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**Development of a comprehensive shark conservation and management measure for the
WCPFC**

WCPFC-SC13-2017/EB-WP-06

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Abstract

This paper responds to WCPFC13’s tasking of the Scientific Committee and the Technical and Compliance Committee, with the support of the Secretariat, to work towards the development of a comprehensive approach to shark and ray conservation and management for adoption at WCPFC15. To assist with consideration of the range of issues involved, this paper presents a summary of the WCPFC’s progress with regard to utilization and finning, no-retention, safe release, mitigation, management plans, assessment, limit reference points and data reporting requirements. Recognizing that recent discussions of shark-related issues have been contentious, a “bottom-up” approach based on “nationally-determined contributions” is proposed. This type of approach would allow for basic points of agreement to be articulated and widely embraced, and for specific national actions to be counted as contributions toward the collective goal. SC13 is invited to consider whether this or another approach should be followed in responding to WCPFC13’s tasking and to recommend a process under which work can progress.

1 Introduction

The Western and Central Pacific Fisheries Commission (WCPFC) adopted its first shark-specific conservation and management measure (CMM) in 2006 and it became binding in 2008. The focus of the measure was to prohibit the practice of shark finning, i.e. removing and retaining the fins of a shark, whether alive or dead, and discarding the remainder of its carcass at sea. In addition to amending this measure several times to its current form (CMMs 2008-06, 2009-04 and now 2010-07), the WCPFC has adopted three other species-specific shark CMMs prohibiting the retention of oceanic whitetip shark (CMM 2011-04), whale shark (CMM 2012-04), and silky shark (CMM 2013-08). The most recent WCPFC shark CMM requires the banning of wire leaders or shark lines, and the submission of shark management plans for fisheries that target sharks (CMM 2014-05).

In addition to these five shark-specific CMMs, the WCPFC has several other guidelines, processes and binding decisions that are pertinent to sharks. These include, *inter alia*, requirements for reporting shark catch data, standards for observer data collection on sharks, whale shark safe release guidelines and a process for designating key shark species. The Commission supports an ongoing programme of shark research and assessment which since 2014 has been supplemented with funding from the Common Oceans (ABNJ) Tuna Project. An inventory of shark-related science, compliance and management documents can be accessed through the WCPFC’s Shark Portal at <https://www.wcpfc.int/sharks>.

With this diversification of tools and resources over the past decade, a desire to rationalize the WCPFC’s approach to shark management and conservation has been expressed. Some CCMs may view such rationalization primarily as an opportunity to consolidate previous decisions, whereas others may seek to revisit or move beyond the existing arrangements. After much discussion in recent years, particularly with regard to operationalizing the requirements of CMMs 2010-07 and 2014-05, the Commission agreed the following recommendation in December 2016 (WCPFC13 Summary Report, para. 507):

WCPFC13 requested that SC13 and TCC13, with support from the Secretariat, work towards the development of a comprehensive approach to shark and ray conservation and management with a view to adopting a new CMM at the Commission’s annual meeting in 2018. The new CMM should seek to i) unify the WCPFC’s existing shark CMMs; ii) take account of relevant national and international policies and measures; and iii) provide a framework for

adopting new components as needs and datasets evolve. Elements that could be considered for the new CMM include:

- *policies on full utilization/prohibition on finning;*
- *no retention policies;*
- *safe release and handling practices;*
- *gear mitigation, size limits or closures;*
- *management plans/catch limits;*
- *key species and their assessment schedules;*
- *species-specific limit reference points; and*
- *any data reporting requirements beyond those contained in “Scientific Data to be Provided to the Commission.”*

To facilitate discussions toward a new CMM, this paper presents a summary of the WCPFC’s progress thus far under each of the elements above. It then proposes a new unifying concept for a comprehensive shark management framework based on the Paris Agreement’s model of nationally determined and reported mitigation measures.

2 WCPFC Progress on Elements of a Comprehensive Shark CMM

The topic headings discussed below are drawn from the WCPFC13 recommendation’s suggested items. Other issues may, of course, also be relevant and may be considered.

2.1 Policies on full utilization/prohibition on finning

<i>Issues</i>	<i>References</i>
○ Full utilization of retained sharks is required (binding).	CMM 2010-07, para. 6
○ Waste and discards of shark catches should be minimized (non-binding)	CMM 2010-07, para. 3
○ Live release should be encouraged (non-binding).	CMM 2010-07, para. 3
◆ Are fins allowed to be separated from sharks at sea?	WCPFC13 has considered several fins naturally attached proposals: e.g. WCPFC13-2016-DP-07 (EU)
◆ Is a fin:carcass weight ratio an appropriate way of verifying that finning did not occur? Are there other valid ways?	Two CCMs have submitted papers to the SC on this issue: WCPFC-SC12-2016/EB-IP-10 (JP) WCPFC-SC11-2015/EB-IP-03 (NZ)
◆ Should transshipment of shark fins be permitted and if so, under what circumstances?	Currently permitted (see CMM 2009-06, footnote 3); for further discussion see also WCPFC-SC12-2015/EB-IP-02

2.2 No retention policies

<i>Issues</i>	<i>References</i>
○ No retention of oceanic whitetip shark; live release required as soon as possible	CMM 2011-04, para2. 1,2
○ Ensure all reasonable steps are taken to safely release whale sharks from purse seines	CMM 2012-04, para. 4
○ No retention of silky shark; live release required as soon as possible	CMM 2013-08, paras. 1,2
◆ Should other species become no-retention species?	WCPFC13 considered such a proposal for manta and mobulid rays: WCPFC13-2016-DP-06 (EU)
◆ What account should the WCPFC take of national no-retention policies for all sharks (i.e. “shark sanctuaries”)?	National/territorial legislation of the Commonwealth of the Northern Mariana Islands (CNMI), Cook Islands, French Polynesia, Federated States of Micronesia (FSM), Kiribati, New Caledonia, Palau and Republic of the Marshall Islands (RMI)
◆ To what extent do no-retention policies reduce shark mortality?	This issue was examined most recently in WCPFC-SC11-2015/EP-WP-04 and earlier in more detail in WCPFC-SC7-2011/EB-WP-04 . Post-release mortality tagging studies are underway via ABNJ and EU funding.

2.3 Safe release and handling practices

<i>Issues</i>	<i>References</i>
○ The existing no-retention measures for oceanic whitetip shark, whale shark and silky shark call for causing “as little harm to the shark as possible”, but refer to safe release guidelines rather than requirements.	CMM 2011-04, para. 4 CMM 2012-04, para. 4 CMM 2013-08, para. 6
○ A number of negative (“do not”) guidelines have been agreed for whale sharks only.	Guidelines for the safe release of encircled whale sharks
○ WCPFC13 called for development of safe release guidelines for manta and mobulid rays.	WCPFC13 Summary Report, para. 550(3)
◆ Is there sufficient clarity and evidence to determine what constitutes “safe”?	SC has discussed draft guidelines for all animals other than whale sharks for several years, e.g. WCPFC SC11 Summary Report, Attachment G . The topic will be discussed again at SC13 (see SC13-EB-IP-08).
◆ Is cutting a shark free with a long length of leader still attached really a safe release practice?	Post-release mortality tagging studies are underway via ABNJ and EU funding.

2.4 Gear mitigation, size limits or closures

Issues	References
○ CCMs must ban (either by fleet or by vessel) either shark lines or wire leaders	CMM 2014-05, para. 1 ; for analysis of potential effectiveness see WCPFC-2016-SC12/EB-WP-06
○ CCMs which self-identify as “fish[ing] for swordfish in a shallow set manner” must use certain types of circle hooks or fish bait, or otherwise obtain SC approval, in order to mitigate sea turtle interactions (this might also effect shark interactions)	CMM 2008-03, para. 7 ; for further analysis of applicability see WCPFC-2017-SC/EB-WP-10
○ CCMs using longline gear in certain areas must apply seabird mitigation measures, some of which could potentially also serve to reduce shark interactions (e.g. night setting, management of offal discharge)	CMM 2015-03, Table 1
◆ Is there information to support the establishment of size limits for some or all shark species?	None known within the Western Central Pacific Ocean (WCPO)
◆ Is there information (e.g. location of hotspots) to support the establishment of spatial or temporal closures for some or all shark species?	Aside from national shark no-retention policies (see Section 2.2), there are no known spatial or temporal closures in the WCPO; see WCPFC-2017-SC13/SA-WP-11 for identification of a potential hotspot for bigeye thresher shark.

2.5 Management plans/catch limits

Issues	References
○ CCMs which self-identify as targeting sharks must submit a management plan which includes an authorization to fish and a means of limiting shark catch to acceptable levels	CMM 2014-05, para. 2 ; shark management plans submitted under the requirement include: Management for Longline Fisheries Targeting Sharks (JP) and Management Plan for Shark Longliners in the WCPO (CT)
○ After these plans were submitted SC and TCC discussed the required contents of future shark management plan submissions	No agreement was reached on the content of future shark management plans: WCPFC13-2016-21 (see Section B.2.h).
○ Various national regulations impose shark catch limits on vessels operating within the WCPF Convention Area	See <i>inter alia</i> , shark management plans submitted by Japan and Chinese Taipei , New Zealand’s quota management system , Australia’s shark regulations for the Eastern Tuna and Billfish Fishery , etc.
◆ Is there information to support the establishment of catch limits for some or all shark species based on regional estimates of sustainable fishing?	Several stock assessments have been conducted (see Section 2.6) but no specific recommendations for catch limits have resulted.

2.6 Key species and their assessment schedules

<i>Issues</i>	<i>References</i>
○ WCPFC has a process for the designation of key shark species for data provision and assessment in 2012	The adopted process was further clarified in a paper provided to TCC12 (2016)
○ WCPFC key shark species designated include: blue, makos (2 spp.), silky, oceanic whitetip, threshers (3 spp.), porbeagle, hammerheads (4 spp.) and whale shark; and manta and mobulid rays (11 spp. , designated for assessment only)	Paper provided to SC9 describes the shark designations; manta and mobulid decision at WPCFC13 Summary Report, para. 550
○ Shark indicator assessments are conducted periodically	2011 Shark indicators and Status snapshot 2015 Analysis of stock status and related indicators
○ Seven shark assessments have been conducted	Oceanic whitetip shark (2012) Silky shark (2013) North Pacific blue shark: SPC and ISC (2014) North Pacific shortfin mako shark (2015) South Pacific blue shark (2016) Bigeye thresher shark (2016) Porbeagle shark (2017)
◆ Which species are priorities for assessment?	The most recent review of the WCPFC shark research plan can be found in the SC12 Summary Report, Attachment H

2.7 Species-specific limit reference points

<i>Issues</i>	<i>References</i>
○ Estimated, empirical and risk-based shark limit reference points were reviewed and discussed at SC10	Development of limit reference points for elasmobranchs (SC10-EB-WP-07)
◆ What further work needs to be done on this topic?	SC12 agreed a scope of work (SC12 Summary Report, Attachment F); WPCFC13 allocated \$25,000 for this work in 2017 (WCPFC13 Summary Report, Attachment V)

2.8 Data reporting requirements (beyond those contained in “Scientific Data to be Provided to the Commission”)

<i>Issues</i>	<i>References</i>
○ Catch and effort reporting requirements apply to the WCPFC key shark species designated for data provision	Scientific Data to be reported to the Commission (2016)
○ There are special reporting requirements for no-retention species (oceanic whitetip shark, whale shark and silky shark)	CMM 2011-04, para 3 CMM 2012-04, para. 4b, 6 CMM 2013-08, para. 3
○ The Regional Observer Programme’s Minimum Standards and Data Fields (MSDF) contain special reporting requirements for “species of special interest” and “designated shark species”	Regional Observer Programme Minimum Standard Data Fields ; for further analysis see SC13 paper on shark designations
◆ What data reporting requirements should apply to manta and mobulid rays?	WCPFC13 tasked SC13 to consider this question (WCPFC13 Summary Report, para. 550(1) and (3))

3 Using the Paris Agreement as a model for new WCPFC shark CMM

It is clear from the past years of discussion within the Commission that CCMs hold quite different views on the degree of importance of sharks and the tools for managing them. This has resulted in a series of stalemates on various issues including the appropriate way to verify that finning has not occurred, the definition of “fisheries that target sharks”, and the guidelines for safe release. One option for achieving consensus on a new measure could be to simply re-organize the text of the existing CMMs. While a straightforward cut-and-paste approach could produce a single shark CMM from the current five, any variation in wording from the original text would risk re-opening a debate on issues which have proved contentious in recent years. On the other hand, strict adherence to the original texts would not address any of the currently simmering issues and thus appears to offer little benefit beyond a simplified numbering system for existing requirements.

The potential for real progress on shark issues in the WCPFC is likely to lie in providing CCMs with greater flexibility in their national approaches to shark conservation and management. Rather than searching for a “one size fits all” and potentially lowest common denominator measure to apply uniformly to all CCMs, a more flexible approach could result in a greater overall reduction in shark mortality. By following a model such as that used by the Paris Agreement on climate change, the WCPFC could adopt a new approach to shark conservation which allows CCMs to apply those measures which best suit their fisheries.

The Paris Agreement¹ provides a framework under which each signatory commits to, and reports against, a self-determined contribution toward a commonly agreed goal. Advantages of this approach include recognition of special requirements while at the same time ensuring inclusivity and collective responsibility. But this type of approach is not without its drawbacks: the Paris Agreement has also been criticized because the voluntary national contributions may not

¹ <https://www.documentcloud.org/documents/2646274-Updated-l09r01.html>

collectively be sufficient to reach the goal and because there is no binding enforcement mechanism. Nevertheless, many commentators believe that the flexibility was essential to gaining the buy-in of a wide range of States and that the non-binding nature removes the incentive to offer only vague and unambitious commitments^{2,3}. The following sections provide an outline of how an adaptation of the Paris Agreement approach to sharks might work.

3.1 Agree Common Goals

The first step in a Paris-like process would be for the WCPFC to articulate and agree common goals for shark conservation and management. In the case of climate change these goals were stated as “*holding the increase in the global average temperature to well below 2°C above pre-industrial levels*” and to reach “*global peaking of greenhouse gas emissions as soon as possible*”. For sharks, such goals might include:

- Reduce fishing mortality on protected species by X% over the baseline by year Y (e.g. protected species could be oceanic whitetip, silky and whale sharks, the reduction could be 20%, the baseline could be 2010 and the target year 2025); and/or
- Do not increase fishing mortality over the baseline for all key shark species; and/or
- While preventing any increase in shark mortality, increase utilization by reducing finning and dead or dying discards; and/or
- Improve verification of shark fishing mortality through increased observer coverage, electronic monitoring, reporting of transshipment/landings/export, etc.

3.2 Nationally Determined Contributions (NDCs)

The next step would involve the preparation of Nationally Determined Contributions (NDCs). Under the Paris Agreement all signatories prepared these documents (usually 5-20 pages) to set their own targets and describe how these would be met. Many WCPFC CCMs already have National Plans of Action (NPOAs)-Sharks or shark-specific regulations that could form the basis of the NDCs. It is assumed that all CCMs would pledge full implementation and compliance with existing WCPFC shark CMMs, but as in the Paris Agreement, each CCM would be encouraged to make a contribution that goes beyond the basic requirements. NDCs would be updated periodically (under the Paris Agreement every five years) and be progressively more ambitious with each submission. For sharks the standards for the NDCs could include:

- A clear and explicit statement of actions and their intended effects, including underlying assumptions;
- A link between the actions and the WCPFC’s identified shark conservation and management priorities, including evidence that the actions can address concerns;
- An appropriate relationship between each CCM’s impact on shark stocks and its proposed commitment (i.e. proportionality of fishing effort and conservation burden);
- A description of the existing or proposed structures and tools to undertake the actions;
- A demonstration of sufficient political will and/or resources to achieve the actions; and
- An assessment of the likelihood of success of the action given the opportunities and threats.

² David G. Victor. 2015. Why Paris Worked: A Different Approach to Climate Diplomacy. Yale Environment 360. http://e360.yale.edu/features/why_paris_worked_a_different_approach_to_climate_diplomacy

³ Luke Grunbaum. From Kyoto to Paris: How Bottom-Up Regulation Could Revitalize the UNFCCC. UCLA Journal of Environmental Law and Policy. <https://jelpblog.wordpress.com/2015/11/28/from-kyoto-to-paris/>

As with the Paris Agreement, capacity building and support should be provided to assist developing States with their shark NDCs. It is noted that with the exception of Chinese Taipei, all WCPFC member and cooperating non-member countries have submitted NDCs under the Paris Agreement⁴.

3.3 Reporting and Review

Under the Paris Agreement there is a requirement for national reporting at regular intervals to track progress against the goals. These national reports are subject to a technical expert review to consider each party's implementation and achievement, with due flexibility to account for special circumstances and needs. Areas where further improvements are necessary and opportunities for capacity building will be identified in conjunction with the parties. The technical expert review then feeds into a "global stock-take" designed to occur every five years.

The idea behind the Paris Agreement is to create a single accounting system for greenhouse gas emissions and to evaluate each NDC under that system. For sharks, the common currency could be fishing mortality, with those countries already limiting it through, for example, no-retention measures to get credit for those reductions. Countries catching and utilizing sharks would have to account for that fishing mortality against the collective targets and demonstrate a proactive contribution in other areas such as full utilization and data quality improvements.

It is understandable that there will be limited appetite for additional paperwork, but it is likely that initial shark NDC documents could be compiled from existing national documentation and need not be lengthy. The advantage of the NDCs is to put each CCM's shark management practices on the table under a common framework (e.g. fishing mortality), and to evaluate the sum of these national systems, not in terms of compliance with specific rules (CMMs), but in terms of the actual effects on shark stocks. This process could be undertaken every few years by the WCPFC's scientific services provider (or other outside experts) based on both national reporting and the datasets currently used for the WCPFC shark analysis (e.g. observer data). As under the Paris Agreement, the details of the "stock-take" have not yet been developed, and are likely to evolve over time, but if there is interest a simplified example could be prepared as a basis for further discussion. Additional benefits of this new process are that it would also serve to spotlight key data gaps, as well as provide examples of individual countries' approaches to common problems. This would assist in identifying how WCPFC shark management should respond to changing fishery and stock status conditions.

3.4 Conclusion

The goal of this paper is not to advocate that shark conservation and management should command the same level of resources and commitment as global climate issues. Rather, it is an attempt to suggest that a scaled-down model of the Paris Agreement might be a way to move past the deadlocks that have stymied recent WCPFC discussions of shark issues. There may be consensus on consolidating the existing shark CMM texts into a single measure but that may amount to little more than a housekeeping exercise or be blocked by disagreements arising from any amendments. Real progress may require a new approach focused on agreeing a framework and common goals and then allowing countries to work toward those goals in their own way. Such an approach would maintain the current element of national commitment to implementation of existing CMM

⁴ World Resources Institute, Climate Access Indicators Tool (CAIT), INDC Dashboard as of 24 June 2017. Accessed online at <https://cait.wri.org/indc/#/>

principles, but complement this with an element of collective responsibility for overall effectiveness. It is after all the latter that will determine the future status of WCPO shark stocks.

4 Recommendation

SC13 is invited to consider responding to WCPFC13's tasking with regard to a comprehensive approach to shark and ray conservation and management by making recommendations in three areas:

- **Content:** The suggested content of a new shark CMM, for example,
 - A compilation of existing texts;
 - A compilation of existing texts plus amendment or further elaboration of some topics (and if so, which topics);
 - A new framework incorporating existing texts but also providing for national contributions toward commonly agreed goals for shark stocks; or
 - Another approach.
- **Modality:** Appointment of a coordinator and broadly representative electronic working group to develop a draft proposal (or another modality).
- **Timeframe:** A timeframe for production and revision of the draft proposal, taking into account the time required to develop consensus-based approaches (dependent on the suggested content above).