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Title:	Results reporting against FAME Business Plan – 2019
Author(s):	Connie Donato-Hunt, Terry Opa

Summary/short description/key points:

FAME annually collates key results against its Business Plan to report to various stakeholders – including contributing to the SPC-wide results reporting, implementing partners, donor partners and the Heads of Fisheries. This summary results report for 2019 highlights key achievements against the FAME Business Plan.

FAME is also developing an interactive results dashboard for members and partners to explore FAME's results. The prototype will be available during HoF12 for participants to trial.

Recommendations:

Members and partners are invited to note and review FAME's results for 2019, and provide any feedback.

Overview

1. This working paper provides a summary of the performance of the Fisheries, Aquaculture and Marine Ecosystem (FAME) Division of SPC in 2019. It provides an overview of performance against the current Results Framework set out in the FAME Business Plan.

About FAME

2. FAME is one of SPC's oldest Divisions and it has been providing scientific and technical expertise to support fisheries management and sustainable development in the Pacific for over 60 years. Fish remain a fundamental and integral part of the Pacific narrative and will be for the foreseeable future. To support this FAME's goal is that **fisheries resources of the Pacific region are sustainably managed for economic growth, food security and environmental conservation.**

3. FAME is composed of three supporting components: the Oceanic Fisheries Programme (OFP), the Coastal Fisheries Programme (CFP), and the FAME Director's Office. Working with 22 Pacific Island Countries and Territories (PICTs), FAME has strong partnerships with regional, sub-regional and national entities working in fisheries.

Staffing

4. In the past couple of years FAME staff numbers have increased from 82 staff (48 men and 34 women) in 2017 to 98 staff (50 men and 48 women) plus 10 vacant positions as at December 2019. While the overall gender balance has improved by 8% in the last two years, there remains a gender imbalance between international and locally appointed staff, with most international staff being male, and most locally appointed staff female. As at December 2019, the Oceanic Fisheries Programme (OFP) has 52 staff, the Coastal Fisheries Programme has 26 staff, and 20 staff from the Director's office. Most staff are based in Noumea, with 11 located elsewhere in Fiji or Vanuatu. The current FAME staff number includes The Pacific-European Union Marine Partnership (PEUMP) programme staff implementing KRA1 and KRA3 and those in the multi-CROP KRA Programme Management Unit.

FAME performance against Business Plan

5. In 2017, FAME commissioned an independent Performance Review to critically assess FAME's current state and its fitness-for-purpose for the future. The review found that FAME has a clearly articulated strategic direction and found FAME to be very successful in delivering against all the identified Divisional objectives. Overall, FAME was found to be an effective and efficient Division, with FAME staff being committed to the Division's vision and having a strong work ethic[1].

6. Overall FAME was found to be responding well to current priorities and challenges in the region, however, FAME's ability to respond to future challenges and priorities was less clear. The review identified 15 recommendations designed to ensure FAME's fitness for purpose into the future with the Business Plan being refined accordingly to address these recommendations (see Working Paper 2 and Working Paper 3 from HoF11).

[1] CIRCA, 2017, FAME Performance Review, Available online: http://www.spc.int/DigitalLibrary/Get/7shzr

Progress towards FAME Business Plan outcomes and objectives

7. Overall, FAME is tracking well with the implementation of its Business Plan and performance against the objectives and key results areas.

8. In 2017, **FAME shifted its focus from reporting on activities, to focussing more on outcome-based results**, as endorsed by HOF10. As such, the key results below are those which demonstrate FAME's contribution to development outcomes across the region.

9. Table 1 summarises results rating for each key result area in the business plan. This assessment has been made based on key results achieved in 2019 as defined in Figure 1. Annex 1 below provides further detail on results by objective[2].

Figure 1: How the results rating system is defined

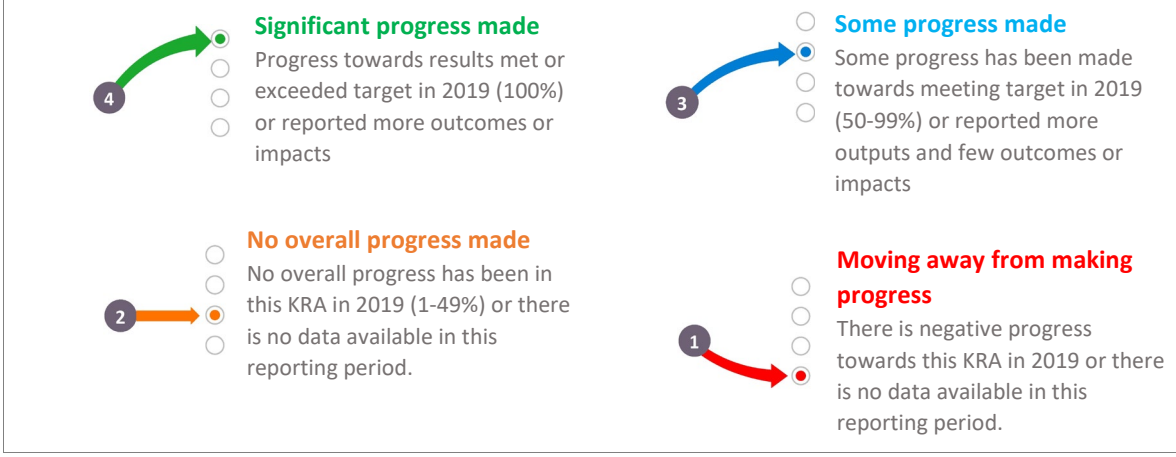
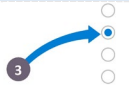
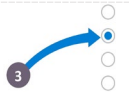
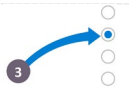
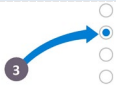
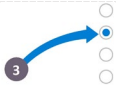


Table 1: Ratings on progress against FAME Key Results Areas, 2019

FAME key result area		Rating
Outcome 1: High-quality science supports fisheries management at regional, sub regional, national and sub-national levels		
Objective 1: Enhance data collection and provide data management services for fisheries & marine ecosystems		
1.1	Enhance ecosystem, fisheries and biological data for key species	
1.2	Data acquisition, management and dissemination, including processing, auditing and consolidating data holdings	
1.3	Develop systems, tools and support services for standardised data collection, management and reporting	

[2] Note: Results from Table 1 represents description of much of SPC's work but not a comprehensive documentation of SPC's work in the region.

Objective 2: Provide analyses and advice for evidence-based fisheries management		
2.1	Provide high quality stock assessments of key renewable oceanic resources and supporting data analyses	
2.2	Provide ecosystem, climate change, biodiversity, marine resource ecology and fisheries assessments, models and analyses	
2.3	Provide integrated social science and economic analysis and advice for informed decision-making	
2.4	Enhance existing and develop new modelling approaches to support scientific analysis and advice	
2.5	Strengthen and expand CEAFM and support the implementation of the 'New Song for Coastal Fisheries' strategy across the region	
2.6	Support the review and implementation of fisheries management legislation, policies, plans and MCS&E	
2.7	Support equitable access to shared benefits and decision-making, including women, young people and marginalised groups	
Outcome 2: High-quality technical assistance supports sustainable development		
Objective 3: Support the sustainable development of aquaculture		
3.1	Enhance regional and national policy, planning, MCS&E and legislation in the aquaculture sector	
3.2	Provide technical and analytic support for aquaculture to support production and economic sustainability	
3.3	Enhance the management of aquatic bio-security risks	
Objective 4: Identify diverse and sustainable marine-based livelihood options for fishing communities		
4.1	Test and develop innovative small-scale subsistence and commercial fishing opportunities	
4.2	Improve fish handling practices and promote value-added marine products	
4.3	Support the fisheries and aquaculture sectors to mitigate and respond to disasters and strengthen risk reduction	

Outcome 3: Information and capacity development empowers Pacific people to manage their fisheries		
Objective 5: Provide, and facilitate access to, fisheries information		
5.1	Develop information and knowledge products	
5.2	Facilitate information management and circulation	
5.3	Strengthen MEL and communicate FAME results and activities	
Objective 6: Support capacity development in fisheries and aquaculture among PICTs		
6.1	Design, deliver and quality assure regional vocational training in fisheries	
6.2	Enhance capacity development in science, technology, data management, analysis and advice	

Selected highlights for outcomes achieved in 2019

Objective 1: Enhance data collection and provide data management services for fisheries & marine ecosystems

10. Based on the analysis of more than 1,000 muscle tissue from the tuna tissue bank (Houssard et al., 2019), the mercury content of yellowfin, bigeye and albacore were analysed. Results indicated differences in mercury content according to the species and its depth preferences (more mercury found in fish frequenting deeper water), according to the size of the fish (more mercury in bigger fish) and according to the location in the western and central Pacific (less mercury at the Equator and more mercury around 20°S).

11. **Stories of changes:** Ethical research approach

An essential part of tuna research voyages includes adhering to more formal national processes, as well as local protocols. In 2019 tuna tagging research undertaken in Yap State involved obtaining an official permit to research in FSM waters, as well as visiting the Council of Tamol (COT) and each of the outer islands Ulithi, Woleai and Lamotrek to meet the local chiefs, to explain the reasons for our visit and ask for permission to catch bait in their lagoon.

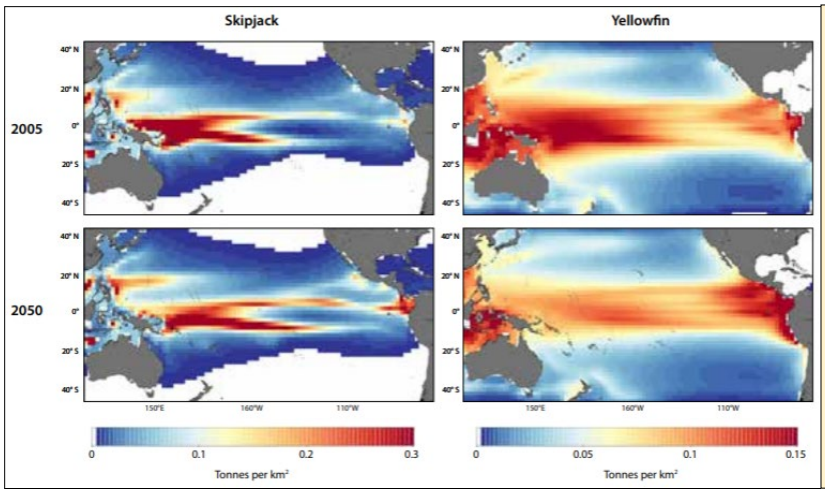
Figure 2: SPC scientists meeting local chiefs in Lamotrek. Photo credit

12. The **TAILS data entry App** uploaded 32,000 fishing trips as of January 2020 – including more than 10,000 trips in 2019. It is a significant amount of data, and a clear indication of the suitability of tablet-based data collection to meet the challenge of gathering small scale fisheries data in the Pacific context. Four years after the first 'Tails' logsheet, there are now 120 data collectors operating in 10 Pacific Island countries and territories, with 485 unique species logged, and 871,034 kg of fish recorded. These data have been used for important management decisions, as well as tracking nearshore FAD effectiveness and reporting of small-scale tuna catch to the WCPFC tuna commission.

13. In 2019, **16 of 17 PICTs met the July deadline for submitting their WCPFC Part 1 Report** which indicates improvements in WCPFC Part 1 reporting requirements have been sustained since 2018.

14. Improved knowledge management in fisheries with in-country document repositories / knowledge bases established and utilised in six PICTs (Cook Islands 350 documents, FSM Yap 90 documents, Kiribati 3400 documents, RMI 150 documents, Palau 180 documents, and Samoa established).

15. **Stories of change:** Tuna industry acknowledging climate change



The projected eastward redistribution of skipjack and yellowfin tuna due to climate change has economic implications. After a number of years of presenting climate change impacts to tuna industry forums, in 2019 we saw evidence of changing attitudes, with climate change impacts being considered as part of industry planning for the future.

Figure 3: Projected distributions of skipjack and yellowfin tuna biomass in the Pacific Ocean in 2005 and 2050 under a high greenhouse gas emissions scenario. Source: SPC

Objective 2: Provide analyses and advice for evidence-based fisheries management

16. **Stories of change:** Drifting FADs.

Our studies estimate that 1,500 to 2,200 FADs drifting through the Western and Central Pacific Ocean wash up on beaches each year. Our work has considerably raised the profile of the issue to members and regional fishery managers and has led to proactive efforts by the fishing industry to trial biodegradable FADs in the Pacific, and increase their collaboration with SPC to support further work to assist with alternative mitigation approaches.

Figure 4: FAD found beached in Touho (New Caledonia) in 2019. Photo credit: A. Durbano, Association Hô-üt'

17. The four key commercial WCPO tuna stocks of **bigeye**, **skipjack, South Pacific albacore** and **yellowfin** tuna are currently assessed to have been managed and maintained above agreed sustainable levels. This accomplishment is not matched by any other regional ocean in the world. The healthy status of WCPO tuna stocks is attributed to the management of the fishery through the WCPFC process and that of its members, including the key roles played by the Pacific Island member countries and sub-regional fisheries agencies including the Fisheries Forum Agency (FFA) and the Parties to the Nauru Agreement (PNA). Other challenges remain such as certain WCPO billfish and shark stocks which are in need of urgent attention and the economic impacts resulting from the recent decline in the price of skipjack tuna.

18. **Stories of change:** Member engagement on harvest strategies.

SPC have undertaken engagement and capacity development in harvest strategies in five PICTs, training 117 people to date (45% women). Increased knowledge has led to greater confidence and understanding among members as evidenced through their inputs and engagement at WCPFC Scientific Committee meeting in 2019.

Figure 5: Participant, Jacqui Evans, in an SPC harvest strategy workshop facilitated in 2019. Photo credit: Helen Greig

Objective 3: Support the sustainable development of aquaculture

19. All Pacific countries and territories are up to date with their World Organization for Animal Health (OIE) aquatic disease reporting. Screening of OIE notifiable diseases has been undertaken in 10 PICTs, including Cook Islands (giant clams and oysters), Fiji (all farmed aquatic species), FSM (giant clams and oysters), Kiribati (giant clams), PNG (all farmed aquatic species), RMI (giant clams), Samoa (Nile tilapia), Solomon Islands (mossambicus tilapia), Tonga (giant clams and oysters) and Vanuatu (Nile tilapia and white-leg shrimp).

20. In 2019, 15 private sector aquaculture enterprises and 2 farmer associations were recipients of assistance under a grant agreement with SPC. These enterprises are from eight countries (PNG, Fiji, Solomon Is, Vanuatu, Kiribati, FSM, RMI, Tonga) and two territories (French Polynesia and New Caledonia).

21. **Stories of changes:** Women's group Oyster farming

FAME and Fiji Ministry of Fisheries supported the Muanaira Women's group to explore shifting from harvesting wild mangrove oysters to oyster farming. A trial was set up and within three months the women were surprised and impressed by the size and shape of the growing oysters. The Women's Group are hopeful that through farming, oysters will be more plentiful, easier to harvest and provide more income for their

Figure 6: The Muanaira Women's group oyster farming by shifting from harvesting wild mangrove oyster to farming, supported by FAME. Photo credit: Tim Pickering

Objective 4: Identify diverse and sustainable marine-based livelihood options for fishing communities

22. Trials were conducted to promote sustainable development of squid and small pelagic fisheries in Tonga. Fishers are now adopting new fishing practices to diversify their catch for economic and environmentally sustainable fishing.

Objective 5: Provide, and facilitate access to, fisheries information

23. **Stories of changes:** REEFLEX (Pacific Law & Policy Database on Coastal Fisheries & Aquaculture)

REEFLEX was launched in 2019 and is a web application cataloguing coastal fisheries and aquaculture legislation. The full text of relevant laws and policies are available online for 22 SPC member countries and Timor Leste. Approximately 1000 texts are organised by country and type (constitutions, laws, regulations, policies and management plans).

Figure 7: Screen shot of the REEFLEX portal on FAME website.

Objective 6: Support capacity development in fisheries and aquaculture among PICTs

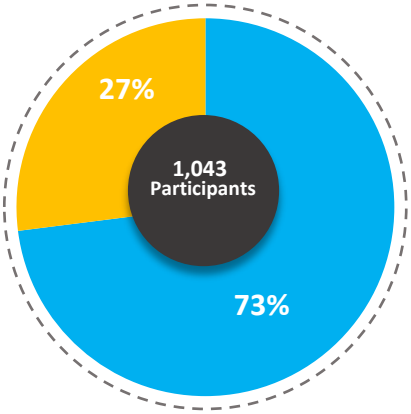


Figure 8: Proportion of men and women receiving capacity development from FAME in 2019

24. In 2019, FAME continued with enhancing capacity of PICTs through mentoring and provision of capacity development. **126** different types of trainings were delivered to **1,043** participants (27% female and 73% male) from the 22 countries and territories in the region.

25. Between 2016 and 2019, a total of **3,104** (2,354 males and 750 females) participants from member countries attended various SPC mentoring and trainings programmes, with 66% participating through the Coastal Fisheries Programme, and 34% through the Oceanic Fisheries Programme[3].

[3] 2016-19 training and the 2019 Results dashboard is available temporarily during HOF on http://www.hof12.org which will later be deployed on FAME website.

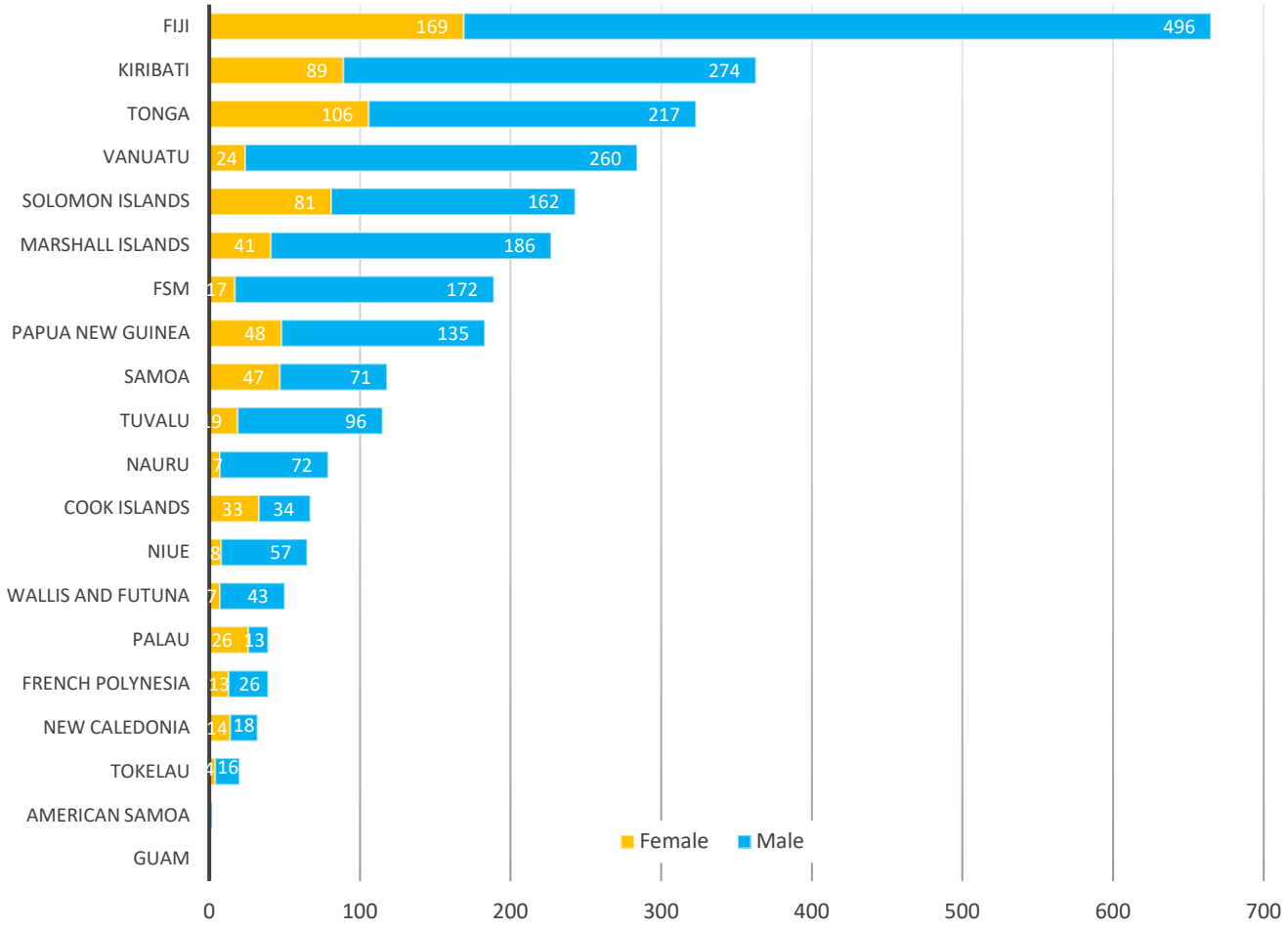


Figure 9: Training participants from member countries in 2016-19

26. Post-training evaluations were completed by 266 participants of FAME's capacity development workshops (43% of 629 total workshop participants) in 2019. The participants were asked whether the training provided was relevant to their work and whether they gained new skills and knowledge. On average, 89% of the participants indicated change in knowledge as a result of the trainings.

27. The participants were also asked whether they would use the new skills and knowledge when they returned to their home countries. Almost 90% of the participants indicated they would incorporate what they have learned into their work.

28. In 2019, Fiji, Solomon Islands, Tonga, FSM and Kiribati make up more than half of the total number of participants (64%) who participated in the training and mentoring programmes.

29. FAME is implementing a major evaluation in 2020 which will be presented to the HoF13 in 2021 which will look into the approach and impact of capacity development over the past five years.

Annex 1: 2019 key results against FAME business plan objectives

Outcome 1: High-quality science supports fisheries management at regional, sub-regional, national and sub-national levels[4]

Objective 1: Enhance data collection and provide data management services for the fisheries and marine ecosystems

Key Results Area 1.1: Enhance ecosystem, fisheries and biological data for key species

FEMA & CFSML sections within FAME responsible for this Results Area.

- 5,034 additional tissues samples were collected for the Tuna Tissue Bank. This brings the overall totals for the Tissue Bank to 109,754 samples collected from 1,145 trips, with analysis undertaken for 36,481 samples

  Countries: *Regional (ALL PICTs)*

- 16,616 fish were tagged and released during the fifth western Pacific (WP5) tagging cruise at an average of 446 fish per fishing day (93% skipjack, 6% yellowfin and 1% bigeye). 79 of the skipjack were implanted with an archival tag. In addition, 492 skipjack and 9 yellowfin received an injection of strontium chloride that will deposit a mark in their otoliths to better evaluate the rate of growth in these species when recaptured. Biological sampling effort was also undertaken with 475 fish sampled.

  Countries: *Regional (ALL PICTs)*

- 1,300 otoliths from yellowfin tuna were provided to J Farley at CSIRO for age and growth analysis (Farley et al, 2019, https://www.wcpfc.int/node/42929)

- Based on the analysis of more than 1000 muscle tissue samples from the tuna tissue bank (Houssard et al 2019), the mercury content of yellowfin, bigeye and albacore was analysed indicating difference in mercury content according to the species and its depth preferences (more mercury in deeper fish), according to the size of the fish (more mercury in bigger fish) and according to the location in the western and central Pacific (less mercury at the Equator and more mercury around 20°S)

  Countries: *Regional (ALL PICTs)*

- In 2019, data on invertebrates were collected in three PICTs (Tonga, Samoa, Kiribati) which will contribute to the analysis of the status of invertebrates.

- Data on finfish was collected in Kiribati (Gilbert Islands and Kiritimati Atoll) and will contribute to regional assessment of life-history of targeted species in 2020.

  Countries: *Kiribati, Samoa & Tonga*

- Study at the global scale (Pacific, Indian and Atlantic oceans) used a total of 4500 muscle samples of yellowfin, bigeye and albacore to analyse their carbon isotope content (Lorrain et al 2019), revealing that increased CO_2 emissions associated with human activity are detectable in tuna flesh as well as changes in the food web dynamic and composition.

  Countries: *Regional (ALL PICTs)*

Key Results Area 1.2: Data acquisition, management and dissemination, including processing, auditing and consolidating data holdings

FEMA, DM and CFSML sections within FAME responsible for this Results Area.

- 1,558 (918 longline and 640 purse seine) logsheets for fishing trips were processed by SPC for purse seine and longline fishing trips for vessels flagged to 10 countries (vessel nationality - Cook Islands, China, Fiji, Federated States of Micronesia, Japan, Kiribati, Korea, Papua New Guinea, Taiwan and Tuvalu)

[4] Note: Results highlighted in this annex represent the key results of FAME's work but not a comprehensive documentation of all activities undertaken in 2019 given the focus on reporting results and outcomes.

- 1,720 observer trips were processed by SPC from 16 PICT observer programmes (Cook Islands, Fiji, Kiribati, Marshall Islands, French Polynesia, New Caledonia, Palau, PNG, Solomon Islands, Tonga, Tuvalu and regional arrangements) using Tufman2 software. Target of 1,000 purse seine observer workbooks entered by the end of May for the previous year was also met.

  Countries: *Regional (ALL PICTs)*

Key Results Area 1.3: Develop systems, tools and support services for standardised data collection, management and reporting
FEMA, DM and CFSML sections within FAME responsible for this Results Area.

- As of the 1st January 2020, more than 32,000 fishing trips have been uploaded using the 'Tails' data entry app, including more than 10,000 trips in 2019 alone. This is a significant amount of data, and a clear indication of the suitability of tablet-based data collection to the challenge of small scale fisheries data in the Pacific context. Four years after the first 'Tails' logsheet, there are now 120 data collectors operating in 10 Pacific Island countries and territories, with 485 unique species logged, and 871,034 kg of fish recorded. These data have been used for important management decisions, as well as tracking nearshore FAD effectiveness and reporting of small-scale tuna catch to the WCPFC tuna commission.

  Countries: *Cook Islands, Fiji, FSM, Marshall Islands, New Caledonia, French Polynesia*

- In 2019, New Caledonia collect longline fishing vessel logsheets electronically using the SPC developed OnBoard application, with this replacing paper logsheets .

  Countries: New Caledonia

- The rollout of OnBoard continued in 2019 with 518 longline logsheets (fishing trips) entered from 73 longline fishing vessels using the application in six PICTs (Cook Islands, Fiji, French Polynesia, New Caledonia, Tonga and Samoa).

- The mobile app OnShore was released in 2019 to enter port sampling data, and is already being used in five PICTs (Marshall Islands, FSM, Fiji, Tonga, and Samoa). It also includes a biological sampling form to help manage bio-sampling workflow, with New Caledonia using OnShore for bio-sampling only). Trials of OnShore have resulted in better port sampling data and improved processes for collecting this data.

  Countries: *Cook Islands, French Polynesia, Fiji, New Caledonia, Samoa, Tonga, Federated States of Micronesia, Marshall Islands*

- In 2019, FAME developed:
  - Web module for market surveys
  - Ikasavea tablet application for market Surveys
  - Analysed pictures for reading fish sample data from photos
  - LearnFish online training module for fishes and sea cucumber
  - Web module for MCS

  Countries: *Regional (ALL PICTs)*

- Improved knowledge management in fisheries with in-country document repository / knowledge bases established and utilized in six PICTs (Cook Islands 350 documents, FSM Yap 90 documents, Kiribati 3400 documents, RMI 150 documents, Palau 180 documents, Samoa knowledge base established)
- Ongoing active use of SPC developed systems in six PICTs, for water quality monitoring (Cook Islands), giant clam Mariculture (French Polynesia), sea cucumber capture and export (French Polynesia), creel and market data (Kiribati), socio-economic data (Kiribati), aquarium fish and/or coral export (Kiribati, Marshall Islands), sea cucumber survey data (Samoa, Tonga).

  Countries: *Cook Islands, Federated States of Micronesia, French Polynesia, Kiribati, Marshall Islands, Samoa, Tonga*

- 16 PICTs required for submit WCPFC Part 1 reports met the 13 July deadline in 2019, with just one PICT being late. This means improvements in meeting WCPFC annual Part 1 reporting requirements has been sustained since last year.

  Countries: *Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Marshall Islands, Kiribati, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna*

Outcome 2: High-quality technical assistance supports sustainable development

Objective 2: Provide analysis and advice for evidence-based fisheries management

Key Results Area 2.1: Provide high quality stock assessments of key renewable oceanic resources and supporting data analyses

FEMA, DM & SAM sections within FAME responsible for this Results Area.

- In 2019, 81 papers were delivered to the WCPFC in 2019 with authored or co-authored by SPC (58 to Scientific Committee, 15 to the Regular Session of the WCPFC and 8 to the technical and compliance committee). Compared to 2018, nine more papers were authored for the Scientific Committee meeting with SPC authors

  Countries: *Regional (ALL PICTs)*

Key Results Area 2.2: Provide ecosystem, climate change, biodiversity, marine resource ecology and fisheries assessments, models and analyses

FEMA, DM, SAM & CFSML sections within FAME responsible for this Results Area.

- In 2019, analysis undertaken by SPC to assess impact of drifting FADs on coastal ecosystems with the intention to increase the awareness about the detrimental impact drifting FADs have on coastal ecosystems and reefs when they beach. The findings from the analysis were peer reviewed and published.

  Countries: *Regional (ALL PICTs)*

- In collaboration with SPREP and CLS produced a report entitled 'Modelling the impact of climate change including ocean acidification on Pacific yellowfin tuna' and SPC Policy Brief #32: Implications of climate-driven redistribution of tuna for Pacific Island economies.

  Countries: *Regional (ALL PICTs)*

- Four key commercial tuna stocks of bigeye, skipjack, South Pacific albacore and yellowfin tuna assessed to have been managed and maintained above agreed sustainable levels. This accomplishment is not matched by any other regional ocean in the world. The healthy status of WCPO tuna stocks is attributed to the management of the fishery through the WCPFC process and its members, including the key roles played by the Pacific Island member countries and sub-regional fisheries agencies including the Fisheries Forum Agency (FFA) and the Parties to the Nauru Agreement (PNA). Other challenges remain such as certain WCPO billfish and shark stocks in need of urgent attention and the economic impacts resulting from the recent decline in the price of skipjack tuna, which has fallen below US$1,000/MT for the first time in a number of years.

  Countries: *Regional (ALL PICTs)*

- In 2019:
  - National level analysis on the status of invertebrates (sea cucumber stocks) were provided to Tonga and Samoa
  - Aquaculture and sea ranch viability assessment and analyses was provided to Tonga
  - Support and training for invertebrate species analysis for two PICTs (Tonga and Solomon Islands)
  - Analysis of key coastal habitats for two PICTs (Tonga, Samoa) was undertaken. Report to be published 2020.

  Countries: *Samoa, Tonga*

Key Results Area 2.3: Provide integrated social science and economic analysis and advice for informed decision-making

SAM. AQ & CFSML sections within FAME responsible for this Results Area.

- In 2019:
  - FAD closure reports produced for 9 countries
  - South Pacific albacore longline fishing reports produced for 11 countries
  - Reports on longline fishing of individual vessels for Vanuatu and Tuvalu for the purposes of the longline vessel day scheme

• Fishing summaries by state for FSM and report produced predicting short term future conditions for purse seining
• Report on potential FAD limit for domestic purse seiners in Tuvalu
• Bi-annual update of 23 Country Web Pages consisting of updating all the commercial fishery plots (for some countries this is as many as 250 plots) with the latest data (currently 2018 data), and notifying member countries of their use and import. For every SPC member country, there is a dedicated log-in page to their "Country Web Page" where they can find information specific to their commercial fisheries, most notably specialized graphics on catch, effort, CPUE, species catch distributions and the like, as well as links to all SPC-reports prepared for their country.
• Bioeconomic analyses provided to Cook Islands, Fiji and Papua New Guinea in collaboration with FFA, along with Marshall Islands. Bioeconomic analyses are conducted to help determine the right (or optimal) level of fishing effort taking the economics of fishing into account (as opposed to just catch per unit effort or catch).
• Productivity analyses provided to Cook Islands, New Caledonia, Marshall Islands and Wallis and Futuna.

Countries: *Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Papua New Guinea, Solomon Islands, Tokelau, Tuvalu, Niue, Vanuatu, Fiji, Wallis and Futuna*

- A resource for accessing commercial fisheries data and plots provided to 9 PICTs.

  Countries: *Cook Islands, FSM, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau and PNG*

- Seasonality and value of target tuna and important bycatch species in the longline fishery within PICT EEZs provided to 7 PICTs.

  Countries: *American Samoa, Kiribati, Nauru, Niue, Samoa, Tokelau, Tuvalu*

Key Results Area 2.4: Enhance existing and develop new modelling approaches to support scientific analysis and advice
FEMA and SAM sections within FAME responsible for this Results Area

- National engagement and capacity development workshops on harvest strategies have been held for five member countries – Solomon Islands, FSM, RMI, Cook Islands and Kiribati – and one sub-regional workshop in Palau for PNA members. In total 117 people have been trained in harvest strategies, with 45 being women (38%). Workshop attendees agreed that their understanding of the topics increased as a result of the workshop and that the workshop was useful for their work.
  Increased knowledge as a result of the workshop has led to greater confidence in members' understanding of harvest strategies as evidenced through their increased ability to discuss and engage in this agenda item during WCPFC Scientific Committee meeting in 2019 and related side meetings.

  Countries: *Regional (ALL PICTs)*

Key Results Area 2.5: Strengthen and expand CEAFM and support the implementation of the 'New Song for Coastal Fisheries' strategy across the region
AQ, SAM & CFSML sections within FAME responsible for this Results Area

- 2019 was the first meeting of the Special Regional Fisheries Ministerial Meeting (RFMM) for ministers to discuss coastal fisheries and other fisheries related issues not covered by the FFC Ministerial which focusses on Tuna. SPC Heads of Fisheries also agreed to meet annually in light of the new annual Fisheries Ministers meeting. This signifies the operationalising of the regional mechanism for coastal fisheries, beginning with the Regional Technical Meeting for Coastal Fisheries, to HoF, to the RFMM, which then feeds into the Forum Leaders Meeting.

  Countries: *Regional (ALL PICTs)*

- In 2019, the Coastal Fisheries Report Card included Household Income and Expenditure Survey data from 12 PICTs compared to 10 in 2018. The increase was due to inclusion of 2010 HIES data for two PICTs. Coastal Fisheries Report Card presented to the Forum Fisheries and Leader Meeting.

  Countries: *Regional (ALL PICTs)*

Key Results Area 2.6: Support the review and implementation of fisheries management legislation, policies, plans and MCS&E
FEMA, DM, SAM & CFSML sections within FAME responsible for this Results Area

- REEFLEX (Pacific Law & Policy Database on Coastal Fisheries & Aquaculture) a web application cataloguing coastal fisheries and aquaculture legislation, was completed and launched. The full text of laws and policies relevant to coastal fisheries and aquaculture by country or territory (22 SPC member countries and Timor Leste) are available online. This tool is a document repository that allows you to search and download about 1000 texts organized by country and type (constitutions, laws, regulations, policies and management plans).

  Countries: *Regional (ALL PICTs)*

- In 2019, FAME supported the drafting of regulations on Aquaculture, Marine Protection Act, and Pearl Exchange for Kiribati, Nauru, Palau and Cook Islands.

  Countries: *Kiribati, Nauru, Palau, Cook Islands*

- In 2019, FAME supported the development, review and update of Management Plans for Aquaculture, FAD, Giant Clam, Pearl Industry, Trochus, Coral Reef and Road Map for Tonga, Vanuatu, Cook Islands, Fiji, FSM, Kiribati, Palau, Samoa, Solomon Islands and Vanuatu.

  Countries: *Tonga, Vanuatu, Solomon Islands, Samoa, Fiji, Cook Islands, Kiribati, Palau, Papua New Guinea, Federated States of Micronesia, Nauru, Marshall Islands*

- Solomon Islands have developed their Fisheries Policy and Management Plan without SPC support in the past two years. Several staff that came to SPC for attachment training in developing and drafting policies and management plans are now confident and are taking the initiative to initiate the drafting of their own plans.

  Country: *Solomon Islands*

Key Results Area 2.7: Support equitable access to shared benefits and decision-making, including women, young people and marginalized
ALL FAME sections are responsible for this Results Area

- Improved focus on gender in fisheries and value chain analysis undertaken by the Coastal Fisheries Programme.

  Countries: *Regional (ALL PICTs)*

- FAME and Fiji Ministry of Fisheries supported the Muanaira Women's group to shift from harvesting wild mangrove oysters to oyster farming for both traditional purposes and sale. FAME also provided socio-economic and value-chain analyses to support the process.

  Country: *Fiji*

Objective 3: Support the sustainable development of Aquaculture

Key Results Area 3.1: Enhance regional and national policy, planning, MCS&E and legislation in the aquaculture sector
Aquaculture (AQ) & CFSML section within FAME responsible for this Results Area

- In 2019 SPC supported:
  - Tonga to develop Aquaculture Regulation. As a result, it has been submitted to the Tongan Cabinet for approval.
  - RMI to draft aquaculture regulations for submission to the executive

  Countries: *Tonga and RMI*

Key Results Area 3.2: Provide technical and analytic support for aquaculture to support production and economic sustainability
Aquaculture (AQ) section within FAME responsible for this Results Area

- In 2019, 15 private sector aquaculture enterprises and 2 farmer associations groups are receiving assistance under a grant agreement with SPC. Enterprises are from 8 countries (PNG, Fiji, Solomon Is, Vanuatu, Kiribati, FSM, RMI, and Tonga) and two territories (French Polynesia and New Caledonia).

- Three enterprises (Crab Co Fiji on shrimps, Tahiti Marine Aquaculture on giant clams & Biota Inc. of Palau on marine aquarium fish broodstock deep dive collection) received on-farm trainings to improve operations and production with three Standard Operation Procedure (SOP) produced as outcomes.

  Countries: *Fiji, Marshall Islands, Kiribati, Federated States of Micronesia, French Polynesia, New Caledonia, Solomon Islands, Vanuatu, Tonga*

- One national forum for pearl farmers conducted to strengthen engagement between industry and community pearl spat collection in Savusavu pearl cluster.

- Three countries (PNG, Solomon Islands, RMI) supported with training attachment on cost-benefit analysis on aquaculture feeds

  Countries: *Marshall Islands, Solomon Islands, Papua New Guinea*

- Supported Vanuatu with the rollout of an on-line data app for data collection on aquaculture farm; Fiji - workshop to road test the app tilapia cluster farm in Nadi

  Countries: *Fiji and Vanuatu*

- Between 2016 and 2019, total of 6 (3 males and 3 females) new graduates were engaged as interns to gain hands-on experience in working with aquaculture farmers.

- After successful completion of the six month intern program, four went on to getting permanent employment while one continued post graduate education and one on maternity leave.

  Countries: *Fiji*

3.3 Key Results Area 3.3: Enhance the management of aquatic bio-security risks
Aquaculture (AQ) section within FAME responsible for this Results Area

- All Pacific countries and territories are up to date with their World Organization for Animal Health (OIE) aquatic disease reporting.

- Screening of OIE notifiable diseases has been undertaken in 10 PICTs, including Cook Islands (giant clams and oysters), Fiji (all farmed aquatic species), FSM (giant clams and oysters), Kiribati (giant clams), PNG (all farmed aquatic species), RMI (giant clams), Samoa (Nile tilapia), Solomon Islands (mossambicus tilapia), Tonga (giant clams and oysters) and Vanuatu (Nile tilapia and white-leg shrimp).

  Countries: *Cook Islands, Fiji, French Polynesia, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Palau, Papua New Guinea, Tonga, Vanuatu*

- In 2019, FAME supported the development of:
  • National aquatic biosecurity strategies completed for two countries (Samoa and PNG). Two countries have draft national strategies produced (FSM & Fiji)
  • New aquatic biosecurity regulation developed for Vanuatu.

• Final draft of the regional framework on aquatic biosecurity has been developed for endorsement by HoF12 and publication in 2020.
• New import/export standards developed for three countries (PNG on fishery and aquaculture products; Vanuatu on shrimp exports and Tonga and mozuku seaweed export to Japan)

Countries: *Federated States of Micronesia, Fiji, Papua New Guinea, Vanuatu, Tonga*

- In 2019 FAME support Palau to develop an invasive species management plan and French Polynesia to develop an animal welfare guidelines.

  Countries: *Palau, French Polynesia*

Objective 4: Identify diverse and sustainable marine-based livelihood options for fishing communities

Key Results Area 4.1: Test and develop innovative small-scale subsistence and commercial fishing opportunities
CFSML section within FAME responsible for this Results Area

- Trials conducted to promote sustainable development of squid and small pelagic fisheries in Tonga. Fishers are now adopting new fishing practices to diversify catch for economic and environmentally sustainable fishing.

  Countries: *Fiji, FSM, Kiribati, Niue, Palau, RMI, Samoa, Solomon Islands, Tokelau and Vanuatu*

Outcome 3: Information and capacity development empowers Pacific people to manage their fisheries

Objective 5: Provide, and facilitate access to, fisheries information

Key Results Area: 5.1 Develop information and knowledge products
FEMA, DM, SAM, AQ, CFSML & FI sections within FAME responsible for this Results Area

- Three SPC Fisheries Newsletters (English and French versions) and three special interest bulletins (four issues - Women in Fisheries 2 issues, Traditional Marine Resource Management and Beche-de-mer)

  Countries: *Regional (ALL PICTs)*

- In 2019 FAME produced and published two reports, a fisheries address book, five manuals, two policy briefs, two leaflets, three posters, two animated videos, six brochures (French) and three posters in French.

  Countries: *Regional (ALL PICTs)*

5.2 Facilitate information management and circulation
Fisheries Information (FI) section within FAME responsible for this Results Area

- Facilitated and disseminated the following national fisheries information and products:
  o Federated States of Micronesia Aquaculture Management and Development Plan
  o Republic of Palau Bureau of Marine Resources Annual Report 2017
  o Solomon Islands National Fisheries Policy 2019–2029
  o National Aquatic Biosecurity Strategic Plan for Papua New Guinea 2019–2023
  o Vanuatu National Sea Cucumber Management Plan 2019–2030
  o Vanuatu National Roadmap for Coastal Fisheries: 2019–2030. Maintenance of FAME website to facilitate access to FAME information or events via quick links, thematic menus, a calendar of events and news.

  Countries: *Federated States of Micronesia, Palau, Solomon Islands, Papua New Guinea, Vanuatu*

- In 2019, 11 (5 males and 6 females) participants were trained in Digital Library and Information Dissemination

Countries: *Federated States of Micronesia, Kiribati, Palau, Tonga, Tuvalu*

5.3 Strengthen MEL and communicate FAME results and activities

- Strengthening monitoring, evaluation and learning relating to capacity development activities. Feedback surveys were completed by 266 participants of FAME's capacity development workshops (43% of 629 total workshop participants), in which participants were asked a range of questions included whether they gained new knowledge, and whether they would be able to incorporate learnings into their work.

  Countries: *Regional (ALL PICTs)*

Objective 6: Support capacity development in fisheries and aquaculture among PICTs

Key Results Area 6.1: Design, deliver and quality assure regional vocational training in fisheries

Information Management (IM) sections within FAME responsible for this Results Area

- In 2019, 229 (183 males and 46 females) participants were trained as part of the Regional Observer Programmes (Pacific Islands Regional Observer Programme)

  Countries: *Federated States of Micronesia, Marshall Islands, Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Tuvalu, Tokelau, Vanuatu, Solomon Islands, New Caledonia, Palau, Cook Islands*

- 29 (15 males and 14 females) participants completed the Certificate IV in CFA Compliance 2nd Cohort

  Countries: *Cook Islands, Fiji, Kiribati, Solomon Islands, Nauru, Vanuatu, Tonga, Samoa*

Key Results Area 6.2: Enhance capacity development in science, technology, data management, analysis and advice

Information Management (IM) sections within FAME responsible for this Results Area

- In 2019, 774 (557 males and 217 females) participants attended FAME facilitated trainings
- 89% (n=266) of respondents in post training evaluations mentioned change in knowledge as a result of FAME trainings
- 90.4% (n=266) of the training participants who responded to post-training evaluation, mentioned they would incorporate what they have learnt in trainings back into their work.

  Country: *Regional (ALL PICTs)*

ANNEX 1

FAME peer reviewed publications 2019 (20 publications)

1. Anderson G, Hampton J, Smith N, Rico C. Indications of strong adaptive population genetic structure in albacore tuna (Thunnus alalunga) in the southwest and central Pacific Ocean. Ecol Evol. 2019 Aug 27;9(18):10354-10364. doi: 10.1002/ece3.5554. eCollection 2019 Sep.
2. Anderson, G., M. Lal, J. Hampton, N. Smith and C. Rico. 2019. Close kin proximity in yellowfin tuna (Thunnus albacares) as a driver of population genetic structure in the tropical western and central Pacific Ocean. Frontiers in Marine Science. 6: 341. DOI:10.3389/fmars.2019.00341
3. Bax NJ, Miloslavich P, Muller-Karger FE, Allain V, Appeltans W, Batten SD, Benedetti-Cecchi L, Buttigieg PL, Chiba S, Costa DP, Duffy JE, Dunn DC, Johnson CR, Kudela RM, Obura D, Rebelo L-M, Shin Y-J, Simmons SE and Tyack PL 2019 A Response to Scientific and Societal Needs for Marine Biological Observations. Front. Mar. Sci. 6:395. doi: 10.3389/fmars.2019.00395
4. Escalle, L., Scutt Phillips, J., Brownjohn, M. *et al.* Environmental versus operational drivers of drifting FAD beaching in the Western and Central Pacific Ocean. *Sci Rep* 9, 14005 2019. doi: 10.1038/s41598-019-50364-0
5. Fey, P., Bustamante, P., Bosserelle, P., Espiau, B., Malau, A., Mercader, M., Wafo, E., Letourneur, Y., Does trophic level drive organic and metallic contamination in coral reef organisms?. Science of The Total Environment, vol. 667, pp. 208-221. doi: 10.1016/j.scitotenv.2019.02.311
6. Frommel AY, Brauner CJ, Allan BJM, Nicol S, Parsons DM, Pether SMJ, Setiawan AN, Smith N, Munday PL. Organ health and development in larval kingfish are unaffected by ocean acidification and warming. PeerJ. 2019 Dec 12;7:e8266. doi: 10.7717/peerj.8266. eCollection 2019.
7. Hewavitharane, C. A., Pickering, T. D., Rico, C., & Mochioka, N. 2019. Early life history of tropical freshwater eels (Anguilla spp.) recruiting to Viti Levu, Fiji Islands, in the western South Pacific. Marine and Freshwater Research 70: pp 1-9. https://doi.org/10.1071/MF19047
8. Houssard P, Point D, Tremblay-Boyer L, Allain V, Pethybridge H, Masbou J, Ferriss BE, Baya PA, Lagane C, Menkes CE, Letourneur Y, Lorrain A. A Model of Mercury Distribution in Tuna from the Western and Central Pacific Ocean: Influence of Physiology, Ecology and Environmental Factors. Journal of Environmental Science and Technology · February 2019, DOI: 10.1021/acs.est.8b06058
9. Jarrold, M. D., Welch, M. J., McMahon, S. J., McArley, T., Allan, B. J. M., Watson, S. A., Parsons, D. M., Pether, S. M. J., Pope, S., Nicol, S., Smith, N., Herbert, N. & Munday, P. L. 2019. Elevated CO2 affects anxiety but not a range of other behaviours in juvenile yellowtail kingfish. Marine Environmental Research. https://doi.org/10.1016/j.marenvres.2019.104863
10. Lorrain A, Pethybridge H, Cassar N, Receveur A, Allain V, Bodin N, Bopp L, Choy CA, Duffy L, Fry B, Goñi N, Graham BS, Hobday AJ, Logan JM, Ménard F, Menkes CE, Olson RJ, Pagendam DE, Point D, Revill AT, Somes CJ, Young JW. 2019. Trends in tuna carbon isotopes suggest global changes in pelagic phytoplankton communities. Global Change Biology. 26. 10.1111/gcb.14858.
11. Mari Kuroki, Michael J. Miller, Eric Feunteun, Pierre Sasal, Timothy Pickering, Yu-San Han, Elisabeth Faliex, Anthony Acou, Aurélie Dessier, Robert Schabetsberger, Shun Watanabe, Tatsuya Kawakami, Hiroaki Onda, Takatoshi Higuchi, Aya Takeuchi, Madoka Shimizu, Chinthaka A. Hewavitharane, Seishi Hagihara, Terumasa Taka, Shingo Kimura, Noritaka Mochioka, Tsuguo Otake, Katsumi Tsukamoto (2020). Distribution of anguillid leptocephali and possible spawning areas in the South Pacific Ocean. Progress in Oceanography, Volume 180.

12. Munday, P.L., Schunter, C., Allan, B.J.M., Nicol, S., Parsons, D.M., Pether, S.M.J., Pope, S., Ravasi, T., Steiawan, A.N., Smith, N., and Domingos, J.A. 2019. Testing the Adaptive Potential of Yellowtail Kingfish to Ocean Warming and Acidification. Frontiers in Ecology and Evolution; 7:253. doi: 10.3389/fevo.2019.00253

13. Popova, E, Vousden, D, Sauer, WHH, Mohammed, EY, Allain, V, Downey-Breedt, N, Fletcher, R, Gjerde, KM, Halpin, PN, Kelly, S, Obura, D, Pecl, G , Roberts, M, Raitsos, DE, Rogers, A, Samoilys, M, Sumaila, UR, Tracey, S and Yool, A. 2019. Ecological connectivity between the areas beyond national jurisdiction and coastal waters: Safeguarding interests of coastal communities in developing countries. Marine Policy. 104. 90-102. 10.1016/j.marpol.2019.02.050.

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17. Senina, I., P. Lehodey, J. Sibert and J. Hampton. 2019. Integrating tagging and fisheries data into a spatial population dynamics model to improve its predictive skills. Canadian Journal of Fisheries and Aquatic Sciences. DOI: 10.1139/cjfas-2018-0470

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20. Vincent, M.T., Brenden, T.O. and Bence, J.R. 2019. Parameter estimation performance of a recapture-conditioned integrated tagging catch-at-age analysis model. Fisheries Research 224, https://www.sciencedirect.com/science/article/abs/pii/S0165783619303066.

15th Regular Session of the Scientific Committee (58 papers)

Paper reference	Title
GN-WP-01	Williams, P. and Reid, C. Overview of tuna fisheries in the western and central Pacific Ocean, including economic conditions – 2018
WCPFC15-2018-09	Pilling, G., Scott, R., Scott, F. and Hampton, J. Technical aspects of a potential SP Albacore harvest strategy
WCPFC15-2018-10_rev1	SPC-OFP. Potential target reference points for South Pacific albacore
WCPFC15-2018-12_rev2	SPC-OFP. Evaluation of CMM 2017-01 for bigeye tuna, with additional evaluations for skipjack and yellowfin tuna
WCPFC15-2018-13_rev1	SPC-OFP. Minimum TRPs for WCPO yellowfin and bigeye tuna consistent with alternative LRP risk levels
WCPFC15-2018-14	Scott, R., Scott, F., Pilling, G., Hampton, J. and Davies, N. Selecting and Conditioning the Operating Models for WCPO Skipjack
WCPFC15-2018-15	Scott, F. Scott, R., Davies, N., Pilling, G. and Hampton, J. Performance indicators for comparing management procedures using the MSE modelling framework
WCPFC15-2018-20	SPC-OFP. Key decisions for managers and scientists under the harvest strategy approach for WCPO tuna stocks and fisheries
ST-WP-01	Williams, P. Scientific data available to the Western and Central Pacific Fisheries Commission
ST-WP-02	Peatman, T., S. Fukofuka, T. Park, P. Williams, J. Hampton. and N. Smith. Better purse seine catch composition estimates: progress on the Project 60 work plan
ST-WP-03	SPC-OFP. Project 90 Update : Better data on fish weights and lengths for scientific analyses
ST-WP-04	FFA, PNAO, SPC and WCPFC Secretariat. Update on Project 93 (Review of the Commission's data needs and data sources,
ST-IP-01	SPC-OFP. Estimates of annual catches in the WCPFC statistical area
ST-IP-02	Williams, P., Panizza, A., Falasi, C., Loganimoce, E., Hosken, M. and Schneiter, E. Status of observer data management
ST-IP-03	Williams, P. An update on cannery data with potential use to the WCPFC
SA-WP-01	Brouwer, S. and G. Pilling. A compendium of fisheries indicators for tuna stocks
SA-WP-02	Farley, J., Krusic-Golub, K., Clear, N., Eveson, P., Smith, N. and Hampton, P. Project 94: Workshop on yellowfin and bigeye age and growth
SA-WP-03	Farley, J., Krusic-Golub, K., Clear, N., Eveson, P., Roupsard, F., Sanchez, C. and Smith, N. Progress on yellowfin tuna age and growth in the WCPO (Project 82)
SA-WP-04	Ducharme Barth, N., Vincent, M., Pilling, G. and Hampton, J. Simulation analysis of pole and line CPUE standardization approaches for skipjack tuna in the WCPO
SA-WP-05	Vincent, M., G. Pilling and J. Hampton. Stock assessment of skipjack tuna in the western and central Pacific Ocean (Rev.01)
SA-WP-06	Tremblay-Boyer, L., Carvalho, F., Neubauer, P. and Pilling, G. Stock assessment for oceanic whitetip shark in the Western and Central Pacific Ocean
SA-WP-07	Ducharme Barth, N., Pilling, G. and Hampton, J. Stock assessment of SW Pacific striped marlin in the WCPO
SA-WP-08	Brouwer, S. Recent trends in the south Pacific albacore fishery
SA-WP-13	Neubauer, P., Richard, Y. and Tremblay-Boyer, L. Alternative Assessment Methods for Oceanic Whitetip Shark
SA-WP-14	Kinoshita, J., Aoki, Y., Ducharme-Barth, N. and Kiyofuji, H. Standardized catch per unit effort (CPUE) of skipjack tuna of the Japanese pole-and-line fisheries in the WCPO from 1972 to 2018
SA-IP-01	Pilling, G. and Brouwer, S. Report from the SPC pre-assessment workshop, Noumea, April 2019.

SA-IP-02	Davies, N., Fournier, D, Takeuchi, Y., Bouyé, F. and Hampton, J. Developments in the MULTIFAN-CL software 2018-2019
SA-IP-03	MacDonald, J., Moore, B. and Smith, N. Stock structure considerations for Pacific Ocean tunas
SA-IP-04	M. Vincent, Y. Aoki, H. Kiyofuji, J. Hampton and G. Pilling Background analyses for the 2019 stock assessment of skipjack tuna
SA-IP-05	Vidal, T., G. Pilling, L. Tremblay-Boyer, and T. Usu. Standardized CPUE for skipjack tuna *Katsuwonus pelamis* from the Papua New Guinea archipelagic purse seine fishery
SA-IP-06	T. Peatman, J. Scutt Phillips, F. Roupsard, C. Sanchez, B. Leroy, N. Smith. Analysis of tag seeding data and reporting rates
SA-IP-07	Ducharme-Barth, N. and Pilling, G. Background analyses for the 2019 stock assessment of SW Pacific striped marlin
SA-IP-09	Vincent, M., Ducharme-Barth, N. and McKechnie, S. Summary of fisheries structures for the 2019 stock assessment of skipjack tuna in the western and central Pacific Ocean
SA-IP-17	Tremblay-Boyer, L. and Neubauer, P. Historical catch reconstruction and CPUE standardization for the stock assessment of oceanic whitetip shark in the Western and Central Pacific Ocean
MI-WP-01	Pilling, G., Scott, F and Hampton, J. Minimum Target Reference Points for WCPO yellowfin and bigeye tuna consistent with alternative LRP risk levels, and multispecies implications
MI-WP-02	Pilling, G. Alternative trajectories to achieve the South Pacific albacore interim TRP (Rev.01)
MI-WP-03	N. Yao, F. Scott, R. Scott, G. M. Pilling and J. Hampton. Performance indicators for comparing management procedures for South Pacific albacore using the MSE modelling framework
MI-WP-04	Scott, F., R. Scott, N. Yao, G. Pilling and J. Hampton. Mixed fishery and multi-species issues in harvest strategy evaluations
MI-WP-05	Scott, R., F. Scott, N. Yao, G. Pilling and J. Hampton. Results of Initial Evaluations of Management Procedures for Skipjack
MI-WP-06	Scott, F., R. Scott, N. Yao, G. Pilling and J. Hampton. Considering Uncertainty When Testing and Monitoring WCPFC Harvest Strategies
MI-WP-07	N. Yao, R. Scott, F. Scott, G. M. Pilling and J. Hampton. CPUE analysis for South Pacific albacore
MI-WP-08	R. Scott, N. Yao, F. Scott and G. Pilling. South Pacific albacore management strategy evaluation framework
MI-WP-09	F. Scott, R. Scott, N. Yao, G. Pilling and J. Hampton Harvest strategy engagement tools
MI-WP-11	Pilling, G., Williams, P. and Hampton, J. Evaluation of CMM 2018-01 for tropical tuna
MI-WP-12	Escalle, L., Muller, B., Scutt-Phillips, J., Brouwer, S., Pilling, G. and the PNA Office Report on analyses of the 2016/2019 PNA FAD tracking programme
MI-WP-13	Escalle, L., Vanden Heuvel, B., Clarke, R., Brouwer, S. and Pilling, G. Report on preliminary analyses of FAD acoustic data
MI-IP-02	Scott, R., F. Scott, N. Yao, G. Pilling, J. Hampton and N. Davies
MI-IP-03	F. Scott, R. Scott, N. Yao, R. Hillary, T. Kitakado, N. Davies, G. Pilling and J. Hampton Report of the Second Expert Consultation Workshop on Management Strategy Evaluation
MI-IP-06	Secretariat and SPC-OFP. Catch and effort tables on tropical tuna CMMs
MI-IP-09	SPC-OFP. Current and projected stock status of skipjack tuna to inform consideration of Target Reference Points
EB-WP-02	Brouwer, S. Progress on the WPCFC stock assessments and shark research plan (summary table)
EB-WP-03	T. Peatman, E. Abraham, D. Ochi, D. Webber and N. Smith. Project 68: Estimation of seabird mortality across the WCPFC Convention Area

EB-WP-08	Scutt Phillips, J., Leroy, B., Peatman, T., Escalle, L. and Smith, N. Electronic tagging for the mitigation of bigeye and yellowfin tuna juveniles by purse seine fisheries
EB-IP-01	Fitzsimmons, L., Abraham, E., Caillot, S. and Smith, N. An update on the Bycatch Management Information System (BMIS): developments in 2018-19 including the integration of data visualisation and mapping for bycatch data
RP-ABNJ-01	Clarke, S. and N. Smith. Update on the Common Oceans (ABNJ) Tuna Project's Shark and Bycatch Components, 2018-2019
RP-P35b-01 Rev.1	SPC-OFP. Project 35b: WCPFC Tuna Tissue Bank
RP-PTTP-01	Smith, N. and Hampton, J. Report of the Pacific Tuna Tagging Programme Steering Committee
RP-PTTP-02	SPC-OFP. Project 42: Pacific Tuna Tagging Project Report for 2019-2022

16th Regular Session of the Technical and Compliance Committee (8 papers)

WCPFC-TCC15-2019-RP10	Annual report on the performance of the E-reporting Standards and their application
WCPFC-TCC15-2019-IP03_rev1	Scientific data available to the Western and Central Pacific Fisheries Commission (WCPFC-SC15-ST-WP01_rev1) - revision 1
WCPFC-TCC15-2019-IP04_rev2	Status of Observer Data Management (updated version of SC15-ST-IP02 paper)_revision 2
WCPFC-TCC15-2019-IP05	Overview of tuna fisheries in the WCPO, including economic conditions – 2018 (SC15-GN-WP01)
WCPFC-TCC15-2019-IP08	Catch and effort tables on tropical tuna CMMs (updated version of SC15-MI-IP06 paper)
WCPFC-TCC15-2019-IP09	Summary of reporting received by WCPFC under CMM 2010-05 and CMM 2015-02: south Pacific albacore
WCPFC-TCC15-2019-IP10	Trends in the South Pacific Albacore Longline and Troll Fisheries (SC15-SA-WP08)
WCPFC-TCC15-2019-IP15	Assessment of the number of vessels fishing for South Pacific Albacore south of 20S (TCC14 info paper)

16th Regular Session of the Commission (15 papers)

WCPFC16-2019-09	An overview of progress in developing WCPFC Harvest Strategies
WCPFC16-2019-10	Using performance indicators to select a management procedure for skipjack
WCPFC16-2019-11	Using the PIMPLE software to explore skipjack performance indicators
WCPFC16-2019-14	Current and projected stock status of WCPO skipjack tuna to inform consideration of an updated target reference point
WCPFC16-2019-15	Minimum Target Reference Points for WCPO yellowfin and bigeye tuna consistent with alternative LRP risk levels, and multispecies implications (update of SC15-MI-WP01)
WCPFC16-2019-16	Results of Initial Evaluations of Management Procedures for Skipjack (SC15-2019-MIWP05)
WCPFC16-2019-17	Evaluation of CMM 2018-01 (update of SC15-MI-WP11)
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