05, para. 2);
- Propose a list of candidate elements to be considered for the development of management plans for these fisheries (with reference to CMM 2014-05, para.2); and
- Provide a list of elements to be considered for the evaluation of these management plans (with reference to CMM 2014-05, para.3).

The recommendations provided below are based on a literature review and represent the considered advice of the author. The Commission has identified the need for further guidance to operationalize CMM 2014-05 and it is for the Commission to decide what that guidance should contain.

## **2 Definition of Fisheries that Target Sharks**

### *2.1 Intention-based*

In the vernacular, "to target" means "to select as an object of attention or attack". In New Zealand regulations a target species is defined as "the main or major species or class of fish that the permit holder was attempting to take by use of that fishing method" (New Zealand Legislation 2001). Both of these definitions require a demonstrable intention to take, and since the Commission has no independent means of verifying intention, an intention-based definition of targeting can only be applied through self-declaration. It then follows that if the Commission applies an intention-based definition of targeting and only requires shark management plans for those fleets targeting sharks, only those fleets that self-identify as shark-targeting fleets would need to submit management plans. Therefore, under an intention-based definition the two shark management plans submitted by Japan and Chinese Taipei are the only shark management plans required.

### *2.2 Gear-based*

There are other ways of defining shark targeting that do not rely on establishing the intention of the fishing operation. Analysis by the Pacific Community (SPC) identified that the use of wire leaders and shark lines results in higher shark catches (Caneco et al. 2014, Harley et al. 2015) and appears to suggest that use of these or other gear characteristics can be taken as evidence of shark targeting (SPC 2014). However, some CCMs have stated that their fleets use these gear types but are not targeting sharks. For example, wire leaders may be deployed in order to allow line weighting mitigation for seabirds, and so-called "shark lines" also catch large numbers of mahi mahi (SPC 2014). It is noted that CMM 2014-05 places restrictions on the use of wire leaders and shark lines (by requiring a choice of one or the other), but stops short of establishing a requisite link between use of this gear and shark targeting. The FFA's input (Annex D) makes clear that a gear-based approach to defining shark targeting was not intended at the time the CMM was developed.

### *2.3 Catch-based*

Another way of defining shark targeting without having to establish an intention to do so is to apply criteria to catch data. Since each fleet is required to submit logsheet data for sharks under the WCPFC's Scientific Data to be Provided to the Commission (WCPFC 2012), a certain percentage or amount of shark catch could be used as means of defining whether fleets are

targeting sharks. Although this approach may be appealingly simple, there are a number of potential complications.

First, the WCPFC reporting requirement for sharks is only for retained catches; although discards “should” be reported, this is not mandatory. Using catch-based criteria to define targeting when reporting of discards is optional could create a double standard amongst CCMs. It could also create an incentive for under-reporting for those fleets that do not wish to develop shark management plans.

Second, as the FFA comments suggest (Annex D), if catch criteria are to be used to define targeting it is necessary to decide how to apply them across fleets and over time. For example, at one end of the spectrum a quantity or a percentage of sharks (presumably all shark species combined) in the catch for all of each CCM’s flagged vessels in the most recent reporting year could trigger the need for a shark management plan. At the other end of the spectrum, and as suggested by FFA, the criteria could be applied vessel-by-vessel at the trip level. It would also be necessary to decide whether each CCM would perform these calculations, and/or whether there would be any verification by the Commission through checking against submitted logsheet data. Depending on how the criteria are defined and applied the amount of work involved in the calculations may be non-trivial.

Third, and perhaps most importantly, there is no clear technical basis for selecting the thresholds for catch-based criteria. For Japan’s Kesennuma-based offshore longline fleet, for which an annual catch limit of 7,000 t of blue shark and 600 t of shortfin mako shark is proposed, sharks are the primary target (Government of Japan 2015 (Annex A)). Thus it is expected that sharks comprise the majority of the catch (>50%) in this fishery. For Chinese Taipei’s WCPO longline fleet, for which a total annual catch limit of 17,000 t is proposed, targeting sharks is assumed when shark catch accounts for >50% of the total catch in a fishing trip (Chinese Taipei Government 2015 (Annex B)). In contrast, the European Union reports that in 2014 five Spanish vessels fishing in the South Pacific were targeting swordfish even though the catch of these vessels is reported as 53% sharks (1,917 t) and only 47% swordfish (1,680 t; European Union 2015a)<sup>1</sup>. FFA suggests that trips in which sharks comprise more than 25% of the landed catch weight could be considered shark targeting trips (Annex D).

#### 2.4 *Economic-based*

In some fisheries it may be possible to define target species based on the total revenue gained from each component of the catch. This approach would be similar to the catch-based approach introduced above in that it is quantitative but potentially subjective in setting a threshold that would apply across all types of fishing operations. Even more problematically, fleet-specific economic data are not submitted to or otherwise easily available to the Commission for calculation or verification.

#### 2.5 *Habitat-based*

A final type of approach to defining fisheries targeting sharks is suggested by FFA as fishing in a shark “spawning aggregation”, “feeding aggregation” or “migration path” (Annex D). Given that sharks do not spawn, it is assumed that the first type of habitat would include mating, parturition (pupping) or nursery areas. For most shark species the locations of these areas are not well known and in the case of the blue shark (*Prionace glauca*) these reproductively important habitats cover vast areas (Nakano and Stevens 2008; Figure 1). Sharks are generally opportunistic feeders; while certain species may have preferred feeding areas it is not clear where these are and whether they vary in space or time. Finally, shark movement information for 60 species from approximately 200 studies was compiled in 2011 by SPC into the Shark

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<sup>1</sup> A separate report for a single Portuguese vessel fishing in the South Pacific in 2014 and characterized as fishing for tuna and tuna-like species details a catch of 144 t of blue shark and 56 t of shortfin mako shark which amounts to 43% of the 461 t of total reported catch reported for that vessel (European Union 2015b).

Tagging Information System (STAGIS) but shark migration routes in the region are still not well understood (Clarke et al. 2011). For these reasons, it seems practically impossible on the basis of existing information to map the areas that constitute important shark habitat. Furthermore, given that these areas may be very large and potentially encompass key tuna fishing grounds, it would be unreasonable to consider that longline fishing in such areas is necessarily targeting sharks.

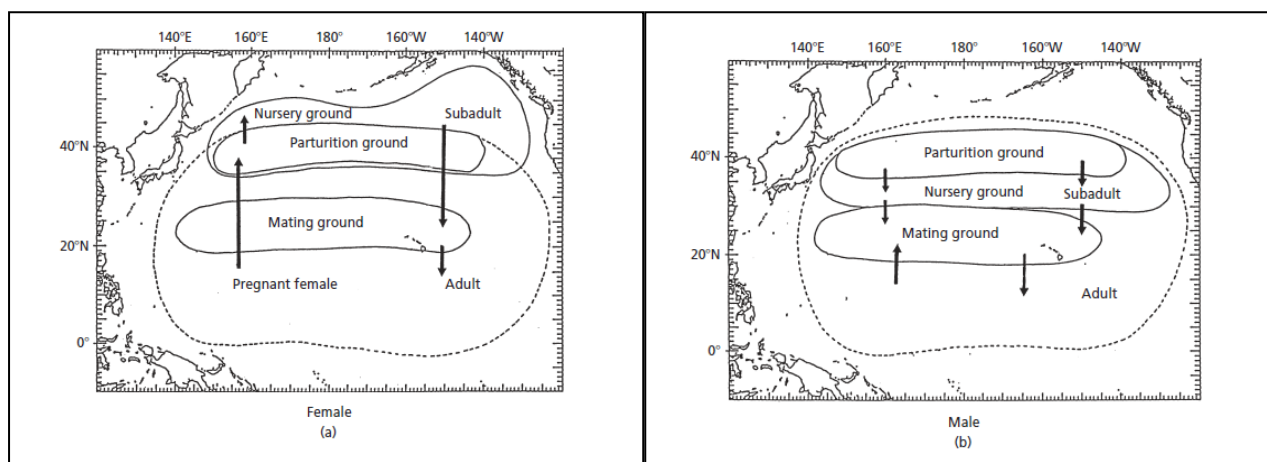


Figure 1. Blue shark mating, parturition and nursery habitat in the North Pacific (Nakano and Stevens 2008).

## 2.6 Recommendation

After considering the options above for defining shark targeting based on intention, gear, catch criteria, economic criteria or area of shark habitat, there is no clear technical basis for a preference among definitions. There are also significant practical difficulties associated with compiling the information necessary to apply or verify which longline fisheries are targeting sharks under some of the options considered.

Despite the lack of an agreed definition of shark targeting, to date two CCMs (Chinese Taipei and Japan) have self-identified some of their longline fishing vessels as targeting sharks based on their own criteria. Both have developed and submitted shark management plans with one setting an annual catch limit of 17,000 t (all species combined) for its fleet and the other setting an annual catch limit of 7,000 t for blue shark and 600 t for shortfin mako shark (Annexes A and B). FFA considers that shark management plans are a major step forward for the WCPFC and one that should ensure exploitation rates are at sustainable levels (Annex D).

One option for the Commission is to remain silent on a definition of shark targeting and continue to allow CCMs to self-identify relevant longline fleets and submit management plans for them. This has already resulted in the submission of two shark management plans and does not preclude other longline fleets (e.g. those which do not consider themselves to be targeting sharks) to voluntarily submit shark management plans.

Another option, and one that better embodies the principles and measures for conservation and management contained in Article 5 of the WCPF Convention, would be to require that all longline fleets catching sharks submit a shark management plan. In accordance with the input from FFA, and as will be outlined below, development of shark management plans should not impose a burden on CCMs. Most importantly, from the point of view of sustainable utilization, a fleet need not be targeting sharks, or even catching large quantities, to be fishing unsustainably. In other words, a large number of fleets catching small quantities of overfished sharks may be as much in need of management plans as a small number of fleets catching large quantities of overfished sharks. While the format of a shark management plan would not vary, it would be possible to tier the shark management plans based on each CCM's reported quantity of shark catch for 2012 (the year with the highest shark catch on record). Specifically, those CCMs

reporting (notionally) >100,000 sharks would need to submit a shark management plan by 1 July 2017, those CCMs reporting <100,000 sharks but >2,000 sharks would need to submit by 1 July 2018, and those CCMs reporting <2000 sharks would have until 1 July 2019 to submit a plan<sup>2</sup>. Expectations for the level of detail provided in the plans would also be tiered such that those CCMs catching larger quantities would be expected to provide more information whereas those catching few or no sharks could submit a simple statement. This option has the advantage of giving all CCMs a role and responsibility for sustainable shark management as well as increasing the Commission's understanding of the longline fisheries catching sharks and their national management arrangements. As outlined below the paperwork burden of preparing a shark management plan is designed to be minimal. To further lighten the burden, the Commission could consider applying the capacity assistance provisions of CMM 2015-07, paras. 5-7 to the preparation of shark management plans for small island developing states (SIDS), Participating Territories, Indonesia and the Philippines.

### 3 Contents of a Shark Management Plan

The preceding discussion has highlighted the need for a shared responsibility for managing shark catches in the WCPO. This implies that shark management plans should be developed by all longline fleets catching sharks with adjustable level of detail and timelines for submission based on the level of catch. If the responsibility for developing these plans is to be shared more widely, then it is important to consider FFA's view that development of shark management plans should not present an unreasonable burden on CCMs (Annex D). This "less is more" approach has guided the following discussion of the required contents of the plans.

In tasking the Secretariat to prepare this paper the Commission already provided the minimum requirements for shark management plans as follows (Annex C):

- Scope of the plan regarding stocks, fishery (vessels) and area;
- Statement regarding the authorization to fish, e.g. license;
- Total Allowable Catch (TAC), or other measure (e.g. effort or capacity limit), to limit the catch of each species to acceptable levels with reference to the most recent scientific advice and any available reference points; and
- Implementation of mitigation measures, including no-retention and safe release practices, for species of conservation concern.

Based the Commission's suggested minimum requirements, a reading of the two shark management plans submitted thus far, and a literature review of international and national management plan guidance, the following requisite shark management plan components are proposed:

- **Species:** List the shark species and stocks (if known) covered by the plan
- **Fleet:** Describe the fleet covered by the plan:
  - Enumerate the vessels catching shark and indicate whether or not they appear on the WCPFC Record of Fishing Vessels
  - Include a map indicating the coordinates of the fishing grounds for the fleet
  - Quantify the fishing effort of the fleet (in annual raised hooks fished if possible)
  - Describe the licensing arrangements applicable to the fleet and note whether effort is controlled (if so, in what way)
- **Catches:** Describe the catch arrangements of the fleet for the shark species covered by the shark management plan:

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<sup>2</sup> Logsheet-based shark catch tallies for 2012 (based on data received from SPC and subject to their confirmation) suggest that CCMs would be tiered as follows: >100,000 sharks – Chinese Taipei, Indonesia, Japan, New Zealand, Spain and Vietnam; 2,000 – 100,000 sharks – Australia, China, Cook Islands, Fiji, French Polynesia, Republic of Korea, Papua New Guinea, Philippines, United States and Vanuatu; <2,000 sharks – all other CCMs

- Provide a table showing the retained catches by the fleet of the sharks covered for the last five years (by species if possible)
- If discards are recorded, show the quantities discarded by species and the total catch (retained + discarded)
- Describe the mechanism for limiting the catch of sharks, by species if applicable (e.g. regulation, license, no-retention, etc), and the arrangements for monitoring, verification and enforcement
- Describe the catch limits set (e.g. X tonnes of blue shark, Y tonnes of shortfin mako shark) and provide the rationale for the limit with reference to the latest available stock assessments and reference points
- If there are any shark species allowed to be retained but not subject to catch limits, please identify them and provide a rationale
- **Mitigation:** Describe operational practices that avoid or reduce mortality to non-retained species
  - Describe the implementation arrangements for no-retention and safe release of oceanic whitetip (CMM 2011-04) and silky (CMM 2013-08) sharks, including safe release guidelines
  - Describe implementation arrangements for the WCPFC full utilization policy (CMM 2010-07). Specifically, if fins are allowed to be removed from carcasses at sea, describe what arrangements are in place to demonstrate that finning is not occurring
  - Identify whether shark lines or wire leaders have been prohibited (by fleet or vessel per CMM 2014-05)
  - List any other shark mitigation measures, e.g. size limits, closed areas or seasons, gear restrictions
- **Management:** Describe how the plan is implemented and reviewed
  - List the dates over which the plan applies
  - Describe how and when the plan is reviewed and reported against, including any linkages with monitoring, control and surveillance (MCS) systems
  - Describe how and when the plan is revised/renewed

A template for providing this information is shown in Annex E. This template format is proposed to suggest that most of the information can be provided in the form of numbers and short sentences, and it is not necessary to prepare long passages of text. Most of the information should be compiled by CCMs under existing data and compliance reporting processes and thus should not be burdensome to gather. It is noted that both of the shark management plans submitted to date contain most of the information suggested. Some of the substantial gaps in the current submissions relate to catch and discard data by species, and a rationale for setting the catch limits with reference to available stock assessments.

#### 4 Criteria for Evaluating Shark Management Plans

Under CMM 2014-05, paragraph 2, submitted shark management plans shall be reviewed by the WCPFC SC and then discussed at the annual Commission meeting. As the measure does not articulate any specific criteria which should be used in the SC's evaluation, the Commission tasked the Secretariat with developing a list of elements to be considered. The Commission's initial suggestions included:

- Data requirements in line with *Scientific Data to be provided to the WCPFC*
- Quantifiable indicators for monitoring implementation
- Provisions for periodic review
- Scientific basis of the management measures applied
- Extent to which WCPFC shark CMMs are reflected in the shark management plans

Of the elements listed above, the third and fourth are considered integral to the quality of the shark management plan. For this reason specific requests for the management plan's review

provisions and the scientific basis for setting the catch limits have been included in the recommended shark management plan contents above. If the shark management plan will be evaluated based on whether it provides certain information, then it is important that that information is included in the required contents list.

It is considered that evaluating the shark management plans against the *Scientific Data to be provided to the Commission* and against the shark CMMs is not necessary as this type of review is conducted by TCC under the Compliance Monitoring Scheme (CMM 2015-07). With regard to SC evaluating shark management plans on the basis of whether they contain quantifiable indicators for monitoring implementation, this seems somewhat premature and inconsistent with other WCPFC policies such as those for FAD management plans and catch retention plans. The selection of appropriate indicators for monitoring and evaluation can be a complex exercise and the quality of shark management plans may have little to do with whether such indicators are formulated and included.

As the requirement to submit shark management plans will be new to most WCPFC CCMs, and the development of such plans represents an accomplishment in its own right, it is recommended, in concurrence with FFA's input (Annex D), that the initial evaluation of these plans be left flexible. Similar to the WCPFC's Compliance Monitoring Review which after several years in operation continues to evolve, the aim should be encourage incremental improvement while expanding the information available to the Commission regarding national management arrangements. In this regard it is recommended that submitted shark management plans be evaluated for i) completeness and ii) quality of information against each of the required subheadings in the plan, i.e. species, fleet, catches, mitigation and management. SC may then either recommend the plan to the Commission as is; recommend the plan to the Commission with revision; or not recommend the plan to the Commission. Where revisions are recommended the SC should provide specific guidance to the CCM about what aspects of the plan need attention. SC's expectations for the level of detail to be provided in each plan should be adjusted based on the tiered approach described above (or an alternative approach), such that those CCMs catching the largest quantities of sharks would be expected to submit more informative and detailed plans.

One of the most important aspects of the SC review will be to gauge the cumulative impacts to shark stocks on the basis of the additive effects of individual national shark management plans. In this respect, SC's identification of shortfalls in submitted plans may wish to prioritize information that assists with the cumulative impact assessment. For example, unless there are extenuating circumstances, shark management plans should present catch data and set catch limits on a species-specific basis. Other shortfalls in mitigation or management arrangements may be more appropriately left to TCC to consider under other CMMs.

## **5 Conclusion**

The Commission is invited to consider the recommendations in this paper for operationalizing CMM 2014-05 with regard to the provision of shark management plans.

## **6 Acknowledgements**

This paper benefitted from a review by the WCPFC Compliance Manager, Dr Lara Manarangi-Trott, and her input is greatly appreciated.

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**Annex A.** Shark Management Plan submitted by Japan (WCPFC-SC11-EB-IP-14 (rev. 1))

# Management Plan for Longline Fisheries Targeting Sharks

## JAPAN

### Introduction

Offshore longline fleet based on Kesenuma fishing port is one of the major offshore longline fleets in Japan. Their vessel size is in between 119 and 150 tons. They are mainly operating in the Oyashio-Kuroshio transition zone in the subtropical and temperate northwest Pacific throughout year. Blue shark is one of the primary target species and, and they generally conduct blue shark targeting operations in the season between early summer to early autumn.

### Management Plan

In accordance with paragraph 2 of CMM2014-05 (Conservation and Management Measure for Sharks), following shark management plan is addressed;

1) Time period of the plan

5 years, starting in January 1<sup>st</sup>, 2016

2) Fleet conducting the plan

Offshore surface longline fleet based at Kesenuma fishing port (The names of longline boats are shown in Table 1.)

Table 1. Name of the fleet

Vessel name	Vessel size	Call sign	Fresh/Frozen
Toyo-maru No.1	147	JE3104	Fresh
Yahata-maru No.11	119	JE3113	Fresh
Fukuyo-maru No.8	119	JE3043	Fresh
Fukuyo-maru No.17	148	JE3127	Fresh
Taiki-maru No.81	119	7JOB	Fresh
Shintoku-maru No.28	119	JE3103	Fresh
Kinei-maru No.37	119	7JNS	Fresh
Shinei-maru No.17	119	JE3114	Fresh
Yuki-maru No.77	119	JE3102	Fresh
Yuki-maru No.17	119	JD3108	Fresh
Shoryo-maru No.7	145	JD3068	Fresh
Koei-maru No.31	149	JD2294	Fresh
Kifuku-maru No.51	149	JM6090	Fresh

3) Operational area

Subtropical and temperate northwest Pacific

4) License for the pelagic longline operation

License of the offshore surface longline fleet for the pelagic longline operation is issued by Minister of Agriculture, Forestry and Fisheries of Japan.

5) Total annual landing limit

Blue shark: 7,000 tons

Shortfin mako shark: 600 tons

The annual landing limits are set to historical lowest level (Figure 1).

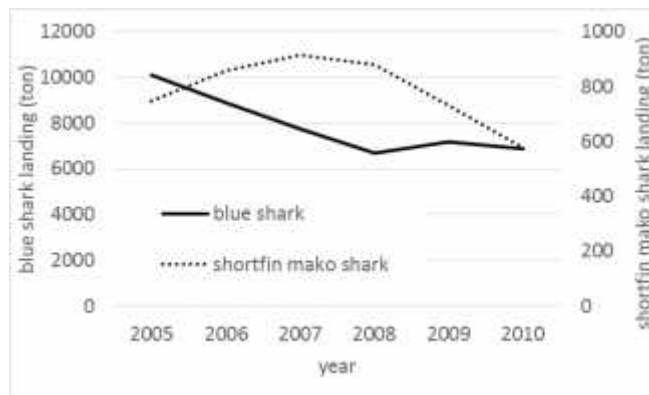


Figure 1. Landing (ton) of blue and shortfin mako sharks by Japanese surface offshore longline fleet based at Kesennuma fishing port.

6) Measures to conserve stocks of depleted tropical sharks

- Prohibition of the use of shark line.
- Sharks landed to the port are limited to blue shark, shortfin mako shark, salmon shark and thresher sharks. All other sharks will be released in a way to maximize their survival.

7) Other measures

- Fin of sharks will be attached at the time of landing.
- Shortfin mako sharks smaller than 1 m PCL are released in a way to maximize their survival, except for retaining as scientific sample for biological study.

8) Report of the conservation plan

Implementation of the management plan will be reported to the Commission by 15<sup>th</sup> July of the next year.

9) Review of the conservation plan

The management plan will be reviewed in 3<sup>rd</sup> and 5<sup>th</sup> year of the plan, and revised if necessary.

**Annex B.** Shark Management Plan submitted by Chinese Taipei (WCPFC-SC11-EB-IP-15)

**The Management Plan for Shark Longliners in WCPO  
Chinese Taipei**

**Background Information**

1. WCPFC adopted conservation and management measure for sharks (CMM 2014-05) in 2014. This CMM indicates that it is the obligation of CCMs to develop a management plan for fisheries that target sharks in association with WCPFC fisheries. The management plan will include specific authorizations to fish such as a license and a TAC or other measure to limit the catch of shark to acceptable levels. Management plan must be developed by 1 July 2015, if possible and no later than 1 December 2015 and submitted to the Commission. In addition, these plans must explicitly demonstrate how the fisheries aim to avoid or reduce catch and maximizes live release of specimens of highly depleted species such as silky and oceanic whitetip sharks caught incidentally.
2. The total shark catch of Chinese Taipei longliners in WCPO fluctuates from 2008-2014. The highest shark catch was 28,272 mt in 2011. The total shark catch of Chinese Taipei longliners in WCPO for 2008-2014 is attached as table 1.

**Table 1.**

YEAR	Total shark catch of longliners in WCPO (MT)
2008	19,050
2009	21,052
2010	17,116
2011	28,272
2012	18,966
2013	15,289
*2014	14,070

\* preliminary data

3. Some Chinese Taipei longliners seasonally target shark species in WCPO, which accounts for approximately 40-60% of total shark catch of Chinese Taipei longliners in WCPO annually. As fishermen have limit knowledge in identifying shark species, it requires more effort on the education so as to improve the data collection and quality of key shark species.

## **Management Measure**

1. The boat owners of longliners that seasonally fished for sharks in WCPO from January 2009 to June 2015 are eligible to apply for the authorization for targeting shark species. When the shark catch of a longliner accounts for more than 50% of total catch in a fishing trip, this longliner will be regarded as a vessel seasonally target for shark species (hereinafter referred to as "shark longliners").
2. Total shark catch of authorized shark longliners could not be over 17,000 MT per year. When the total shark catch of shark longliners reaches to 17,000 MT, any shark species shall not be the target for shark longliners.
3. Except for shark longliners, using shark line as well as targeting shark are prohibited for fishing vessels.
4. The competent authority shall continue to enhance the awareness of fishermen on shark species identification, sustainable utilization of shark and the importance of shark fishery management.
5. The competent authority shall enhance the monitoring on catch reporting of shark longliners, including recording the amount of shark catch and/or the discard in logbooks.
6. Fishing vessels operating in the Pacific are prohibited from targeting, retaining on board, transshipping, storing on a fishing vessel, or landing any oceanic whitetip shark. They are also prohibited from targeting, retaining on board, transshipping, storing on a fishing vessel, or landing any silky shark in WCPO. In addition, the fisherman are encouraged not to catch the depleted species.
7. Fishing vessels operating in WCPO are required to carry line cutters. When a silky shark and/or oceanic whitetip shark is incidentally caught, these fishing vessels are required to cut the line and to release those depleted species alive if possible. These fishing vessels are also required to report this incident to the competent authority, including the number of individuals, where it occurred, the life status of the depleted shark on release in the logbook.

**Annex C.** Guidance for the development and evaluation of management plans for longline fisheries targeting sharks in association with WCPFC fisheries (WCPFC12 Summary Report, Attachment J)



## **Guidance for the development and evaluation of management plans for longline fisheries targeting sharks in association with WCPFC fisheries**

### ***Rationale***

1. With a view to addressing SC11<sup>i</sup> and TCC11<sup>ii</sup> recommendations related to CMM 2014-05 para 2 "Measures for longline fisheries targeting sharks" in association with WCPFC fisheries, WCPFC12 tasks the Secretariat to develop draft guidance for the development and evaluation of management plans for longline fisheries targeting sharks in association with WCPFC fisheries taking into account the elements listed below.

### ***General principles***

2. Management plans for sharks should be based on article 5 of the Convention and para 2 of CMM 2014-05, taking into account advice from SC and TCC.

### ***Existing measure***

4. CMM 2014-05 provides the following measures for longline fisheries targeting sharks and these can be considered by the management plans:

\* *limitation of catches*: specific authorisations to fish such as a licence and a TAC or other measure to limit the catch of shark to acceptable levels.

\* *by-catch limitation*: demonstrate how the fisheries aim to avoid or reduce catch and maximises live release of specimens of highly depleted species such as silky and oceanic whitetip sharks caught incidentally.

\* *evaluation and review*: on the basis of advice from the SC and TCC, the Commission shall review the implementation and effectiveness of management arrangements provided in this measure, including minimum data requirements, after 2 years of its implementation and shall consider the application of additional measures for the management of shark stocks in the Convention Area, as appropriate.

### ***Definitions***

5. The Secretariat shall propose a range of possible definitions of a longline fishery targeting key shark species in association with WCPFC fisheries, for the consideration of SC12 and TCC12.

### ***Minimum requirements***

6. The Secretariat shall compile and propose a list of candidate elements to be considered for the development of management plans for the consideration of SC12 and TCC12. Those candidate elements may include *inter alia*:

- i. The scope in terms of stocks, fishery (specific description of the fishery targeting sharks in association with WCPFC fisheries for which the management plan needs to be developed) and the area of application of the management plan;
- ii. Specific authorisations to access the fishery, e.g. licence etc;

- iii. Species specific information for the establishment of catch, effort or capacity limits, ensuring the application of the most recent scientific advice available;
- iv. Management limits and reference points, where possible;
- v. Conservation and technical measures designed to avoid and reduce, as far as possible, unwanted catches;
- vi. With respect to highly depleted species (such as oceanic whitetip and silky sharks), a demonstration of how the relevant longline fishery is avoiding or reducing catches and maximising live release of incidentally caught sharks;

### ***Evaluation***

7. The Secretariat shall provide a list of elements to be considered for the evaluation of the management plans. They may include, *inter alia*:

- i. Data requirements in line with the *Scientific Data to be provided to the WCPFC*;
- ii. Quantifiable indicators for monitoring their implementation;
- iii. Provisions for a periodic review of the plan's performance with subsequent revision, in particular to take account of the most recent scientific advice;
- iv. Evaluation of the scientific basis and methodology used for the determination of limits and measures outlined in the management plans
- v. Ensuring that specific shark measures set out in CMMs are reflected in the management plans

### ***Timeline***

8. The draft guidance should be presented to SC12 and TCC12 for consideration and presented to WCPFC 13 with a view to its adoption by the Commission.

<sup>i</sup> 581. *After considering the shark management plans submitted by Japan and Chinese Taipei in accordance with paragraph 2 of CMM 2014-05, review by SC11 was made difficult due to the lack of guidance on what should be incorporated into the shark management plans, what is considered a target fishery, and how the review should be performed. SC11 recommends that the Commission:*

a) *Consider development of a list of minimum requirements that such a plan should include, guidelines to evaluate such a plan, and the definition of a target shark fishery for future review by SC, TCC and the Commission;*

b) *Notes the need for plans to contain species specific information and a rationale for how catch, effort or capacity limits are derived, amongst other minimum requirements.*

<sup>iii</sup> 463. *TCC11 noted SC11 difficulties in assessing the sharks management plans submitted by two CCMs in accordance with CMM 2014-05, due to the lack of guidance on what should be incorporated into the shark management plans, what is considered a target fishery, and how the review should be performed.*

464. *TCC11 endorses SC11 recommendation to consider the development of a list of minimum requirements that such plans should include, guidelines to evaluate such plans, and the definition of a target shark fishery for future review by SC, TCC and the Commission.*

**Annex D.** Letter received from FFA Secretariat dated 13 June 2016 regarding development of draft guidance for the development and evaluation of management plans to support the application of CMM 2014-05.

13 June 2016

Dr Shelley Clarke,

ABNJ (Common Oceans) Tuna Project Technical Coordinator - Sharks and Bycatch

Western and Central Pacific Fisheries Commission

PO Box 2356, Kolonia

Federated States of Micronesia

Dear Dr Clarke,

Thank you for the opportunity to provide input to the WCPFC Secretariat with their task of the development of draft guidance for the development and evaluation of management plans to support the application of CMM 2014-15 (WCPFC12 Summary Report, para. 388 and Attachment J) for the consideration of SC12 and T CCI2

On behalf of the FFA secretariat I provide the following response.

Attachment J already provides a reasonably comprehensive set of guidelines for the development and evaluation of management plans and we have annotated some additional comments in blue for ease of recognition.

In many instances CCMs will not have this type of management plan and arrangements established for their tuna fisheries so it is important to recognise this is a major step forward on the management of sharks in the WCPFC. However we do not want to stop the development of these management plans by imposing unreasonable burdens on CCMs so in the first instance some moderation should be shown when the shark management plans are assessed against the guidelines.

FFA members look forward to discussing these guidelines at SC 12 in Bali and would welcome any enquiries, which should be directed to the FFA Secretariat ([tim.adams@ffa.int](mailto:tim.adams@ffa.int) or [ian.freeman@ffa.int](mailto:ian.freeman@ffa.int)).

Yours Sincerely



Dr Tim Adams  
Director of Fisheries Management  
Forum Fisheries Agency

**Guidance for the development and evaluation of management plans for longline fisheries targeting sharks in association with WCPFC fisheries**

***Rationale***

With a view to addressing SC11 and TCC11 recommendations related to CMM 2014-05 para 2 "Measures for longline fisheries targeting sharks" in association with WCPFC fisheries, WCPFC12 tasks the Secretariat to develop draft guidance for the development and evaluation of management plans for longline fisheries targeting sharks in association with WCPFC fisheries taking into account the elements listed below.

***General principles***

Management plans for sharks should be based on article 5 of the Convention and para 2 of CMM 2014-05, taking into account advice from SC and TCC.

***Existing measure***

CMM 2014-05 provides the following measures for longline fisheries targeting sharks and these can be considered by the management plans:

- \* Limitation of catches: specific authorisations to fish such as a licence and a TAC or other measure to limit the catch of shark to acceptable levels.
- \* By-catch limitation: demonstrate how the fisheries aim to avoid or reduce catch and maximises live release of specimens of highly depleted species such as silky and oceanic whitetip sharks caught incidentally.
- \* Evaluation and review: on the basis of advice from the SC and TCC, the Commission shall review the implementation and effectiveness of management arrangements provided in this measure, including minimum data requirements, after 2 years of its implementation and shall consider the application of additional measures for the management of shark stocks in the Convention Area, as appropriate.

***Definitions***

The Secretariat shall propose a range of possible definitions of a longline fishery targeting key shark species in association with WCPFC fisheries, for the consideration of SC12 and TCC12.

Any longline fishery using shark lines or wire trace has the potential to target sharks, either deliberately or unintentionally. While sharks can be caught on monofilament branchlines, they have the greatest chance of self release as they can bite through the line. Therefore it could be argued that all longline fishing using wire or shark lines when setting should have a shark management plan. However this was not the intention of the CMM when it was developed and would impose an unacceptable burden on CCMs fisheries administrations.

The original intention of CMM 2014-05 was to minimise shark interactions with longline fishing gear by banning the use of wire trace branchlines and shark line. A compromise position was reached so the CMM could be endorsed at the annual meeting in 2014 and the wording was changed to banning wire trace or shark lines, which removed much of its effectiveness.

A secondary objective of the CMM was to require longline fisheries that specifically target sharks during spawning aggregations or at specific times of the year to have management plans to ensure exploitation rates were at sustainable levels. There was no intention to stop well managed sustainable shark fisheries from operating, CCMs just required evidence to prove that they were being managed in an appropriate way.

FFA therefore suggest the definition should be as follows:

“A longline fishery targeting sharks can be defined as one where sharks are targeted during a spawning aggregation, feeding aggregation or during a migration path. As such these fisheries would be subject to the guidelines being developed.”

“Incidental targeting could be defined as fishing where sharks make up greater than X% of the total landed catch composition of each longline set or X%<sup>1</sup> of the landed trip weight. If this percentage was reached on two consecutive trips then the Commission could deem that the operator was target fishing for sharks and the guidelines for the development of management plans would apply.”

### ***Minimum requirements for shark management plans***

The Secretariat shall compile and propose a list of candidate elements to be considered for the development of management plans for the consideration of SC12 and TCC12. Those candidate elements may include inter alia:

- i. The scope in terms of stocks, fishery (specific description of the fishery and vessels targeting sharks in association with WCPFC fisheries for which the management plan needs to be developed) and the area of application of the management plan;
- ii. Specific authorisations to access the fishery, e.g. licence or fishing permit, quota holding etc;
- iii. Species specific information for the establishment of catch, effort or capacity limits, ensuring the application of the most recent scientific advice available;
- iv. Management limits and reference points, where possible; including a commitment to and timeframe for the implementation of a harvest strategy. Details of current arrangements such as size limits or nursery area closures that may be in place to limit catches to sustainable levels
- v. Conservation and technical measures designed to avoid and reduce, as far as possible, unwanted catches, including safe release guidelines where these have been developed;
- vi. With respect to highly depleted species (such as oceanic whitetip and silky sharks), a demonstration of how the relevant longline fishery is avoiding or reducing catches and maximising live release of incidentally caught sharks;

### ***Evaluation***

The Secretariat shall provide a list of elements to be considered for the evaluation of the management plans. They may include, inter alia:

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<sup>1</sup> “X” would be considered by the small working group that will discuss the draft guidelines at SC12 and FFA suggests a starting point of 25%

- i. Data requirements in line with the Scientific Data to be provided to the WCPFC;
- ii. Quantifiable indicators for monitoring their implementation;
- iii. Provisions for a periodic review of the plan's performance with subsequent revision, in particular to take account of the most recent scientific advice;
- iv. Evaluation of the scientific basis and methodology used for the determination of limits and measures outlined in the management plans, and
- v. Ensuring that specific shark measures set out in CMMs are reflected in the management plans

**Annex E. Template for a Shark Management Plan**

WCPFC Shark Management Plan for Longline Fisheries					CCM:					Tier:				
<b>Species Covered</b>														
Blue shark: Y/N			Stock:					Catch limit (t):						
Mako sharks: Y/N			Stock:					Catch limit (t):						
Thresher sharks: Y/N			Stock:					Catch limit (t):						
Porbeagle shark: Y/N			Stock:					Catch limit (t):						
Hammerhead sharks: Y/N			Stock:					Catch limit (t):						
Other sharks (list): Y/N			Stock:					Catch limit (t):						
<b>Fleet Information</b>														
Number of longline vessels covered by this plan:														
How many of the longline vessels covered by the plan are/are not on the WCPFC Record of Fishing Vessels: Are _____ Are Not: _____														
Location of fishing grounds (attach map):														
Annual raised effort of the fleet (in hooks):														
Describe the licensing arrangements applicable to the fleet and note whether effort is controlled (if so, in what way)														
<b>Catches</b>														
Shark		Retained Catch (Past 5 yrs, t)					Discarded Catch (Past 5 yrs, t)					Total (Past 5 yrs, t)		
Blue														
Makos														
Silky														
Oceanic Whitetip														
Threshers														
Porbeagle														
Hammerhead														
Other														
Describe the mechanism for limiting the catch of sharks, by species if applicable (e.g. regulation, license, no-retention, etc), and the arrangements for monitoring, verification and enforcement:														



	Describe the catch limits set above for each species and provide the rationale for the limit with reference to the latest available stock assessments and reference points:
	If there are any shark species allowed to be retained but not subject to catch limits, please identify them and provide a rationale:
<b>Mitigation</b>	
	Describe the implementation arrangements for no-retention and safe release of oceanic whitetip (CMM 2011-04) and silky (CMM 2013-08) sharks, including safe release guidelines:
	This fleet uses: Shark Lines: Y/N Wire Leaders: Y/N (fleet or vessel choice?)
	Describe implementation arrangements for the WCPFC full utilization policy (CMM 2010-07). Specifically, if fins are allowed to be removed from carcasses at sea, describe what arrangements are in place to demonstrate that finning is not occurring
	List any other shark mitigation measures, e.g. size limits, closed areas or seasons, gear restrictions
<b>Management</b>	
	List the dates over which the plan applies:
	Describe how and when the plan is reviewed and reported against, including any linkages with monitoring, control and surveillance (MCS) systems:
	Describe how and when the plan is revised/renewed: