SCIENTIFIC COMMITTEE
THIRTEENTH REGULAR SESSION
Rarotonga, Cook Islands
9-17 August 2017

Update on the Common Oceans (ABNJ) Tuna Project's Shark and Bycatch Components, 2016-2017

WCPFC-SC13-2017/RP-ABNJ-01

Shelley Clarke[1] and Neville Smith[2]

1 Technical Coordinator-Sharks and Bycatch, Areas Beyond National Jurisdiction (ABNJ, Common Oceans) Tuna Project, Western and Central Pacific Fisheries Commission, Pohnpei, Federated States of Micronesia
2 Principal Scientist, Oceanic Fisheries Programme, Pacific Community (SPC), Nouméa, New Caledonia

Abstract

This paper presents a brief overview of the Common Oceans (ABNJ) Tuna Project activities being led by the WCPFC Secretariat with scientific support from SPC. These activities are comprised of shark data improvement and harmonization, shark stock status assessment, and bycatch information and management. Over the past year, with funding from the ABNJ Tuna Project and the European Union, the WCPFC has initiated one of the Pacific's largest shark post-release mortality tagging studies based on an expert panel-designed survey programme. Two of four Pacific-wide shark stock status assessments are complete and will be presented to SC13 (porbeagle and bigeye thresher), with a third underway (silky shark) in collaboration with IATTC. The fourth and final assessment is expected to be identified and initiated later in 2017. The Bycatch Management Information System (BMIS) was launched in May 2017 with a revamped user interface and expanded and updated content. A joint analysis of sea turtle mitigation effectiveness was completed with the participation of representatives from 21 countries and organizations; results will be presented to SC13. Feedback from stakeholders is invited on current and proposed activities, and opportunities for synergistic collaborations are continuously sought.

1 Introduction

The WCPFC, along with the four other tuna Regional Fisheries Management Organizations (t-RFMOs), is a partner in the Areas Beyond National Jurisdiction (ABNJ) – often referred to as Common Oceans – Tuna Project (www.commonoceans.org). The objective of this project is to achieve efficient and sustainable management of fisheries resources and biodiversity conservation in marine areas that do not fall under the responsibility of any one country. Within this set of activities WCPFC has committed to leading three components:

- Shark Data Improvement and Harmonization
- Shark Assessment and Management
- Bycatch Information and Management

The first two components involve working in partnership with the Inter-American Tropical Tuna Commission (IATTC) to improve shark monitoring and management across the Pacific. The third component is global in scope and focuses on developing a database of bycatch mitigation and management information and conducting workshops to analyse mitigation data. An Execution Agreement between the implementing agency, the Food and Agriculture Organization of the United Nations (FAO), and the WCPFC was signed on 25 October 2014. A Memorandum of Understanding between WCPFC and the Pacific Community (SPC) for activities under the ABNJ Tuna Project was signed on 20 January 2015 and is updated annually. The project runs through 14 January 2019 and reports every six months to FAO, and to the WCPFC at the annual Scientific Committee and Commission meetings. Within the WCPFC Secretariat, the ABNJ Tuna Project's shark and bycatch components are managed by the Technical Coordinator-Sharks and Bycatch (TCSB), Dr. Shelley Clarke. All three WCPFC-led components were awarded a project progress rating of "Highly Satisfactory" at the annual Common Oceans (ABNJ) Tuna Project Steering Committee in July 2017.

2 Shark Data Improvement and Harmonization

The objective of this component is to work toward developing a practical and consistent approach to monitoring the status of sharks caught by ABNJ tuna fisheries. It focuses on identifying the data deficiencies which inhibit assessment, and thus management, and proposes strategies to obtain more data through field studies and better information return from fisheries.

Highlights for the third year of the project (July 2016-June 2017) include:

- Shark post-release mortality tagging studies for longline fisheries were initiated in May 2017 with funding from both the ABNJ Tuna Project and the European Union. As of 30 June 2017, 21 shortfin mako sharks have been tagged with the support of the New Zealand observer programme (Common Oceans (ABNJ) Tuna Project 2017d). A second phase of post-release mortality studies involves tagging silky and shortfin mako sharks off Fiji. These studies complement EU-funded studies of shark post-release mortality in the Eastern Pacific Ocean undertaken by IATTC (Schaefer et al. 2017).
- An ABNJ Tuna Project proposal for a bycatch data exchange (compilation) protocol (BDEP) based on a CCSBT model was populated by WCPFC (Williams et al. 2016) and the Indian Ocean Tuna Commission (IOTC 2016) in the second half of 2016. Continued work for 2017 was approved by both WCPFC and IOTC.
- At the request of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) the TCSB prepared and presented a paper on harmonization of bycatch condition codes at the CCSBT's 12th Ecologically-related Species Working Group in March 2017.
- Using the WCPFC system as a model, IATTC agreed minimum data standards and reporting requirements for longline observer programmes in May 2017 (Wiley et al. 2017).
- IATTC completed work on a meta-database of shark information from six Central American countries.

In the fourth year of the project (July 2017-June 2018) the following activities are planned:

- Shark post-release mortality tagging will continue in New Zealand and hopefully be initiated in Fiji and a third Pacific Island country. If possible all remaining 179 tags will be deployed on shortfin mako and silky sharks by the end of the next reporting period.
- The Global t-RFMO Shark Browser prototype will be updated for loading into the Bycatch Management Information System (BMIS; Fitzsimmons et al. 2017), and a paper will be produced to draw out insights on data quality and trends.
- SPC will continue with the Bycatch Data Exchange Protocol (BDEP) work for WCPFC, as well as prepare for options to incorporate summaries from other t-RFMOs including integration with IATTC's newly available public shark data holdings (SPC 2017a).
- SPC will support the designation of manta and mobulid rays as WCPFC key shark species through better observer training and identification guides.
- IATTC will develop an experimental design for a long-term shark fishery sampling program in the Eastern Pacific Ocean. This will consist of three phases: 1) workshop to develop a shark sampling pilot study (June-September 2017); 2) implementation of the shark sampling pilot study in Central American ports (October 2017-October 2018); 3) analysis of data collected under the shark sampling pilot study and preparation of a final report to submit to the commission (October-November 2018).

3 Shark Assessment and Management

The objective of this component is to identify risks and priorities for shark conservation through assessment, using new data generated by the component above and improved tools developed under this component as appropriate. It will evaluate the existing management framework and develop measures to strengthen shark management by t-RFMOs.

Highlights for the third year of the project (July 2016-June 2017) include:

- The first of four stock status assessments, on the southern hemisphere porbeagle shark (*Lamna nasus*), was completed as a joint effort between CCSBT and WCPFC. This project involved national indicator contributions from participating scientists in New Zealand (Francis 2017, Francis & Large 2017), Japan (Hoyle et al. 2017a), Uruguay (Forselledo et al. 2017), Argentina (Cortés et al. 2017) and Chile (Hoyle et al. 2017b). The resulting analysis, including a spatially-explicit risk assessment is being presented to SC13 (Common Oceans (ABNJ) Tuna Project 2017a).
- The second stock status assessment, on the Pacific-wide bigeye thresher shark (*Alopias superciliosus*), was completed in September 2016 and is being presented to SC13 (Common Oceans (ABNJ) Tuna Project 2017b).
- A third stock status assessment for Pacific-wide silky shark (*Carcharhinus falciformis*) was initiated in collaboration with IATTC. Joint analysis of purse seine data produced a co-authored paper suggesting that juvenile silky shark catch rates across the Pacific may be driven by oceanographic factors rather than stock abundance (Lennert-Cody et al. 2017). An information paper describing the Western and Central Pacific Ocean data preparation work is being submitted to SC13 (Clarke 2017).
- To support the WCPFC's ongoing consideration of shark finning, key species and shark management plan issues, the TCSB prepared three papers for SC12/TCC12 (WCPFC 2016a, b, Clarke 2016).

In the fourth year of the project (July 2017-June 2018) the following activities are planned:

- Completion of the Pacific-wide silky shark assessment and presentation at SC14.
- Identification and initiation of the fourth and final Pacific-wide shark stock assessment, potentially focusing on whale shark (*Rhincodon typus*, SPC 2017b).
- If any of the four shark assessments identify a need for management action, options for conservation and management measures for consideration by the t-RFMOs will be explored.

4 Bycatch Information and Management

The objective of this component, which is co-led by SPC, is to collate, catalyze and disseminate new information that will direct effective management to mitigate impacts on bycatch species including sharks, seabirds, sea turtles and cetaceans. This is expected to help reduce technical uncertainties across a range of stakeholders, allowing t-RFMO discussions to focus on management issues such as cost and feasibility.

Highlights for the third year of the project (July 2016-June 2017) include:

- The Bycatch Management Information System (BMIS) was launched with an all new interface in May 2017 at major fisheries meetings for both the Eastern and Western Pacific. The site provides a portal to >1000 curated references, species identification and safe release guides, a Bycatch Bytes news feature and a Twitter feed. SPC is now coordinating an expert peer review to further refine the content. BMIS can be accessed at https://www.bmis-bycatch.org/ . An information paper on the BMIS is being presented to SC13 (Fitzsimmons et al. 2017).
- The second, and final, joint analysis workshop on the effectiveness of sea turtle mitigation measures re-convened from 3-8 November 2016 in Honolulu again with the support of the Western Pacific Regional Fishery Management Council (WPRFMC). The results of the joint analysis are being presented to SC13 (Common Oceans (ABNJ) Tuna Project 2017c).

- An expert panel was convened in Wellington in January 2017 to support the development of a survey design for the ABNJ- and EU-funded shark post-release mortality tagging (see Section 2). The panel's report, which includes a recommended survey design as well as best practice principles on equipment selection, statistical stratification and deployment, is presented to SC13 as an information paper (Common Oceans (ABNJ) Tuna Project 2017d).
- At the request of CCSBT the TCSB prepared and presented a paper on mitigation options for sharks at the CCSBT's 12th Ecologically-related Species Working Group in March 2017 (Common Oceans (ABNJ) Tuna Project 2017a).

In the fourth year of the project (July 2017-June 2018) the following activities are planned:

- Work will continue to publicize the BMIS and expand its content, e.g. with shark tagging information, mapping functions and integration of BDEP summaries.
- A second expert workshop on shark mitigation will be planned for late 2018 once all of the shark post-release mortality tags have returned. This workshop will assist with interpreting the tagging data, designing appropriate handling techniques and synthesizing results from multiple studies across a range of fisheries.

5 Consultation

WCPFC and IATTC cooperated to hold the third Sharks and Bycatch Consultative Committee meeting in the margins of WCPFC13 in Nadi, Fiji in December 2016. The panel discussion on cross-boundary bycatch management involved representatives of WCPFC and IATTC; national heads of delegation from French Polynesia, Japan, the EU and the US as well as the Agreement on the Conservation of Albatrosses and Petrels (ACAP), the International Seafood Sustainability Foundation (ISSF) and the Worldwide Fund for Nature (WWF), and was attended by ~60 people.

WCPFC and IATTC technical staff consult quarterly through a ABNJ Shark and Bycatch Pan-Pacific Technical Steering Group composed of representatives from WCPFC, IATTC, SPC (the new Joint Tuna RFMOs Technical Working Group-Bycatch (TWG-BYC) Chair), Australia (the former Joint Tuna RFMOs TWG-BYC Chair), the United States and the Forum Fisheries Agency.

WCPFC CCMs and other interested parties are welcome to contact the TCSB at any time with enquiries about the current work or ideas for collaborative projects.

6 Other Activities

In addition to the activities described above which form the core work programme of the ABNJ (Common Oceans) Tuna Project, the Technical Coordinator-Sharks and Bycatch also participated in the following activities during July 2016-June 2017:

- Presented shark and sea turtle bycatch mitigation material to an annual training course for fishermen held in Suva, Fiji in December 2016;
- Participated in the ISC North Pacific blue shark data preparatory meeting in Busan, Korea in November 2016 and blue shark stock assessment in La Jolla, USA in March 2017;
- Produced porbeagle assessment update flyers in August 2016 and January 2017;
- Contributed to the WCPFC Shark Research Plan (SPC 2017b);
- Posted several news items on the Common Oceans and WCPFC websites and contributed "Sharks in a Post-Truth World" to the SPC Fisheries Newsletter January 2017; and
- Advised the WCPFC Chair and Secretariat on bycatch issues (throughout).

7 References

Clarke, S. 2016. Elaboration of technical details regarding shark targeting and shark management plans for CMM 2014-05. WCPFC-TCC12-2016-19. Accessed online at https://www.wcpfc.int/system/files/WCPFC-TCC12-2016-19%20Shark%20Management%20Plans.pdf

Clarke, S. 2017. Western and Central Pacific Ocean data preparation to support a Pacific-wide re-assessment of the silky shark (*Carcharhinus falciformis*). WCPFC-SC13-2017/SA-IP-12. Accessed online at https://www.wcpfc.int/node/29536

Common Oceans (ABNJ) Tuna Project. 2017a. Southern Hemisphere porbeagle shark (*Lamna nasus*) stock status assessment. WCPFC-SC13-2017/SA-WP-12. Accessed online at https://www.wcpfc.int/node/29525

Common Oceans (ABNJ) Tuna Project. 2017b. Pacific-wide sustainability risk assessment of bigeye thresher shark (*Alopias superciliosus*). WCPFC-SC13-2017/SA-WP-11. Accessed online at https://www.wcpfc.int/node/29524

Common Oceans (ABNJ) Tuna Project. 2017c. Joint Analysis of Sea Turtle Mitigation Effectiveness. WCPFC-SC13-2017/EB-WP-10. Accessed online at https://www.wcpfc.int/node/29568

Common Oceans (ABNJ) Tuna Project. 2017d. Western and Central Pacific Fisheries Commission Shark Post-Release Mortality Tagging Studies (Report of the Expert Workshop on Shark Post-Release Mortality Tagging Studies – Review of Best Practice and Survey Design). WCPFC-SC13-2017/EB-IP-06. Accessed online at https://www.wcpfc.int/node/29572

Cortés, F., J.A. Waessle, A.M. Massa and S.D. Hoyle. 2017. Aspects of porbeagle shark bycatch in the Argentinean surimi fleet operating in the Southwestern Atlantic Ocean (50 – 57° S) during 2006-2014. WCPFC-SC13-2017/SA-IP-14. Accessed online at https://www.wcpfc.int/node/29538

Fitzsimmons, L., S. Caillot, N. Smith and S. Clarke. 2017. Redevelopment of the Bycatch Management Information System (BMIS) and future work plan including integrating regional bycatch data summaries. WCPFC-SC13-2017/EB-WP-09. Accessed online at https://www.wcpfc.int/node/29567

Forselledo R., F. Mas, S. Hoyle and A. Domingo. 2017. Standardized CPUE of porbeagle shark (*Lamna nasus*) caught by the Uruguayan pelagic longline fleet (1982-2012). WCPFC-SC13-2017/SA-IP-18. Accessed online at https://www.wcpfc.int/node/29542

Francis M. P. 2017. Recalculation of historical landings of porbeagle shark. WCPFC-SC13-2017/SA-IP-16. Accessed online at https://www.wcpfc.int/node/29540

Francis M. P. and K. Large. 2017. Updated abundance indicators for New Zealand blue, porbeagle and shortfin mako sharks. WCPFC-SC13-2017/SA-IP-13. Accessed online at https://www.wcpfc.int/node/29537

Hoyle, S.D., Y. Semba, M. Kai and H. Okamoto. 2017a. Development of Southern Hemisphere porbeagle shark stock abundance indicators using Japanese commercial and survey data. WCPFC-SC13-2017/SA-IP-15. Accessed online at https://www.wcpfc.int/node/29539

Hoyle, S., J. C. Quiroz, P. Zarate, D. Devia and J. Azocar. 2017b. Population indicators for porbeagle sharks in the Chilean swordfish fishery. WCPFC-SC13-2017/SA-IP-17. Accessed online at https://www.wcpfc.int/node/29541

Indian Ocean Tuna Commission (IOTC). 2016. Report of the 12th Session of the IOTC Working Party on Ecosystems and Bycatch. IOTC–2016–WPEB12–R[E]. Victoria, Seychelles 12 - 16September 2016. Accessed online at http://www.iotc.org/sites/default/files/documents/2016/09/IOTC-2016-WPEB12-RE_-_FINAL.pdf

Lennert-Cody, C.E., S.C. Clarke, A. Aires-da-Silva, M.N. Maunder and M.H. Román. 2017. Updated stock status indicators for silky sharks in the Eastern Pacific Ocean (1994-2016), with oceanographic conditions. IATTC Document SAC-08-08a(i). Accessed online at https://www.iattc.org/Meetings/Meetings2017/SAC08/PDFs/SAC-08-08a(i)-Updated-indicators-for-silky-sharks.pdf

Schaefer, K.M., D.W. Fuller, A. Aires-da-Silva, J.M. Carvajal, J. Martinez and M.R. Hutchinson. 2017. Preliminary results of silky shark post release mortality experiments utilizing domestic longline vessels of Costa Rica and Ecuador. Presentation to IATTC's Eighth Scientific Advisory Committee, May 2017. Accessed online at https://www.iattc.org/Meetings/Meetings2017/SAC08/Presentations/SAC-08-SilkySharkPostReleaseMortality.pdf

SPC (Pacific Community). 2017a. Bycatch data exchange protocol – summary tables. WCPFC-SC13-2017/EB-IP-15. Accessed online at https://www.wcpfc.int/node/29581

SPC (Pacific Community). 2017b. Progress on the WCPFC stock assessments and shark research plan. WCPFC-SC13-2017/EB-IP-09. Accessed online at https://www.wcpfc.int/node/29575

WCPFC (Western and Central Pacific Fisheries Commission). 2016a. Data available to the Commission to Address the Implementation and Effectiveness of CMM 2010-07 regarding Shark Finning. WCPFC-TCC12-2016-20 (rev. 1). Accessed online at https://www.wcpfc.int/system/files/WCPFC-TCC12-2016-20%20rev1%20Data%20Available%20on%20Shark%20Finning.pdf

WCPFC (Western and Central Pacific Fisheries Commission). 2016b. Clarification of Process for Designating WCPFC Key Shark Species for Data Provision and Assessment. WCPFC-TCC12-2016-25. Accessed online at https://www.wcpfc.int/system/files/WCPFC-TCC12-2016-25%20Clarification%20%20of%20Process%20for%20Designating%20WCPFC%20Key%20%20Shark%20Species%20for%20Data%20Provision%20%20and%20Assessment.pdf

Wiley, B., S. Griffiths, M. Hall, A. Aries-da-Silva, C.E. Lennert-Cody, S.C. Clarke, M.N. Maunder and L. Duffy. 2017. Establishing minimum data standards and reporting requirements for longline observer programs under Resolution C-11-08. IATTC Document SAC-08-07e. Accessed online at https://www.iattc.org/Meetings/Meetings2017/SAC08/PDFs/SAC-08-07e-Requirements-for-longline-observer-programs-under-resolution-C-11-08.pdf

Williams, P., N. Smith, I. Tuiloma, C. Falasi and S. Clarke. 2016. Trial Application of the BDEP Template for Summarizing Bycatch Data. WCPFC-SC12-2016/EB-WP-12. Accessed online at https://www.wcpfc.int/system/files/EB-WP-12%20BDEP%20trialing%20template.pdf