

**SCIENTIFIC COMMITTEE**

**ELEVENTH REGULAR SESSION**

Pohnpei, Federated States of Micronesia

5-13 August 2015

**PROVISIONAL THEME AGENDA**

1. **DATA AND STATISTICS THEME**
   1. **Data gaps**
      1. **Data gaps of the Commission**

SPC-OFP will present the data gaps paper. SC11 will consider, comment and, where relevant, recommend actions on the following:

1. How to address any identified data gaps in the data holdings of the Commission;
2. Review of the new tier scoring system for compliance evaluation introduced in ST WP-01.

**ST-WP-01** – Williams, P. Scientific data available to the Western and Central Pacific Fisheries Commission

***\*\*\* Related Information Papers (for reference only)***

***These papers provide more information on data provided for the work of the Commission.***

* **ST-IP-01 -** Williams, P. Estimates of annual catches in the WCPFC Statistical Area.
* **ST-IP-04** - Clark S. Purse Seine Fishing Activity in PNA Waters
* **ST-IP-06** - Ramiscal, R.V., A. C. Dickson, I. Tanangonan, M. Demo-os, and J. Jara. Group Seine Operations of Philippine Flagged Vessels in High Seas Pocket 1 (HSP1).
  + 1. **Species composition of purse-seine catches**

1. Review of Project 60 outputs

SC11 will review the research outputs of Project 60 (Collection and evaluation of purse-seine species composition data) and provide key findings and further recommendations if any to the Commission.

**ST-WP-02** - Hampton J, and P. Williams. Annual estimates of purse seine catches by species based on alternative data sources and a review of current purse-seine catch estimation issues and future plans.

***\*\*\* Related Information Papers***

* **ST-IP-08 -** RenFen Wu. The bigeye tuna catch composition estimation of Taiwanese purse seine fishery
* **ST-IP-09 -** Ding-Rong Lin. Chinese Taipei response to Circular 2015/20 – Feedback on Purse Seine Species Composition Sampling.

1. Catch estimation in aggregate purse-seine data

SC11 will consider the information in **ST-IP-08** which is response to an SC10 recommendation for Chinese Taipei to describe the methodology used to estimate the tuna species catches in their aggregate purse-seine catch estimates.

1. Industry’s feedback on spill sampling

SC11 will consider the information in **ST-IP-09** which is response to an SC10 recommendation for Industry to assess implications and operational constraints of wider use of spill sampling and report the feedback to SC11.

* 1. **Regional Observer Programme** 
     1. **Intersessional Working Group – Regional Observer Programme (IWG-ROP)**

The outcomes of the recent Intersessional Working Group: Regional Observer Programme (Nadi, Fiji 6–8 July 2015) will be presented (**ST-WP-03**) under agenda item 3.2.1.

* + **ST-WP-03 -** IWG-ROP4. Summary Report: Intersessional Working Group: Regional Observer Programme
    1. **Submission of ROP-defined observer data**

SC11 will consider issues related with scientific data collected or to be collected and data gaps from regional observer programme.

***\*\*\* Related Information Papers***

* **ST-IP-02 -** Williams, P. I. Tuiloma and C. Falasi. Status of observer data management
* **ST-IP-03 -** ISSF. Technical Report – Report of the tuna RFMO expert working group: Harmonisation of longline bycatch data collected by tuna RFMOs.

SC11 will consider and comment on the information provided in **ST-IP-02** (covering these two agenda items) and where necessary, recommend actions to improve the ROP data submissions to the WCFPC.

* + 1. **ROP Longline coverage**

As agreed by WCPFC11 (Paragraphs 484-486, WCPFC11 Report), CCMs submitted their longline observer coverage in Annual Report Part 1 using their choice of coverage metric (Attachment L, WCPFC11 Report). SC11 will consider and comment on the compiled information on longline observer coverage and where necessary, provide recommendations to the Commission.

* + 1. **Marine Pollution data collected by observers**

SC11 will consider the information provided in **ST-IP-05** which summarises marine pollution data collected by observers and provide comment and recommendations, as required.

***\*\*\*Related Information Papers***

* **ST-IP-05 -** Richardson, K., A. Talouli, M. Donoghue and D. Haynes. Marine pollution originating from purse seine fishing vessel operations in the Western and Central Pacific region, 2004-2014.
  1. **Electronic monitoring and electronic reporting**

The First WCPFC Electronic Monitoring and Electronic Reporting Intersessional Working Group Meeting (ERandEM-WG-1) was held in Nadi, Fiji, 8–10 July 2015. The outcomes of the workshop will be briefly introduced. SC11 will consider, comment and, where relevant, recommend actions to progress WCPFC-related work on ERandEM.

* **ST-WP-03 -** ERandEM-WG1. Summary Report: First E-Reporting and E-Monitoring Intersessional Working Group Meeting.

***\*\*\* Related Information Papers (for reference only)***

* **ST-IP-07 -** Dickson, A. C., M. Demo-os, I. Tanangonan, J. A. Jara and R. V. Ramiscal. Pilot Test of MARLIN (Electronic Logsheet) Operation in High Seas Pocket 1.
  1. **WCPFC-funded Port Coordinators**

WCPFC11 agreed to fund port coordinators, as a trial, to conduct sampling and data collection at five ports. Relevant WCPFC member countries will be invited to make a brief comment on the progress with the establishment of WCPFC-funded Port Coordinators in their country.

* 1. **Other matters**
     1. **Fiji’s membership to the Northern Committee**

The Commission accepted NC’s recommendation that SC11 be instructed to review Fiji’s catch data in relation to its request for membership of the NC. SC11 will consider the information provided in **GN-IP-03** which is related to Fiji’s application to the Northern Committee based on catches north of 20°N by their flagged vessels.

***\*\*\*Related Information Papers***

* **GN-IP-03 -** Information on catches by Fiji Longline vessels north of 20°N

**PAPERS FOR DATA AND STATISTICS THEME**

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| **ST THEME – Working Papers** | |
| **ST-WP-01** | Williams, P. **Scientific data available to the Western and Central Pacific Fisheries Commission.** |
| **ST-WP-02** | Hampton J, and P. Williams. **Annual estimates of purse seine catches by species based on alternative data sources and a review of current purse-seine catch estimation issues and future plans.** |
| **ST-WP-03** | IWG-ROP4. **Summary Report: Intersessional Working Group: Regional Observer Programme** |
| **ST-WP-04** | ERandEM-WG1. **Summary Report: First E-Reporting and E-Monitoring Intersessional Working Group Meeting** |
| **ST THEME – Information Papers** | |
| **ST-IP-01** | SPC-OFP. **Estimates of annual catches in the WCPFC Statistical Area.** |
| **ST-IP-02** | Williams, P., I. Tuiloma and C. Falasi. **Status of observer data management. Rev1 (28 July 2015).** |
| **ST-IP-03** | ISSF. **Technical Report – Report of the tuna RFMO expert working group: Harmonisation of longline bycatch data collected by tuna RFMOs.** |
| **ST-IP-04** | Clark S. **Purse Seine Fishing Activity in PNA Waters Rev 1 (25 July 2015).** |
| **ST-IP-05** | Richardson, K., A. Talouli, M. Donoghue and D. Haynes. **Marine pollution originating from purse seine fishing vessel operations in the Western and Central Pacific region, 2004-2014.** |
| **ST-IP-06** | Ramiscal, R.V., A. C. Dickson, I. Tanangonan, M. Demo-os, and J. Jara. **Group Seine Operations of Philippine Flagged Vessels in High Seas Pocket 1 (HSP1).** |
| **ST-IP-07** | Dickson, A. C., M. Demo-os, I. Tanangonan, J. A. Jara and R. V.Ramiscal. **Pilot Test of MARLIN (Electronic Logsheet) Operation in High Seas Pocket 1.** |
| **ST-IP-08** | Ren Fen Wu. **The bigeye tuna catch composition estimation of Taiwanese purse seine fishery** |
| **ST-IP-09** | Ding-Rong Lin. **Chinese Taipei response to Circular 2015/20 –Feedback on Purse Seine Species Composition Sampling.** |

**AGENDA ITEM 4: STOCK ASSESSMENT THEME**

* 1. **WCPO tunas**
     1. **WCPO bigeye tuna (*Thunnus obesus*)**
        1. Review of research and information
     2. Progress report on Project 35 (Refinement of bigeye parameters Pacific-wide)

SPC-OFP is implementing the third year of the multi-year Project 35 to characterize bigeye biological parameters. The completion of this project will be in 2016, with an indicative budget request of $50,000 for further sampling and analysis of otoliths and gonads for assessment. SC11 will review the progress of Project 35 and provide comments and recommendations as required.

**SA-WP-01** Nicol, S., J. Farley, B. Muller, C.Sanchez, F. Roupsard, N. Tavaga, B. Phillips, T. Usu, and K. Sisior. Project 35: Bigeye Biology & WCPFC Tuna Tissue Bank.

* + 1. Progress on Project 69 and 70 (Improvement of MultiFan-CL and stock assessments)

SPC-OFP is completing Projects 69 and 70 in line with recommendations from the 2011 Bigeye Tuna Peer Review. SC11 will review the progress of both projects and provide comments and recommendations as required.

SA-IP-01, 08 will be referred if needed

* + 1. Update of WCPO bigeye stock assessment

SC11 will review an update of the 2014 WCPO bigeye tuna assessment in projection mode using 2013 data and including 2014 data where possible.

**SA-WP-04** Scott, R., G. Pilling and S. Harley. Short-term stochastic projections for skipjack, yellowfin, and bigeye tunas.

* + 1. Pacific-wide bigeye tuna stock assessment

SC11 will review analyses of the implications of conducting WCPO assessments for bigeye tuna, given new information on movement and the Pacific-wide distribution of the fisheries, using a Pacific-wide model. SC11 will evaluate, as recommended by the peer review panel, whether the past conclusion that the results from a WCPO-only assessment are consistent with expectations from a Pacific-wide assessment remains true, in order to confirm the assumption that a WCPO-only assessment will provide robust estimates of stock status.

**SA-WP-02** McKechnie, S., L Tremblay-Boyer, and S J Harley. Longline CPUE indices for bigeye tuna based on the analysis of operational catch and effort data.

**SA-WP-03** McKechnie, S., J. Hampton, F. Abascal, N. Davies, and S. J. Harley. Sensitivity of the WCPO bigeye tuna stock assessment results to the inclusion of EPO dynamics within a Pacific-wide model.

**SA-WP-07** SPC-OFP. Continued use of longline operational-level data provided by fishing nations to support WCPFC stock assessments.

SA-IP-02 will be referred if needed

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Stock status and trends
2. Management advice and implications
   * 1. **WCPO yellowfin tuna (*Thunnus albacares*)**
        1. Review of research and information
3. Update of WCPO yellowfin stock assessment

SC11 will review an update of the 2014 WCPO yellowfin tuna assessment in projection mode using 2013 data and 2014 data where possible.

**SA-WP-04** Scott, R., G. Pilling and S. Harley. Short-term stochastic projections for skipjack, yellowfin, and bigeye tunas.

SA-IP-11 will be referred if needed

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **WCPO skipjack tuna (*Katsuwonus pelamis*)**
        1. Review of research and information
3. Update of WCPO skipjack stock assessment

SC11 will review an update of the 2014 WCPO skipjack tuna assessment in projection mode using 2013 data and 2014 data where possible.

**SA-WP-04** Scott, R., G. Pilling and S. Harley. Short-term stochastic projections for skipjack, yellowfin, and bigeye tunas.

1. Project 67 (Skipjack fishery impacts on the margins of the Convention Area)

Project 67 aims to identify the relationship between high catches in the equatorial region and the availability, or trends in abundance, of skipjack tuna to high latitude fisheries. SC11 will review the research results and provide guidance for further investigation if required.

**SA-WP-05** Pilling, G. and S. Harley. Examination of trends in abundance of skipjack tuna with an emphasis on temperate waters.

**SA-IP-09** Kiyofuji, H., K. Kobayashi, Y. Kobayashi, H. Ashida and K. Satoh. Recent status of coastal skipjack in Japan and long-term abundance trend estimated from the operational coastal troll fisheries logbook.

SA-IP-10 will be referred if needed

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **South Pacific albacore tuna (*Thunnus alalunga*)**
        1. Review of research and information
3. Review of South Pacific albacore tuna stock assessment

SC11 will review the results of the 2015 SP albacore stock assessment and identify any future research needs, including budget implications. SC11 will also provide comments and recommendations on the process and methodology of stock assessment to the Commission as required.

**SA-WP-06** Harley, S. J, N. Davies, L Tremblay-Boyer, John Hampton, and S McKechnie. Stock assessment for south Pacific albacore tuna.

SA-IP-03,04,06,07 will be referred if needed

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   1. **Northern stocks**

Annex I of the Commission’s Rules of Procedure defines ‘northern stocks’ to be ‘northern Pacific bluefin[[1]](#footnote-1), northern albacore[[2]](#footnote-2) and the northern stock of swordfish[[3]](#footnote-3)’. According to the MOU between WCPFC and ISC, the ISC’s scientific information and advice will be presented at the annual meetings of the Scientific Committee.

The ISC Chair will be invited to brief SC11 on the activities of ISC since SC10, including the ISC’s 2015 stock assessments and future plans.

**GN-IP-02** ISC. Report of the 15th Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean.

* + 1. **North Pacific albacore (*Thunnus alalunga*)**
       1. Review of research and information

No stock assessment was conducted in 2015. SC11 may review updated information if available for North Pacific albacore.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **Pacific bluefin tuna (*Thunnus orientalis*)**
        1. Review of research and information

No stock assessment was conducted in 2015. SC11 may review updated information if available for Pacific bluefin tuna.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **North Pacific swordfish (*Xiphias gladius*)**
        1. Review of research and information

No stock assessment was conducted in 2015. SC11 may review updated information if available for North Pacific swordfish.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   1. **WCPO sharks**
      1. **Stock status indicators for key shark species**

SPC will present a paper on stock status indicators for all key shark species, which will inform the relevant following sections.

EB-WP-04 will be referred if needed

* + 1. **Oceanic whitetip shark (*Carcharhinus longimanus*)**
       1. Review of research and information

No stock assessment was conducted in 2015. SC11 will review updated information and indicator analysis for oceanic whitetip shark.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **Silky shark (*Carcharhinus falciformis*)**
        1. Review of research and information

No stock assessment was conducted in 2015. SC11 will review updated information and indicator analysis for silky shark.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **South Pacific blue shark (*Prionace glauca*)**
        1. Review of research and information

No stock assessment was conducted in 2015. SC11 will review updated information and indicator analysis for South Pacific blue shark.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **North Pacific blue shark (*Prionace glauca*)**
        1. Review of research and information
3. Evaluation of North Pacific blue shark as a northern stock

As requested by WCPFC11 (Paragraph 399, WCPFC11 Report), SC11 will review relevant information provided by ISC to prioritize work on determining the designation of NP blue shark as a northern stock, including establishing a criteria and process for the designation of northern stocks.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications

There was no discussion during WCPFC11 regarding the submission of a management plan for all targeted shark fisheries with robust catch limits, careful monitoring of catch and effort, and continued research on NP blue shark (Paragraphs 467-468, SC10 Report).

**4.3.5 Other sharks**

**4.3.5.1 North Pacific shortfin mako (*Isurus oxyrinchus*)**

SC11 will review indicator analysis for North pacific shortfin mako.

**SA-WP-08** Carvalho, F. Indicator-based analysis of the status of shortfin mako shark in the North Pacific ocean.

* 1. **WCPO billfishes**
     1. **South Pacific swordfish (*Xiphias gladius*)**
        1. Review of research and information

No stock assessment was conducted in 2015. SC11 may review any additional information, if available, for SP swordfish, including i) distribution of swordfish catches between EEZs and high seas, and ii) identification of mitigation measures to avoid overfishing, may it occur.

The Committee will be reminded that the most possible information available was Tables A1 and A2 in SC10-GN-01; and i) and ii) above require full operational-level data (Paragraph 35, SC10 Report).

SA-IP-12 will be referred if needed

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **Southwest Pacific striped marlin (*Kajikia audax*)**
        1. Review of research and information

No stock assessment was conducted in 2015. SC11 may review updated information if available for SWP striped marlin.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **North Pacific striped marlin (*Kajikia audax*)**
        1. Review of research and information

ISC conducted a stock assessment for NP striped marlin in 2015. SC11 will review the results of the assessment, and provide comments and/or recommendations on the process and methodology used.

**SA-WP-10** ISC Billfish Working Group. Stock assessment update for striped marlin (*Kajikia audax*) in the western and central North Pacific Ocean through 2013.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications
   * 1. **Pacific blue marlin (*Makaira nigricans*)**
        1. Review of research and information

No stock assessment was conducted in 2015. SC11 may review updated information if available for Pacific blue marlin.

* + - 1. Provision of scientific information

SC11 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications

**PAPERS FOR STOCK ASSESSMENT THEME**

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| **SA THEME – Working Papers** | | **Agenda** |
| **SA-WP-01** | Nicol, S., J. Farley, B. Muller, C.Sanchez, F. Roupsard, N. Tavaga, B. Phillips, T. Usu, and K. Sisior. **Project 35: Bigeye Biology & WCPFC Tuna Tissue Bank.** | 4.1.1.1.a |
| **SA-WP-02** | McKechnie, S., L Tremblay-Boyer, and S J Harley. **Longline CPUE indices for bigeye tuna based on the analysis of operational catch and effort data.** | 4.1.1.1.d |
| **SA-WP-03** | McKechnie, S., J. Hampton, F. Abascal, N. Davies, and S. J. Harley. **Sensitivity of the WCPO bigeye tuna stock assessment results to the inclusion of EPO dynamics within a Pacific-wide model.** | 4.1.1.1.d |
| **SA-WP-04** | Scott, R., G. Pilling and S. Harley. **Short-term stochastic projections for skipjack, yellowfin, and bigeye tunas.** | 4.1.1.1.c  4.1.2.1.a  4.1.3.1.a |
| **SA-WP-05** | Pilling, G. and S. Harley. **Examination of trends in abundance of skipjack tuna with an emphasis on temperate waters.** | 4.1.3.1.b |
| **SA-WP-06** | Harley, S. J, N. Davies, L Tremblay-Boyer, John Hampton, and S McKechnie. **Stock assessment for south Pacific albacore tuna.** | 4.1.4.1.a |
| **SA-WP-07** | SPC-OFP. **Continued use of longline operational-level data provided by fishing nations to support WCPFC stock assessments.** | 4.1.1.1.d |
| **SA-WP-08** | Carvalho, F. **Indicator-based analysis of the status of shortfin mako shark in the North Pacific ocean.** | 4.3.5.1 |
| **SA-WP-09** | Placeholder |  |
| **SA-WP-10** | ISC Billfish Working Group. **Stock assessment update for striped marlin (*Kajikia audax)* in the western and central North Pacific Ocean through 2013.** | 4.4.3.1 |
| **SA THEME – Information Papers** | | **Agenda** |
| **SA-IP-01** | Davies, N., D. Fournier, F. Bouyé, J. Hampton and S. Harley. **Developments in the MULTIFAN-CL Software 2014-15.** | 4.1.1.1.b |
| **SA-IP-02** | SPC-OFP. **Report of the Workshop on Operational Longline Data.** | 4.1.1.1.d |
| **SA-IP-03** | Tremblay-Boyer, L., S. McKechnie, S. J. Harley. **Standardized CPUE for south Pacific albacore tuna (*Thunnus alalunga*) from operational longline data.** | 4.1.4.1.a |
| **SA-IP-04** | Brouwer, S., S. Harley, and G. Pilling. **The influence of catch rate on fishing effort – an investigation using south Pacific albacore as an example.** | 4.1.4.1.a |
| **SA-IP-05** | Placeholder |  |
| **SA-IP-06** | Scott, R. and S. McKechie. **Analysis of longline length frequency compositions for South Pacific albacore tuna.** | 4.1.4.1.a |
| **SA-IP-07** | Tremblay-Boyer, L. **Spatial structure for the south Pacific albacore assessment including regional weights.** | 4.1.4.1.a |
| **SA-IP-08** | Harley, S., N. Davies and J. Hampton. **Implementing the recommendations from the bigeye tuna assessment review.** | 4.1.1.1.b |
| **SA-IP-09** | Kiyofuji, H., K. Kobayashi, Y. Kobayashi, H. Ashida and K. Satoh. **Recent status of coastal skipjack in Japan and long-term abundance trend estimated from the operational coastal troll fisheries logbook.** | 4.1.3.1.b |
| **SA-IP-10** | Kiyofuji, H., H. Ashida, and K. Satoh. **Revisiting the spatial and seasonal distribution of tropical tuna larvae and their potential spawning areas in the western central Pacific Ocean.** | 4.1.3.1.b |
| **SA-IP-11** | Aguila, R., S. Perez, B. Catacutan, G. Lopez, N. Barut and M. Santos. **Distinct yellowfin tuna (*Thunnus albacares*) stocks detected in Western and Central Pacific Ocean (WCPO) using DNA microsatellites.** | 4.1.2.1.a |
| **SA-IP-12** | Farley, J. and N. Clear: **Project 71: Progress Report South Pacific swordfish biology: age, growth and maturity.** | 4.4.1.1. |

**AGENDA ITEM 5 MANAGEMENT ISSUES THEME**

* 1. **Limit reference points for the WCPFC**
     1. Implications of alternative levels of acceptable risk

SC11 will consider any further progress on identifying a level of acceptable risk associated with breaching a LRP (Paragraphs 513-514, SC10 Report).

* + 1. Identifying appropriate LRPs for elasmobranchs within the WCPFC

SC11 will review the progress on the identification of appropriate life history parameters for use in developing shark LRPs (Project 57 - WCPFC/ABNJ Pacific shark life history expert panel workshop) and consider comments/recommendations for further development of shark LRPs (Paragraph 515, SC10 report).

* 1. **Development of target reference points (TRPs) and harvest control rules (HCRs) for the WCPFC**

1. Development of WCPFC Harvest Strategies

SC11 will consider the scientific aspects of the process of developing WCPFC harvest strategies in relation to CMM 2014-06, including budget implications, and provide comments/ recommendations to the Commission to facilitate the progress.

**MI-WP-01:** Harvest strategy for key tuna species in the WCPO–draft work plan.

1. Skipjack target reference point

SC11 will review the scientific background related to the identification of an appropriate TRP for skipjack tuna and provide comments/recommendations if required to the Commission.

**MI-WP-02:** Draft conservation and management measure on a target reference point for WCPO skipjack tuna.

1. Albacore Tuna target reference point

SC11 will review the scientific background related to the identification of an appropriate TRP for south Pacific albacore tuna and provide comments/recommendations if required to the Commission.

**MI-WP-03:** Trends in economic conditions in the southern longline fishery.

**MI-WP-04:** Compatibility and consequences of alternative potential target reference points for the south Pacific albacore stock.

* 1. **Implementation of CMM 2014-01**
     1. Evaluation of impacts of the purse-seine fishery

SC11 will review the analysis of the relative impact of FAD set measures and any increases of purse seine catch in unassociated schools on fishing mortality for skipjack tuna conducted by SPC-OFP (Paragraph 584, SC10 Report). SC11 will provide advice to the Commission as to whether WCPO skipjack tuna stock status is sensitive to either associated sets or unassociated sets of purse seine efforts.

**MI-WP-05:** Relative impacts of FAD and free school fishing on skipjack tuna.

**MI-WP-06:** Examining productivity changes within the tropical WCPO purse seine fishery.

**MI-WP-07:** Examination of purse-seine catches of bigeye tuna.

* + 1. WCPFC FAD Management Options Intersessional Working Group

As outlined in Circular 2015/26, the WCPFC FAD Management Options Intersessional Working Group may provide a consultation document to SC11 for their review and input. SC11 may provide comments/ recommendations as required.

* + 1. Yellowfin tuna catch limit

According to Paragraphs 28 and 43 of CMM 2014-01, SC11 should provide recommendations for the Commission’s formulation and adoption in December 2015, for yellowfin tuna catch limits. In this regard, SC11 may consider relevant issues including setting catch limits, identifying species composition, real-time catch reporting, etc., and provide comments/recommendations on how to further develop catch limit options to the Commission.

**MI-WP-09:** An impact of purse seine fishery for yellowfin tuna stock.

* + 1. Other issues related to CMM 2014-01

SC11 will review and comment on any additional analyses related to the evaluation of the effectiveness of CMM 2014-01.

**MI-WP-10:** Estimating potential tropical purse seine fleet sizes given existing effort limits and candidate target stock levels.

**PAPERS FOR MANAGEMENT ISSUES THEME**

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| **Working Papers** | **Title** | **Authors** |
| MI-WP-01 | Harvest strategy for key tuna species in the WCPO–draft work plan | Australia |
| MI-WP-02 | Draft conservation and management measure on a target reference point for WCPO skipjack tuna | PNA |
| MI-WP-03 | Trends in economic conditions in the southern longline fishery | C. Reid and J. Raubani |
| MI-WP-04 | Compatibility and consequences of alternative potential target reference points for the south Pacific albacore stock | G.Pilling, C. Reid, S. Harley and J. Hampton |
| MI-WP-05 | Relative impacts of FAD and free school fishing on skipjack tuna status. | J. Hampton and G. Pilling |
| MI-WP-06 | Examining productivity changes within the tropical WCPO purse seine fishery | A. Tidd, G. Pilling and S. Harley |
| MI-WP-07 | Examination of purse-seine catches of bigeye tuna | S. Harley, L. Tremblay-Boyer, P. Williams, G. Pilling and J. Hampton |
| MI-WP-08 | Place holder |  |
| MI-WP-09 | An impact of purse seine fishery for yellowfin tuna stock | H. Ijima and K. Satoh |
| MI-WP-10 | Estimating potential tropical purse seine fleet sizes given existing effort limits and candidate target stock levels | G. Pilling and S. Harley |
| **Information Papers** | **Title** | **Authors** |
| MI-IP-01 | 2015 ISSF Stock Assessment Workshop: “Characterizing uncertainty in stock assessment and management advice” | ISSF |
| MI-WP-02 | Implementation of alternative CPUE/abundance dynamics for purse seine fisheries within MULTIFAN-CL with application to effort-based projections for skipjack tuna | R. Scott, A. Tidd, N. Davies, G. Pilling and S. Harley |

1. **ECOSYSTEM AND BYCATCH MITIGATION THEME**
   1. **Ecosystem effects of fishing**
      1. Review of research and information
         1. SEAPODYM

The Commission endorsed an external review of the spatial ecosystem and population dynamics model (SEAPODYM) project. SC11 will consider issues (if any) related with the review of SEAPODYM, and may consider further steps to assist with guiding the Commission in evaluating potential applications and future directions.

**Working Papers**

**EB-WP-07** Allain, V. Monitoring the pelagic ecosystem effects of different levels of fishing effort on the WPO warm pool

**Information Papers**

**EB-IP-01** Lehody, P. SEAPODYM applications in WCPO – progress report

**EB-IP-04** Nicol, S.Application of molecular technologies to monitor the ecosystem of the WCPO

* 1. **Sharks** 
     1. Review of potential mitigation measures to reduce fishing-related mortality on silky and oceanic whitetip sharks

SPC-OFP will present the results of simulation modelling work conducted under Project 54 (Monte Carlo simulation of mitigation options for longline shark bycatch).

**Working Papers**

**EB-WP-02** DMP Consulting Monte Carlo analysis of measures to mitigate longline fishery impacts on silky and oceanic whitetip sharks

* + 1. Review of conservation and management measures for sharks

SC11 will review relevant paragraphs of each shark CMM below, and provide comments or recommendations as required to the Commission.

1. CMM 2010-07 (CMM for Sharks)

SC11 will review the CMM for Sharks, especially Paragraphs 4, 8, and 13 with reference to data provision, fin to carcass ratios, and the need for a revised or new CMM.

**Information Papers**

**EB-IP-03** Francis, M.P. Estimation of fin ratios and dressed weight conversion factors for selected shark species.

**EB-IP-08** Semba et. al. Processed form of blue shark (Prionace glauca) caught by Japanese longline fisheries with the estimation of conversion factor from processed weight to round weight.

1. CMM 2011-04 (CMM for oceanic whitetip shark)

According to Paragraph 5 of the CMM, SC11 will review a detailed proposal, if submitted, for any biological sampling from oceanic whitetip sharks that are dead within longline or purse seine fisheries in the WCPO.

1. CMM 2012-04 (CMM for protection of whale sharks from purse seine fishing operations)

SC11 may consider additional mitigation measures based on CCMs’ reports through Annual Report Part 1 on any instances in which whale sharks have been encircled by the purse seine nets of their flagged vessels.

**Working Papers**

**EB-WP-03** Clarke, S. Understanding and mitigating impacts to whale sharks in purse seine fisheries

1. CMM 2013-08 (CMM for silky sharks)

According to Paragraph 5 of the CMM, SC11 will review a detailed proposal, if submitted, for any biological sampling from silky sharks that are dead within longline or purse seine fisheries in the WCPO.

According to Paragraph 6 of the CMM, CCM’s and the SC shall continue work on bycatch mitigation measures and live release guidelines to avoid the catch of this species wherever possible, and maximize the number of incidentally caught individuals that can be released alive.

1. CMM 2014-05 (CMM for sharks)

Paragraph 2 of this CMM stipulates that CCMs must develop a management plan for longline fisheries targeting sharks, including specific authorizations to fish and a TAC or other measure to limit the catch of shark to acceptable levels. SC11 will review such shark management plans submitted by 1 July 2015 and provide comments and/or recommendations to the Commission.

**Information Papers**

**EB-IP-14** Japan. Management Plan for Longline Fisheries Targeting Sharks (Japan)

**EB-IP-15** Chinese Taipei. The Management Plan for Shark Longliners in WCPO (Chinese Taipei)

1. Safe release guidelines

SC11 will further review and develop i) *Guidelines for the safe release of encircled animals, including whale sharks* (Attachment I, SC10 Report) and ii) *Development of new guidelines for the survival of sharks (other than whale sharks) to be released from longline or purse-seine gear* (Attachment J, SC10 Report), which will be forwarded to TCC11.

* + 1. Shark Research Plan

SPC-OFP will introduce a multi-year shark research plan. SC11 will review the plan and provide recommendations to the Commission for its implementation.

**Working Papers**

**EB-WP-01** Harley, S. Draft research plan for WCPFC key shark species 2016-2020

**EB-WP-04** Tremblay-Boyer, L. and J. Rice. Indicator analysis for WCPFC key shark species

**EB-WP-08** Clarke, S. A proposed framework for assessing the reporting of WCPFC key shark species.

**Information Papers**

**EB-IP-10** Bigelow, K. Whale shark tagging

**EB-IP-12** Francis, M.P., S.C. Clarke, L.H. Griggs, and S.D. Hoyle. Indicator based analysis of the status of New Zealand blue, mako and porbeagle sharks

**EB-IP-13** Clarke, S. et al. Report of the Pacific shark life history expert panel workshop, 28-30 April 2015

* 1. **Seabirds**

SC11 may review relevant available research findings, including seabird bycatch rates for longline vessels < 24m and ≥ 24m and assessment on the utility of electronic monitoring by comparing interaction rates with other options, if available.

**Working Papers**

**EB-WP-09** Baird et. al. The Risk of bycatch between 25oand 30o South in the Western Central Pacific Fisheries Management Commission Area.

**EB-WP-10** Katsumata et. al. At-sea experiment to develop the mitigation measures of seabirds for small longline vessels in the western North Pacific

**Information Papers**

**EB-IP-09** Inoue, Y. et. al. Progress of the development of the DNA identification for the southern albatross bycatch in longline fishery

* 1. **Sea turtles**

SC11 will review scientific aspects of the CMM 2008-03, and consider additional or new mitigation measures of sea turtles if available.

**Working Papers**

**EB-WP-05** Clarke, S. and S. Nicol. Proposals for workshops to analyse mitigation options for sea turtles interacting with longline fisheries

* 1. **Bycatch mitigation for other species**

SC11 will review research, if available, on bycatch mitigation efforts, including i) mitigation of small bigeye and yellowfin tunas; ii) avoidance or selective release of bycatch species from the net to maximize the chances of survival of released animals; and iii) investigations that scientifically verify the post-release condition of bycatch species using pop-up archival tags and other technology.

CCMs are encouraged to conduct research on identifying ways for vessels to avoid the capture of juvenile bigeye and yellowfin tuna during FAD sets, including, *inter-alia*, the possibility that the depth of the purse seine net is a factor in the amount of juvenile bigeye and yellowfin tuna taken during such sets.

SC11 will provide comments/ recommendations as necessary to the Commission.

**Working Papers**

**EB-WP-06** Clarke, S. and S. Nicol. Proposal for bycatch data exchange protocol amongst the t-RFMOs.

**Information Papers**

**EB-IP-02** Nicol, S. Progress on Kobe III bycatch specialist working group

**EB-IP-05** Gilman et. al. Priority bycatch data fields and collection methods for tuna RFMOs longline observer programmes.

**EB-IP-06** Clarke, S. and S. Nicol. Update on the ABNJ (Common Oceans) tuna project’s shark and bycatch components

**EB-IP-07** Fitzsimmons, L. Redevelopment of the Bycatch Information Management System (BMIS)

**EB-IP-11** Goni, N. et. al. System of verification of the code of good practices on board European tuna purse seiners and preliminary results for the Atlantic Ocean

**PAPERS FOR ECOSYSTEM AND BYCATCH THEME**

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| ***EB THEME – Working Papers*** | |
| **EB-WP-01** | Brouwer, S. and S. Harley. **Draft Shark Research Plan: 2016-2020.** |
| **EB-WP-02** | Harley, S., B. Caneco, C. Donovan, L. Tremblay-Boyer and S. Brouwer. **Monte Carlo simulation modelling of possible measures to reduce impacts of longlining on oceanic whitetip and silky sharks.** |
| **EB-WP-03** | Clarke, S. **Understanding and mitigating impacts to whale sharks in purse seine fisheries of the western and central Pacific Ocean.** **Rev1 (22 July 2015)** |
| **EB-WP-04** | Rice, J., L. Tremblay-Boyer, R. Scott, S. Hare and A. Tidd. A**nalysis of stock status and related indicators for key shark species of the Western Central Pacific Fisheries Commission.** |
| **EB-WP-05** | Clarke, S., S. Nicol and Y. Swimmer. **Analysis of sea turtle mitigation measure effectiveness in tuna longline fisheries.** |
| **EB-WB-06** | Clarke, S., S. Nicol and P. Williams. **Proposal for a Bycatch Data Exchange Protocol (BDEP) amongst the t-RFMOs.** |
| **EB-WP-07** | Allain, V., S. Griffiths, J. Bell and S. Nicol. **Project 46: Monitoring the pelagic ecosystem effects of different levels of fishing effort on the WPO warm pool.** |
| **EB-WP-08** | Clarke, S., L. Manarangi-Trott and P. Williams. **Changes to Shark Reporting and Data Gaps Assessment Processes** |
| **EB-WP-09** | Baird K., C Small, E. Bell, K. Walker, G. Elliot, D. Nicholls, R. Alderman, P. Scofield, L. Depp, B. Thomas and M. P. Dias. **The overlap of threatened seabirds with reported bycatch areas between 25º and 30º South in the Western Central Pacific Fisheries Commission Area.** |
| **EB-WP-10** | Katsumata, N., D. Ochi, H. Matsunaga, Y. Inoue and H. Minami. **At-sea experiment to develop the mitigation measures of seabirds for small longline vessels in the western North Pacific.** |
| ***EB THEME – Information Papers*** | |
| **EB-IP-01** | Senina, I., P. Lehodey, B. Calmettes, S. Nicol, S. Caillot, J. Hampton and P. Williams. **SEAPODYM application for yellow tuna in the Pacific Ocean.** |
| **EB-IP-02** | Nicol, S. **Annual WCPFC Report: Joint Tuna RFMO Bycatch Technical Working Group** |
| **EB-IP-03** | Francis, M. **Estimation of fin ratios and dressed weight conversion factors for selected shark species.** |
| **EB-IP-04** | Gleeson, D., E. Furlan, E. Vourey, M. Bunce, M. Stat, V. Allain and S. Nicol. **Application of molecular technologies to monitor the ecosystem of the WCPO.** |
| **EB-IP-05** | Gilman, E. and S. Clarke. **Changes to WCPFC longline observer bycatch data: Proposals in response to a minimum suite of harmonized fields for tuna RFMOs. Rev 1 (28 Jungle 2015).** |
| **EB-IP-06** | Clarke, S. and S. Nicol. **Update on the ABNJ (Common Oceans) tuna project’s shark and bycatch components.** |
| **EB-IP-07** | Fitzsimmons, L., S. Clarke, S. Caillot and S. Nicol. **Redevelopment of the Bycatch Information Management System (BMIS).** |
| **EB-IP-08** | Semba, Y., H. Okamoto, K. Shiozaki and Y. Fujinami. **Processed form of blue shark (*Prionace glauca*) caught by Japanese longline fisheries with the estimation of conversion factor from processed weight to round weight.** |
| **EB-IP-09** | Inoue, Y., R. Alderman, M. Taguchi, K. Sakuma, T. Kitamura, R. Philips, T. Burg, C. Small[ M. Sato, W. Papworth and H. Minami. **Progress of the development of the DNA identification for the southern albatross bycatch in longline fishery.** |
| **EB-IP-10** | NOAA Fisheries-USA, SPC-OFP, NFA-PNG and WCPFC Secretariat-ABNJ. **Project Update on Deployment Plan for Whale Shark Post-Release Mortality Tags.** |
| **EB-IP-11** | Goñi, N., J. Ruiz, H. Murua, J. Santiago, I. Krug, A. Gonzalez de Zarate, G. Moreno, J. Murua. **System of verification of the code of good practices on board European tuna purse seiners and preliminary results for the Atlantic Ocean.** |
| **EB-IP-12** | Francis, M., S. Clarke, L. Griggs, and S. Hoyle. **Indicator based analysis of the status of New Zealand blue, mako and porbeagle sharks.** |
| **EB-IP-13** | Clarke, S., R. Coelho, M. Francis, M. Kai, S. Kohin, K.M. Liu, C. Simpfendorfer, J. Tovar-Avila, C. Rigby and J. Smart. **Report of the Pacific shark life history expert panel workshop, 28-30 April 2015.** |
| **EB-IP-14** | Japan. **Management Plan for Longline Fisheries Targeting Sharks.** |
| **EB-IP-15** | Chinese Taipei. **Management Plan for Shark Longliners in the WCPO.** |

1. Pacific bluefin tuna [↑](#footnote-ref-1)
2. North Pacific albacore [↑](#footnote-ref-2)
3. North Pacific swordfish [↑](#footnote-ref-3)