SECRETARIAT OF THE PACIFIC COMMUNITY

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Director-General's report series – 2012 work programme highlights and 2013 work programme

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AGENDA ITEM 2.2.4: FISHERIES, AQUACULTURE AND MARINE ECOSYSTEMS DIVISION REPORT

SUMMARY

1. This paper reviews the achievements of the Fisheries, Aquaculture and Marine Ecosystems (FAME) Division in 2012, and outlines work planned for 2013. It also summarises the achievement of strategic plan objectives, as measured by appropriate indicators.

2. The division has made good progress during 2012 in implementing the work programme. The achievement of higher-level objectives during the period 2010/2011 was analysed through a review of the strategic plan in 2012.

3. There have been a number of positive outcomes in fisheries across the region over the past 2–3 years that have been supported by SPC FAME services. For example, over the period from the start of the plan in 2010:

- More Pacific Islanders have jobs in the fisheries sector;
- The value of the region's tuna catch has increased substantially;
- More tuna is being caught by domestic fleets and less is being discarded;
- New enterprises are starting up to take advantage of sustainable opportunities in coastal fisheries;
- More countries and fish processing plants have received approval to export to demanding markets like the European Union.

4. Some new work areas have been developed in response to decisions by Heads of Fisheries. There is a growing emphasis on helping to understand and adapt to the impacts of climate change.

RECOMMENDATIONS

5. CRGA is invited to:

i. note the results delivered by the Fisheries, Aquaculture and Marine Ecosystems (FAME) Division and its achievements during 2012;

ii. note the outcomes of the internal review of the FAME strategic plan, the minor revisions to objectives that have been approved by Heads of Fisheries, and the indicators now used to measure progress; and

iii. note the outline of the 2013 work programme.

FISHERIES, AQUACULTURE AND MARINE ECOSYSTEMS DIVISION

PURPOSE

1. This paper reviews the achievements of the Fisheries, Aquaculture and Marine Ecosystems Division in 2012 and outlines work planned for 2013. The division conducted an internal mid-term review of its strategic plan during the year, the outcomes of which were presented to an informal meeting of Heads of Fisheries in June.

PRESENTATION OF THE DIVISION

2. The division consists of two programmes: the Oceanic Fisheries Programme (OFP) and the Coastal Fisheries Programme (CFP). The Director's Office provides oversight and support for both programmes.

3. The goal of the division is **the sustainable management of the marine resources of the Pacific Islands region for economic growth, food security and environmental conservation**.

4. The goals of the coastal and oceanic programmes are respectively:

   coastal fisheries, nearshore fisheries and aquaculture in Pacific Island countries and territories (PICTs) are managed and developed sustainably; and

   fisheries exploiting the region's resources of tuna, billfish and related species are managed for economic and ecological sustainability using the best available scientific information.

5. The country reports contain summary of results by country, providing an update on progress in implementing the fisheries sector part of the various joint country strategies, as well as resources (funding and staff time) expended. This has been derived from the new integrated reporting and information system (IRIS).

PROGRESS TOWARDS ACHIEVING STRATEGIC PLAN OBJECTIVES

6. A mid-term review of the FAME strategic plan (2010–2013) was carried out early in the year to assess progress and decide if changes were needed. A number of minor changes were made to objectives and results to reflect new areas of work requested by members and for clarity. These were approved by Heads of Fisheries at their meeting in June. The review also examined the indicators that are proposed in the strategic plan and found that some of these are not really suitable. The revised objectives and indicators are used in this report.

7. The objective-oriented project planning approach used by FAME requires indicators at each level: overall goal, objectives and results. Note that these are not a complete measure of progress – there may be areas of FAME work that are not covered by an indicator. Nor are they necessarily driven entirely by work of the division; indeed, the targets for higher-level indicators will always need the support and efforts of other agencies, national governments and often the private sector to be achieved.

8. A statement of activities under each strategic plan objective and result area will be provided in the FAME annual report for 2012. This section therefore just highlights the goals and objectives of each programme, the progress as measured by indicators over recent years, and a summary of some key activities and outputs in the current year.

Divisional goal

9. The divisional goal identifies economic growth, food security and environmental conservation as the key areas targeted by marine resource management. We had originally planned to use the contribution of fisheries to gross domestic product as an indicator of economic growth; however, these data are only available from one-off surveys and not on a timely basis. An alternative – which reflects the concerns of many members with regard to creating more jobs – is the number of people formally employed in the fisheries sector. This information is collected quarterly by the Forum Fisheries Agency (FFA) for its 15 island country members.

Formal employment in fisheries in 15 FFA PICT members

December 2009 – 12,700
December 2010 – 12,000
December 2011 – 13,500
December 2012 – 17,000+
(At least 3,500 new jobs foreseen in 2012 with new onshore processing)

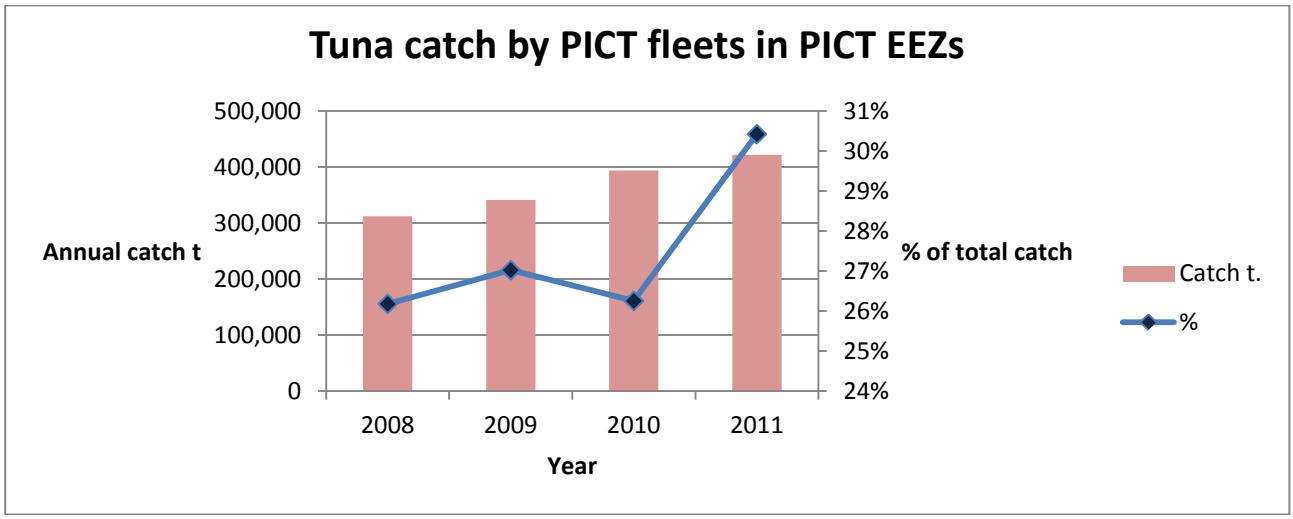
10. Per capita fish consumption will be used as an indicator for food security. Baseline data are available from five countries that will be re-surveyed using household income and expenditure surveys before the end of 2013. These data are obviously incomplete for the overall region, but will give an indicator of trends in these countries.

Oceanic Fisheries Programme

11. The Oceanic Fisheries Programme aims to assist PICTs in securing optimum benefits from the region's tuna resources by providing high-quality scientific advice. At the higher level, two measures are suggested as indicators of the success of regional efforts to derive economic benefits from the resource – the total catch value, and the volume and proportion of that catch taken by domestic fleets.

Total catch value of four main tuna species from the western and central Pacific Ocean at the point of unloading/transhipment from the fishing vessel in US dollars

2009 – $3.9 billion 2010 – $4.3 billion 2011 – $5.5 billion



12. In terms of the more direct goal of OFP, to inform management of oceanic fisheries resources, the suggested indicator is whether or not the four main tuna species are being fished within sustainable limits. Between 2009 and 2011, three of the four species (skipjack, yellowfin and South Pacific albacore), accounting for 95% of the catch, continued to maintain stock levels well above those which give the maximum sustainable yield (MSY). However, the most recent assessments for these species indicate that current catch levels are now close to MSY, and therefore it is likely that these species are now being fished at close to their maximum potential. For the fourth species, bigeye tuna, the scientific advice in 2009 was to reduce fishing on this stock, and this was still necessary in 2011. OFP is working closely with the Western and Central Pacific Fisheries Commission (WCPRFC), FFA and others to design management measures that will ensure sustainable fisheries for all of these stocks.

Bigeye Tuna – scientific advice to reduce fishing mortality

In 2009, a 34–50% reduction on the average fishing mortality between 2004 and 2007 was recommended; in 2011, a 32% reduction on 2006–2009 fishing mortality was still needed.

Objective 1 – To provide high-quality scientific information and advice for regional and national fisheries management authorities on the status of, and fishery impacts on, stocks targeted or otherwise impacted by regional oceanic fisheries.

13. A region-wide stock assessment was carried out for only one of the main tuna species in 2012 (albacore). An assessment of South Pacific striped marlin was also delivered. In terms of non-target species that are of concern, good progress was also made in the implementation of the shark research plan and an assessment was completed for oceanic white-tip shark. Results indicated that this species is heavily impacted by fishing and stocks have been reduced to less than 10% of what would be expected in the absence of fishing. An assessment of silky shark was also initiated and will be completed in 2013. As in previous years, considerable effort was devoted to providing FFA and subregional groups with the scientific advice and support that they require, with a scientist working full-time on these initiatives, with support from other programme staff.

Since the appointment of SPC as scientific services provider, all tuna stock assessment results have been fully accepted by WCPFC. In 2011, a process of independent review of these assessments was started and the first of these peer reviews, while making a number of recommendations for improvement, concluded that: 'the stock assessment for bigeye tuna in the [western and central Pacific Ocean] is based on state-of-the art methods and is analytically very thorough. The analysis of raw data, where available, is more comprehensive than is common for most assessment applications'.

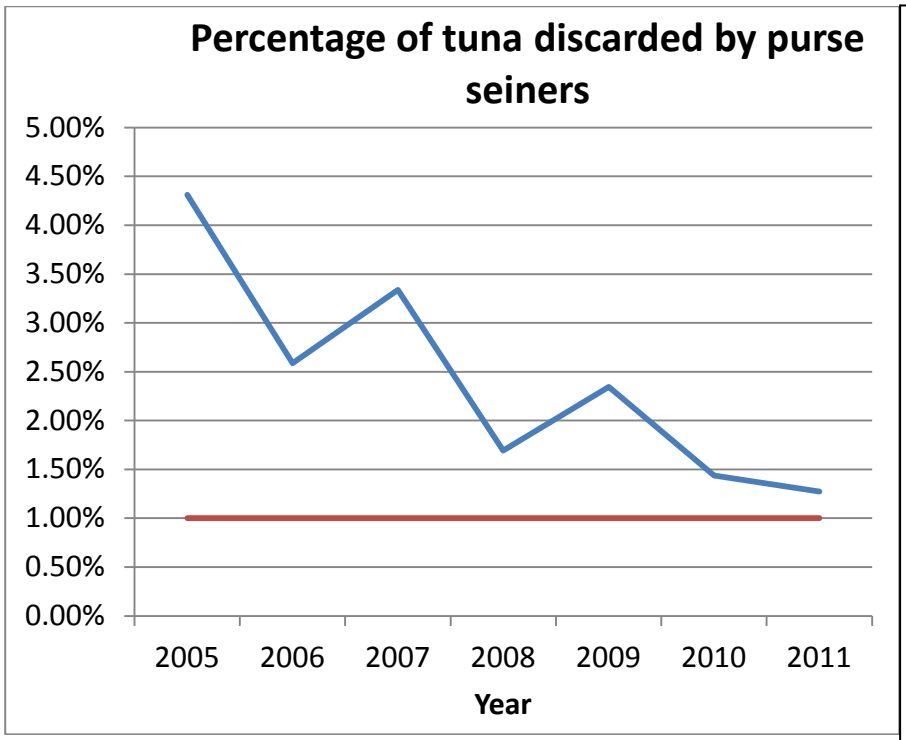
14. The application for a large part of the purse-seine fishery for skipjack in the Parties to the Nauru Agreement (PNA) waters to be certified as a sustainable fishery by the Marine Stewardship Council (MSC) was approved early in the year. This is the first major tuna fishery in the world to get MSC certification. A condition of the certification is the development of reference points and harvest control rules for the fishery – a central theme of wider efforts to improve tuna management in the region. OFP scientists have already presented some initial ideas to the Scientific Committee of WCPFC, and agreement was reached on limit reference points for all of the major tuna species.

15. Support to countries at the national level was limited by funding and staffing gaps, and it was not possible to hold a stock assessment workshop for national tuna scientists during 2012. Nevertheless, some good progress was made with the country webpages, issue-specific national reports were

prepared for eight countries on the impacts of the closure of fish aggregating devices (FADs) on their fisheries, and reports on interactions between small-scale and commercial tuna fisheries will be ready for six countries before the end of the year. Working with FFA, FAME has continued to develop capacity for bio-economic modelling of fisheries to inform management, and this has proved valuable for setting limits on the number of longliners licensed to fish in the Fiji exclusive economic zone (EEZ).

Objective 2 - To provide high-quality fishery monitoring services, analysis services and capacity development to support the management of oceanic fisheries by regional, subregional and national fisheries management authorities.

16. This objective covers FAME's involvement in training of fisheries observers and other observer programme staff (debriefers who interview observers after each trip and check their reports, and observer trainers who will take over from SPC staff in due course), as well as support for other monitoring work such as the sampling of catches in port.



An important high-level role of observer programmes is the monitoring of the amount of fish discarded by commercial fishing vessels. The graph illustrates the success achieved in implementing a regional measure to bring down discards of tuna by purse-seine vessels, aimed at reducing fishing mortality and waste. For operational reasons it is not possible to eliminate discards entirely, but the target of 1% was nearly achieved in 2011, monitored by 100% observer coverage of the fishing vessels.

17. As at September, FAME's observer trainers had run 8 courses during 2012, with 104 qualified observers trained (a further 9 trainees failed the assessments). There has been a strong effort this year to train debriefers, with a total of 45 persons attending one of four courses. Additional courses to train both observers and debriefers will be run before the end of the year. Four national staff have now completed the programme of work experience required for observer trainers, in addition to the team of five employed by FAME and based in Noumea, Suva and Pohnpei.

18. Research continued on improving the sampling methods used by observers to collect data on the size of tuna caught. Support was also provided for national programmes that sample catches at the point of landing, including a concerted effort to improve information on the catches of small-scale tuna fishers. Training of officers to collect this information was completed in Nauru, Tuvalu and Cook

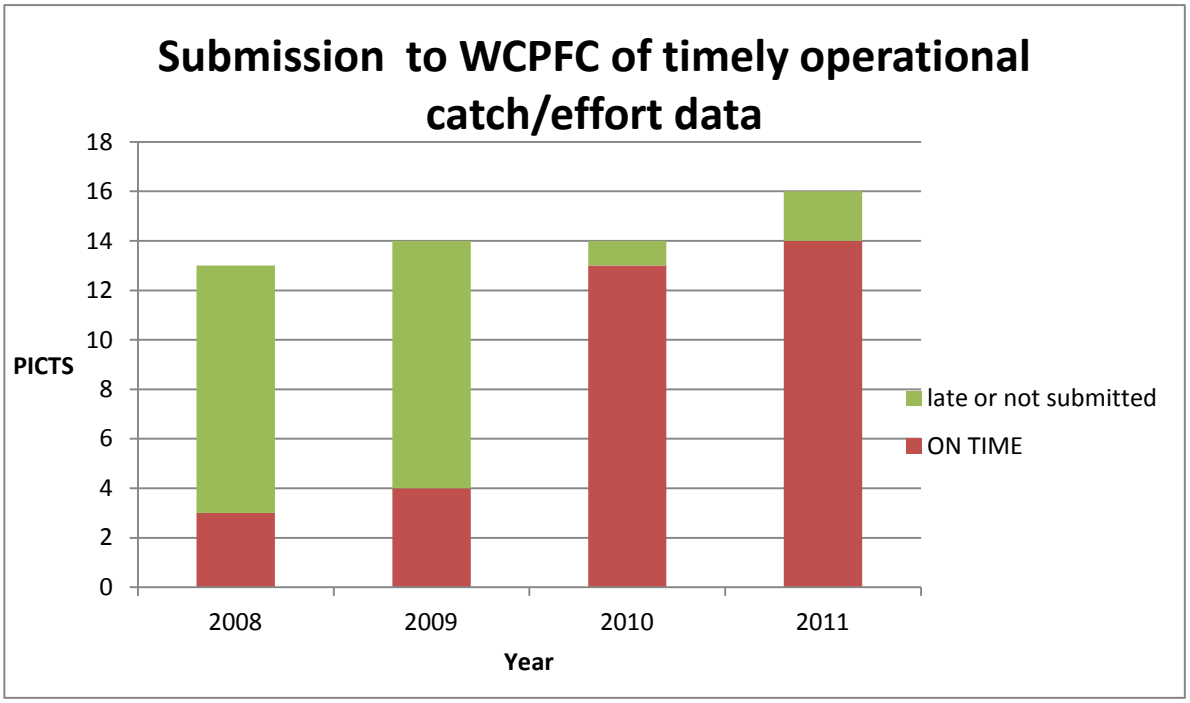
Islands, and the project can also meet the costs of a small number of staff in-country to continue this work.

Objective 3 - To provide high-quality data management services and capacity development to support the management of oceanic fisheries by regional, subregional and national fisheries management authorities

19. The programme continued to tackle the huge volume of data entry and analysis needed to maintain an accurate picture of the region's oceanic fisheries. Hundreds of thousands of sheets of data, from fishing vessels, observers and port samplers, were entered and checked during the year. A number of improvements to data entry systems and data audit were initiated during the year. Not only is this database essential for regional stock assessments but it also provides the means to feed information back to regional organisations and national authorities, with hundreds of queries handled during the year.

20. The system for management of data at the national level, TUFMAN, also continues to be refined, and OFP continues to install the upgraded systems in PICTs. TUFMAN training was conducted at the regional tuna data workshop and in-country in Cook Islands, Federated States of Micronesia (FSM), Marshall Islands, Papua New Guinea (PNG), Tokelau and Vanuatu. A dedicated regional TUFMAN training workshop will be held in Noumea in December. The new service of data audits, initiated in 2011, has continued to prove popular. In 2012 data and systems have been audited in Cook Islands, Marshall Islands, Solomon Islands and Vanuatu to identify gaps in data coverage.

21. Building national capacity is an important part of work under this objective. The annual tuna data workshop is an important part of this process, with longer-term attachments to SPC provided for Solomon Islands, FSM and Tokelau, as well as follow-up by SPC staff during in-country visits. An indicator of the success of these efforts is the ability of PICTs to submit timely information on their fisheries to WCPFC in line with their obligations as members. This has improved markedly since 2009.



Objective 4 – To improve understanding of pelagic ecosystems in the western and central Pacific Ocean

22. The PNG tagging project successfully concluded its second year of operations, with fieldwork from January to March. Despite the reduced time for which the tagging vessel was available for charter, 39,925 tuna were tagged and released, comfortably exceeding the target of 30,000. Since the start of the current programme of tagging operations, over 360,000 tuna have been tagged, and more than 15% of tags have been returned. The recovery of the 50,000th tag during the year, with a special reward to the finder, provided the opportunity to further raise awareness of the project. Two scientists are now working full-time on verification and 'cleaning' of the tag return data, analysis of growth rates based on tag recovery information, and the preparation of a series of national and subregional reports on the implications of the new information derived from the tagging programme. The main programme used by OFP for stock assessments, MULTIFAN-CL, has also been improved so as to make better use of the tagging data.
23. An important output of this work area has been the development of alternative ecosystem-based models to supplement the single-species stock assessment model. Incorporating oceanographic data and information on productivity and food chains, these new models have applications ranging from more detailed analysis of tuna distribution to forecasting the impact of climate change, and form the key indicator for the work of this section.

Target for end 2013
SEAPODYM model is fully functional for all 4 major tuna species and incorporates tagging data; ECOPATH model functional and capable of reporting upon ecosystem status and fishery impacts on non-target species.
Status in 2012
SEAPODYM functional for 3 out of 4 species plus swordfish; ECOPATH model functional and used with observer data for status indicators.

24. This objective also covers the work to improve knowledge of the basic biology of tuna and related species – growth rates, reproduction, and diet – through a programme of sampling and analysis. These parameters are used to improve the models used for stock assessment. An important publication highlighting the different growth rates of male and female albacore tuna was published during the year. Interesting findings on the diet of yellowfin tuna were also released, showing significant linkages with populations of reef fish.

Coastal Fisheries Programme goal

25. The Coastal Fisheries Programme aims to promote sustainable development and improved management of coastal fisheries resources.

Progress with economic development can be measured by **the number of new businesses established in areas where there are sustainable opportunities**. Currently the programme focuses on: the use of fish waste, sportfishing tourism, aquarium exports and aquaculture. New and successful businesses in all of these areas have received support from the programme since the beginning of 2010.

26. In terms of promoting improved management of coastal areas, the extent of locally marine managed areas (LMMAs) provides a useful quantitative measure. In 2009 it was estimated that 30,000 km^2 were under such arrangements in 14 PICTs south of the equator. Since then a number of new areas have been established, and total area can be tracked on a database – although reporting is incomplete and of course many LMMAs are established without any significant involvement of SPC.

Objective 1 – Assist governments and administrations in the development of scientifically informed and socially achievable coastal fisheries management policies and systems in line with the guiding principles of the Apia Policy.[1]

The indicator for this objective is **the development of new management plans for significant fisheries that are under national control** (often export fisheries). In 2009 most PICTs had none; by mid-2012 SPC had assisted with 10 new or proposed management plans in 6 countries.

27. Sea cucumber fisheries were again a major focus of this work, with staff trained in field surveys in Solomon Islands, Samoa, Fiji and Tokelau and continuing survey work undertaken by the national authorities. Based on management advice developed by the programme, two more PICTs now have export moratoria in place (bringing the total to 6), while a new management plan has been approved in Marshall Islands (following surveys and training last year). Meanwhile, a major review of wealth lost due to imperfect management arrangements and the options to improve these (including fiscal and economic measures) and secure greater benefits for five countries was launched in the last quarter of the year. Institutional strengthening assistance to the fisheries departments in Palau and Vanuatu was commenced and will continue in collaboration with FFA.

28. Work on finfish resources included biological sampling workshops in Kiribati and Marshall Islands, and the trial of new data collection procedures in Tonga, Nauru and FSM (testing a new manual which can be used across the region for catch and market surveys). Analyses of the status of the aquarium trade were completed in six PICTs, and practical training on improved handling of aquarium fish delivered in two. Management plans for the aquarium export fishery were also developed in two countries.

29. This section also provides support for data management, supplying and installing micro-servers in four PICTs during the year as well as providing both formal and on-the-job training for national fisheries staff. Advice on legislation and policy is also provided – a new fisheries act became law in Marshall Islands, while a coastal fisheries policy for Samoa was completed for approval.

30. The climate change monitoring project completed the first round of surveys with field work and training of survey teams in FSM and PNG. Two of the project's young professionals completed their assignments and returned to Samoa and Fiji where they were immediately engaged in resource monitoring projects. Two more have been recruited for a second round of survey work, now expanded to include socio-economic assessments and training in determining the age of fish. In a related development, FAME staff are working closely with a number of pilot communities in four countries to develop practical climate change adaptation projects in the fisheries sector. In addition, climate change adaptation projects have commenced in Fiji and Tokelau under Australian funding.

[1] The Pacific Islands Regional Coastal Fisheries Management Policy 2008–2013 ('the Apia Policy') was endorsed by the 4th Ministerial Forum Fisheries Committee (FFC) in 2008.

Objective 2 – Provide a regional framework for sustainable aquaculture, in the areas of planning, research, development and trade, for Pacific Island governments, private enterprises and other stakeholders.

Progress in aquaculture development in the region is measured by **the value of annual aquaculture production**. This has unfortunately fallen dramatically, due to a collapse in the price and a subsequent decline in the production of black pearls in French Polynesia. There has also been a smaller decline in shrimp production in New Caledonia. Total production value for the PICTs fell from USD 155 million in 2008 to USD 109 million in 2010. In contrast the last three years of FAO (Food and Agriculture Organization of the United Nations) statistics for the independent Pacific Island countries show a small increase from USD 7.6 million in 2008 to USD 10.4 million in 2010. SPC is working with FAO to improve the accuracy and completeness of aquaculture statistics from the region.

31. A major role of FAME under this objective is to facilitate aquaculture planning and help countries identify realistic opportunities for development. Missions to assist with aquaculture planning and the review of national strategies were undertaken in Nauru, Tonga (a national plan of action for climate change), Vanuatu, Samoa and Fiji. A preliminary review of changes needed to aquaculture legislation was undertaken in Vanuatu. Coordination with other donors is also important, and FAME staff have taken the lead role in designing a project funded by the Australian Centre for International Agricultural Research (ACIAR) as well as providing technical input to four other ACIAR projects.

32. A second key area of work is in aquatic biosecurity. The identification of low-risk movements of aquaculture stock can facilitate the development of new enterprises in PICTs. A recent risk assessment for culture of the sea cucumber sandfish in Kiribati shows that this could be a suitable venture which is now likely to proceed. On the other hand, proper screening can avoid the risk of introducing serious diseases. Testing of supposedly disease free stock for freshwater prawn culture recently revealed two important viral diseases and prevented their introduction to Cook Islands, while further work is undertaken to assess the overall risk. Aquatic biosecurity issues are often similar to those of agricultural biosecurity, and FAME has worked with the SPC Land Resources Division to deliver training courses for quarantine officers in the North Pacific, and training in reporting required by the World Organisation for Animal Health (OIE). A joint FAO/SPC workshop to develop a regional framework for aquatic biosecurity was held in the first week of October.

33. FAME staff also provide a range of technical advice and 'hands-on' support with aquaculture research and development projects. During 2012 this has included commissioning a small hatchery at the University of PNG for trials of a native freshwater prawn strain for aquaculture; advising on a mariculture research and quarantine facility for the PNG National Fisheries Authority, building and operating a small aquaponics[2] demonstration unit in Fiji, and preparing funding proposals and costings for hatcheries to supply fish farmers in Samoa and Vanuatu. The section also provides direct support to the private sector, and four small and medium enterprises have recently been selected for direct assistance.

Objective 3 – Develop sustainable nearshore fisheries in PICTs to provide food security, livelihoods and economic growth.

34. While many coastal resources are heavily exploited, there are still opportunities for new fisheries and techniques which can contribute to food security and/or income for coastal communities as well as relieving pressure on more traditional fisheries. Trials were started in Marshall Islands using a new technique of fishing for small pelagic fish; initial results showed some promise and a strong market demand for the catch, but further work is needed on the equipment and technique. Very good catches

[2] Aquaponics describes a system that combines freshwater fish culture with growing vegetables or herbs. The plants take up waste from the fish as fertiliser and in so doing purify the water.

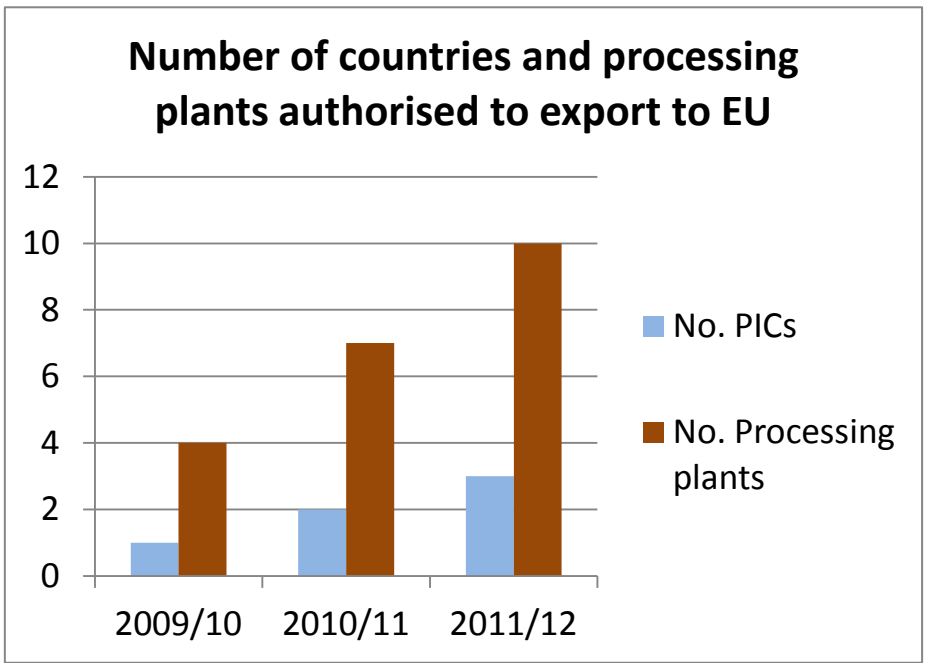
were achieved with a trial of fishing for deep-sea squid in New Caledonia, carried out with strong support of the national fisheries authorities; and a clear potential exists to develop a fishery for local and/or export markets. There are probably opportunities to develop this fishery in other PICTs at the same latitude, and a trial in Tonga is planned in 2013.

35. Ensuring that fish aggregating devices (FADs) are available to improve the efficiency of small-scale tuna fisheries is a key area of work under this objective. Practical training in FAD deployment was provided in four PICTs during the year, and at least two of these PICTs plan to continue to maintain and replace the FADs. Improved monitoring of FAD programmes is required to demonstrate the effectiveness and benefits of such programmes, and new systems have been developed and are now on trial in the field.

The indicator proposed for this work was the number of **PICTs with sustainable FAD programmes in place**. In 2009 it was considered that only 4 had the necessary long-term funding and capacity. By early 2012 it was estimated that 10 PICTs had ongoing programmes, but it may still be too early to judge how many will maintain FAD deployments over an extended period.

36. Economic analysis has been provided for a proposed tuna jerky project in Tokelau and development of an aquarium export industry in Samoa. Training in financial appraisal and project design has been provided for fisheries officers in two countries, and two regional courses were also provided. Support for fishing associations has also continued, including a study on sustainable funding for associations and a range of technical training delivered to association members (mainly for small-scale fishing and fish handling).

37. A range of training and technical assistance has been delivered to the authorities involved in certifying seafood exports to the European Union (EU) (‘competent authorities’) as well as private sector fish processors, mainly in Solomon Islands, Fiji, and PNG. As illustrated in the following table, this project, working closely with FFA and building on the efforts of national authorities, has helped to maintain growth in the countries and enterprises able to access the demanding EU market.



Director's Office

Objective 1 – Develop and sustain effective relationships between the division and its stakeholders.

38. Highlights under this objective included: the annual colloquium with FFA to agree on collaborative activities, including several joint projects; a one-day informal consultation with Heads of Fisheries and a SciCOFish steering committee meeting in June to provide guidance on the work programme; and participation in discussions on a new fisheries policy for Kiribati. Relations with all regional organisations involved in the management of tuna fisheries remained strong.

39. In the area of resource mobilisation, all of the projects foreseen in last year's report were approved, except for the French-funded RESCCUE (Restoration of Ecosystem Services against Climate Change Unfavorable Effects) project, which was still in the design process in late 2012. The RESCCUE project will build on the results of the Coral Reef Initiatives for the Pacific (CRISP) project. Due to its multi-sectoral nature this project will not, in any case, be managed by FAME. Funding was secured from New Zealand for the purchase of fisheries services – a new modality following the withdrawal of New Zealand programme funding. A number of small and medium projects secured support during the year or were nearing approval. These featured new development partners (World Bank and Pew), new arrangements (FAME will be the lead agency for an ACIAR aquaculture project for the first time) and new implementation arrangements (Australian-funded national climate change projects in Fiji and Tokelau will be implemented by FAME). As shown above, financial resources have been maintained at around 13 million CFP units per year, with the exception of 2010 when several major projects ended.

Financial resources for implementation of the FAME work programme based on the revised budget for each year:

2009	13,181,700 CFP units
2010	10,631,900 CFP units
2011	13,016,300 CFP units
2012	13,362,500 CFP units

Objective 2 – Promote informed policy decisions and public awareness of marine resource issues and climate change in the Pacific.

40. The Fisheries Information Unit continued to produce a range of high-quality publications, including the SPC *Fisheries Newsletter* and six annual special interest bulletins on topics ranging from sea safety to trochus. Other routine work included improvements and regular updating of the website, incorporation of new publications in the fully searchable digital library, and the 2012 Fisheries Address Book. The fact sheets for community workers on important groups of fish and invertebrates have been well received and the original handbook and 16 sheets have been supplemented with 7 more fact sheets. These have recently been translated into Portuguese for use in Timor Leste and have been requested by projects in Indonesia, the Philippines and Madagascar. The first step in producing educational materials for schools has also been taken with preparation of a poster for primary school children in Kiribati.

41. This objective was modified during the strategic plan review to include informing policy-makers, other stakeholders and the general public on the impacts of climate change on Pacific fisheries and developing adaptation strategies. Following the launch of the book *Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change*, SPC's Senior Fisheries Scientist (Climate Change) joined the Director's team for more effective coordination. A series of summaries of climate change impacts on each PICT was developed, as well as four short policy briefs. A four-day workshop on fisheries and climate change for senior fisheries staff, jointly funded with FAO, was held to raise awareness and develop plans for adaptation. This is being followed up by a series of in-country workshops to help develop national strategies and plans to address climate change in the fisheries sector.

42. Communications targets for the year have been achieved, with the appointment of a communications consultant to work with the division in late 2011. Media and communications training was provided for senior staff in early 2012, and by the end of September eight major stories had been launched. These were in addition to normal press releases, articles for *Islands Business*, and media interviews provided by staff to national media while on duty travel.

The average uptake for each of the eight major stories was 15 different print or Web-based articles, covering an average of 4 PICTs and 4 other countries, and with at least one regional radio interview. Two stories were featured in the Sydney Morning Herald.

Coral Reef Initiatives for the Pacific (CRISP)

43. The CRISP programme ended in December 2011, with the project manager remaining at SPC to complete final reporting requirements and to facilitate the feasibility study for the follow-up RESCCUE project. One project initiated under CRISP, on developing the potential of post-larval capture and culture for the aquarium trade, will continue until mid-2014. This will focus on areas of potential including the collection and rearing of giant clam larvae in French Polynesia and marine crustaceans in PNG. This project will be integrated into FAME's more general work in support of the aquarium export industry.

Cross-cutting initiatives

Gender

44. A follow-up to the 2011 assessment of 'Gender in Oceanic and Coastal Fisheries Science and Management' was carried out. This focused on developing materials and a special training module for female fisheries observers; and the production of a brochure featuring role models of successful women working in the fisheries sector.

Climate change

45. Staff from all FAME work areas were involved in the four-day workshop on fisheries and climate change, and continue to support SPC's multi-sectoral approach. Both programmes continue to implement specific projects in the climate change area, with a focus on predicting and monitoring impacts. The Coping with Climate Change in the Pacific Islands Region project is now supporting two staff positions (one each in OFP and CFP) to improve information on climate change impacts on oceanic fisheries and to help develop adaptations for coastal communities respectively. FAME is also just starting to implement two national projects on climate change adaptation for the fisheries sector in Fiji and Tokelau.

Ocean policy

46. FAME was again the convener of the Marine Sector Working Group (MSWG) in 2012. With a number of international events focusing on ocean issues, including Rio + 20, the launch of the World Bank's Global Partnership for Oceans and the Forum Leaders' meeting in particular, the group was busy providing briefing materials and commenting on draft text. The Secretary General of the Forum Secretariat spoke at these meetings and side events in his capacity as Ocean Commissioner. Major commitments to new large marine protected areas were announced by Cook Islands and New Caledonia.

Finance

47. The revised budget for the division for 2012 was 13,362,500 CFP units (equivalent to approximately USD 14 million at current exchange rates). The breakdown between the two programmes and the Director's Office is shown in table 1.

Table 1: Revised expenditure budget of FAME for 2012 in CFP units

	Director	**OFP**	**CFP**	**Division**
Recurrent	363,400	914,200	1,218,400	2,496,000
Project	550,900	6,552,400	3,763,200	10,866,500
Total	914,300	7,466,600	4,981,600	**13,362,500**

48. Once again, recurrent funding was reduced as the division absorbed the balance of cuts in SPC programme funding imposed in 2011. As in previous years, additional project funding was secured, providing a small increase in total resources in CFP currency. Of course the CFP has declined considerably in value against most major currencies.

Staffing

49. As at 1 October, the division has 84 staff (two fewer than the same time last year), of whom 33 are female (39%). The breakdown is shown in Table 2.

Table 2: Staffing of FAME as at October 2012

	Director's Office	**OFP**	**CFP**	**Total**
Professional	3	33	20	56
Technical	0	21	2	23
Administrative	1	2	2	5
Combined	4	56	24	84

Note that for consistency with the budget presentation the Fisheries Information Unit staff are listed under the CFP, but will continue to work for both programmes and report to the Director.

50. Nineteen nationalities are now represented among the staff (plus persons originating from each of the three French territories), and 17 of the 56 internationally recruited posts are held by nationals of Pacific Island countries. The number of Pacific Island internationally recruited staff employed by the division has again increased since last year. As in previous years, technical staff are seconded to national fisheries administrations in New Caledonia and French Polynesia, while FAME projects meet the costs of staff employed through national fisheries administrations in a number of other countries on a short-term basis. Currently, three professional staff are based in the SPC Suva office, while one professional and three technical staff members work from the Pohnpei office.

2013 WORK PROGRAMME AND BUDGET

51. The expected outputs of the division for 2013 – which can be achieved with the financial resources that have been secured – are summarised as usual in the 'green book' budget. It is not always easy to separate the results of recurrent and project funding – many results require the input of resources from both, reflecting the alignment of projects with the strategic plan and a chronic shortage of recurrent funding.

52. These results are developed into a more detailed work plan in the first weeks of the year, which itself feeds into the performance appraisal system for staff. Both programmes used the Integrated

Reporting and Information System (IRIS) in 2012, which allows more detailed work planning and reporting than was previously possible, and this will continue in 2013.

53. The main work areas and projects of the division are described in the report on 2012 results. During 2013, implementation of these programmes will of course continue. This section of the report will therefore focus on some new initiatives.

Director's Office

Heads of Fisheries

54. A full Heads of Fisheries meeting will be held in March 2013. With reduced reporting by divisions to CRGA, these sectoral meetings assume greater importance in evaluating and developing the work programme of the division. A survey of member satisfaction with services provided by FAME is due (the last one having been completed in early 2009). The current strategic plan period ends at the end of the year, and consideration needs to be given to whether a new plan is now required, or whether a rolling process of revision, updating and evaluation will be more useful.

European Union funding

55. An important part of the work of both programmes is funded by the EU SciCOFish project, which runs to the end of 2013. Unfortunately, there is little evidence that EU officials favour further funding support for SPC fisheries activities at present, either under the current 10th European Development Fund (EDF10) cycle or under EDF11 (2014–2020). A mid-term evaluation of the project is now due, which will hopefully confirm the success of the project, and encourage further support for SPC in general and the fisheries sector in particular.

Coastal fisheries

Collecting better information on coastal fisheries

56. Many PICTs lack basic information on the status of their coastal fisheries – a recent report concluded: 'Estimating the production from coastal fisheries in about half of the Pacific island countries is largely guesswork. In very few Pacific island countries are the levels of coastal catches well known.'[3] Several activities across CFP and OFP aim to address this problem:

- A new survey system for artisanal and susbsistence fisheries has been trialled in three countries in 2012 – next year the manual will be finalised and the first full surveys undertaken.

- Collection of information on tuna catches by artisanal fishers has been stepped up, and this work is closely coordinated with analysis of the impact of FAD deployments.

- In support of improved deepwater snapper stock assessments, a strong push for improved data collection is in progress in four countries.
  The data collected and lessons learned in these programmes will be coordinated to assist in giving countries the key information they need to understand changes and improve management of coastal resources.

[3] Gillett, R. 2010 – Fisheries in the economies of the Pacific island countries and territories, ADB.

Closer collaboration in managing sea cucumber fisheries

57. Harvesting of sea cucumber (for export as *beche de mer*) has become the most problematic coastal fishery in many Pacific Island countries. In late 2012, SPC, with funding support from ACIAR, launched a major study on how to secure the potential wealth of this fishery through good management. During 2013, SPC will form a task force of fisheries officers from the main producer countries and international experts to share experience and ideas on how to develop and implement these new approaches. In several countries, increased attention to monitoring, control and surveillance of exports will need to be developed.

Exploring new opportunities for coastal fishing

58. As mentioned earlier, the development of new or little-utilised coastal fisheries resources can both provide opportunities for coastal communities and help to relieve pressure on established fisheries. Such exploratory fishing is not always successful: a trial of fishing for spanner crabs in 2011 failed to catch any; but the recent trial of deep-water squid fishing indicated that a commercial resource exists in New Caledonia. Trials will now be extended to other countries at a similar latitude to determine if they also have potential to develop a fishery.

Oceanic fisheries

Stock assessment

59. Work in this area in 2013 will continue towards a stock assessment for South Pacific swordfish. Although few Pacific Island vessels currently target this species, it has been identified as an area of potential for local fleets. There is concern that distant water vessels operating to the south of PICT zones may be depleting the resource before this opportunity can be realised. Due to the limited data, it is a technically challenging assessment.

Reference points

60. The development of formal management frameworks for the region's oceanic fisheries, including agreed management objectives, reference points and control rules, is now seen as a crucial step in developing sustainable management arrangements. It is a high work priority for WCPFC, FFA and PNA (and is a condition of the MSC certification for the latter group). Initial work undertaken by OFP and presented at the WCPFC Scientific Committee was well received, and this will be further developed during 2013 with additional resources and a dedicated new position in the stock assessment team.

Tagging operations

61. 2013 will see the final phase of field operations in the PNG large-scale tagging project. While this project has been successful in meeting its tag release targets, its smooth implementation is also a testimony to the growing competence of national staff to manage a complex project of this type. As the project moves more into analysis of the tagging data and consideration of management applications, it is hoped that PNG National Fisheries Authority staff will also have the opportunity to develop capacity in these areas.

2013 budget

62. The 2013 expenditure is estimated as follows.

Table 3: Estimated expenditure budget of FAME for 2013 in CFP units

	Director	OFP	CFP	Division
Recurrent	366,600	1,146,700	1,408,000	2,921,300
Project	466,900	6,521,500	3,603,500	10,591,900
Total	833,500	7,668,200	5,011,500	**13,513,200**

63. The estimate shows an encouraging increase in recurrent funding, and SPC is in negotiations with partners to expand this type of support. Total resources are forecast to be slightly more than 2012 overall, and some additional project funding may be secured during late 2012 or 2013.

FUTURE DIRECTION, OPPORTUNITIES AND CHALLENGES

64. This section identifies a number of projects that were under discussion with partners at the time the report was prepared.

Fisheries training

65. SPC and FFA have been approached by the New Zealand Aid Programme to implement part of their fisheries training project for the region. While New Zealand-based courses will be managed through the scholarship programme, a number of activities call for training in-country. If negotiations are successful, SPC will be involved in delivering a number of practical 'hands-on' courses for fishers, small businesses and fisheries department staff over five years.

Aquaculture and community-based fisheries management

66. As mentioned above, FAME aquaculture staff have taken the lead in developing a project proposal to ACIAR to develop a number of promising aquaculture activities in Vanuatu, Fiji, Kiribati and Samoa. The project is linked to a community-based fisheries management (CBFM) project, for which the Worldfish Center will be the lead agency (but also with a role for SPC). An important part of the programme will be to link the two activities and examine how aquaculture can support CBFM by enhancing stocks or providing alternatives to capture fisheries. The overall programme is funded by the Australian Agency for International Development (AusAID) and aims to strengthen food security in some of the more vulnerable countries in the region.

Tagging analysis and continued bigeye tagging

67. As large-scale tagging activities wind down in 2013, continuing efforts will be needed for tag recovery. The huge task of cleaning the data is in progress but will need to continue, while analysis of the results and application to our understanding of the resource are only just beginning. OFP is hoping to secure resources from New Zealand for this work, as well as the continuation of a low level of tagging of bigeye tuna in the central Pacific (as recommended by the review of the bigeye stock assessment).

CONCLUSION

68. The division has made good progress during 2012 in implementing the work programme. The review of achievement of higher-level objectives shows a number of promising trends in the region's fisheries. The division was well supported by project funding in 2012 and this continues into 2013, but there are concerns about the ability to deliver a full work programme in subsequent years.

RECOMMENDATIONS

69. CRGA is invited to:

i. note the results delivered by the Fisheries, Aquaculture and Marine Ecosystems (FAME) Division and its achievements during 2012;

ii. note the outcomes of the internal review of the FAME strategic plan, the minor revisions to objectives that have been approved by Heads of Fisheries, and the indicators now used to measure progress; and

iii. note the outline of the 2013 work programme.