

**SCIENTIFIC COMMITTEE**

**TWELFTH REGULAR SESSION**

Bali, Republic of Indonesia

3-11 August 2016

**PROVISIONAL THEME AGENDA**

**WCPFC-SC12-2016/03-Theme Agenda**

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

SPC-OFP will present the data gaps paper.

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

SC12 will consider, comment, and where relevant, recommend actions on how to address any identified data gaps in the data holdings of the Commission.

The Commission tasked SPC with further refining the tier scoring system to provide, among other things, an indicator of compliance of CCMs as a whole with provision of scientific data. SC12 may note the refined tier scoring system if needed.

***Related Information Papers***

1. **ST-IP-01 -** Williams, P. Estimates of annual catches in the WCPFC Statistical Area.
2. **ST-IP-06 -** Widido A. A., Wudianto, C. Proctor, F. Satria and Mahiswara. Characteristics of tuna fisheries associated with anchored FADs in Indonesian archipelagic and Western Pacific waters.
3. **ST-IP-07** - 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)
4. **ST-IP-09** - PNA Office. Purse Seine Fishing Activities in PNA Waters.

SC12 will note and consider the Information Papers and invited to provide comments.

For SC12’s information, IATTC informed that, since April 2016, their public domain data for purse seiners are available at the resolution of flag, month and 1X1 degree strata without any vessel number rule filtering. Paragraph 9 in the WCPFC’s Rules and Procedures for the Protection, Access to, and Dissemination of Data Compiled by the Commission is:

*9. Data in the public domain shall not reveal the individual activities of any vessel, company or person and shall not contain private information. Catch and Effort data in the public domain shall be made up of observations from a minimum of three vessels.*

Issues related with the three-vessel rule include:

* The application of the three-vessel rules filters out a substantial amount of fishing activity from all gear-specific data sets, at 5x5xmonth aggregation, resulting in data sets that do not represent the total catch and effort, and that may be unrepresentative regarding the proportions of catch and effort that they do cover.
* The three-vessel rule removes even more data for finer levels of stratification, e.g. by flag and by 1x1 degree square (for purse seine and pole-and-line), to the point where these agreed levels of stratification cannot be produced.

SC12 may consider revisiting the three-vessel rule if needed.

* + 1. Species composition of purse-seine catches

1. Review of Project 60 outputs

SC12 will review the research outputs of and plans for the remainder of Project 60 (Collection and evaluation of purse-seine species composition data), including annual estimates of purse seine catches catches based on: i) unadjusted logsheet method, ii) YFT-BET correction method, iii) SKJ-YFT-BET correction, adjusted by grab sampling, and iv) SKJ-YFT-BET, unadjusted by grab sampling, and provide key findings and further recommendations, if any, to the Commission.

* 1. **ST-WP-02** - SPC Review of Project 60 outputs and work plan.

***Related Information Papers***

1. **ST-IP-03 -** Hampton J. and P. Williams. Estimates of purse seine catches by species based on alternative data sources
2. **ST-IP-05** - Lestari P , R. J. G. Lester and C. Proctor Symbionts of bigeye and yellowfin tuna as potential Stock markers for tuna in Indonesia archipelagic waters.

SC12 will note and consider the Information Papers and invited to provide comments.

1. Implementation of observer spill sampling

SC12 will review operational aspects of spill sampling on purse seine vessels and evaluate the benefits of spill sampling compared to corrected grab-sampling.

[This topic will be covered in the review of Project 60 above.]

* + 1. Potential Use of Cannery Receipt Data for the Work of the WCPFC

SC12 will review the progress of a pilot study on cannery receipt data for the scientific work of the Commission.

* 1. **ST-WP-03** - Lewis A. and P. Williams. Potential use of cannery receipt data for the work of the WCPFC

SC12 will consider the outcomes of this study and where relevant, provide recommendations to progress this work.

* 1. **Regional Observer Programme**
     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).

There are no presentations scheduled under this agenda item, but this topic will be raised under the 3.1.1 Data Gaps and can be discussed further with reference to the Information paper below.

***Related Information Papers***

1. **ST-IP-02 -** SPC Status of observer data management

SC12 will consider and comment on the compiled information on longline observer coverage and where necessary, provide recommendations to the Commission.

* 1. **Electronic monitoring and electronic reporting**

The Second WCPFC Electronic Monitoring and Electronic Reporting Intersessional Working Group Meeting (ERandEM-IWG-2) will be held in Bali, Indonesia, 1-2 August 2016. The outcomes of the workshop will be briefly introduced. SC12 will consider, comment and, where relevant, recommend actions to progress WCPFC-related work on ERandEM.

The chair of the ERandEM-IWG-2 will provide a brief presentation on the outcomes and recommendations of this workshop.

SC12 will consider and, where necessary, endorse the recommendations from the ERandEM-IWG-2 workshop.

***Related Information Papers***

1. **ST-IP-04 -** Hosken M., P. Williams and N Smith. Update on the Implementation of Electronic Monitoring (EM) and Electronic Reporting (ER) technologies in the WCPO
2. ST-IP-07- 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)

SC12 will note and consider the Information Papers and invited to provide comments.

* 1. **WCPFC-funded Port Coordinators**

WCPFC11 agreed to fund port coordinators, as a trial, to conduct sampling and data collection at five ports, and the relevant Members, SPC-OFP and WCPFC Secretariat are required to jointly report to SC and TCC (in 2015 and 2016), on the implementation of the trial WCPFC port coordinators programme.

TOR in the WCPFC11 Summary Report, Attachment P (SC11-GN-IP-04) says:

*If after two years the evaluation proves that the program has been successful the Commission can then take an informed decision to extend the program to other ports in the WCPO, where appropriate.*

The WCPFC Secretariat and relevant WCPFC member countries will be invited to make a brief comment on the progress with the establishment of with WCPFC-funded Port Coordinators in their country.

SC12 will review reports on the implementation of this programme and provide comments and/or recommendations to the Commission.

* 1. **Review of "Scientific data to be provided to the Commission"**

The Commission tasked SC12 to review the elements proposed by the EU in Attachment bb of the WCPFC12 Summary Report (WCPFC12-2015-DP17 / SC12-WCPFC12-05).

* 1. **ST-WP-05** - EU European Union proposal for an Amendment of the "Scientific data to be provided to the Commission” July 2016 Revision

SC12 will review the proposed revision and provide comments and/or recommendations to the Commission.

* 1. **FAD Management Options Intersessional Working Group**

The Commission agreed at WCPFC12 that the FADMgmtOptions-IWG should continue in 2016. The FAD Management Options IWG is scheduled to hold its meeting in late September 2016, immediately following TCC12 in Pohnpei.

3.6.1 FAD research plan

According to Para 595, WCPFC12 Summary Report, SC12 will review the draft FAD research plan and provide comments and/or recommendations for the consideration of the Commission.

*595. The Commission tasked the Secretariat and Scientific Services Provider to work with the FADMgmtOptions-IWG Chair and Vice-Chair to further develop the draft outline of a research plan in 2016, based on Attachment D of the report of the first meeting of the FADMgmtOptions-IWG (WCPFC12-2015-22\_rev2). The draft research plan should be for consideration and input by SC12 and TCC12 before submission to WCPFC13. The draft plan should incorporate some consideration of costs and benefits of various research and data collection activities to assist with prioritizing the work. Consideration should also be given within the plan to addressing both target and non-target species.*

3.6.2 Update on consultancy on FAD marking and identification of FADs

An update will be provided to SC12 on intersessional work by the FADMgmtOptions-IWGthrough a consultancy on options and considerations for Marking and Identification of FADs to be deployed.  According to Para 594, WCFPC12 Summary Report, SC12 will provide advice and recommendations as appropriate.

*594. The Commission agreed that a consultancy should be undertaken early in 2016 to produce a report on options and considerations for Marking and Identification of FADs to be deployed, for consideration at SC12 and TCC12. The consultancy should be based on the draft prospectus (****Attachment V****) and among other things take into consideration electronic signature and physical marking aspects from the 2016 PNA trial tracking programme and that used in other tuna RFMOs. The consultancy should also provide advice on the feasibility of options of physical marking of the buoy, physical marking of the buoy and the FAD attachment, and electronic identification, along with the costs and benefits of each option. The consultancy should also take into account Attachment E to the report of the first meeting of the FADMgmtOptions-IWG Report (WCPFC12-2015-22\_rev2).*

3.6.3 FAD data to be provided by vessel operators

According to Para 596 - 598, WCPFC12 Summary Report, an update will be provided to SC12 on the intersessional work by the FADMgmtOptions-IWGto develop a draft list of data fields that should be reported by vessel operators.  SC12 will provide advice and recommendations as appropriate.

*596. The Commission agreed that vessel operators should provide data on FADs covering the following two major areas:*

1. *FAD design and construction of FAD to be deployed or encountered (materials, electronics, size etc)*
2. *FAD activity (deploying, retrieving, setting, visiting, loss etc).*

*597.        The Commission noted that the FADMgmtOptions-IWG recommendations that:*

1. *the FAD data fields to be reported by vessel operators should be based on the WCPFC ROP Minimum Standard Data Fields and the data fields collected by other RFMOs;*
2. *data collected by observers on FADs can be used for verification of FAD activities of vessels;*
3. *the FAD data should be provided to the Commission via flag State electronically using appropriate systems such as FAD e-logbooks or information systems such as PNA iFIMS etc.*

*598. The Commission agreed that a consultancy be undertaken in early 2016, tasked with producing proposed draft data fields to be reported by vessel operators for consideration at SC12 and TCC12.*

* 1. **Economic data**

FFA will present a paper on analyses and projections of economic conditions in the WCPO fisheries.

* 1. **ST-WP-04** - Skirtun M. and C. Reid - Analyses and projections of economic conditions in WCPO fisheries

SC12 will consider and comment on the information in the paper and presentation.

**DATA AND STATISTICS THEME PAPERS**

|  |  |
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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** | SPC Review of Project 60 outputs and work plan |
| **ST-WP-03** | Lewis A. and P. Williams. Potential use of cannery receipt data for the work of the WCPFC |
| **ST-WP-04** | Skirtun M. and C. Reid - Analyses and projections of economic conditions in WCPO fisheries |
| **ST-WP-05** | EU European Union proposal for an Amendment of the "Scientific data  to be provided to the Commission” July 2016 Revision |
| ***THEME – Information Papers*** | |
| **ST-IP-01** | SPC Estimates of annual catches in the WCPFC Statistical Area |
| **ST-IP-02** | SPC Status of observer data management |
| **ST-IP-03** | Hampton J. and P. Williams. Estimates of purse seine catches by species based on alternative data sources |
| **ST-IP-04** | Hosken M., P. Williams and N Smith. Update on the Implementation of Electronic Monitoring (EM) and Electronic Reporting (ER) technologies in the WCPO |
| **ST-IP-05** | Lestari P , R. J. G. Lester  and C. Proctor Symbionts of bigeye and yellowfin tuna as potential Stock markers for tuna in Indonesia archipelagic waters. |
| **ST-IP-06** | Widido A. A., Wudianto, C. Proctor, F. Satria and Mahiswara. Characteristics of tuna fisheries associated with anchored FADs in Indonesian archipelagic and Western Pacific waters. |
| **ST-IP-07** | 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-08** | Dickson, A.C., M. Demo-os, I. Tanangonan, J. S. Jara and R. V. Ramiscal. Pilot Test of MARLIN (Electronic Logsheet) Operation in High Seas Pocket 1 |
| **ST-IP-09** | PNA Office. Purse Seine Fishing Activities in PNA Waters. |

1. **STOCK ASSESSMENT THEME**
   1. **WCPO tunas**
      1. **WCPO bigeye tuna (*Thunnus obesus*)**
         1. Review of research and information
      2. Research on population structure of tropical tunas

**SA-WP-01** Grewe P. M., H. E. Irianto, C. H. Proctor, M. S. Adam, A. R. Jauhary, K. Schafer, D. Itano, A. Killian and C. R. Davies. Population structure and provenance of tropical tunas: recent results from high throughput genotyping and potential implications for monitoring and assessment.

*SA-IP-02, SA-IP-03, SA-IP-15* will be referred to if needed.

* + 1. Improvement of MULTIFAN-CL software for stock assessments

b. Work to improve the MULTIFAN-CL software is ongoing. SC12 will review the progress and provide comments and recommendations as required.

*SA-IP-07, SA-IP-10* will be referred to if needed.

* + 1. Update of WCPO bigeye stock assessment information

SC12 will review information on indicators for WCPO bigeye tuna as well as retrospective forecasting of the 2014 WCPO bigeye tuna assessment.

**SA-WP-03** Pilling G., R. Scott, P. Williams and J. Hampton. A compendium of fisheries indicators for tuna stocks not assessed in 2016 (bigeye and yellowfin tuna).

**SA-WP-02** Scott R., N. Davies, G.M. Pilling and J. Hampton. Retrospective forecasting of the 2014 WCPO bigeye tuna stock assessment.

*SA-IP-01* will be referred to if needed.

* + - 1. Provision of scientific information

SC12 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

SC12 will review information on indicators for WCPO yellowfin tuna.

*SA-WP-01, SA-WP-03, SA-IP-01, SA-IP-02* will be referred to if needed.

* + - 1. Provision of scientific information

SC12 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. WCPO skipjack stock assessment

SC12 will review the 2016 WCPO skipjack tuna stock assessment.

**SA-WP-05** Kiyofuji, H. Skipjack catch per unit effort (CPUE) in the WCPO from the Japanese pole-and-line fisheries.

**SA-WP-04** McKechnie S., J. Hampton, G. M. Pilling and N. Davies. Stock assessment of skip jack tuna in the western and central Pacific Ocean.

*SA-IP-04 through SA-IP-14* will be referred to if needed.

* + - 1. Provision of scientific information

SC12 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. SC12 will review recent trends in the south Pacific albacore tuna fishery.

**SA-WP-06** Pilling G. M. and P. Williams Recent trends in the south Pacific albacore fishery.

*SA-WP-06a, SA-WP-06b* will be referred to if needed

* + - 1. Provision of scientific information

SC12 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 SC12 on the activities of ISC since SC11, including the ISC’s 2016 stock assessments and future plans.

**GN-IP-02** ISC. Report of the 16th 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 2016. SC12 may review updated information if available for North Pacific albacore.

* + - 1. Provision of scientific information

SC12 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

A benchmark stock assessment was conducted by the ISC in 2016. SC12 will review the new stock assessment information for Pacific bluefin tuna.

**SA-WP-07** ISC PBFWG Pacific Bluefin Stock Assessment.

* + - 1. Provision of scientific information

SC12 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 2016. SC12 may review updated information if available for North Pacific swordfish.

* + - 1. Provision of scientific information

SC12 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**

There is no new information on stock status indicators for all key shark species.

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

No stock assessment was conducted in 2016. SC12 will review updated information for oceanic whitetip shark if available.

* + - 1. Provision of scientific information

SC12 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 2016. SC12 will review updated information for silky shark if available.

* + - 1. Provision of scientific information

SC12 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

A new stock assessment was conducted in 2016. SC12 will review stock assessment information for South Pacific blue shark.

**SA-WP-09** Tremblay-Boyer L. and Y. Takeuchi. Catch and CPUE inputs to the South Pacific blue shark stock assessment.

**SA-WP-08** Takeuchi Y., L. Tremblay-Boyer, G.M. Pilling and J. Hampton Assessment of blue shark in the southwestern Pacific.

*SA-IP-16* will be referred to if needed

* + - 1. Provision of scientific information

SC12 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), SC12 will review any new relevant information provided by ISC to prioritize work on determining the designation of North Pacific blue shark as a northern stock, including establishing a criteria and process for the designation of northern stocks.

* + - 1. Provision of scientific information

SC12 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications

**4.3.5 Other sharks**

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

**4.3.5.1.1 Review of research and information**

No stock assessment was conducted in 2016. SC12 may review any additional information, if available.

**4.3.6.1 Pacific bigeye thresher shark (*Alopias supercilious*)**

**4.3.6.1.1 Review of research and information**

No stock assessment was conducted in 2016. SC12 may review any additional information, if available.

*SA-IP-17* will be referred to if needed.

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

No stock assessment was conducted in 2016. SC12 will review any additional information for South Pacific swordfish, if available.

**SA-WP-11** Farley J., N. Clear, D. Kolody, K. Krusic-Golub, P. Eveson and J. Young. Determination of swordfish growth and maturity relevant to the southwest Pacific stock.

* + - 1. Provision of scientific information

SC12 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 2016. SC12 may review updated information if available for Southwest Pacific striped marlin.

* + - 1. Provision of scientific information

SC12 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

No stock assessment was conducted in 2016. SC12 may review updated information if available for Southwest Pacific striped marlin.

* + - 1. Provision of scientific information

SC12 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

A new stock assessment was conducted by ISC in 2016. SC12 will review the new stock assessment information for Pacific blue marlin.

**SA-WP-12** ISC BILLWG Pacific Blue Marlin Stock Assessment.

* + - 1. Provision of scientific information

SC12 will provide agreed text for the following:

1. Status and trends
2. Management advice and implications

**STOCK ASSESSMENT THEME WORKING AND INFORMATION PAPERS**

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| ***SA THEME – Working Papers*** | |
| **SA-WP-01** | Grewe P. M., H. E. Irianto, C. H. Proctor, M. S. Adam, A. R. Jauhary, K. Schafer, D. Itano, A. Killian and C. R. Davies. Population structure and provenance of tropical tunas: recent results from high throughput genotyping and potential implications for monitoring and assessment. |
| **SA-WP-02** | Scott R., N. Davies, G.M. Pilling and J. Hampton. Retrospective forecasting of the 2014 WCPO bigeye tuna stock assessment |
| **SA-WP-03** | Pilling G., R. Scott, P. Williams and J. Hampton. A compendium of fisheries indicators for tuna stocks not assessed in 2016 (bigeye and yellowfin tuna) |
| **SA-WP-04** | McKechnie S., J. Hampton, G. M. Pilling and N. Davies. Stock assessment of skip jack tuna in the western and central Pacific Ocean |
| **SA-WP-05** | Kiyofuji, H. Skipjack catch per unit effort (CPUE) in the WCPO from the Japanese pole-and-line fisheries. |
| **SA-WP-06** | Pilling G. M. and P. Williams Recent trends in the south Pacific albacore fishery |
| **SA-WP-06a** | Excel: SPA vessel number latitude flag |
| **SA-WP-06b** | Excel: SPA catch proportion latitude flag |
| **SA-WP-07** | ISC PBFWG Pacific Bluefin Stock Assessment |
| **SA-WP-08** | Takeuchi Y., L. Tremblay-Boyer, G.M. Pilling and J. Hampton Assessment of blue shark in the southwestern Pacific |
| **SA-WP-09** | Tremblay-Boyer L. and Y. Takeuchi. Catch and CPUE inputs to the South Pacific blue shark stock assessment |
| **SA-WP-10** | Reassigned SA-IP-17 |
| **SA-WP-11** | Farley J., N. Clear, D. Kolody, K. Krusic-Golub, P. Eveson and J. Young. Determination of swordfish growth and maturity relevant to the southwest Pacific stock. |
| **SA-WP-12** | ISC BFWG tock Assessment Update for Blue Marlin (Makaira nigricans) in the Pacific Ocean through 2014 |
| ***SA THEME – Information Papers*** | |
| **SA-IP-01** | Pilling G. and S. Brouwer. Report from the SPC pre-assessment workshop, Noumea, April 2016 |
| **SA-IP-02** | Grewe P. M., P. Feutry, P. L. Hill, R. M. Gunasekera, K.M. Schaefer, D. G. Itano, D.W. Fuller, S. D. Foster and C.R. Davies. Evidence of discrete yellowfin tuna (*Thunnus albacares*) populations demands rethink of management for this globally important resource. |
| **SA-IP-03** | Rico C Innovative Technologies for Tunas’ Assessment for Compliance Across the Oceans (ITTACA-OCEANS |
| **SA-IP-04** | Tremblay-Boyer L, G. Pilling, B. Kumasi and T. Usu. Standardized CPUE for skipjack tuna (Katsuwonus pelamis) from the Papua New Guinea archipelagic purse seine fishery. |
| **SA-IP-05** | McKechnie S., D. Ochi, H. Kiyofuji, T. Peatman and S. Caillot. Construction of tagging data input files for the 2016 skip jack tuna stock assessment in the western and central Pacific Ocean |
| **SA-IP-06** | McKechnie S. Summary of fisheries structures for the 2016 stock assessment of skip jack tuna in the western and central Pacific Ocean |
| **SA-IP-07** | SPC Comparison of MULTIFAN-CL and Stock Synthesis platforms for the 2014 skipjack assessment. |
| **SA-IP-08** | Ochi D., H. Ijima and H. Kiyofuji. A re-consideration of growth pattern of skipjack on the western central Pacific. Rev 1 (19 July 2016) |
| **SA-IP-09** | Kiyofuji, H. and D. Ochi. Proposal of alternative spatial structure for skipjack stock assessment in the WCPO. |
| **SA-IP-10** | Davies N., D. Fournier, F. Bouyé, and J. Hampton. Developments in the MULTIFAN-CL software 2015-2016 |
| **SA-IP-11** | Campbell R. Time-line of fleet and management changes in Australia’s tropical tuna longline fishery. |
| **SA-IP-12** | Bigelow K., E. Garvilles and N. Barut. Relative abundance of skipjack for the purse seine fishery operating in the Philippines Moro Gulf (Region 12) and High Seas Pocket #1. DRAFT |
| **SA-IP-13** | Peatman T., S. Caillot, B. Leroy, S. McKechnie, F. Roupsard, C. Sanchez , S. Nicol and N. Smith. Analysis of tag seeding data and reporting rates |
| **SA-IP-14** | Santiago, J., J. Lopez, G. Moreno, H. Murua, I. Quincoces, Towards a Tropical Tuna Buoy-derived Abundance Index (TT-BAI) |
| **SA-IP-15** | Evans K, P. Grewe, D. Kolody, R. Hillary, S. Foster, T. Timmiss, M. Lansdell, and P. Hill. Connectivity of tuna and billfish species targeted by the Australian Eastern Tuna and Billfish Fishery with the broader Western Pacific Ocean. Rev 1 (22 July 2016) |
| **SA-IP-16** | Sippel T, J. Wraith, S. Kohin, V. Taylor, J. Holdsworth, M. Taguchi, H. Matsunaga and K. Yokawa. A summary of blue shark (Prionace glauca) and shortfin mako shark (Isurus oxyrinchus) tagging data available from the North and Southwest Pacific Ocean. (ISC/11/SHARKWG-2/04). |
| **SA-IP-17** | Fu D., M. Roux, S. Clarke, M. Francis, A. Dunn and S. Hoyle. Pacific-wide bigeye thresher shark (Alopias superciliosus) sustainability status assessment: Introduction, Datasets and Methodology |

1. **MANAGEMENT ISSUES THEME**
   1. **DEVELOPMENT OF A HARVEST STRATEGY FRAMEWORK**

According to the Commission’s decision in December 2015 below, SC’s Management Issues Theme will discuss science aspects in developing the harvest strategy framework.

*618. The Commission (WCPFC12) agreed that there will not be a Management Objectives Workshop/Harvest Strategy Workshop in 2016, and the harvest strategy-related issues will be included on the WCPFC13 agenda in 2016. In addition, the Commission directed SC12 to include these discussions under the Management Issues theme agenda item, so that the discussion on harvest strategies, in particular, continues.*

*657. The Commission adopted the workplan for the adoption of Harvest Strategies under CMM 2014-06 (Attachment Y). The Commission tasked the SC with support from the Scientific Service Provider to undertake the activities specified in the agreed workplan.*

As this is a new agenda item, each element of the harvest strategy will be discussed along with the *Agreed Work Plan for the Adoption of Harvest Strategies under CMM 2014-06* (Attachment Y, WCPFC12 Summary Report).

* + 1. **Management Objectives**

The Commission is scheduled to “record” the management objectives for each fishery or stock (SP albacore, skipjack, yellowfin and bigeye) in 2016. SC12 may provide comments for the consideration of the Commission.

* + 1. **Reference Points**
  1. South Pacific Albacore

The Commission in 2016 is scheduled to agree a target reference point for South Pacific albacore. SC12 may provide advice on the implications of a range of target reference points for South Pacific albacore for the consideration of the Commission.

**MI-WP-01:** Biological and economic consequences of alternative fishery trajectories to achieving a candidate south Pacific albacore target reference point

1. Bigeye Tuna

The Commission in 2016 is scheduled to agree timeframes to rebuild bigeye to the limit reference point. The SC have been requested to provide advice on determining a biologically reasonable timeframe for rebuilding bigeye tuna to [or above] its limit reference point.

**MI-WP-02:** Biologically reasonable rebuilding timeframes for bigeye tuna

* + 1. **Implications of alternative levels of acceptable risk**

The Commission is scheduled in 2016 to agree the levels of risk for the four key tuna species in 2016 (SP albacore, skipjack, yellowfin and bigeye). While no specific advice has been requested from the SC by the Commission, SC12 may review information (including a summary of previous work undertaken and the requirements of the ongoing Management Strategy Evaluation work) and provide comments and/or recommendations for the consideration of the Commission.

**MI-WP-03:** Proposal for adopting acceptable levels of risk for breaching limit reference points of four key tuna species in the WCPO.

* + 1. **Performance Indicators**

For SP albacore and skipjack, the Commission has tasked SC12 with providing advice on a range of performance indicators to evaluate the performance of harvest control rules.

* + 1. **Monitoring Strategy**

For SP albacore and skipjack, the Commission has tasked SC12 with provide advice on a monitoring strategy to assess performance against reference points.

**MI-WP-05:** Report of the Expert Consultation Workshop on Management Strategy Evaluation.

**MI-WP-04:** Performance statistics and monitoring strategies for skipjack and South Pacific albacore commensurate with: candidate management objectives for the Tropical Purse Seine and Southern Longline Fisheries.

* + 1. **Harvest Control Rules and Management Strategy Evaluation**

For SP albacore and skipjack, the development of harvest control rules and management strategy evaluation frameworks is scheduled to commence in 2016 and continue through until 2018. SC12 will review progress and information on the development of harvest control rules and management strategy evaluation and if necessary make recommendations for the consideration of the Commission.

In particular, SC12 will consider a report of an expert consultation held at SPC in June on the development of a management strategy evaluation framework for WCPFC tuna stocks. SC12 will be invited to comment on a draft MSE design and make recommendations as appropriate to the Commission.

**MI-WP-06:** Evaluation of candidate harvest control rules for the tropical skipjack purse seine fishery.

**MI-IP-01:** Preliminary evaluation of catch-based harvest control rules for South Pacific albacore tuna.

**MI-IP-04:** Approaches used to undertake management projections of WCPO tuna stocks based upon MULTIFAN-CL stock assessments.

* + 1. **Harvest Control Rules and Management Strategy Evaluation for Northern Stocks**

Under CMM-2014-06 the Northern Committee is responsible for developing a schedule of actions to adopt harvest strategies for Pacific bluefin and north Pacific albacore. Towards the achievement of this objective the ISC held an MSE Workshop in Japan in late May 2016. The SC will be informed of the work that the ISC and the Northern Committee are undertaking on the development of harvest strategies and MSE testing.

**MI-WP-07:** Recent ISC activities on MSE

* 1. **LIMIT REFERENCE POINTS (LRPs) FOR WCPFC SHARKS**
     1. **Identifying appropriate LRPs for elasmobranchs within the WCPFC**

The Commission endorsed SC11’s request of USD 25,000 for the development of limit reference points for elasmobranchs. The Commission tasked SC12 to develop a scope of work to progress development of limit reference points for sharks within the budget allocated for 2016 (Paras 69-70, FAC9 Summary Report).

Including the use of limit reference points, SC12 may also consider in general appropriate management options for shark stocks.

**MI-WP:** No specific paper but still working off SC10-MI-WP-07: Development of limit reference points for elasmobranchs

**Other Useful SC12 References:**

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

**SA-IP-17:** Pacific-wide bigeye thresher shark (*Alopias superciliosus*) sustainability status assessment: Introduction, Datasets and Methodology.

* 1. **IMPLEMENTATION OF CMM-2015-01**

* + 1. **Yellowfin tuna catch limit**

SC10 recommended that the catch of WCPO yellowfin tuna should not be increased from 2012 levels, which exceeded MSY, and measures should be implemented to maintain current spawning biomass levels until the Commission can agree on an appropriate target reference point (TRP).

According to Paragraphs 28 and 43 of CMM 2015-01, SC12 should provide recommendations for the Commission’s formulation and adoption of yellowfin tuna catch limits in December 2016. In this regard, SC12 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.

#### Yellowfin tuna purse seine catch

*28. CCMs agree to take measures not to increase catches by their vessels of yellowfin tuna. At its 2016 regular session the Commission will formulate and adopt appropriate limits for CCMs, based on recommendations from the Scientific Committee, and taking into account other measures in this CMM. At its 2016 regular session the Commission will also formulate and adopt any in-season reporting requirements needed to support full implementation of these limits.*

### *Yellowfin measures*

*CCMs agree to take measures not to increase catches by their longline vessels of yellowfin tuna. At its 2016 regular session the Commission will formulate and adopt appropriate limits for CCMs, based on recommendations from the Scientific Committee, and taking into account other measures in this CMM. At its 2016 regular session the Commission will also formulate and adopt any in-season reporting requirements needed to support full implementation of these limits*

**MI-IP-05:** Tables of yellowfin catch by gear and flag, 2010-2015.

* + 1. **Other issues related to CMM-2015-01**

SC12 may review proposals from CCMs that wish to claim exemption from the 2017 high seas FAD closure on the basis of footnote 5 of CMM 2015-01: “The high seas FAD closure in paragraph 18 does not apply in 2017 to a CCM that has achieved a verifiable reduction in bigeye catches by its purse seine vessels to 55% from current levels (2010-2012), to be reviewed on the basis of the advice of the Scientific Committee”.

**MI-WP-09:** Examining a management measure of key purse seine vessels for recovering bigeye tuna stock in the western and central Pacific Ocean.

SC12 may review and comment on any additional analyses and research, including juvenile tuna catch mitigation research, related to the effectiveness of CMM 2015-01

**MI-WP-08:** Examining indicators of effort creep in the WCPO purse seine fishery.

**MI-IP-02:** Relative impacts of FAD and free-school purse seine fishing on skipjack tuna stock status, incorporating non-linear purse seine CPUE/abundance dynamics and effort creep.

**MI-IP-03:** Preliminary capacity utilization analysis of the WCPO purse seine fleet using Data Envelopment Analysis (DEA).

**MI-IP-06:** Tables of bigeye purse-seine catch by gear and flag, 2010-2015.

**MI-IP-07:** Exploratory analysis under Project 77: linking bigeye concentrations with vessel attributes.

**MANAGEMENT ISSUES THEME PAPERS**

|  |  |
| --- | --- |
| ***MI THEME – Working Papers*** | |
| **MI-WP-01** | Pilling G., M. Skirtun, C. Reid and J. Hampton. Biological and economic consequences of alternative fishery trajectories to achieving a candidate south Pacific albacore target reference point |
| **MI-WP-02** | Pilling G., R. Scott and J. Hampton. Biologically reasonable rebuilding timeframes for bigeye tuna |
| **MI-WP-03** | Larcombe J. Proposal for adopting acceptable levels of risk for breaching limit reference points of four key tuna species in the WCPO. |
| **MI-WP-04** | Scott R., G. Pilling and J. Hampton. Performance statistics and monitoring strategies for skipjack and South Pacific albacore commensurate with: candidate management objectives for the Tropical Purse Seine and Southern Longline Fisheries |
| **MI-WP-05** | Scott R, G. M. Pilling, J. Hampton, C. Reid and N. Davies. Report of the Expert Consultation Workshop on Management Strategy Evaluation |
| **MI-WP-06** | Scott R., G. M. Pilling, S. Brouwer and J. Hampton. Evaluation of candidate harvest control rules for the tropical skipjack purse seine fishery. |
| **MI-WP-07** | Kiyofuji H.Recent ISC activities on MSE. |
| **MI-WP-08** | Pilling G., A. Tidd, PNA Office, W. Norris and J. Hampton. Examining indicators of effort creep in the WCPO purse seine fishery |
| **MI-WP-09** | Satoh K., H. Ijima. Examining a management measure of key purse seine vessels for recovering bigeye tuna stock in the western and central Pacific Ocean. |
| ***MI THEME – Information Papers*** | |
| **MI-IP-01** | McKechnie S., R. Scott and G. Pilling. Preliminary evaluation of catch-based harvest control rules for South Pacific albacore tuna |
| **MI-IP-02** | Pilling G., R. Scott and J. Hampton. Relative impacts of FAD and free-school purse seine fishing on skipjack tuna stock status, incorporating non-linear purse seine CPUE/abundance dynamics and effort creep |
| **MI-IP-03** | Tidd A. and G. Pilling. Preliminary capacity utilization analysis of the WCPO purse seine fleet using Data Envelopment Analysis (DEA) |
| **MI-IP-04** | Pilling G., R. Scott, N. Davies and J. Hampton. Approaches used to undertake management projections of WCPO tuna stocks based upon MULTIFAN-CL stock assessments |
| **MI-IP-05** | SPC Tables of yellowfin catch by gear and flag, 2010-2015 |
| **MI-IP-06** | SPC Tables of bigeye purse seine catch by gear and flag, 2010-2015 |
| **MI-IP-07** | Tidd A., L. Tremblay-Boyer and G. Pilling. Exploratory analysis under Project 77: linking bigeye concentrations with vessel attributes |

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

SC12 will consider updates to the SEAPODYM modelling framework, review recent model runs and provide comments and/or recommendations on SEAPODYM, including the process and methodology of the modelling framework if needed.

**EB-WP-01** Senina I., P. Lehodey, B. Calmettesa, S.Nicol, S. Caillot, J. Hampton and P. Williams. Predicting skipjack tuna dynamics and effects of climate change using SEAPODYM with fishing and tagging data.

**EB-IP-01** Scutt Phillips J. A. Sen Gupta1, E. van Sebille, I. Senina, P. Lehodey and S. Nicol. Individual-based methods for simulation of movement by WCPO skipjack and other pelagic species

**EB-IP-13** D. C. Dunn, T. Morato, P.I. Miller, S. Nicol, and N. Smith. Drivers of catch and biodiversity around Western and Central Pacific Seamounts

EB-IP-14 S. Nicol, P. Lehodey, I. Senina and N. Smith. SEAPODYM review with an update about ongoing developments and preliminary results

* + - 1. Ecosystem indicators

SC12 will consider fishery and environmental impacts on ecosystem, based on updated information, if available, including the development of ecosystem indicators.

**EB-WP-02** SPC Ecosystem Indicators

* 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 2016 simulation modelling work conducted under Project 54 (Monte Carlo simulation of mitigation options for longline shark bycatch). The scope of the work included:

* Based upon and extending the model described in WCPFC-SC11-2015/EB-WP-02, evaluate the likely efficacy of current longline mitigation measures that allow for flag-state choice between prohibition of shark lines and/or of wire leader on longline vessels provided for under CMM 2014-05;
* Develop a new Monte Carlo simulation model to examine potential mitigation measures that could be applied to the purse seine fishery. In the first instance this model will evaluate the impacts of switches between FAD and free school modes of fishing on overall interactions and mortality levels.

SC12 will review the results of this work and provide comments and/or recommendations on mitigation measures.

**EB-WP-03** Peatman T. and G. Pilling. Monte Carlo simulation modelling of purse seine catches of silky and oceanic white tip sharks

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

SC12 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)

SC12 will review any updated information and research outputs related with the CMM for Sharks, especially related with Paragraphs 4, 8, and 13 with reference to data provision, fin to carcass ratios, and the need for a revised or new CMM.

**EB-IP-02** Clarke S., Manarangi-Trott L and A. Taholo. Information Available to Evaluate the Effectiveness of the Commission’s Measure on Shark Finning

**EB-IP-10** Semba, Y. Investigation of fin to body weight ratio for blue shark (Prionace glauca) caught by Japanese longline fisheries in the North Pacific

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

According to Paragraph 5 of the CMM, SC12 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.

**EB-IP-15** Cramp J., M. Heupel, and C. Simpfendorfer. Evaluating the effectiveness of large-scale marine reserves on wide-ranging sharks

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

SC12 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.

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

According to Paragraph 5 of the CMM, SC12 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, and reviewing reported information in Annual Report Part 1, 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.

SC12 will review draft *Guidance for the development and evaluation of management plans for longline fisheries targeting sharks in association with WCPFC fisheries* prepared by the Secretariat associated with CMM 2015-04 and elements as stipulated in Attachment J of the WCPFC12 Summary Report, which includes:

* a range of possible definitions of a longline fishery targeting key shark species;
* a list of candidate elements to be considered for the development of management plans; and
* a list of elements to be considered for the evaluation of the management plans.

**EB-WP-05** Clarke,S. Elaboration of technical details regarding shark targeting and shark management plans for CMM 2014-05

**EB-WP-06** Harley S. and G. Pilling. Potential implications of the choice of longline mitigation approach allowed within CMM 2014-05

1. Safe release guidelines

The Commission adopted *Guidelines for the safe release of encircled animals, including whale sharks* (Attachment K, WCPFC12 Summary Report), which will be refined subject to new information. SC12 will continue to develop *New guidelines for the survival of sharks (other than whale sharks) to be released from longline or purse-seine gear* (Attachment G, SC11 Summary Report), based on any updated information and scientific evidence.

* + 1. Shark Research Plan
    2. Progress of shark research plan

The Commission adopted the WCPFC Shark Research Plan in December 2015 (SC11-EB-WP-01). SC12 may review the progress of the Shark Research Plan, including data gaps, schedule of stock assessments and indicator analysis, and mitigation measures.

**EB-WP-07** Hutchinson M. and K. Bigelow: Assessing shark bycatch condition and the effects of discard practices in the Hawaii-permitted tuna longline fishery

**EB-IP-04** Gilman E. M. Chaloupka, Y. Swimmer and S. Plovano. A cross-taxa assessment of pelagic longline bycatch mitigation measures: Conflicts and mutual benefits to elasmobranchs.

* + 1. Information on non-key-shark species

SC12 will review available information prepared by SPC-OFP on non-key-shark species, including mobulid species (mantas and devil rays) and their interactions with fisheries managed by the WCPFC. SC12 may consider some of these species for designation as WCPFC key sharks.

**EB-WP-08** Tremblay-Boyer L. and S. Brouwer. Review of available information on non-key shark spp, incl. mobulid species, and fisheries interactions

* 1. **Seabirds**

SC12 may review any updated information on seabird interactions with longline fisheries in the Convention Area in relation to the application of CMM 2012-07 (CMM for mitigating impacts of fishing on seabirds). SC12 may also review 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.

**EB-WP-09** Debski I., F. Hjörvarsdóttir and K. Knowles. Distribution of highly at-risk New Zealand seabirds in the Western Central Pacific Fisheries Commission area

**EB-WP-13** Katsumata K., K. Okamoto, D. Ochi, Y. Inoue, H. Matsunaga, H. Minami and K. Oshima. Examination of effectiveness of seabird bycatch mitigation measures for small-scale longline vessels fishing north of 23ºN specified in CMM 2015-03

**EB-WP-10** Pierre J., D. Goad, I. Debski and K. Knowles. Improving tori line performance in small-vessel longline fisheries

**EB-IP-05** Favero M., A. Wolfaardt and N. Walker. ACAP advice for reducing the impact of pelagic longline fishing operations on seabirds

**EB-IP-06** Walker N., I. Debski, B. Sullivan and K. Knowles. Development and testing of a novel seabird mitigation option, the Hook Pod, in New Zealand pelagic longline fisheries

**EB-IP-07** Debski I., J. Pierre and K. Knowles. Observer coverage to monitor seabird captures in pelagic longline fisheries

* 1. **Sea turtles**

SC12 will review scientific aspects of the CMM 2008-03 (Conservation and management of sea turtles), and consider additional or new mitigation measures of sea turtles if available.

SC12 will review the outcomes of the first workshop on Joint Analysis of Sea Turtle Mitigation Effectiveness in Longline Fisheries, held in Honolulu, Hawaii, USA from 16-19 February 2016. The workshop report is available at <http://www.commonoceans.org/fileadmin/user_upload/common_oceans/docs/Tuna/FirstSeaTurtleWorkshopReport.pdf>

**EB-WP-11** Clarke S., T. Peatman and S. Caillot. Results from the First Workshop on Joint Analysis of Sea Turtle Mitigation Effectiveness

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

SC12 may 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.

* 1. **Data exchange**

SC12 will review a process to populate the Bycatch Data Exchange Protocol (BDEP) template, and review the first BDEP template for 2013-2015.

**EB-WP-12** Williams P, N. Smith, I. Tuiloma, C. Falasi and S. Clarke. Trial Application of the BDEP Template for Summarizing Bycatch Data

**EB-IP-12** N. Smith, S. Nicol. Annual WCPFC Report: Joint Tuna RFMO Bycatch Technical Working Group

**Other Issues**

**EB-IP-08** Simpendorfer C. and C. Rigby. CITES Pacific Shark Workshop Report on Non-detrimental Findings for CITES Appendix II Sharks and Rays

**EB-IP-09** FAO Report of the fifth FAO Expert Advisory Panel for the Assessment of Proposals to Amend Appendices I and II of CITES Concerning Commercially-exploited Aquatic Species

**EB-IP-11** Lopez, J., J.M. Ferarios, J. Santiago, O.G. Alvarez, G. Moreno, H. Murua Evaluating potential biodegradable twines for use in the tropical tuna fishery

**ECOSYSTEM AND BYCATCH MITIGATION THEME**

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| ***EB THEME – Working Papers*** | | ***Agenda***  ***Item*** |
| **EB-WP-01** | Senina I., P. Lehodey, B. Calmettesa, S.Nicol, S. Caillot, J. Hampton and P. Williams. Predicting skipjack tuna dynamics and effects of climate change using SEAPODYM with fishing and tagging data. | 6.1.1.1 |
| **EB-WP-02** | SPC Ecosystem indicators | 6.1.1.2 |
| **EB-WP-03** | Peatman T. and G. Pilling. Monte Carlo simulation modelling of purse seine catches of silky and oceanic white tip sharks | 6.2.1 |
| **~~EB-WP-04~~** | ~~Cramp J., M. Heupel, and C. Simpfendorfer. Evaluating the effectiveness of large-scale marine reserves on wide-ranging sharks~~ | Changed to EB-IP-15 |
| **EB-WP-05** | Clarke S. Elaboration of technical details regarding shark targeting and shark management plans for CMM 2014-05 | 6.2.2.e |
| **EB-WB-06** | Harley S. and G. Pilling. Potential implications of the choice of longline mitigation approach allowed within CMM 2014-05 | 6.2.2.e |
| **EB-WP-07** | Hutchinson M. and K. Bigelow: Assessing shark bycatch condition and the effects of discard practices in the Hawaii-permitted tuna longline fishery | 6.2.3.a |
| **EB-WP-08** | Tremblay-Boyer L. and S. Brouwer. Review of available information on non-key shark spp, incl. mobulid species, and fisheries interactions | 6.2.3.b |
| **EB-WP-09** | Debski I., F. Hjörvarsdóttir and K. Knowles. Distribution of highly at-risk New Zealand seabirds in the Western Central Pacific Fisheries Commission area | 6.3 |
| **EB-WP-10** | Pierre J., D. Goad, I. Debski and K. Knowles. Improving tori line performance in small-vessel longline fisheries | 6.3 |
| **EB-WP-11** | Clarke S., T. Peatman and S. Caillot. Results from the First Workshop on Joint Analysis of Sea Turtle Mitigation Effectiveness | 6.4 |
| **EB-WP-12** | Williams P, N. Smith, I. Tuiloma, C. Falasi and S. Clarke. Trial Application of the BDEP Template for Summarizing Bycatch Data | 6.6 |
| **EB-WP-13** | Katsumata K., K. Okamoto, D. Ochi, Y. Inoue, H. Matsunaga, H. Minami and K. Oshima. Examination of effectiveness of seabird bycatch mitigation measures for small-scale longline vessels fishing north of 23ºN specified in CMM 2015-03 | 6.3 |
| ***EB THEME – Information Papers*** | |  |
| **EB-IP-01** | Scutt Phillips J. A. Sen Gupta1, E. van Sebille, I. Senina, P. Lehodey and S. Nicol. Individual-based methods for simulation of movement by WCPO skipjack and other pelagic species | 6.1.1.1 |
| **EB-IP-02** | Clarke S., Manarangi-Trott L and A. Taholo. Information Available to Evaluate the Effectiveness of the Commission’s Measure on Shark Finning | 6.2.2.a |
| **EB-IP-03** | Withdrawn |  |
| **EB-IP-04** | Gilman E. M. Chaloupka, Y. Swimmer and S. Plovano. A cross-taxa assessment of pelagic longline bycatch mitigation measures: Conflicts and mutual benefits to elasmobranchs. | 6.2.3.a |
| **EB-IP-05** | Favero M., A. Wolfaardt and N. Walker. ACAP advice for reducing the impact of pelagic longline fishing operations on seabirds | 6.3 |
| **EB-IP-06** | Walker N., I. Debski, B. Sullivan and K. Knowles. Development and testing of a novel seabird mitigation option, the Hook Pod, in New Zealand pelagic longline fisheries | 6.3 |
| **EB-IP-07** | Debski I., J. Pierre and K. Knowles. Observer coverage to monitor seabird captures in pelagic longline fisheries | 6.3 |
| **EB-IP-08** | Simpendorfer C. and C. Rigby. CITES Pacific Shark Workshop Report on Non-detrimental Findings for CITES Appendix II Sharks and Rays | Other |
| **EB-IP-09** | FAO Report of the fifth FAO Expert Advisory Panel for the Assessment of Proposals to Amend Appendices I and II of CITES Concerning Commercially-exploited Aquatic Species | Other |
| **EB-IP-10** | Semba, Y. Investigation of fin to body weight ratio for blue shark (Prionace glauca) caught by Japanese longline fisheries in the North Pacific | 6.2.2.a |
| **EB-IP-11** | Lopez, J., J.M. Ferarios, J. Santiago, O.G. Alvarez, G. Moreno, H. Murua Evaluating potential biodegradable twines for use in the tropical tuna fishery | Other |
| **EB-IP-12** | N. Smith, S. Nicol. Annual WCPFC Report: Joint Tuna RFMO Bycatch Technical Working Group | 6.6 |
| **EB-IP-13** | D. C. Dunn, T. Morato, P.I. Miller, S. Nicol, and N. Smith. Drivers of catch and biodiversity around Western and Central Pacific Seamounts | 6.1.1.1 |
| **EB-IP-14** | S. Nicol, P. Lehodey, I. Senina and N. Smith. SEAPODYM review with an update about ongoing developments and preliminary results |  |
| **EB-IP-15** | Cramp J., M. Heupel, and C. Simpfendorfer. Evaluating the effectiveness of large-scale marine reserves on wide-ranging sharks | 6.2.2.b |

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