



Marine Resources Division **ANNUAL REPORT** 2009



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Cover photo: Archival tagging of a large yellowfin tuna on board the pole and line vessel 'Soltai 105'



Training of two Aitutaki fly-fishing guides as part of a feasibility study of tourism-based sport fishing development in Cook Islands

Highlights of the Year

Director's Office

In 2009, the Marine Resources Division of SPC comprised the two Fisheries Programmes (Oceanic and Coastal). The Director provides coordination and support to both programmes, as well as the CRISP project. The Division had a budget of 865 million CFP for 2009. Personnel numbers fluctuated a little, but there were 64 staff mid-year.

Staff numbers in the Coastal Fisheries Programme fell during the year, as a result of the completion of a major EU-funded project, as well as the impact of currency movements on programme funding. Efforts were made to secure additional project funding by staff of both programmes, and proposals for a number of Division-level projects were also completed during the year. Subject to these securing final approval as planned, the funding situation should improve in 2010.

The 6th Heads of Fisheries meeting was held in February in Noumea and was attended by senior fisheries officials of all member countries and territories. The meeting was chaired on behalf of Palau by Ms Nanette Malsol. The meeting was focused mainly on the future strategic direction for the Division, and developed draft objectives and results for each section as part of the process of developing a new strategic plan. The meeting made a number of recommendations for new activities to be undertaken in future as part of SPC's services to member countries in the fisheries sector.

The Heads of Fisheries meeting also saw the launch of an independent review of the two programmes, and provided an opportunity for officials from member countries territories to express their views to the two consultants undertaking the review. The mission subsequently sought input from a wider range of stakeholders in seven countries and territories. The findings of the review were mainly positive and included the conclusions that:

- The programmes remain effective;
- SPC is the only regional organisation providing real leadership on many fisheries issues; and
- Demand for services remains very high.

The review did identify some shortcomings at the strategic and operational level, however, and made 20 recommendations for improvement. The Division accepts nearly all of these recommendations, although full implementation will be delayed in some cases while additional resources are sought. Changes which will become effective at the beginning of 2010 include a restructuring of the Coastal Fisheries Programme into three functional sections, and a change of name to Fisheries, Aquaculture and Marine Ecosystems (FAME) Division.

A new Strategic Plan for the period 2010-2013 was completed during 2009, incorporating the objectives and results developed by the Heads of Fisheries meeting, as well as major recommendations of the review. The objectives and results were further considered by the Forum Fisheries Committee meeting, and endorsed by Forum Fisheries Ministers. The final draft of the plan was approved by CRGA in October, and printing and distribution were completed before the end of the year.

A major new initiative during the year was the launch of the 'Future of Fisheries' study – a joint project between SPC and FFA which aims to take a longer term view of the opportunities and challenges that will arise over the next 25 years. Terms of reference, which had been considered by CRGA and FFC in 2008 were finalised, and a team of consultants was selected after a competitive

process. Fourteen global experts from various disciplines agreed to provide comments and key publications to the team, while the draft report was reviewed by a steering committee from the regional agencies. The final report is expected in early 2010 and, after review by the region's fisheries officials, will be presented to the Forum Leaders' meeting for consideration.

Activities under the CRISP Project (Coral Reef Initiatives for the Pacific) in the following areas directly complemented the work of SPC, often involving Marine Resources Division staff or data collected by them. Highlights during 2009 have included:

- *Support to the aquarium trade* with a focus on developing a viable industry based on Postlarval Capture and Culture (PCC);
- *Support to aquaculture for domestic consumption* working with Worldfish in the Solomon Islands there is an initiative for growing rabbit fish, while a study in Vanuatu aims at assessing the effectiveness of re-stocking trochus and giant clams;
- *Support to the protection of reef fish aggregations* in collaboration with SCRFA (Society for the Conservation of Reef Fish Aggregation) - a workshop was funded in September in Fiji, as well as an awareness film meant for managers and decision-makers;
- *A tool to identify fish and marine animals of the Pacific* developing a computer learning aid (LearnFishID) to identify reef fish for a wide audience;
- *A Study on the economic effectiveness of marine protected areas:* Building on information collected and analyzed by the PROCFish programme are two assessment studies of marine protected areas in Vanuatu and Solomon Islands.



A Hoa net deployed in French Polynesia for the capture of post-larval reef fish – development of postlarval capture and culture is an important activity of the CRISP project

Oceanic Fisheries Programme

The OFP work programme in 2009 continued to focus on its key objectives:

- 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 (the Stock Assessment and Modelling Section);
- Accurate and comprehensive scientific data for regional and national fisheries management authorities on fisheries targeting the region's resources of tuna, billfish and other oceanic species (the Statistics and Monitoring Section); and
- Improved understanding of pelagic ecosystems in the western and central Pacific Ocean, with a focus on the western tropical Pacific (the Ecosystem Monitoring and Analysis Section).

Tuna fisheries have continued to expand, with a record catch of 2.43 million tonnes recorded for the 2008 calendar year in the western and central Pacific region, about half of which occurred in the exclusive economic zones of SPC members. Approximately three-quarters of this catch is taken by the purse seine fishery, which targets skipjack and yellowfin tunas for the canned tuna market. Skipjack tuna dominates the catch, with approximately 1.6 million tonnes landed in 2008. A record catch of yellowfin tuna of 540,000 tonnes and a near-record catch of bigeye tuna of 157,000 tonnes were also recorded in 2008. However, catches of albacore tuna in the South Pacific fell to around 52,000 tonnes in 2008.

Regional stock assessments were completed for bigeye, yellowfin and South Pacific albacore tuna in 2009. The assessment for bigeye continues to show that this stock is being fished well above sustainable limits; yellowfin is being fished close to the sustainable limit, particularly in the core western tropical region; while albacore catches are within safe levels. The most recent assessment of skipjack tuna (2008) indicates that the very large catches currently being taken are easily sustainable.

An evaluation of a number of management measures introduced by WCPFC in December 2008 was also carried out. This evaluation concluded that, while some of the measures can be expected to reduce catches of bigeye, the failure to constrain the increase in purse-seine fishing effort, various exemptions on the cuts in longline catch and the exclusion of archipelagic waters from the coverage of the measures means that the management measures will not achieve their aim. Much tougher management action is required if bigeye tuna are to be exploited in a manner that is consistent with the objectives of the WCPFC Convention.

At the national level, National Tuna Fishery Status Reports (NTFSR) were produced for FSM, Kiribati, Marshall Islands, Nauru, Samoa and Tuvalu, and work was started on the reports for Cook Islands and Solomon Islands. These reports provide an essential resource to PICTs for planning tuna fisheries management and development at the national level. An analysis of the purse-seine fishery in Papua New Guinea (PNG) was also completed, and staff were involved in a number of national consultations organised by FFA to develop the ecosystem approach.

A strong focus of the work of the Statistics and Monitoring Section this year has been the training of a large number of new observers, which provided enough observers to meet the Regional Observer

Programme target of 100 per cent observer coverage on purse-seine vessels in August and September. SPC staff were involved in national observer training courses in FSM, Kiribati, Marshall Islands, PNG, Solomon Islands and Vanuatu, as well as sub-regional courses held in Vanuatu and Fiji. This has been a considerable achievement. However, with a target of 100 per cent coverage year-round on purse seiners, challenges remain for 2010 in terms of the numbers of observers needed, coordination and management, data processing, and maintaining the quality of the programme.

A comprehensive observer database management system (TUFMAN-TUBS) was completed in July 2009 – this system will provide national fisheries offices with a comprehensive tool to manage their observer data in the future.

The Pacific Tuna Tagging Programme (PTTP) was fully operational through 2009. Two three-month cruises of the chartered Solomon Islands pole-and-line vessel *Soltai 105* were completed as planned in 2009, covering PNG, FSM, Marshall Islands, Kiribati, Tuvalu and Solomon Islands during the first cruise; and Nauru, FSM, PNG and Indonesia during the second cruise. Approximately 90,000 tuna were tagged during these cruises, considerably exceeding targets.

In the eastern part of the region, a collaborative programme between SPC and the Inter-American Tropical Tuna Commission used a long-range hand-line vessel based in Hawaii for tagging in the Line Islands of Kiribati and north of the Marquesas (French Polynesia) during two cruises in May-June and October-November 2009. Tagging activities during these cruises targeted mainly bigeye tuna and were very successful in tagging 7,786 tuna (7,109 bigeye).

Overall, the PTTP has now tagged approximately 260,000 tuna, including 886 with electronic tags that provide detailed information on horizontal and vertical movements.

By the end of 2009, approximately 32,500 tagged tuna had been recaptured and the information reported back to SPC, representing an overall tag recovery rate of 12.5 per cent. Tag recaptures are expected to continue for several years, with final tag return rates expected to be about 15 per cent, or around 40,000 returns. These data will provide a vast amount of information that will inform tuna stock assessment and related work for many years, beginning in 2010.

The Programme is currently seeking funding resources to enable tuna tagging to continue at a reduced level on an annual basis. This would provide a continuous stream of data that would be of enormous value in monitoring the condition of tuna stocks and the impacts of fishing.

A separate tagging project to improve understanding of albacore tuna resources (which form the basis of many of the longline tuna fisheries in the south of the region) was carried out in the early part of the year. This involved tagging troll-caught albacore in New Zealand coastal waters that should be recovered after several years as they mature and migrate to where they can be recaptured by longline vessels. Although fishing conditions were poor this year, the project achieved over 90 per cent of its target by tagging 2,766 fish. Further albacore tagging is planned in 2010.

Trophic relationships in the pelagic ecosystem have been determined using stomach content and stable isotope analyses as well as lipid content to better understand species interactions and cascading effects of fishing activities and climate variations. Recent stable isotope analysis has detected differences in the chemical signature between regions, providing important information on

the rates of movement of tuna between the western and eastern Pacific Ocean. This information will be used in future stock assessments.

In addition to the direct provision of scientific services to SPC members, OFP continues to conduct national capacity building activities for SPC members in the key areas of fishery monitoring and data management, training in tuna stock assessment interpretation and direct support for observer coordination and port sampling. This support assists members to meet their obligations to the WCPFC and to undertake informed management of tuna fisheries within their exclusive economic zones.



Albacore tagging from a troll boat in New Zealand waters

Coastal Fisheries Programme

Objectives of the Coastal Fisheries Programme, as stated in the 2006-09 strategic plan are:

- Assisting governments and administrations in the development of scientifically-informed and socially-achievable coastal ecosystem management systems including coastal living resource components of national ocean policies;
- Consolidating a regional support framework for economically, socially and environmentally sustainable aquaculture planning, research and development by Pacific Island governments and private enterprises;
- Assisting governments and administrations in the development and management of domestic nearshore commercial fisheries within a sustainable ecosystem context.

The work of the CFP during 2009 falls into six broad categories: coastal fisheries management; coastal resources assessment; nearshore fisheries development; aquaculture; training; and fisheries information.

Coastal fisheries management work has successfully introduced the Ecosystem Approach into community based management initiatives in a number of PICTs. Fisheries staff are now familiar with the concepts, guided by a new handbook produced by SPC and The Nature Conservancy (TNC), "The ecosystem approach to coastal fisheries and aquaculture in Pacific Island countries and territories", which provides a workable approach to this complex subject. In support of this the SPC has commenced a new initiative with the Food and Agricultural Organisation of the United Nations (FAO) and TNC to further develop guidelines for the implementation of the ecosystem approach to coastal fisheries management for Pacific Island countries. The guidelines present a generalised approach that requires the involvement of a broader range of stakeholders and access to the expertise and experience of several government agencies in addition to a fisheries agency. The new guidelines will be finalised in early 2010.

There is also growing interest within PICTs to incorporate and expand the CEAFM approach nationally, with countries requesting attachment training of staff to develop national framework for the implementation of their respective CEAFM programme. In 2009, nine senior personnel from Fisheries Departments and Departments of Environment from Tonga, Samoa, American Samoa and Vanuatu undertook attachments with SPC. The Coastal Fisheries Management Section was instrumental in developing and drafting the CEAFM Bill for American Samoa, as well as assisting with the completion of draft legislation for Samoa covering coastal fisheries and aquaculture.

Coastal resource assessment has been dominated by the work of the long-running coastal component of the EU-funded Pacific Regional Oceanic and Coastal Fisheries Development Project (PROCFish/C) and its sister project, the Pacific Regional Coastal Fisheries Development Project (CoFish). Both projects concluded in 2009 with all staff contracts finishing at different times of the year, which has greatly limited the ability of the CFP to assist members in the area of coastal resource assessment. However, all of the country reports (covering up to 5 sites in a country) for the

17 participating countries and territories have been finalised with 14 of these published in 2009 and the remaining three with country for comment and clearance, for publishing in early 2010.

Another of the main objectives of the PROCFish/C and CoFish projects was to undertake a comparative assessment or regional analysis of the data to try to identify indicators of reef fishery status across the 63 sites surveyed. Most of the analysis has been completed and a report will be finalised in early 2010. One of the interesting findings of the finfish assessments was the generally small size of the fish recorded during underwater visual census surveys. Resource assessments and assistance with sustainable management of beche de mer fisheries were also provided in FSM (two states) and Tonga.

The Live Reef Fish Trade Initiative has developed management plans to ensure sustainable use of aquarium fish in Vanuatu, Marshall Islands and Kiribati (Kiritimati Island), while in Fiji the guidelines for the food fish trade were reviewed. A database for recording aquarium fish exports and landings is also being finalised with Vanuatu, Tonga and Fiji being the countries identified for trialling in early 2010.

Ciguatera fish poisoning appears to be increasing in some countries in the region, with assistance provided to Vanuatu with surveys in two locations. Monitoring for ciguatera is becoming essential in some locations, with Samoa, Tuvalu, Marshall Islands and Kiribati requesting advice in 2009 and possible technical assistance in the future.

The nearshore fisheries team continued to establish sustainable FAD programmes for coastal communities with deployments and training in Nauru, FSM, and New Caledonia.

Eleven fisheries officers or trainers of fishing crew were themselves trained on bycatch mitigation, to reduce the capture of endangered species by commercial tuna fisheries. New bycatch mitigation requirements have been adopted by the Western and Central Pacific Fisheries Commission (WCPFC) and will enter into force in 2010. In addition, section staff coordinated a hook exchange project in Rarotonga, Cook Islands. The project, now monitored by the Ministry of Marine Resources, is aiming at standardizing the hooks used by the longline fishery by using more "turtle-friendly" large circle hooks.

A new initiative in nearshore fisheries was the coordinating of two feasibility studies on the potential for sport fishing development in the Cook Islands. The studies carried out in April (jigging and casting methods in Rarotonga and Aitutaki) and November (fly-fishing for bonefish in Aitutaki); have highlighted a real potential for development and diversification of tourism-based sport fishing. An action plan for this development has been produced and endorsed by the Ministry of Marine Resources (MMR) and, at the end of 2009; implementation of the plan was well underway.

The successful pilot project in New Caledonia in 2008 using fish waste to make silage continues to attract interest from other PICTs. A second fish silage project was launched in October in Niue Island and an increasing number of requests for technical information or assistance have been handled by SPC in 2009.

Work of the aquaculture team ranges from assistance with the development of broad national policies and strategies (with national strategies completed for Solomon Islands and Wallis & Futuna) to technical assistance with specific projects and trials. On the strategic side, the aquaculture section

has assisted in the development of two national aquaculture development plans in 2009 (Solomon Islands and Wallis and Futuna). Consultative work was also carried out with Tonga and the strategic plan for this country will be released in 2010. A regional consultation to determine future directions for tilapia farming was also held in late 2009 involving renowned experts on this topic as well as representatives from several PICTs.

The aquaculture section was involved in launching and running a diverse range of aquaculture project in several PICTs in 2009. To date, 18 ACIAR funded mini-projects have been developed by the aquaculture section along with its partners from James Cook University, the USP and the WorldFish Center. Eleven of these have progressed to full funding stage, commencing in 2008 and 2009. Examples include setting up facilities for breeding sea cucumber (sandfish) in Fiji, the setting up facilities for breeding of clownfish for the aquarium trade in Vanuatu, the development of a private sector coral culture venture in Tonga, and trials for farming local tilapia strains as well as trialling growth performance of marine finfish under locally formulated diets in Solomon Islands. All of the current mini-projects possess elements that promote and enhance capacity, whether through technology transfer, training, mentoring or involvement of students. Of particular note are the mini-projects with ACIAR-USP post-graduate scholarship students attached to them.

The aquaculture section was also successful in coordinating a regional approach to meeting disease-reporting requirements for import of live aquarium fish and invertebrates into the EU, which was approved by the Commission during the year. In 2008, the EU has banned entries of live aquatic animals from countries that were not signatory to the OIE (World Animal Health Organisation). Now, SPC has come to an agreement with the EU that allows all PICTs to export there again, providing they comply with filling in the PAHIS (Pacific Animal Health Information System) Database.

Many of the programme's activities, including some of those mentioned above, involve training and capacity building, but some specific highlights in this area during 2009 include: assistance in developing a purse seine training module for the National Fisheries College of Papua New Guinea, which will meet the training requirements of crew for their growing tuna industry; a training needs assessment for the staff of the Fisheries Department of Tonga, with follow up activities to improve performance; a sub-regional workshop for participants from Tuvalu, Kiribati, Fiji, Samoa, Cook Islands and Vanuatu covering monitoring techniques for spawning aggregations of reef fish; and the Pacific islands Fisheries Officers Training course (practical fishing module) held in Santo, Vanuatu, for 11 fisheries officers from eight countries. In addition, two more fisheries officers joined the course for the one-week component on fish aggregating devices.

The information section continued to provide a range of technical information (Fisheries Newsletter and Special Interest Group Bulletins) for fisheries professionals across the region, as well as meeting the needs of countries for assistance with the production of high quality documents. Special publications were prepared for New Caledonia (booklet on the main seabird species in New Caledonia), Tonga (Fisheries Facts and Figures), Tuvalu (production of two posters covering main fish species in the country) and Vanuatu (National Marine Aquarium Trade Management Plan) during the year. In addition, the 2009 version of the SPC Coastal and Oceanic Fisheries programme digital library was produced in a CD format as well as being available through the fisheries website.

Annex 1 – Report of Achievements against Workplan for the Oceanic Fisheries Programme

Objective 1: 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		
2009 Work Programme Activities	Performance Indicators and/or Means of Verification	2009 Achievements
Output 1.1: Regional stock assessments and associated analyses		
1.1.1 Provision of stock assessment and related analyses (mostly to the WCPFC). In 2008, these services shall include:	<ul style="list-style-type: none"> Review of WCPFC-SPC service agreement prepared for WCPFC-6 WCPFC satisfied with services provided. 	<ul style="list-style-type: none"> Review prepared and submitted to WCPFC
<ul style="list-style-type: none"> Undertake full stock assessment for target and non-target species as requested by the Commission (yellowfin, SP albacore, and bigeye in 2009). 	<ul style="list-style-type: none"> Stock Assessment preparatory workshop hosted and outcomes documented as an information paper to SC5 Tuna Fishery Assessment Report (TFAR) published following 2008 assessments. SC5 working papers Input and output files for key model runs posted on the OFP website prior to SC5 	<ul style="list-style-type: none"> Pre-assessment workshop hosted 6-9 April 2009 with ten overseas experts. Harley, S., N. Davies, and S. Hoyle. Report from the SPC pre-assessment workshop, Noumea, April 2009. SPC, Noumea, New Caledonia. WCPFC-SC5-SA-IP-01. Langley, A., S. Harley, S. Hoyle, N. Davies, J. Hampton and P. Kleiber. Stock assessment of yellowfin tuna in the western and central Pacific Ocean. WCPFC-SC5-SA-WP-03. Harley, S., S. Hoyle, A. Langley, A., J. Hampton and P. Kleiber. Stock assessment of bigeye tuna in the western and central Pacific Ocean. WCPFC-SC5-SA-WP-04. Hoyle, S. and N. Davies. Stock assessment of albacore tuna in the south Pacific Ocean. WCPFC-SC5-SA-WP-06. Revised TFAR template developed and 2008 TFAR to be published in early 2010 Stock assessment files available on an 'orphaned' website
<ul style="list-style-type: none"> Determine feasibility of undertaking stock assessments for key shark species 	<ul style="list-style-type: none"> SC5 working papers 	<ul style="list-style-type: none"> Manning, M. J., Bromhead, D. B., Harley, S. J., Hoyle, S. D., and Kirby, D. S. The feasibility of conducting quantitative stock assessments for key shark species and recommendations for providing preliminary advice on stock status in 2010. WCPFC-SC5-EB-WP-08.

<ul style="list-style-type: none"> Continued exploration of sensitivity of stock assessment outcomes to structural assumptions in models and data issues. 	<ul style="list-style-type: none"> SC5 working papers Journal publication submitted 	<ul style="list-style-type: none"> Harley, S., S. Hoyle, F. Bouyé. General structural sensitivity analysis for the yellowfin tuna stock assessment. WCPFC-SC5-SA-IP-03. Davies, N., Hoyle, S., and Bouyé, F. General structural sensitivity analysis for the albacore tuna stock assessment in the south Pacific Ocean. WCPFC-SC5-SA-IP-04. Journal article not done in 2009 as other priorities arose.
<ul style="list-style-type: none"> Undertake comparisons of different stock assessment modelling approaches for bigeye, yellowfin, and South Pacific albacore tuna 	<ul style="list-style-type: none"> Parallel stock assessments undertaken or progressed using alternative software (e.g. Stock Synthesis) and/or on different spatial scales (e.g. Pacific-wide assessments for bigeye and albacore tuna) SC5 working / information papers 	<ul style="list-style-type: none"> Collaborations with the IATTC on a Pacific-wide bigeye assessment and with TWN on a SS YFT assessment, but neither were developed to completion in 2009. These were low priority activities.
<ul style="list-style-type: none"> Undertake analyses of longline catch and effort data, including where appropriate operational-level data, to improve the standardisation of effort and the construction of indices of stock abundance for bigeye, yellowfin and South Pacific albacore tuna. 	<ul style="list-style-type: none"> SC5 working / information papers 	<ul style="list-style-type: none"> S. Hoyle. CPUE Standardization for bigeye and yellowfin tuna in the western and central Pacific Ocean. WCPFC-SC5-SA-WP-01. Chang, S-K., S. Hoyle and H-I Liu. Yellowfin CPUE standardization for Taiwanese distant water longline fishery in the WCPO - with emphasis on target change. WCPFC-SC5-SA-WP-02. Bigelow, K., and S. Hoyle, Standardized CPUE for distant-water fleets targeting south Pacific albacore. WCPFC-SC5-SA-WP-05. Harley, S. Spatial distribution measures for the analysis of longline catch and effort data. WCPFC-SC5-SA-IP-01.
<ul style="list-style-type: none"> Development and reporting of stock indicators for those key species not formally assessed. 	<ul style="list-style-type: none"> SC5 working / information paper 	<ul style="list-style-type: none"> Removed from WCPFC service agreement so not undertaken in 2010
<p>1.1.2 Analysis of the conservation benefits and implications of current and potential WCPFC Conservation and Management Measures</p>		
<ul style="list-style-type: none"> Review of spatio-temporal aspects of catches of juvenile bigeye and yellowfin tuna caught in association with fish aggregating devices (FADs). 	<ul style="list-style-type: none"> SC5 working paper 	<ul style="list-style-type: none"> Formal work delayed due to spill sampling experiments.

<ul style="list-style-type: none"> – Undertake evaluations of management options as specified by WCPFC. 	<ul style="list-style-type: none"> • Working papers and presentations for SC, TCC, Commission meetings, and any other ad-hoc meetings as required 	<ul style="list-style-type: none"> • Hampton, J., and Harley, S. Assessment of the potential implications of application of CMM-2008-01 for bigeye and yellowfin tuna. WCPFC-SC5-GN-WP-17. • OFP-SPC. Further consideration of CMM2008-01 with respect to bigeye tuna. WCPFC6-2009/IP-18. • Harley, S., P. Williams, J. Hampton. Analysis of Purse seine set times for different school associations: A further tool to assist in compliance with FAD closures? WCPFC-SC5-ST-WP-07. • Harley, S., Hoyle, S., Hampton, J., and Kleiber, P. Characteristics of potential reference points for use in WCPFC tuna stock assessments. WCPFC-SC5-ME-WP-02.
<p>1.1.3 Management and development of the MULTIFAN-CL stock assessment software and associated visualisation software, including networked processing, testing and documentation of new features.</p>	<ul style="list-style-type: none"> • Host MULTIFAN-CL workshop in Jan-Feb 2009 with outcomes documented as an information paper for SC5 • Updated stock assessment modeling software and documentation posted on the MULTIFAN-CL website www.multifan-cl.org. • Further development of the GFORGE MULTIFAN-CL website 	<ul style="list-style-type: none"> • Hoyle, S., Fournier, D., Kleiber, P., Hampton, J., Bouyé, F., Davies, N., and Harley, S.. Update of recent developments in MULTIFAN-CL and related software for stock assessment. WCPFC-SC5-SA-IP-07.
<p>1.1.4 Analytical work to support FFA fisheries management work at regional and subregional levels. In 2009, these services shall include:</p>		
<ul style="list-style-type: none"> – Technical analysis in support of the Purse seine Vessel Days Scheme (VDS) of the Parties to the Nauru Agreement (PNA) including the Third Implementing Arrangement 	<ul style="list-style-type: none"> • Papers and presentations to FFC, its relevant subcommittees (e.g. PNA and/or SPTBF), the Management Options Workshop, and subregional workshops as required 	<ul style="list-style-type: none"> • Biomass estimates provided for incorporation into TAE calculations
<ul style="list-style-type: none"> – Feasibility study in support of the development of a Longline Vessel Days Scheme (LL-VDS) for the Parties to the Nauru Agreement (PNA) 	<ul style="list-style-type: none"> • Papers and presentations to FFC, its relevant subcommittees (e.g. PNA and/or SPTBF), the Management Options Workshop, and subregional workshops as required 	<ul style="list-style-type: none"> • OFP. 2009. PNA LONGLINE VDS – SCIENTIFIC ANALYSIS. PNA28/WP 5.2. • Provided presentations and technical input to LL-VDS meetings undertaken during 2009

<ul style="list-style-type: none"> - Characterisation of fishing effort in relation to Conservation and Management Measures 	<ul style="list-style-type: none"> • Papers and presentations to FFC, its relevant subcommittees (e.g. PNA and/or SPTBF), the Management Options Workshop, and subregional workshops as required 	<ul style="list-style-type: none"> • SC-SPTBF6 / WP.6 - OFP, Oct 2009. Characterisation of longline effort in relation to CMM2005-02, CMM2006-04, CMM2008-05. • SC-SPTBF6/ WP.5 - OFP, Oct 2009. Swordfish and Striped Marlin catch and effort characterization
<ul style="list-style-type: none"> - Economic optimizations of with-in zone tuna management plans for selected members of the Southern Tuna and Billfish Committee 	<ul style="list-style-type: none"> • Papers and presentations to FFC, its relevant subcommittees (e.g. PNA and/or SPTBF), the Management Options Workshop, and subregional workshops as required 	<ul style="list-style-type: none"> • SC-SPTBF5/ IP.5 - OFP, May 2009 South Pacific albacore modelling project (work plan) • SC-SPTBF6/ IP.2 - OFP, Oct 2009. South Pacific albacore optimization/modelling project - update
<ul style="list-style-type: none"> - Generation of inputs and associated technical support for bioeconomic modelling 	<ul style="list-style-type: none"> • Papers and presentations to FFC, its relevant subcommittees (e.g. PNA and/or SPTBF), the Management Options Workshop, and subregional workshops as required 	<ul style="list-style-type: none"> • FFA did not progress this work in 2009 due to limited resources and the lack of assessments for all three tropical tuna species
<ul style="list-style-type: none"> - Reference Point project (phase 1 and 2) 	<ul style="list-style-type: none"> • Papers and presentations to FFC, its relevant subcommittees (e.g. PNA and/or SPTBF), the Management Options Workshop, and subregional workshops as required 	<ul style="list-style-type: none"> • Little work directly requested by FFA due to restructuring of their work plan. A paper was submitted to the WCPFC-SC.
<p>1.1.5 Stock assessment and related information and advice provided to NGOs and other national or international fora, e.g. WWF, Western Pacific Regional Fishery Management Council, International Sustainable Seafood Foundation, etc.</p>	<ul style="list-style-type: none"> • Participation in relevant meetings, forums, as required 	<ul style="list-style-type: none"> • Presentation to the Pacific Tuna Forum, Port Moresby, PNG • FFC70-Agenda item 25 - OFP, May 2009. Overview – SPC Status of Stocks Report • SR-MOW IP.1 - OFP, Jun-Jul 2009. Overview – SPC Status of Stocks Report • SC-SPTBF5/ WP.5 - OFP, May 2009 Research and stock assessment issues • SC-SPTBF6/ WP.4 - OFP, Oct 2009. Research and stock assessment issues • OC/WP 2 - OFP, Nov 2009. WCPFC SC5 – RELEVANT MANAGEMENT ADVICE & RELATED OUTCOMES & ANALYSIS • SR-MOW WP.14 - OFP, Jun-Jul 2009. South Pacific Albacore & Billfish Issues • SR-MOW IP.1 - OFP, Jun-Jul 2009. Overview – SPC Status of Stocks Report

Output 1.2: National fishery status reports and associated analyses			
1.2.1	NTFSRs completed for FSM, Nauru, Kiribati, Samoa, Marshall Islands, Tuvalu and Solomon Islands.	<ul style="list-style-type: none"> • 6 fishery status/summary reports that are used to inform management decision-making at the national level progressed or finalised per year. • Improved integration within the FFA/SPC EAFM work programme. 	<ul style="list-style-type: none"> • The passing of one of the two staff members assigned to National-level work resulted in considerable time delays on these activities • NTFSRs completed for Nauru and the Federated States of Micronesia • Significant progress made in NTFSRs for Kiribati, Samoa, and the Marshall Islands • NTFSRs initiated for Tuvalu
1.2.2	Provide scientific support to national scoping and stakeholder workshops for the implementation of the Ecosystem Approach to Fisheries Management or revision of Tuna Management Plans, including the delivery of relevant information from the NTFSRs.	<ul style="list-style-type: none"> • Effective participation in the national EAFM and TMP processes and other relevant national meetings. • Where possible, adjoin NTFSR specific workshops to EAFM workshops 	<ul style="list-style-type: none"> • EAFM/TMP meetings attended in RMI, Samoa, Nauru, and Tuvalu • Provided technical input and review of EAFM/TMPs for Samoa, Nauru, and Niue
1.2.3	Provide draft overview of fisheries and stock status for inclusion in FFA EAFM final reports, including providing review/comments of the draft EAFM Reports prior to finalization.	<ul style="list-style-type: none"> • Draft overviews of fisheries and stock status provided to FFA for inclusion in EAFM Reports for each country implementing EAFM • Review comments provided to FFA on draft EAFM Reports 	<ul style="list-style-type: none"> • See above
Output 1.3: Enhanced capacity of PICTs to interpret stock assessment information and advice			
1.3.1	Summary reports of stock assessment results provided to PICTs at relevant fora, e.g. HoF, FFC, Management Options workshops, etc.	<ul style="list-style-type: none"> • Improved understanding of OFP work at the national level. • Tuna Fishery Assessment Report published 	<ul style="list-style-type: none"> • Presentations made and technical support provided to Heads of Fisheries, FFA Science WG, Management Options Consultations, Subregional Management Options Workshops, FFC and its subcommittees • Revised TFAR template developed and 2008 TFAR to be published in early 2010

<p>1.3.2 Ongoing development of material for workshops to increase understanding of fisheries stock assessments and their management implications ,with a focus on WCPO tuna assessments in particular. Investigation of potential transfer of materials to accredited courses (e.g. at USP).</p>	<ul style="list-style-type: none"> • Development of workshop materials • Discussion held at HoF to determine PICT preferences for the long-term future of the workshops/courses. • Liaise with USP staff to evaluate potential collaboration in training of PICT fisheries staff. 	<ul style="list-style-type: none"> • Workshop materials updated to reflect recent issues under consideration at the WCPFC-SC • Paper presented at HoF outlining alternative options for the continued delivery of the stock assessment workshops.
<p>1.3.3 Hold regional and (when possible) opportunistic in-country stock assessment workshop(s).</p>	<ul style="list-style-type: none"> • Workshop report • Opportunistic in-country training detailed in trip reports. • Continued development of remote learning initiatives, dependant on participation levels. 	<ul style="list-style-type: none"> • Two stock assessment workshops held in June/July 2009 with 21 participants from 17 countries and Territories • Workshop reports produced for the two major donors: the WCPFC Japanese Trust Fund and the Part VII fund administered by the UN • The increased time taken up by EAFM processes has made it difficult to conduct opportunistic in-country training • One online exercise conducted
<p>1.3.4 Assist in the preparation and presentation of scientific briefs to preparatory meetings of PICTs for the WCPFC.</p>	<ul style="list-style-type: none"> • Improved understanding of stock assessments demonstrated by PICTS during SC and WCPFC meetings (e.g. via participation in discussions of assessments, and ability to review/question the assessments). 	<ul style="list-style-type: none"> • See 1.3.1 above • Improved level of participation by PICTS in the WCPFC-SC evidenced by more “scientific” questions asked during sessions, increased confidence in presenting scientific talking points, and the appointment of one participant to the vice-chair position of the SC
<p>1.3.5 Host attachments of national technical staff to participate in regional stock assessment work and preparation of NTFSRs.</p>	<ul style="list-style-type: none"> • Attachment reports • Co-authorship by national technical staff on NTFSR chapters on Stock Status and Management Implications. • Improved understanding of regional assessments and increased consideration of stock assessment information in national management decision making processes. 	<ul style="list-style-type: none"> • The imposition of new visa restrictions by the New Caledonia government made it almost impossible to host attachments in 2009 • One ‘on-line’ attachment with the fishery officer from RMI held in 2009 resulting in co-authorship of two NTFRS chapters

Objective 2: Accurate and comprehensive scientific data for regional and national fisheries management authorities on fisheries targeting the region's resources of tuna, billfish and other oceanic species

2009 Work Programme Activities	Performance Indicators and/or Means of Verification	2009 Achievements
Output 2.1: Regional oceanic fishery data management services provided to the WCPFC		
<p>2.1.1 Incorporate data provided by Commission members under the Commission's data provision policy (e.g., annual catch estimates, operational-level logsheet data, size data, etc.) into existing databases and facilitate access of Commission secretariat staff to those data as appropriate.</p>	<ul style="list-style-type: none"> • List of amounts of data incorporated during 2009 and link to the <i>Tuna Fishery Data Catalogue</i> • List of system development activities undertaken, e.g., development of database for annual catch estimates consistent with the OFP system. 	<ul style="list-style-type: none"> • During 2009, the OFP entered catch and effort logsheets for 8,255 trips, length data for 3,957 trips and observer data for 451 trips; these data were subsequently used to update the Commission's database. Ten sets of aggregated catch and effort data and 11 sets of aggregated length data were imported into the Commission's database. • Tuna Fishery Data Catalogue • The following system developments took place: (1) enhancements were made to CES, with CES advancing from version 8.8.0 to 8.8.2; (2) a new oceanographic database was created in SQL server and data were imported from a new source (GODAS); (3) the WCPFC Yearbook database system was converted from Excel to Foxpro, with automatic extraction of tables and histograms for the SC annual catch estimates paper and the WCPFC Yearbook; (4) the Cannery Receipts Database System was developed and implemented; (5) the following databases were transferred to the new MS SQL Server: tagging databases, oceanographic, WCPFC Yearbook databases, TUFMAN Observer databases, TUFMAN database tables and WCFPC database tables; (6) for the observer data, batch addition of new observer code was implemented; (7) for logsheet data entry, the purse-seine form was update following recommendations from DCC7; and (8) for the Bycatch and Mitigation Data entry system, the Biological Attributes section was implemented and the web query interface was completed. • The Commission's database was installed on the WCPFC Secretariat's network servers in October. • Procedures for the acknowledgement of WCPFC data were further refined, including expansion of the confidential WCPFC Data Management shared folders area.

<p>2.1.2 Compile estimates of catch and effort in support of the functions of the Commission and its subsidiary bodies.</p>	<ul style="list-style-type: none"> • Link to SC5 information paper on estimates of annual catches by species, gear type and flag. • Link to SC5 information paper on estimates of annual catches by vessel flag, EEZ, and archipelagic waters. This report is used by WCPFC Secretariat for determining the catch component (for 2006-2008) of the Commission's assessed contributions. • Link to SC5 information paper on indicators for non-assessed species. • List of tables and figures presented at WCPFC6 on estimates of catch and effort in support of Conservation and Management Measures. 	<ul style="list-style-type: none"> • P. Williams, and T. Lawson. Estimates of annual catches in the WCPFC Statistical Area. WCPFC-SC5-SA-IP-1 • Annual catch estimates by gear type, flag and species were prepared and provided to the Secretariat in September and a revision to cater for the French Polynesian proposal was prepared and provided on in November. • CMM tables were prepared and provided to the Secretariat on 9th September.
<p>2.1.3 For catches for which estimates are not otherwise available, conduct statistical analyses to estimate catches, particularly in regard to purse-seine catches of bigeye tuna, discards of target tuna species, and catches of non-target species.</p>	<ul style="list-style-type: none"> • Link to SC5 working paper on analysis of spill and grab samples, and application to revision of estimates of purse-seine catches. • Link to SC5 working paper on estimation of shark catches determined from observer data. • Link to SC5 working paper on estimates of shark catches determined from fin trade data. 	<ul style="list-style-type: none"> • Lawson, T. Selectivity bias in grab samples and other factors affecting the analysis of species composition data collected by observers on purse seiners in the Western and Central Pacific Ocean. WCPFC-SC5-ST-WP-3 • Working paper on shark catches determined from observer data postponed due to time constraints resulting primarily from participation at the International Working Group Meeting on Tuna Purse-Seine and Baitboat Catch Species Composition Derived From Observer and Port Sampled Data, June 2009, Sète, France. • Clarke, S. An Alternative Estimate of Catches of Five Species of Sharks in the Western and Central Pacific Ocean based on Shark Fin Trade Data. WCPFC-SC5-BE-WP-2

<p>2.1.4 On request, advise the WCPFC Executive Director regarding the further development of Rules and Procedures for the Protection, Access to and Dissemination of Data and the Information Security Policy.</p>	<ul style="list-style-type: none"> • List of instances of advice requested by and provided to the Executive Director. • Link to SC5 working paper on the status of public domain data held by the Commission. 	<ul style="list-style-type: none"> • Advice was provided in regard to (1) the SC4 recommendation that the Secretariat to write to CCMs to waive the three-vessel minimum and (2) developments in regard the RaP at TCC5. Advice not directly related to the RaP was provided in regard to (3) alternative proposals and provision of purse-seine operational data under CMM 2008–01; (4) the release of public domain catch and effort data on the Commission’s website; (5) participation at the International Working Group Meeting on Tuna Purse-Seine and Baitboat Catch Species Composition Derived From Observer and Port Sampled Data; (6) release of non-public domain catch and effort data to Patrick Lehodey, CLS, France; (7) applications for CNM status; (8) WCPFC membership in FIRMS and the release of information from the WCPFC website to FIRMS; (9) funding of paired spill and grab samples onboard purse seiners; (10) the FAO Expert panel on CITES listing proposals; (11) the attribution of catches taken by Chinese longliners chartered in Fiji; and (12) Japan’s proposal, WCPFC6–2009/DP05, on port sampling. • Lawson, T. & P. Williams. Status of public domain catch and effort data held by the Western and Central Pacific Fisheries Commission. WCPFC-SC5-ST-WP-8 • Notes on Observer data management costs were prepared and used at SC5, TCC5 and WCPFC6.
<p>2.1.5 Determine the status of the provision of scientific data to the Commission and identify known data / information gaps in the current stock assessment.</p>	<ul style="list-style-type: none"> • Link to the utility on the WCPFC website documenting the status of the provision of scientific data. • Link to SC5 working paper on data gaps. • Reference to date that a summary report on data gaps was provided to the Secretariat for consideration at TCC5 and WCPFC6. 	<ul style="list-style-type: none"> • WCPFC Provision of Data • Scientific data available to the Western and Central Pacific Fisheries Commission. WCPFC-SC5-ST-WP-1 •

<p>2.1.6 Participate in the Indonesia and Philippines Data Collection Project and the compilation of information on the tuna fisheries of Vietnam.</p>	<ul style="list-style-type: none"> • List of technical support provided. • Links to reports of relevant meetings. • List of advice requested by and provided to the Secretariat. 	<ul style="list-style-type: none"> • Ongoing support for the NSAP and TUFMAN database systems, and management of cannery receipt data, was provided to the Philippines. • Provisional annual catch estimates for the Philippines were reviewed at TDW-3 and through email exchanges. • Reviews of (a) progress in the implementation of the East Indonesia port sampling project and (b) the Indonesian Data Rescue Project were conducted. • Historical Indonesian longline data reviewed and imported into the WCPFC Database. • Tuna catches landed in the Philippines were reviewed: D.G. Itano and P.G. Williams. Review of bigeye and yellowfin tuna catches landed in Palawan, Philippines • Meetings attended included the Third Eastern Indonesia Tuna Fishery Data Collection Workshop (EITFDC-3), 15-17 January 2009, Manado, Indonesia; the Indonesian Logbook Workshop held in Jakarta in May; the WPEA OFM Steering Committee meetings held in Port Vila in August and Papeete, French Polynesia in December.
<p>2.1.7 Produce and publish on the Commission's website the Tuna Fishery Yearbook 2008, containing annual catch estimates by gear type, flag and species.</p>	<ul style="list-style-type: none"> • Link to the Tuna Fishery Yearbook, 2008. 	<ul style="list-style-type: none"> • The format of the Tuna Fishery Yearbook is under revision following changes to the Yearbook database and will be posted in early 2010. In the meantime, Yearbook data in Excel files are available on the Commission's website.
<p>2.1.8 Maintain the Commission's website, including the dissemination of public domain catch, effort and size data on the Commission's website at agreed level of resolution.</p>	<ul style="list-style-type: none"> • List of modifications made to the WCPFC website. • Link to public domain data posted on the WCPFC website. At the time of writing (January 2009), public domain data are currently unavailable due to problems associated with the three-vessel minimum specified in the Rules and Procedures for the Protection of, Access to and Dissemination of Data by the Commission. 	<ul style="list-style-type: none"> • Modifications to the WCPFC website include: (1) Scientific Committee (SC5) pages designed (e.g., electronic registration); (2) participation in selection committee for the redevelopment of the WCPFC site; (3) pages for public domain data generated on the new web site (see below); (4) Yearbook publication files updated; (5) Status of the Provision of Data files updated; and (6) Bycatch Mitigation Information System (BMIS) web query interface implemented. • Public domain data on the Commission's website, for all flags combined and screened for the three-vessel minimum.

Output 2.2: Enhanced national fishery monitoring and data management systems

<p>2.2.1 Provide regional coordination of national fishery monitoring and data management systems through the provision of a template for integrated national tuna fishery monitoring, data collection forms, computer software, newsletters and other information, and through a meeting of the SPC/FFA Data Collection Committee.</p>	<ul style="list-style-type: none"> • List of members supported and information provided. • Link to report of the Eighth Meeting of the Tuna Fishery Data Collection Committee. DCC8 has been tentatively scheduled for late 2009. 	<ul style="list-style-type: none"> • Updates to the in-country web pages were generated and published each 2–4 months on average, depending on the availability of data. • CES System and latest data provided to all member countries in March, June and August. • Observer Trip Viewer System and latest data were provided to all member countries with observer programmes on at least two occasions during 2009. • MOUs were established or renewed in the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Niue, Samoa, Tonga, Tuvalu and Vanuatu. • Countries visited included Kiribati (management and transfer of observer data); Tonga (observer debriefing, observer data reconciliation and observer pre-selection); and Vanuatu (observer debriefing and an observer data management exercise). • Support was provided to several countries for the provision of annual catch estimates to WCPFC. • SC5 National Report Data Summaries were prepared for Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Tokelau, Tuvalu and Vanuatu. •
	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • The unprecedented increase in observer coverage required more time was spent managing observer workbook forms, e.g., putting new procedures in place regarding outside printers. • The eighth edition of Fork Length, the observer and port sampler newsletter was published on the OFP website. • DCC8 took place at SPC headquarters in Noumea from November 16 to 19. The report of the meeting, including changes to the data collection forms, will be completed in due course and posted on the OFP website.

<p>2.2.2 Develop or enhance national tuna fishery data management systems, such as TUFMAN.</p>	<ul style="list-style-type: none"> List of members supported and types of support provided. In-country visits for TUFMAN support in 2009 have been proposed for Vanuatu, Kiribati, Palau, Nauru, and Tonga. Report on TUFMAN workshop for National Observer Managers Coordinators tentatively scheduled to follow the Observer Coordinators' Workshop in Noumea in July. 	<ul style="list-style-type: none"> Extensive development work was done on TUFMAN, taking it from version 4.44 to version 5.01, which is a major overhaul providing extra features, new interface, enhanced stability and which runs under the Office 2007 platform. Work is under way on version 6.0 which uses SQL Server as the backend database and continues the work with version 5 to improving the system and standardising the code and database. The TUFMAN Observer Module (TUBS) and the TUFMAN Video Training tool were completed. TUFMAN was set up and installed for first time use in Niue and Vanuatu, and updated on-site for Kiribati. TUFMAN updates were provided regularly during the year to the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Palau, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Vanuatu agents in New Zealand.
<p>2.2.3 Develop or enhance national observer programmes.</p>	<ul style="list-style-type: none"> List of members supported and type of support provided. In-country visits to support observer programmes in 2009 have been proposed for PNG, Kiribati, the Solomon Islands and Vanuatu. In addition to ongoing support, the types of support proposed for 2009 include (i) implementation of spill sampling by observers onboard purse seiners in selected ports of departure; (ii) paired spill and grab samples conducted to examine variances in species compositions among school associations, geographic areas and observers; and (iii) investigation of modifications to the current spill sampling technique. 	<ul style="list-style-type: none"> Support for observer programmes was provided to New Zealand (biological sampling and tagging on longliners), Papua New Guinea (provided or organised workbooks, training materials, measuring boards and spill sample bins; trained two observer trainers; and progressed implementation of spill sampling) and Vanuatu (developed budget, observer contract and description of duties, payment scheme, Observer Management Guide). According to data available at the time of writing, paired spill and grab samples took place during 13 trips onboard one purse seiners from New Zealand, three from Papua New Guinea and one from Solomon Islands. Data for other trips taken in 2009 may be forthcoming. Spill sampling (other than for paired samples) was implemented during a limited number of trips in Papua New Guinea and Solomon Islands. Spill sampling was not implemented elsewhere due to personnel constraints. An attempt was made to test a motion-compensated scale for directly measuring the weight of fish in species composition samples; this took place late in the year due to the scale being held up in New Caledonia customs for several months. The tests were incomplete due to faulty calibration of the scale and so they have been postponed until 2010.

2.2.4 Develop or enhance national port sampling programmes.	<ul style="list-style-type: none"> List of members supported and type of support provided. An in-country visit to support port sampling has been proposed for Vanuatu. A port sampling programme in Noro, Solomon Islands has been proposed to examine accuracy of species composition of cannery receipts and will be implemented pending the availability of resources. Link to document on issues related to sampling of purse seiners in ports of transshipment, e.g. well mixing, subject to the availability of relevant information. 	<ul style="list-style-type: none"> Support for port sampling programmes was provided to Kiribati (port sampling training), Samoa (port sampling data evaluated), Solomon Islands (port sampling established at Noro), Tonga (preparation of port samplers bonuses) and Vanuatu (port sampling data evaluation and training session). Issues related to port sampling were examined in Lawson, T. 2008. Factors affecting the use of species composition data collected by observers and port samplers from purse seiners in the western and central Pacific Ocean; these issues were not revisited in 2009.
2.2.5 Develop procedures for the auditing of national tuna fishery monitoring.	<ul style="list-style-type: none"> Link to finalised auditing procedures document. List of presentations of auditing procedures made to members, e.g., during the Third Tuna Data Workshop. 	<ul style="list-style-type: none"> Substantial updates made during the year. Latest versions of the Port Sampling Audit Workbook and Logsheets Data Collection Audit Workbook can be found here. A presentation on Introduction to Auditing Workbooks was made at TDW-3 and draft resource materials were distributed. Components of the draft Port Sampling Audit Workbook were used during EITFDC-3 and the review of bigeye and yellowfin tuna catches landed in Palawan, Philippines (see 2.1.6).
2.2.6 Provide technical support for the development of data collection from artisanal tuna fisheries.	<ul style="list-style-type: none"> List of members supported and type of support provided. Support of artisanal tuna fisheries data collection in the Federated States of Micronesia and Kiribati in 2009 is under discussion and will be subject to the availability of resources. 	<ul style="list-style-type: none"> A survey of artisanal fisheries and training in the collection of artisanal fisheries data was conducted during TDW-3 (see 2.3.1). Kiribati was visited twice to support the collection of artisanal tuna data and to conduct a four day workshop on artisanal data collection.

<p>2.2.7 Provide technical support for various FFA initiatives.</p>	<ul style="list-style-type: none"> List of support provided to FFA, e.g., for the development of EAFM. 	<ul style="list-style-type: none"> Data summaries were also prepared for the OFP Fisheries Scientist (FFA Liaison) and FFA staff in the following areas: (1) access negotiations; (2) catch by EEZ database queries; (3) purse-seine VDS calculations; (4) review of the regional observer programmes; (5) review of potential management measures in relation to PNA, Longline VDS, etc.; and (6) determination of ROP costs specifically related to FFA's future involvement.
<p>Output 2.3: Enhanced capacity of PICTs to monitor fisheries, manage and use data</p>		
<p>2.3.1 Provide ongoing support to National Tuna Data Coordinators, including follow-up of issues arising at the Tuna Data Workshop and further development of national tuna data procedures documents.</p>	<ul style="list-style-type: none"> List of members supported and support provided. 	<ul style="list-style-type: none"> Regional Tuna Template for the National Tuna Data Procedures Document was updated to version 3. Kiribati, Tonga and Vanuatu were visited to provide support for NTDCs and updating of their NTDPDs. TDW-3 was held in Auckland, June 22-25, with participants from the Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Tokelau, Tonga, Tuvalu, Vanuatu and Wallis and Futuna, Indonesia and the Philippines: Report of TDW-3
<p>2.3.2 Train national tuna fishery data management staff in the use of TUFMAN and other database and sampling programme management software.</p>	<ul style="list-style-type: none"> List of members supported and numbers of national staff trained. In-country visits for TUFMAN training in 2009 has been proposed for Vanuatu, Kiribati, Palau, Nauru, and Tonga. Report on TUFMAN workshop for National Observer Managers Coordinators tentatively scheduled to follow the Observer Coordinators' Workshop in Noumea in July. 	<ul style="list-style-type: none"> TUFMAN training took place during TDW-3 (see 2.3.1) and in-country training took place in Kiribati, Niue, Tonga and Vanuatu. TUBS (TUFMAN Observer database system) was presented at ROCW9 during a comprehensive session on observer data management (see 2.3.4).

<p>2.3.3 Hold up to six national and sub-regional observer training workshops, a debriefer training workshop and provide support for nationally run training workshops.</p>	<ul style="list-style-type: none"> List of workshops held, with date, location and number of certified observers and debriefers. In 2009 National workshops have been proposed for Papua New Guinea, Kiribati, Federated States of Micronesia and the Solomon Islands, whilst regional and sub-regional workshops are proposed to be held in the Solomon Islands, Vanuatu and Fiji. 	<ul style="list-style-type: none"> Observer training workshops were held in the Federated States of Micronesia (28 cadet observers trained), Fiji (13 observers, including one each from New Caledonia and Tuvalu), Kiribati (46 observers), Marshall Islands (12 observers), Papua New Guinea (16 observers), Solomon Islands (46 cadets) and Vanuatu (30 cadets). Assistance was also provided to two observer courses run by nationals in Papua New Guinea (16 observers each).
<p>2.3.4 Hold a regional observer coordinator's workshop.</p>	<ul style="list-style-type: none"> List of participating members and link to workshop report. 	<ul style="list-style-type: none"> OCW9 was held at SPC headquarters in Noumea, September 16– 23, with participants from the Cook Islands, Federated States of Micronesia, Fiji, Marshall Islands, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, United States and Vanuatu: Report of OCW9.
<p>2.3.5 Host up to six training attachments in fisheries monitoring and statistics at SPC headquarters.</p>	<ul style="list-style-type: none"> List of attachments and type of training. Attachment training in 2009 has been proposed for Cook Islands, Tonga, Papua New Guinea and Vanuatu. POFM project quarterly reports 	<ul style="list-style-type: none"> Tony Taleo (Vanuatu) Geoff Tama (Cook Islands)
<p>2.3.6 Develop standards for competency-based training of observers.</p>	<ul style="list-style-type: none"> Competency-based training (CBT) standards for observers published online (SPC, FFA, WCPFC web-sites). Link to report on standards for debriefer CBT. 	<ul style="list-style-type: none"> A new Pacific Island Regional Fisheries Observer consultant, Simon Reid, was contracted to review the standards and assessment guides already developed, develop a training and qualification structure, develop a quality assurance policy, and liaise with regional and national trainers to develop a regional training package. PIRFO Certification and Training

Objective 3: Improved understanding of pelagic ecosystems in the western and central Pacific Ocean, with a focus on the western tropical Pacific

2009 Work Programme Activities	Performance Indicators and/or Means of Verification	2009 Achievements
Output 3.1: Data on the biological characteristics of oceanic species and their environment		
<p>3.1.1 Provision of quantitative data on the population dynamics of tunas. In 2009, these services shall include:</p>	<ul style="list-style-type: none"> • Planning and implementation of PTPP Phase 2 for deployment of conventional and archival tags. <ul style="list-style-type: none"> – 3 month WP 2 – 3month WP 3 – 6 week CP 2 – 6 week CP 3 	<p>All 2009 PTPP Phase 2 cruises completed. See Leroy, B., B. Kumasi, A. Lewis, D. Itano, T. Usu, J. Hampton, S. Nicol, V. Allain, S. Caillot. 2009. PTPP summary report: review phase 2. GN-IP-13 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee.</p>
<p>a. Implementation of BET, YFT and SKJ research in WCPO waters to obtain data on local exploitation rates and the influence of FAD and seamounts on stock fidelity, movement and distribution</p>	<ul style="list-style-type: none"> • PTPP Progress report presented to SC5. 	<p>WP3 cruise reports 1 -4. http://www.spc.int/oceanfish/html/tag/rttp2/</p>
<p>b. Implementation of Albacore research in WCPO to obtain information on exploitation rates and movements</p>	<ul style="list-style-type: none"> • Technical report documenting the analysis of PNG tagging data. 	<p>Nicol, S., J. Hampton, B. Leroy, B. Kumasi, A. Lewis, D. Itano. 2009. PTPP work plan 2009-10. GN-IP-15 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee.</p>
<p>c. Development of Albacore research in WCPO to obtain information on stock fidelity and movement.</p>	<ul style="list-style-type: none"> • Peer reviewed publication submitted that describes tropical tuna horizontal movements as derived from archival tags 	<p>The total tag release numbers for the overall PTPP are currently 259,663 conventional and 886 archival tags. 34,000 tags have been recovered. 60 tag seeding kits (steel head tag) were distributed in 2009. Specific visits to promote and facilitate tag recovery have been undertaken in the Korea, Federated States of Micronesia, Solomon Islands, Palau, Marshall Islands, Indonesia, Philippines and Papua New Guinea, American Samoa, Japan, Indonesia, Philippines.</p>
	<ul style="list-style-type: none"> • 50 to 100 Tag seeding experiments implemented to estimated reporting rates for PTPP • Tag recovery operations implemented for PTPP • Albacore tagging cruise implemented for deployment of conventional tags <ul style="list-style-type: none"> – First cruise implemented – Second cruise planned 	<p>Completion of reports documenting PNG tagging data and tuna horizontal movement commenced but not completed. TDR study postponed to 2010. Vertical movement published, see Leroy, B., D.G. Itano, T. Isu, S.J. Nicol, K.N. Holland, and J. Hampton. 2009. Vertical Behavior and the Observation of FAD Effects on Tropical Tuna in the Warm-Pool of the Western Pacific Ocean. <i>Reviews: Methods and Technologies in Fish Biology and Fisheries</i> 9:161-180.</p>

	<ul style="list-style-type: none"> • Albacore tag recovery procedures implemented. • Albacore Tagging progress report presented to SCS. • Implement TDR study to estimate tuna habitat utilization in relation to LL operations 	<p>The first albacore tagging cruise completed. Overall, a total of 2766 albacore were tagged and released with 1457 of these fish also receiving an injection of oxytetracycline (OTC) for the age validation experiments. Planning for second albacore cruise complete. See Williams, A., S. Nicol, J. Hampton, S. Harley and S. Hoyle. 2009. South pacific albacore tagging project: 2009 summary report. GN-IP-16 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee.</p>
<p>3.1.2 Provision of quantitative data on the environmental drivers of distribution for tunas. In 2009, these services shall include:</p>	<ul style="list-style-type: none"> • Development of a robust CPUE for ALB that incorporates spatial variability in distribution. • Analysis of ALB distribution at EEZ scales in relation to oceanography • Analysis of BET, YFT and SKJ distribution at EEZ scales in relation to oceanography. • Manuscript documenting the comprehensive examination of the hypothesis that tuna, other pelagic predators and by-catch CPUE is positively associated with the presence of seamounts in the WCPO. 	<p>Completion of robust CPUE for ALB commenced but not completed. Manuscript drafted describing preliminary work undertaken in New Caledonia. Submission to journal expected in 2010. See</p> <p>Briand, K., B. Molony, and P. Lehodey. <i>in preparation</i>. Non linear relationships between albacore (<i>Thunnus alalunga</i>) longline catch rates and environment in New Caledonia EEZ. <i>Fisheries Oceanography</i>.</p> <p>Optimisation of SEAPODYM for albacore in at the regional scale was completed at 2 degrees resolution. The model diagnostics demonstrate good correspondence between the model predictions and fishery data observations indicating good description of the population dynamics. EEZ scale analysis postponed to 2010. Current versions of skipjack, bigeye, yellowfin and south Pacific albacore at ocean basin scale (2x2 degree) completed, see</p> <p>Lehodey, P and I. Senina. 2009. An update of recent developments and application of the SEAPODYM model. EB WP-10 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth regular session, 10-21 Aug. 2009. Port Vila, Vanuatu. Available at http://www.wcpfc.int</p> <p>Lehodey, P., Murtugudde and I. Senina. 2010. Bridging the gap from ocean models to population dynamics of large marine predators: A model of mid-trophic functional groups. <i>Progress in Oceanography</i> 84:69-84.</p> <p>The relationship between seamounts and historical fishing data completed. See following manuscripts.</p> <p>Morato, T., V. Allain, S. Hoyle, S. Nicol. in review. Seamounts are hotspots of pelagic biodiversity in the open ocean". <i>Proceedings of the National Academy of Sciences</i>.</p> <p>Morato, T., T.J. Pitcher, M.R. Clark, G. Menezes, F. Tempera, F. Porteiro, E. Giacomello, and R.S. Santos. 2010. Can We Protect Seamounts for Research? A Call For Conservation. <i>Oceanography</i> 23:190-199.</p> <p>Morato T., Allain V., Hoyle S., Nicol S. 2009. Tuna longline fishing around west and central Pacific seamounts. EB IP-4 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth regular session, 10-21 Aug. 2009. Port Vila, Vanuatu.</p>
<p>a. Implementation of Albacore research in WCPO to obtain data on the influence of bathymetry, oceanographic and geographic drivers on tuna movement and distribution.</p>		
<p>b. Implementation of BET, YFT and SKJ research in the WCPO to obtain data on the influence of bathymetry, oceanographic and geographic drivers on tuna movement and distribution</p>		
<p>c. Characterising the relationship between seamounts and historical fishing data.</p>		

		<p>Available at http://www.wcpfc.int</p> <p>Morato T., Allain V., Nicol S. 2009. Short Report on tuna fishing on High-seas pocket seamounts. 2009. Oceanic Fisheries Program, Secretariat of the Pacific Community, Noumea, New Caledonia, 21pp.</p> <p>Pitcher, T.J., M.R. Clark, T. Morato, and R. Watson. 2010. Seamount Fisheries: Do They Have a Future? <i>Oceanography</i> 23:135-144.</p> <p>Pitcher, T.J., T. Morato, K.I. Stocks, and M.R. Clark. 2010. Seamount Ecosystem Evaluation Framework (SEEF): A Tool for Global Seamount Research and Data Synthesis. <i>Oceanography</i> 23:123-125.</p> <p>Santos, R.S., F. Tempera, A. Colaço, F. Cardigos, and T. Morato. 2010. Dom João de Castro Seamount. <i>Oceanography</i> 23:200-201.</p> <p>Santos, R.S., F. Tempera, G. Menezes, F. Porteiro, and T. Morato. 2010. Sedlo Seamount. <i>Oceanography</i> 23:202-203.</p>
<p>3.1.3 Provision of quantitative data on ecosystem and trophic dynamics. In 2009, these services shall include:</p>	<ul style="list-style-type: none"> • Continued co-ordinations of stomachs and tissues & their analysis (Objectives: 500 samples collected and 500 analysed if staff/funding available) • Maintain prey item reference collection • 4 Member country newsletters updating sampling status, section activities & results. • Analysis of pelagic predator diet and trophic position in WCPO ecosystem with production of final reports/manuscripts for: Isotope map for tuna in WCPO. Influence of sampling gear on stomach content and isotope signature. Analysis of FAD impacts on diet, isotope signatures and fat content. Latitudinal comparisons of diets of pelagic species from the Pacific 	<p>790 stomach samples were examined and the resulting data/information entered into the database. The total number of stomachs examined and with data entered is now 4,986 samples from 73 different species.</p> <p>Issues 9-#12 of the SPC Biological Sampling Newsletter were distributed and sent to the observer programmes of the different programmes involved into biological sampling.</p> <p>Training in biological sampling has been done in Palau (2 Observers, 1 Obs coordinator, 1 port sampler, 2 private persons), FSM (19 observers, 1 Obs. coordinator) and during the sub regional observer course in Suva, Fiji (13 observers from Fiji, one from Tuvalu and one from New Caledonia). They have been updated on the stomach sampling project and also trained in identifying and collecting samples. .</p> <p>Training in biological sampling has been done during the sub regional observer course in Santo, Vanuatu. 15 observers from Vanuatu, Tonga, Tuvalu and Nauru have been update on the stomach sampling project and also trained in identifying and collecting samples. Lab-based analysis of samples is continuing. During the quarter, 100 stomach samples were examined and the resulting data/information entered into the database. The total number of stomachs examined and with data entered is now 4,530 samples from 71 different species.</p> <p>Allain V., Sanchez C., Dupoux C. 2009. Progress in the study of the pelagic ecosystem trophic dynamics. Fifth regular session of the Scientific Committee of the Western</p>
<p>a. Identification of functional groups and influence of latitudinal, bathymetry and oceanographic effects</p>		
<p>b. Identification of natural isotope tags for studying tuna movement</p>		

	Ocean	<p>and Central Pacific Fisheries Commission. 10-21 Aug. 2009. Port Vila, Vanuatu. WCPFC-SC5 – EB IP-5: 1-7.</p> <p>Dambacher J.M., J.W Young., R.J. Olson, V. Allain, F. Galván-Magaña, M.J. Lansdell, N. Bocanegra-Castillo, V. Alatorre-Ramírez, S.P. Cooper & L.M. Duffy. 2010. Analyzing pelagic food webs leading to top predators in the Pacific Ocean: a graph-theoretic approach. <i>Progress in Oceanography</i>. <i>in press</i>.</p> <p>Graham, B.S., P.L. Koch, S.D. Newsome, K.W. McMahon, and D. Aurioles. 2010. Using isoscapes to trace the movements and foraging behavior of Top Predators in Oceanic Ecosystems. In J.B. West et al. (eds.), <i>Isoscapes: understanding movement pattern, and process on Earth through isotope mapping</i>. Springer Science.</p>
<p>3.1.4 Provision of quantitative data on age and reproduction of tunas. In 2009, these services shall include:</p> <p>a. Continue to receive and archive otoliths for future analysis comparing observed and estimated growth</p> <p>b. Implement tuna age-growth-reproductive research</p> <p>c. Document the uncertainty in tropical tuna growth and reproductive biology for SA structural sensitivity analysis.</p>	<ul style="list-style-type: none"> • Central repository/database for all otoliths data improved to include the meta data for otoliths analysis • Implementation of ALB age and reproductive biology research • Implementation of BET growth and reproductive biology research (subject to WCPFC funding) • Prepare manuscript discussing influences of biological uncertainty upon tuna stock assessments 	<p>Otolith repository and database updated to cater for albacore and bigeye projects</p> <p>Collection of otoliths & gonad from albacore proceeding to plans. A total of 473 albacore sampled (177 French Polynesia, 226 New Caledonia, 70 New Zealand). Procedures for analysis and collaboration established with CSIRO in Australia. Preliminary results of albacore age and reproductive biology presented to WCPFC – SC5, see</p> <p>Farley, J., A. Williams, C. Davies and S. Nicol. 2009. Regional study of South Pacific albacore population biology: Year 1 - biological sample collection. BI-WP-05 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee.</p> <p>BET growth and reproductive biology research implemented. Training in otolith and gonad sampling completed in Palau (2 Observers, 1 Obs coordinator, 1 port sampler, 2 private persons), FSM (19 observers, 1 Obs. coordinator) and during the sub regional observer course in Fiji (13 observers from Fiji, one from Tuvalu and one from New Caledonia) and Vanuatu (15 observers from Vanuatu, Tonga, Tuvalu and Nauru). Progress report presented to WCPFC – SC5, see</p> <p>Nicol, S., K. Sisor, S. Retalmai, D. Itano, K. Schaefer and J. Farley. 2009. Bigeye tuna age and reproductive biology – progress report. BI-WP-04 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee.</p>

		The influence of biological uncertainty for yellowfin stock assessment examined. see Hoyle, S., S. Nicol and D. Itano. 2009. Revised biological parameter estimates for application in yellowfin stock assessment. BI-WP-03 Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee .
3.1.5 Provision of oceanographic data for OFP activities. In 2009, these services shall include:	<ul style="list-style-type: none"> • Samoa, Marshal Islands assistance provided 	Samoa completed , RMI delayed to 2010
a. Oceanographic assistance for requested NTFSRs		
Output 3.2: Improved ecosystem models that incorporate available data		
3.2.1 Provision of ecosystem models that describe the pelagic environment and allow the consequences of ecosystem change and fisheries management to be explored. In 2009, these services shall include:	<ul style="list-style-type: none"> • Report/manuscript describing the feasibility of using the high resolution PISCES-ROMS model for developing the forcing grid for mixed-resolution SEAPODYM modeling. • Analysis of MPA benefits/impacts on tuna distribution and abundance • Analysis of Climate Change impact on tuna distribution and abundance • Implementing mixed-grid configuration within SEAPODYM with a zoom on New Caledonia, French Polynesia, PNG and Kiribati • Discussion paper (including recommendations) on plausible ecosystem indicators for application in EAFM 	<p>A mixed resolution model version of SEAPODYM for albacore in New Caledonia was completed using a high resolution PISCES-ROMS bio-geochemical model as the environmental forcing grid. Report documenting feasibility prepared, see K. Briand, J. J. Molina, X. Couvelard, V. Faure, P. Marchesiello, C. Menkes, S. Nicol, P. Lehodey, I. Senina, R. Leborgne, M. Rodier. Implementation of SEAPODYM model for the South Pacific albacore stock; focus on the New Caledonia EEZ. EB-IP-06. Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee.</p> <p>Parameterization of SEAPODYM for albacore in at the regional scale is being carried out at 0.5 X 0.5 degrees resolution. Initial runs are finished. Preliminary results suggested that although SEAPODYM fitted well the observed data, the biomass estimated with SEAPODYM is larger than the MFCL biomass estimate. The possible origin of this issue could be the initial conditions used to run the model or an incomplete assumption regarding recruitment. Additional runs and test are being carried out to solve these discrepancies.</p> <p>Seapodym has been used to simulate potential climate change impacts on the Pacific fisheries for skipjack and yellowfin. Report on simulations currently in preparation.</p> <p>Preparation of the analysis of MPA benefits/impacts on tuna distribution and abundance using SEAPODYM delayed whilst requiring EPO data for yellowfin</p>
a. Develop regional version of SEAPODYM for examining EEZ scale trends in tuna distribution.		
b. Scenario analysis to forecast the effects of altered management (including closures & MPAs) on oceanic fisheries and its impacts on pelagic ecosystems.		
c. Examination of plausible ecosystem indicators for application in EAFM.		

		Discussion paper on plausible ecosystem indicators for application in EAFM postponed until 2010.
3.2.2 Develop descriptions of the pelagic ecosystem for quantitative and qualitative risk assessments. In 2009, these services shall include:	<ul style="list-style-type: none"> • National-scale analyses and training in ERA for SIDS; • Implementation report submitted to the Secretariat and Working Paper for EB-SWG and SC5. • Manuscript submitted to Marine Policy presenting ERA project for WCPFC. • Scientific manuscript submitted for Hawaii fish species ERA • Scientific manuscript submitted for New Zealand seabird ERA • Complete feasibility study for shark stock assessments in WCPO. • Provide estimate of annual catches of shark, using both observer data and fin trade information. 	A training workshop in Ecological Risk Assessment was delivered by SPC-OPF staff to 18 participants from Pacific SIDS. Participants were informed of the context of the work with reference to the Convention text and Commission decisions, in particular the WCPFC CMM's for sharks, sea turtles and seabirds.
a. Continue development of multi-species Productivity-Susceptibility Analyses (PSAs) at national and regional scales		Implementation report submitted to the WCPFC-SC5 for ERA activities, see Kirby, D. Ecological Risk Assessment Implementation Report. EB-WP-05. Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee .
b. Provide additional detailed analysis of high risk spp. from PSA analysis.		Feasibility study for shark stock assessments in WCPO completed, see Manning et al. The feasibility of conducting quantitative stock assessments for key shark species and recommendations for providing preliminary advice on stock status in 2010. EB-WP-08. Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee .
		Annual catches of shark, using both observer data and fin trade information completed, see Clark, S. 2009. An Alternative Estimate of Catches of Five Species of Sharks in the Western and Central Pacific Ocean based on Shark Fin Trade Data. EB-WP-02. Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee .
		Scientific manuscripts documenting the Hawaiian fish species and NZ seabird ERAs were not undertaken.

Output 3.3: Scientific advice on ecosystem-based management options using available models and data			
3.3.1	Delivery of scientific advice on tuna fisheries ecology and ecosystem-based management options to national counterparts and regional meetings.	<ul style="list-style-type: none"> ERAs integrated into NTFSRs and FFA EAFM process, providing Pacific SIDS with scientific advice about ecosystem impacts of fishing. 	ERA included in NTFSRs and EAFM documents produced by OFP
3.3.2	Provide training in ecological aspects of tuna fisheries and ecosystem research	<ul style="list-style-type: none"> Analysis of WCPFC Conservation & Management Measures (CMMs) for seabirds, turtles, sharks, and other non-target fish species. 	Discussion paper on WCPFC CMMs presented to WCPFC-SC5, see Kirby, D. 2009. Monitoring the effectiveness of Conservation and Management Measures for bycatch. WP-WP-09. Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee .
3.3.3	Improve by-catch species identification, monitoring and management in WCPO tuna fisheries	<ul style="list-style-type: none"> Develop maps of spatial overlap of seabirds with WCPO tuna fisheries 	Analysis examining spatial overlap of seabirds with WCPO tuna fisheries completed, see Kirby et al. Spatial risk indicators for seabird interactions with longline fisheries in the western and central Pacific. EB-WP-06. Western and Central Pacific Fisheries Commission Scientific Committee, Fifth Regular Session, 10-21 August 2009, Port Vila, Vanuatu. http://www.wcpfc.int/meetings/2009/5th-regular-session-scientific-committee .
a.	Implementation of the multi-year Ecological Risk Assessment (ERA), project for WCPFC, including associated Bycatch Information System	<ul style="list-style-type: none"> Document technical details of longline fishing operations for turtle handling 	Population of the WCPFC Bycatch Information System commenced. Inclusion of shark bycatch mitigation methods completed, reference list and factsheets obtained from Birdlife International have been entered, development of a user interface for the web version of the BMIS is 80% complete, population of the database with information on seabirds, turtles (using updated bibliography) and sharks commenced and scheduled to be completed in 2010.
b.	Implementation of SPC projects under FFA Sea Turtle Action Plan.	<ul style="list-style-type: none"> Develop species identification guides for seabirds vulnerable to WCPO tuna fisheries 	The development of species identification guides for seabirds vulnerable to WCPO tuna fisheries not undertaken due to funding shortage.
c.	Scientific support to consultant developing Pacific Islands Regional Plan of Action (PI-RPOA) on Sharks.	<ul style="list-style-type: none"> Update SPC/SPREP publication on sea turtle interactions with WCPO tuna fisheries, including the bibliography of mitigation methods. Populate the WCPFC Bycatch Information System with information on sharks and turtles; obtain input from BirdLife Int. for seabird bycatch mitigation. Contribution to chapters in the climate change vulnerability assessment for Pacific fisheries. Include ERA and other ecosystem-based management sessions in annual OFP training workshops. Provide consultant developing PI-RPOA Sharks with information on shark species composition, distribution, catch estimates and ecological risk assessments. 	PI-RPOA completed
			The draft WCPFC Guidelines on the Handling of Sea Turtles (WCPFC-SC5-2009/GN-WP-13), and the review by the SC of further guidelines on entanglement and use of de-hookers endorsed by SC5.
			SPC/SPREP publication on sea turtle interactions with WCPO tuna fisheries, including the bibliography of mitigation methods updated.

	<ul style="list-style-type: none"> • Presentation of results of ecosystem analysis to wider scientific community through publication in peer-reviewed journals. • 5 SC5 presentations • 1 OFP technical reports • 4 Scientific papers • Web-site updates • 4 newsletters. 	<p>The Ecological Risk Assessment workshop delivered by SPC-OFP staff to 18 participants from Pacific SIDS included a 1-day component on ecosystem based management.</p> <p>12 peer-reviewed journal publications (10 accepted for publication, 2 submitted) directly association with section workplan. A further 10 peer-reviewed publications in EMA section associated projects</p> <p>1 Technical report published</p> <p>19 papers presented to WCPFC-SC5</p> <p>Web-site update commenced but uploading postponed to 2010.</p>
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Annex 2 – Report of Achievements against Workplan for the Coastal Fisheries Programme

Objective 1 - Assisting governments and administrations in the development of scientifically informed and socially achievable coastal ecosystem management systems, including coastal living resource components of national ocean policies.		
2009 Work Programme Activities	Performance Indicators and/or Means of Verification	2009 Achievements
Output 1.1 Assessments of the status of national coastal living marine resource user groups, impacts on resources, existing impact management systems, and the current status of resources themselves.		
<p>1.1.1 Establishment and progressive improvement of surveys and quantitative assessments of the status of reef fisheries at the local, national and regional levels with special attention on socio-economic data.</p>	<ul style="list-style-type: none"> • Conduct finfish, invertebrate and socioeconomic surveys as required and funds permit • Complete all PROCFish/C and CoFish country reports combining the finfish, invertebrate and socioeconomic data collected. • Conduct an assessment of the regional data set to try to identify indicators for reef fishery status and produce a report to summarise the findings. • If climate change funding is secured, develop monitoring protocols for detecting change to coral, habitat and resources from the effects of climate change, and trial these in 4 or 5 countries through establishing monitoring programmes with supporting database. • Develop database modules for the ReefDB to cover coastal fisheries export data, market surveys and other monitoring programmes as identified. • Conduct live reef fish or aquarium fish surveys in at least 1 countries in the region • Produce reports on this work with recommendations within 6 months of the survey work being done. 	<ul style="list-style-type: none"> • Invertebrate surveys conducted in Fiji and specific beche-de-mer surveys in Yap. • All 17 reports completed, with the final 3 sent for country clearance in December 2009. • Regional assessment undertaken and a draft report produced. Report will be finalised in early 2010. • Climate change funding secured in December 2009, with project scheduled to start in February 2010, so all activities deferred until then. • Module for export data developed for finalising in early 2010. Other databases to be developed in 2010. • No aquarium or live reef fish surveys; however, 2 ciguatera surveys undertaken on Vanuatu. • Reports produced for ciguatera surveys.
<p>1.1.2 Assist Pacific Island countries and territories incorporate stakeholder input and environmental or ecosystem information to the development of baseline assessments of inshore resources.</p>	<ul style="list-style-type: none"> • Provide information and advice to at least 1 country on specific fisheries or species to assist in baseline surveys that may lead to management interventions 	<ul style="list-style-type: none"> • Survey work in Yap was specifically undertaken to provide scientific advice for management purposes for the beche-de-mer fishery.

<p>1.1.3 Support member countries and other SPC fisheries work areas in the dissemination of fisheries information, the development of various fisheries-related publications and marine awareness materials, and the setting up of a document repository or archiving system for fisheries data and publications.</p>	<ul style="list-style-type: none"> • Development of 2 manuals or bulletins in any area related to inshore fisheries management, and assistance to at least 2 countries in the provision of awareness materials on community-based ecosystem approach to fisheries management (CEAFM) • Production of awareness materials for PICTs fisheries administrations, including materials for schools and the general public • Produce at least 4 fish posters for PICTs • In collaboration with other CFP sections, produce a brochure on ciguatera in Fijian/Hindi, and produce an ecosystem approach to fisheries brochure and report. • Produce a training manual for collecting and analysing invertebrate data, and if time and funding permits, redo and update the finfish UVC manual • Produce at least 3 fully referenced scientific papers, and make presentations at 1 or more international conferences in regard to inshore fisheries research and the results of the PROCFish/C and CoFish programmes • Production of an updated fully-searchable CD/DVD with all Marine Resources Division publications and including FFA non-confidential documents; production of a weekly Fisheries News Clippings Service; Ongoing upgrading and updating of the CFP website; and production of a regional fisheries events calendar, a Fisheries Address book. • Initiate work on a regional Knowledge Exchange System for fisheries (funding permitting) • Assist in the organisation of small fisheries libraries or resource centres in collaboration with PIMRIS and follow-up with PIMRIS on the assistance to PICTs under the ODIN/PIMRIS project. • Management of Special Interest Group Networks and publication of 6 Information Bulletins in English and 6 in French. Four issues in English and 4 issues in French of the SPC Fisheries Newsletter will be produced in a timely manner • Publish one issue of Fork Length in English. 	<ul style="list-style-type: none"> • 2 Women in Fisheries Bulletins produced (February and November Issues) • Developing Guidelines for the implementation of EAFM in Pacific Island Countries • Manuals for the fish stock assessment and policy planning have been completed in draft forms and are with UNU-FTP for checking • Presentations on EAF on developing Management Plan for Trochus Fishery in Kosrae • Presentations on EAF for Coastal Fisheries in Nauru for the development of National Strategic Plan • A poster describing the marine ecosystem has been produced in I-Kiribati and distributed. • 4 fish posters (2 for Tuvalu and 2 for Tonga) have been produced and distributed • A manual and a booklet on "The Ecosystem Approach to Coastal Fisheries and Aquaculture in Pacific Island Countries and Territories" have been produced and distributed throughout the region. • Draft invertebrate manual produced for finalisation in 2010. UVC manual also drafted for completion in 2010. • Five scientific papers produced during the year with one presentation at an international meeting, presenting results from the PROCFish/C and CoFish projects. • A 2009 version of a searchable CD/DVD with all Marine Resources Division publications has been produced, and a web version of this Digital Library has been set up. Ongoing upgrading and updating of the CFP website has been done, including the production of a regional fisheries events calendar; a Fisheries Address book has been produced. • No funding (ACPFish II Project focus has switched from knowledge exchange to fisheries management systems improvement). • PIMRIS focus has switched to helping establish digital fisheries libraries in each PICT. SPC has helped organise the training and provision of equipment to five countries (Cook Islands, Fiji, Kiribati, Samoa and Solomon Islands) under the ODIN/PIMRIS project. • 5 Information Bulletins in English and 6 in French have been produced and distributed. The Newsletter periodicity has changed to 3 issues per year, which have been produced in a timely manner and distributed. • One issue of Fork Length, in English and in French, has been produced and distributed •
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Output 1.2: Assistance to members in developing or adapting cross-sectoral consultation processes to produce a scientifically and socially realistic national vision, or island visions, of the desired state and balance of usage of their coastal marine areas.		
<p>1.2.1 Assist Pacific Island fisheries administrations with policy, socioeconomic and scientific advisory or analytical input to reef fisheries problems.</p>	<ul style="list-style-type: none"> • Provide advice and assistance to at least 1 country on specific reef fishery problems they are encountering 	<ul style="list-style-type: none"> • Advice provided to Samoa, Kiribati, Cook Islands, Vanuatu and Tuvalu on monitoring spawning aggregations with sub-regional workshop.
<p>1.2.2 Assist Pacific Island fisheries administrations through institutional strengthening and stakeholder participation to identify realistic national visions and missions for ocean policy development</p>	<ul style="list-style-type: none"> • Participate and provide input to the CROP Marine Sector Working Group to encourage consistency in the regional organisation approach to assisting PICTs in the development of national ocean policies • Hold a Heads of Fisheries meeting to get member country input to the development of the new Coastal Fisheries Programme Strategic Plan that is aligned with the priority needs of members. 	<ul style="list-style-type: none"> • No meetings of the CROP, MSWG – these will resume in 2010. • Heads of fisheries meeting held in February with new objectives and outputs identified by participants to form the basis of a new strategic plan.

Output 1.3: Practical assistance to members, as necessary, in designing and implementing adaptive frameworks for the application of the Ecosystem Approach to coastal fisheries and aquaculture.

<p>1.3.1 Capacity development of Pacific Islanders in a range of areas including, fisheries science, development, management and others, through a range of training activities and initiatives.</p>	<ul style="list-style-type: none"> • Organise, conduct or participate in at least 2 regional or sub-regional workshops or trainings covering areas of fisheries management and the EAFM. • Conduct at least 2 national workshops in areas related to the management of inshore fishery resources • Organise and fund at least 5 training attachments to SPC or to other PICTs • Coordinate and participate in consultations to develop one regional short course in certain areas relating to fisheries management • Train local counterpart officers in at least 3 PICTs in different survey methodologies for inshore fishery resources or monitoring corals, habitat and resources for baselines for future effects of climate change. 	<ul style="list-style-type: none"> • Conducted sub-regional workshop on EAF for the northern Pacific countries in Guam (FSM – 4 states, Palau, CNMI, Marshalls, Guam) jointly with FAO and TNC • Coordinated Working Group workshop in Brisbane to develop the EAF Guidelines for Pacific Island countries • Conducted national workshops on community-based ecosystem approach to coastal fisheries management in Tonga, American Samoa, Samoa and Vanuatu • Funded and supervised training attachments in Savaii for following officers to develop respective models for the implementation of national CEAFM programmes; 2 officers from Tonga, 2 officers from Samoa, and 3 officers from American Samoa • Funded and supervised training attachment in Noumea for 2 officers from Vanuatu to develop framework for Coastal Zone Management and Climate Change project • CFMS involved in consultations with FAO and TNC organising the EAF workshop in Guam • Selection and organising participant to undertake stock assessment training at the UNU, Iceland • Training in Fiji for invertebrate surveys. No climate change related training due to the funding not being available until December 2010.
<p>1.3.2 Assistance to Pacific Island countries and territories in developing fisheries policies, strategies or plans, including the development of coastal fisheries legislation through promoting maximum participation and input from all stakeholders.</p>	<ul style="list-style-type: none"> • Provide assistance to at least 2 PICTs for the development and/or review of coastal fisheries legislation 	<ul style="list-style-type: none"> • Assist with the development of the Fisheries Bill (coastal and aquaculture component) for Samoa • Assist with the review of the Community-based Fisheries Management Act for Am Samoa • Provide technical assistance to initiate the review of Vanuatu's fisheries legislations

<p>1.3.3 Assistance to Pacific Island countries and territories to develop specific reef fishery or species management plans, and/or community-based fisheries management programmes.</p>	<ul style="list-style-type: none"> • Provide assistance to at least 2 PICTs to establish national community-based ecosystem approach to fisheries management (CEAFM) programmes. • Provide assistance through six-monthly reviews of at least 2 national community-based fisheries programmes • Assist at least 2 PICTs to develop management plans and regulations for specific fisheries, such as an aquarium fish fishery, live reef fishery trade fishery, bonefish fishery, or deep-water snapper fishery. 	<ul style="list-style-type: none"> • Conducted national CEAFM workshops for Tonga, Am Samoa, Samoa and Vanuatu. • Conducted follow up reviews for Nauru's CBFMP and Pohnpei CEAFM • Assist with the development of Kosrae's Trochus Management Plan • Finalise Management Plans for Yap and Palau's Sea Cucumber Fisheries
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Objective 2 - A regional support framework for economically, socially and environmentally sustainable aquaculture planning, research and development by Pacific Island governments and private enterprises.

2009 Work Programme Activities	Performance Indicators and/or Means of Verification	2009 Achievements
Output 2.1 A regional network of contacts to exchange ideas, overviews and experience on aquaculture issues both regionally and internationally.		
<p>2.1.1 Expand and improve where necessary information clearing house mechanisms, such as the SPC aquaculture web-portal, special interest group bulletins, databases on expert contacts, statistics and trainees etc.</p>	<ul style="list-style-type: none"> • Provide core networking services among government aquaculture focal points. • Maintain the SPC Aquaculture web-portal and update its features as a key information clearing house. Distribute the web-portal contents as a cd-rom version. • Collect and distribute information for public and regional interest of market notices, general announcements, new publications, expert contacts, national statistics and etc. 	<ul style="list-style-type: none"> • Section has maintained an active service of networking and information service • The SPC Aquaculture portal has been updated to new CMS software with new contents. A cd-rom version has not been completed. A student attachment has been uploading all previous meeting documents onto the website. • Information of regional interest has been published on the web-portal, SPC bulletins and other news media such as Islands Business.

<p>2.1.2 Strengthen links to regional spheres of interest, in particular Australasia and Asia, and encourage regional collaboration where mutual benefits may occur.</p>	<ul style="list-style-type: none"> • Continue membership responsibilities for the Network of Aquaculture Centres in Asia-Pacific (NACA) and pursue relevant links to other Australasian based institutions. • Maintain SPC's involvement in ongoing and upcoming ACIAR funded projects. In particular coordination of the ACIAR mini-projects with at least 6 research projects undertaken in 2008 with at least another 8 project concepts under development. • SPC to play a significant role in the Australasian Aquaculture Conference 2008, particularly at the Indigenous Aquaculture Session. 	<ul style="list-style-type: none"> • SPC participated in NACA Governing Council meeting in China 2009 and has collaborated on a joint study tour of trade opportunities in Thailand. • SPC is a local coordinator with James Cook University in coordinating 12 ACIAR funded mini-projects along worth AUD215K dollars and hosted the Project Leaders meeting at SPC Noumea in August 2009; SPC is supporting a successful bid by WFC and QUT for ACIAR funded projects in aquaculture • In 2009 there was no Australasian Aquaculture Conference. However SPC staff and participants to the Asia study tour participated in the WAS conference in Malaysia.
<p>2.1.3 Maintain the status quo of SPC as the regional focal point for aquaculture within CROP agencies or other agencies, and advocate on behalf and for the benefit of the region at global forums concerning aquaculture policy and administration, particularly within the United Nations, FAO system.</p>	<ul style="list-style-type: none"> • Assist in the reporting of the Pacific region in the global trends and statistics, e.g. FAO database and world status reports. • Participate in World Aquaculture Society (WAS) events including the World Aquaculture Conference 2008 where mutual benefits accrue. • Assist member countries to access regional expert agencies including USP, WorldFish Centre, SPC animal health, SPREP, SOPAC and FAO SAPA. 	<ul style="list-style-type: none"> • SPC has been active in the FAO Fisheries Statistics Working Group to develop guidelines for aquaculture statistics which met in Vietnam Oct09. • SPC has begun a significant desktop review of regional aquaculture statistics expected to be published in 2010. Assistance was provided by an attachment from Samoa to the section in Jun09 • Due to swine-flu outbreak the section cancelled its participation at World Aquaculture Conference. • Cooperation with organisations in regional and international forums included disease reporting (OIE, SPC animal health) in Fiji Apr09; Giant clam management (CITES, SPREP) in Fiji Aug09; Roundtable trade workshop (FAO) in New Zealand Sep09; JICA fisheries training course in Japan Oct09. • The section has taken an active role in the AusAID project to identify climate change impacts and adaptation strategies of fisheries and aquaculture.

Output 2.2: Establishment of environmentally and economically sustainable aquaculture enterprises by Pacific government departments and/or private sector.

<p>2.2.1 Focus development on the key SPC aquaculture commodities accorded a priority through regional consultations, and continue programme support to ensure immediate and long-term priority needs in the sector are being assessed and addressed.</p>	<ul style="list-style-type: none"> • Prioritise the allocation of program funded resources towards development of the 12 key commodities identified under the SPC 2007 Action Plan. • Undertake programming visits to at least 6 SPC member countries to provide advice on national developments and regional linkages. • Assist in the formulation and production of regional development policy for at least 2 priority commodities. • Particular emphasis will be accorded towards supporting the marine ornamental trade 	<ul style="list-style-type: none"> • Section continues to be active in all twelve priority commodities. • Aquaculture staff/consultant visits included Tonga (3 trips), Papua New Guinea, Solomon Islands (3 trips); Fiji (2 trips); Vanuatu (2 trips); Cook Islands, Wallis & Futuna and New Caledonia, Kiribati (postponed); • In Dec09 an expert consultation was held at SPC with international and national participants to identify regional development plan and policy towards tilapia aquaculture. • In April 2009 the section helped secure trade access for live ornamental species to the EU through amendments to the EC regulations. A biosecurity consultant participated in a OIE workshop for fish disease reporting.
<p>2.2.2 Assist in strengthening economic, environmental, and financial planning support to aquaculture enterprises in the region.</p>	<ul style="list-style-type: none"> • Address the need for economic support identified under the CFP 2004 review. • Develop resources and assist countries in undertaking financial and economic analysis of aquaculture enterprises. • Organise a regional workshop to update the economic modelling software of aquaculture commodities. • Provide direct technical assistance in modelling emerging commodities such as half (mabe) pearl, sponge culture and coral culture • Provide support to ongoing efforts to provide institutional strengthening of aquaculture agencies in the Pacific. • Where invited, assist countries in bilaterally funded projects to steer these projects towards sustainable outcomes. 	<ul style="list-style-type: none"> • Final updates to the economic models were made at a workshop in Feb09 assisted by an economist consultant. The new models are now online at the aquaculture web-portal. • Additional economic models include aquaculture of mabe pearl, sponge, coral, giant clam and freshwater shrimp. • Desktop advise is regularly provided to PITCs on economic and financial aspects of aquaculture enterprises.

<p>2.2.3 Assist countries to develop the strategic framework required to sustainably manage the aquaculture sector (eg through National Sector Plans), as well as tactical inventions to overcome industry bottlenecks (eg through mini-research projects).</p>	<ul style="list-style-type: none"> • At least 2 Pacific Island countries to complete and submit national aquaculture sector plans for cabinet approval. • Support at least 2 Pacific Island countries in establishing peak bodies or associations which will contribute towards management of the aquaculture sector. • A GIS planning tool for national aquaculture development will be trialled, using Fiji as a test study. This platform will also be designed with coastal applications and all natural resource management programs in mind. 	<ul style="list-style-type: none"> • The national aquaculture plan for Solomon Islands was submitted to cabinet and final hardcopy published. In Wallis and Futuna a national workshop and draft aquaculture strategy was completed by consultants and has been approved by fisheries department. In Mar09 workshops to develop aquaculture commodity development plans was carried out in Tonga. Section staff organised a national planning workshop on Honiara to develop a national tilapia plan in Solomon Islands. • A joint proposal with the SPC Land Resources Division for supporting SMEs and farmer cluster initiatives for €9 mill funding under EDF-10 has been approved by the EU with funds online expected around 2011.
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<p>2.2.4 Provide technical assistance and strengthen capacity where needed on a national and regional basis through a range of activities including training, consultancies, attachments and other interventions as required.</p>	<ul style="list-style-type: none"> • A minimum of 8 significant projects addressing aquaculture bottlenecks will be addressed under the coordination of SPC. • A minimum of 3 months in-country assistance will be carried out, targeting Tonga, Fiji, Cook Islands, French Polynesia, Papua New Guinea, Samoa, Vanuatu, Kiribati, Solomon Islands, Wallis and Futuna. • At least 3 major consultancies organised to provide specialised advice of high regional significance. • A minimum of 6 new publications published under the SPC Aquaculture Technical Papers series. • A minimum of 6 regional and/or national training workshops or conferences organised/assisted. To include an economic training workshop coordinated in conjunction with QDPI&F. • A minimum of 6 training attachments organised within the region. • Organise at least 2 international study tours serving Pacific interests. • Increase capacity within SPC, presently lacking, to provide technical and field support for mariculture developments through additional resources or co-funding arrangements. • SPC will take an active role support or supervision of post-graduate studies (primarily M.Sc) program of at least 6 Pacific Island students studying at tertiary institutions in the Pacific. 	<ul style="list-style-type: none"> • 18 mini-projects are being undertaken under the ACIAR mini-project scheme – 5 projects under the direct supervision of section staff (rabbitfish in Solomon, coral and live rock in Tonga, clownfish in Vanuatu, tilapia in Solomon Is, sea cucumber in Kiribati) 4 additional projects were submitted during the project leaders meeting in held at SPC in Aug09 were approved. In New Caledonia the section has assisted new projects on capture based aquaculture of scallops and lobster. • Major programming highlights included a visit to the Lake Rennel tilapia fishery (Solomon Is); freshwater shrimp in M. lar (Vanuatu); review of freshwater aquaculture (Cook Is); new aquaculture developments in PNG; freshwater shrimp and marine lobster (New Caledonia) • 3 consultants (economic modelling, EU trade access and biosecurity, FAO global seaweed farming review) had regional impact. A fourth consultancy was specifically for Wallis and Futuna • The workshop proceedings of the 2008 marine ornamental workshop; Solomon Island Aquaculture Plan; in-press is, proceedings of the CITES giant clam workshop, proceedings of tilapia consultation • Section staff assisted in training workshops in marine shrimp (Fiji), tilapia (Fiji), coral and live-rock (Tonga), regional fisheries course (Japan). Section socio-economic consultant carried out a seaweed survey in Solomon Island for the FAO global review, training 6 local staffs in the process. • Section organised a trade study tour of 5 delegates from the Pacific (CNMI, New Caledonia, Vanuatu, PNG) to Thailand and Malaysia. Delegates also participated in the WAS Asia-Pacific Aquaculture Conference in Malaysia. Section also organised a study tour of 5 persons from Wallis & Futuna to New Caledonia shrimp and fish farming sectors. • At present the section through its role in the ACIAR mini-project and scholarship scheme provides supervisory support to 6 post-graduate students and is supporting an application for an additional MSc student in 2010.
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Output 2.3: A regional support service to help in assessing, managing and mitigating the potential impacts of aquaculture, including exotic introductions and quarantine.

<p>2.3.1 Develop model quarantine protocols, import risk assessments (IRAs) and strengthen inter-agency links between fisheries, quarantine and environment agencies.</p>	<ul style="list-style-type: none"> • Follow up from the aquatic biosecurity meeting will be carried out with some policy directives to emerge. • Directly assist at least 2 countries to develop model Import Risk Analysis (IRA), quarantine protocols or Environmental Impact Assessments. • Assist in the documentation of introduction and translocation of species, the host pathogens of aquatic animals and geographical distributions. • Strengthen the Pacific regions reporting through the FAO's Aquatic Animal Pathogen and Quarantine Information System (AAPQIS) and FAO/NACA/OIE's Asia Regional Quarterly Aquatic Animal Disease Reporting System. 	<ul style="list-style-type: none"> • Section continues to take a leading role in assisting in biosecurity initiatives. In 2009 a biosecurity consultant was on-hand for 3 months. • Desktop assistance was provided in quarantine or IRA assessments including marron), sea cucumber and tilapia shipments. • Section adviser and consultant participated in the OIE workshop in Fiji Apr09 to assist PITCs to meet their OIE fish disease reporting requirements. • Section staff collaborated with the NZ Wildlife Enforcement department on a proposed project to assist customs and quarantine officers with ID kits for endangered species.
<p>2.3.2 Seek implementation of the proposed USD \$600,000 Regional Biosecurity project drafted in 2005 and put in place an operational biosecurity unit with a regional perspective, initially targeting several countries being a cross-sectional representation in which to develop models.</p>	<ul style="list-style-type: none"> • Seek funding and implementation for the proposed regional biosecurity project drafted by SPC in 2005. • Depending on additional resources forthcoming from the proposed biosecurity project – 5 countries will be initially targeted to develop aquatic biosecurity programs. 	<ul style="list-style-type: none"> • Section continues to advocate for a regional program for aquatic biosecurity. • A project proposal to EU under EDF-10 for a full-time adviser post was unsuccessful.
<p>2.3.3 Continue to develop best management practices in the aquaculture sector, and enhance capacity of veterinary and health services, disease management and response programmes and information databases.</p>	<ul style="list-style-type: none"> • Assist the Pacific region to incorporate models of best management practices. • Depending on the additional resources forthcoming from the proposed biosecurity project – undertake programs relating to (1) development of biosecurity policy, strategies and technical guidelines; (2) risk analysis and quarantine; (3) disease diagnostics; surveillance and reporting; (4) information, communication and networking; (5) legislation enforcement; and (6) emergency preparedness and response. 	<ul style="list-style-type: none"> • The section continues to provide regular advice on best management practices in aquaculture. • With the assistance of the biosecurity consultant the section has provided ad-hoc advice concerning a range of biosecurity areas.

Objective 3 - Governments and administrations develop domestic nearshore commercial fisheries within a sustainable ecosystem context.		
2009 Work Programme Activities	Performance Indicators and/or Means of Verification	2009 Achievements
Output 3.1 The output of economically viable Pacific Island commercial fishing enterprise matches the sustainable production capacity of the natural resource allocated.		
<p>3.1.1 Promote the establishment or enhancement of national tuna fishing associations in member countries and encourage their participation with fisheries administrations, other government departments and tuna fishery stakeholders in the drafting of sustainable development and management arrangements for domestic nearshore fisheries.</p>	<ul style="list-style-type: none"> • Enhance 5 tuna fishing associations, including associations' development plan and exit strategies for Executive Officer's DevFish funding • In collaboration with FFA, assist in the drafting of fishery development strategies in at least 1 country ensuring stakeholder participation 	<ul style="list-style-type: none"> • PNG, Tonga, Tuvalu, Nauru, SI, Vanuatu associations are active and have Executive Officers. EO positions will continue during transition period leading into DevFish-2 phase • Sport fishing development strategies done in April and November (CKI) • Niue Fisheries Management and Development done with FFA in September

<p>3.1.2 Conduct training needs assessments, assist with human resource strategy development, and coordinate training opportunities in priority fisheries areas not presently covered by local or regional training institutions, with an emphasis on vocational training for enterprise development.</p>	<ul style="list-style-type: none"> • Assist in the drafting of a minimum of 2 fisheries training plans/strategies • Coordinate and implement a regional course on fishing methods and sea safety for Fisheries Officers; • Coordinate and implement a regional Training-Of-Trainers course on bycatch mitigation • At least two more regional courses coordinated • A minimum of 5 national courses and workshops facilitated • A minimum of 2 individual training attachments 	<ul style="list-style-type: none"> • Training Needs Analysis done for Tonga Fisheries (TON); sport fishing training strategy developed and implemented (CKI); facilitation of PIRFO training strategy and standards development • Course implemented in Santo, Vanuatu, in October (11 trainees) • TOT workshop implemented at SPC Noumea, in June (11 trainees) • No further regional training implemented (no funding and change of strategy – support to national training and PIRFO instead) • Organizational management and report writing course (TON) ; Sea Safety workshop (NAU); Sea Safety certification of 36 observers (KIR); Fish silage making workshop (NIU); PS crew pre-sea course developed (PNG) • Sport fishing (2 Cook Islanders to New Caledonia); Sport fishing (on-the-job training for 2 Cook Islanders – fly-fishing guiding in Aitutaki); FAD technology (2 American Samoa technicians trained at VMC, Vanuatu); Purse-seine fishing (onboard training for 1 PNG instructor)
<p>3.1.3 Strengthen stakeholder networks at the national and regional level for disseminating information and maintain a database on training providers, fisheries personnel training history, and people trained in the private sector.</p>	<ul style="list-style-type: none"> • Ongoing maintenance of database of training providers (Fisheries Training Directory); • Ongoing maintenance of trainees’ database; • Upgrading, reformatting and maintenance of NFDTS and DevFish webpages; • Collaborate with OFP to place regional observers course online; • Strengthening of networks with the maritime sector and Pacific marine educators and Maritime Schools • DevFish communication strategy developed and implemented; • Ongoing strengthening of tuna fishing associations/PITIA network; 	<ul style="list-style-type: none"> • Ongoing – Hélène L • Ongoing – Jennifer C et Terii L • Urgently required – not done because of lack of guidance from IT. Priority for 20120 • Online course project put on hold because of regional requirements for observer training, NFDTS inputs in PIRFO process and observer training • Networking with Maritime Schools (TOT on bycatch mitigation), PacMA attended, liaison with PacMa sub-committee on training standards (Terii) • Communication strategy completed (Pasifika Ltd) and implemented (promotional DVD and booklet) • Ongoing. Established network linked to SPC/ FFA Fisheries Development units

<p>3.1.4 Develop fishery performance indicators that take into account the economic, social and environmental impacts of nearshore fishing operations.</p>	<ul style="list-style-type: none"> Indicators developed for tuna fisheries through the SPC/FFA DevFish project; 	<ul style="list-style-type: none"> Continued by DevFish-FFA component
<p>Output 3.2: Resource materials and case-specific advice, training and mentoring on appropriate fisheries and fishing techniques.</p>		
<p>3.2.1 Experiment with different small- and medium-scale nearshore fishing activities to develop new economically viable, sustainable and environmentally friendly fishing activities.</p>	<ul style="list-style-type: none"> Collaborate with NMFS/Hawaii on a hook exchange project in the Cook Islands swordfish fishery where sea turtle bycatch is an issue; Continue to experiment sub-surface and shallow-water FAD designs; Seek funding to undertake a feasibility study of giant-squid fishing in one PICT; Coordinate 4-stroke OBM trials in Samoa as part of strategy to reduce fuel costs in Alia fishery (DevFish) 	<ul style="list-style-type: none"> Hook exchange project initiated in July (CKI), others considered (AM SAM, NC) No further experimental FAD deployed in 2009 (lack of deployment vessel) but 2008 Dumbea FAD monitored (August) Funding not obtained (FPF), collaboration with FFA initiated to support squid jigging trials in Tonga 4-stroke engine landed in December. Trial about to commence

<p>3.2.2 Provide technical assistance and hands-on training to promote economically viable domestic nearshore fishing operations, including sea safety and safe vessel operations, in line with the ecosystem approach to fisheries principals, especially in regard to bycatch and other environmental issues.</p>	<ul style="list-style-type: none"> • Promote the use of FADs and assist a minimum of 5 countries with their FAD programmes, including training in sea safety and FAD fishing techniques • Conduct at least one in-country technical assistance and/or training project on tuna longlining, safe vessel operations or other nearshore fishing methods; • Coordinate feasibility study for sport-fishing in one PICT; • Promotion of bycatch and other environmental issues in nearshore fishing operations including distribution of bycatch mitigation tools and cetacean depredation study in Fiji (DevFish); 	<ul style="list-style-type: none"> • Futuna FAD deployed and fishing skills workshop in Wallis (May); Tokelau FAD project implemented and local staff trained (October); Pohnpei-FSM FAD project partly implemented; advisory services to VAN, RMI, NIU, PAL; SAM and KIR FAD projects underway • Email discussion group established and monitored • No request received for tuna longline assistance. • Assistance with the purchase of sea safety kits, sea safety workshop implemented in May, introduction of small-vessel tracking system (NAU). Plans to provide training and technical assistance as part of FFA’s small-scale pole-and-line projects in SOL and PNG • Feasibility study (phase I) conducted in April (CKI), phase II (bonefish) conducted in November (Aittutaki – CKI) • Ongoing promotion and distribution of bycatch mitigation tools (FDOs); Fiji study on whale depredation-draft completed; Development of a training module on bycatch mitigation for vessel crew, for use by training institutions; Collaboration with OFP on production of bycatch database; Whale bycatch mitigation meeting attended in Hawaii (November); Publication of report on no shallow hooks in longline fishery: <i>Beverly, S., D. Curran, M. Musyl, and B. Molony. 2009. Effects of eliminating shallow hooks from tuna longline sets on target and non-target species in the Hawaii-based pelagic tuna fishery. Fisheries Research. 96 (281-288).</i>
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<p>3.2.3 Develop and disseminate awareness raising materials and resource materials to promote sea safety, new fishing initiatives, the results of fishing trials and experiments, and environmental issues (bycatch, pollution etc) targeting the fishing sector, other stakeholders and coastal communities at large.</p>	<ul style="list-style-type: none"> • Sea safety awareness materials in vernacular language (minimum of two countries); • At least one information bulletin on Sea Safety produced; • Continue collaboration with FAO on development of Guidelines for Best Practices for Safety at Sea in the Fisheries Sector • Produce longline gear identification card set; • Manual on small-scale bait fishing techniques finalised and produced; • Compile technical information for future manual on shallow-water FADs; • Project and duty travel reports produced in a timely manner; • Stakeholders regularly informed on NFDTS and DevFish projects and activities (e.g. via Fisheries Newsletter articles, email news, website updates) • DevFish technical reports printed and disseminated • At least two DevFish technical summary reports translated into French and distributed • At least 50 requests for technical information and resource materials attended to; • Other awareness/training materials produced as needed 	<ul style="list-style-type: none"> • English version updated and subsequent wide distribution of small boat safety checklists, including in CNMI (JCS); Sea safety placemats in French, distributed to seaside restaurants in Noumea, NC; Translation underway for FP (Tahitian and Marquesian) • Issue#5 (ENG) released in May • Issue#5 (FR) printed in December • Ongoing, inputs into development of FAO Guidelines and SPC/FAO partnership on Fishermen Safety website • Longline gear ID booklet produced and widely distributed • Manual ready for printing • On hold, awaiting outcomes of shallow-water FAD project in Kiribati and international FAD conference in Tahiti (2011) • Done routinely • Done routinely; (DevFish website and newsletter, SPC website, SPC Fisheries Newsletter, Sea Safety bulletin, etc) • Done routinely (a total of 39 technical reports have been produced and distributed) • 2 technical reports translated into French for OCTs • About 100 requests attended to • Fish silage manual completed (ENG/FR); Press release
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Output 3.3: Improvement in the per-unit value of Pacific Islands fisheries production.

<p>3.3.1 Promote and assist with the proper handling, processing and preservation practices to ensure high quality product is landed from domestic nearshore fisheries to maximise the value of the fishery and the returns to domestic fishermen.</p>	<ul style="list-style-type: none"> • Follow up from the aquatic biosecurity meeting will be carried out with some policy directives to emerge. • Directly assist at least 2 countries to develop model Import Risk Analysis (IRA), quarantine protocols or Environmental Impact Assessments. • Assist in the documentation of introduction and translocation of species, the host pathogens of aquatic animals and geographical distributions. • Strengthen the Pacific regions reporting through the FAO's Aquatic Animal Pathogen and Quarantine Information System (AAPQIS) and FAO/NACA/OIE's Asia Regional Quarterly Aquatic Animal Disease Reporting System. 	<ul style="list-style-type: none"> • Section continues to take a leading role in assisting in biosecurity initiatives. In 2009 a biosecurity consultant was on-hand for 3 months. • Desktop assistance was provided in quarantine or IRA assessments including marron), sea cucumber and tilapia shipments. • Section adviser and consultant participated in the OIE workshop in Fiji Apr09 to assist PITCs to meet their OIE fish disease reporting requirements. • Section staff collaborated with the NZ Wildlife Enforcement department on a proposed project to assist customs and quarantine officers with ID kits for endangered species.
<p>3.3.2 Promote and assist with the value-adding to products landed from nearshore fisheries, including the operation of domestic shore facilities, so that they meet international health standards or requirements for exporting high quality marine products.</p>	<ul style="list-style-type: none"> • Seek funding and implementation for the proposed regional biosecurity project drafted by SPC in 2005. • Depending on additional resources forthcoming from the proposed biosecurity project – 5 countries will be initially targeted to develop aquatic biosecurity programs. 	<ul style="list-style-type: none"> • Section continues to advocate for a regional program for aquatic biosecurity. • A project proposal to EU under EDF-10 for a full-time adviser post was unsuccessful.
<p>3.3.3 Using fishery performance indicators that are to be developed, assess the value of domestic nearshore fisheries to ensure the returns to Pacific Island countries and territories from these fisheries, is increased.</p>	<ul style="list-style-type: none"> • Once nearshore fishery performance indicators are developed, use these to measure changes in the value of the fishery (in collaboration with FFA) • At least one other project or activity implemented 	<ul style="list-style-type: none"> • Continued by DevFish-FFA component • Spanner crab & giant-squid trial (NC) – project proposal not supported (FFP)

Annex 3 : Country specific activities including those covered by a joint country strategy (JCS)

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
Australia	<ul style="list-style-type: none"> Prepared and finalized the enforcement guide for destructive reef fishing practices for the Pacific Patrol Boat Programme. 	5	Nil
American Samoa	<ul style="list-style-type: none"> JCS mission in April 2009 with stakeholder meetings and presentations to government officials and others on the findings of meetings in regards to marine resources. 	7	250,940
	<ul style="list-style-type: none"> Ran a 1 week EAFM national workshop with 23 participants from around American Samoa and from areas outside of fisheries. 	10	796,000
	<ul style="list-style-type: none"> Assistance with review of legislation for coastal fisheries. 	9	662,452
	<ul style="list-style-type: none"> Attachment of 2 fisheries staff to develop a model for ecosystem approach to community-based fisheries management in American Samoa. 	Nil	345,216
	<ul style="list-style-type: none"> 1 participant funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. 	3	336,993
	<ul style="list-style-type: none"> 1 participant funded to CITES and giant clam management workshop in Nadi 	3	195,000
	<ul style="list-style-type: none"> 1 participant funded to the tilapia summit workshop at SPC Noumea 	3	100,000
	<ul style="list-style-type: none"> Operational support (forms, data processing) for port sampling of domestic longliners 	0.3	90,600
Cook Islands JCS: 2007–2010	<ul style="list-style-type: none"> Feasibility studies of sport fishing development/potential undertaken in Rarotonga and Aitutaki, with a sport fishing strategy developed and partly implemented. 	20	1,853,235
	<ul style="list-style-type: none"> Implementing and funding a hook exchange project for the tuna longline industry. 	20	1,125,000
	<ul style="list-style-type: none"> Advice provided for the preparation of a presentation for international harmful algal bloom workshop. 	1	Nil
	<ul style="list-style-type: none"> *Advice and information provided on fish waste silage on an industrial scale. 	Nil	Nil
	<ul style="list-style-type: none"> *In-country visit with FAO to discuss freshwater aquaculture projects. 	10	417,000
	<ul style="list-style-type: none"> EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe. 	Nil	Nil
	<ul style="list-style-type: none"> 2 attachments funded to travel to New Caledonia for training in sport fishing techniques 	2	600,000
	<ul style="list-style-type: none"> *2 participants funded to training on study methods for spawning aggregations. 	2	462,420
	<ul style="list-style-type: none"> 1 participant funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. 	3	277,600
	<ul style="list-style-type: none"> *1 participant funded to CITES and giant clam management workshop in Nadi. 	3	281,500
	<ul style="list-style-type: none"> *1 participant funded to regional workshop in New Caledonia on bycatch mitigation. 	2	340,000
	<ul style="list-style-type: none"> *1 participant funded to the tilapia summit workshop at SPC Noumea. 	3	253,800
<ul style="list-style-type: none"> *1 participant funded to regional Fisheries Officers 			

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	Course, Santo, Vanuatu.	1	410,000
	• *NTFSR initiated		
	• *Attendance at stock assessment/ERA workshop	1	-
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3	285,600
	• Processing of domestic longline data	3.7	55,600
	• Support of national tuna database system	0.1	316
	• Assistance with WCPFC data submission	20.0	515,400
	• Assistance with national tuna data coordination, including operational support for observer	-	-
	• Attendance at Tuna Data Workshop	8.5	103,300
	• Attendance at Regional Observer Coordinators Workshop	2.0	128,300
	• 1 tuna statistics/database development attachment	1.5	307,300
		5	250,600
Federated States of Micronesia	• *Assist local counterparts in carrying out stakeholder consultations and develop the first Fisheries management Plan for Pohnpei under the community-based ecosystem approach to fisheries management programme.	12	509,600
JCS: 2008–2012	• *Assist and advise on the rigging and deployment of 3 FADs in Pohnpei State.	5	342,975
	• *Beche-de-mer surveys undertaken in Yap State, including the training of local staff in survey methodologies, analysis of the survey data and recommendations made for management.	5	2,482,732
	• *Assistance provided with the development of a management plan for the trochus fishery in Kosrae.	12	320,000
	• * Follow-up work undertaken in regard to the community-based management plan for Pohnpei.	10	222,480
	• *Follow-up work undertaken in regard to Kosrae's aquarium fish survey report	15	Nil
	• *Assistance with formalizing management arrangements for the aquarium fish trade in FSM.	10	Nil
	• *1 participant funded to workshop on household income and expenditure surveys (HIES)	1	328,000
	• *5 participants partially funded to attend sub-regional workshop in Guam where the methods of implementing the ecosystem approach to coastal fisheries were introduced.	1	524,700
	• *1 participant funded to CITES and giant clam management workshop in Nadi.	3	513,000
	• *1 participant funded to regional Fisheries Officers Course, Santo, Vanuatu.	1	410,000
	• * NTFSR completed	28	-
	• *Inputs to EAFM provided (completed 2008)	-	-
	• *Attendance at stock assessment/ERA workshop	3	571,700
	• * Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• * Processing of domestic and foreign licenced tuna fisheries data	4.	1,260,200
	• * Support of national tuna database system	20.0	515,400
	• * Assistance with WCPFC data submission	1	-
	• * Assistance with national tuna data coordination	16.2	1,695,800
	• Assistance in artisanal tuna catch monitoring in Pohnpei State (deferred 2010)	-	-
	• * Attendance at Tuna Data Workshop	2.0	436,500

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	<ul style="list-style-type: none"> • Attendance at Regional Observer Coordinators Workshop 	1.5	443,600
	<ul style="list-style-type: none"> • * 1 observer training course (2 cadet courses implemented) 	37	1,200,700
	<ul style="list-style-type: none"> • * Tuna tagging in FSM waters 	34	22,714,800
Fiji Islands	<ul style="list-style-type: none"> • Conduct follow-up invertebrate surveys at four locations around Fiji (Mali and Lakeba on Vanua Levu and Dromuna and Muaivuso on Viti Levu). 	12	548,062
	<ul style="list-style-type: none"> • Training of three local officers in the PROCFish/C and CoFish regional invertebrate resource survey techniques. 	10	486,640
	<ul style="list-style-type: none"> • Follow-up assistance in the development of the marine aquarium trade database both for catch records and export records. 	1	Nil
	<ul style="list-style-type: none"> • Assistance with reviewing the live reef food fish management guidelines. 	2	Nil
	<ul style="list-style-type: none"> • Assistance provided to research the depredation issue for the local tuna longline industry. 	8	895,000
	<ul style="list-style-type: none"> • Assistance to the Tuna Fishing Associations through the funding of a joint executive officer. 	8	1,500,000
	<ul style="list-style-type: none"> • Assistance and supervisory support provided to 4 USP master degree research projects 	10	Nil
	<ul style="list-style-type: none"> • SPC workshop with Fisheries and USP staff for a revised Fijian tilapia training manual 	10	155,000
	<ul style="list-style-type: none"> • Assistance with ongoing sea cucumber ranching trials in Savusavu 	3	212,000
	<ul style="list-style-type: none"> • Field visits and advice to private sector coral and live-rock farm in Lautoka 	2	30,000
	<ul style="list-style-type: none"> • Assist with marine shrimp workshop in collaboration with USP and IFREMER 	Nil	55,000
	<ul style="list-style-type: none"> • At least 2 participants to training on study methods for spawning aggregations. 	2	Nil
	<ul style="list-style-type: none"> • Facilitated the participation of 1 fisheries officer to Iceland for coastal fisheries fish stock assessment training. 	2	Nil
	<ul style="list-style-type: none"> • 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. 	3	404,400
	<ul style="list-style-type: none"> • 2 participant funded to CITES and giant clam management workshop in Nadi. 	6	70,000
	<ul style="list-style-type: none"> • 1 participant funded to regional workshop in New Caledonia on bycatch mitigation. 	1	340,000
	<ul style="list-style-type: none"> • 1 participant funded to the tilapia summit workshop at SPC Noumea. 	6	224,000
	<ul style="list-style-type: none"> • Attendance at stock assessment/ERA workshop 	6	588,700
	<ul style="list-style-type: none"> • Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session 	3.7	55,600
	<ul style="list-style-type: none"> • Processing of domestic longline data 	6.0	1,865,300
	<ul style="list-style-type: none"> • Support of national tuna database system 	20.0	515,400
	<ul style="list-style-type: none"> • Participation in Fiji sub-regional observer training course 	32.1	530,900
	<ul style="list-style-type: none"> • Participation in Vanuatu sub-regional observer training course 	7.0	-
	<ul style="list-style-type: none"> • Assistance with WCPFC data submission 	1.0	-
	<ul style="list-style-type: none"> • Assistance with national tuna data coordination 	8.5	204,500
	<ul style="list-style-type: none"> • Attendance at Regional Observer Coordinators Workshop 	1.5	290,000
	<ul style="list-style-type: none"> • Attendance at Tuna Data Workshop 	2.0	122,600

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
French Polynesia	• JCS mission in November 2009 with stakeholder meetings and presentations to government officials and others on the findings of meetings in regards to marine resources.	7	250,000
	• Support to Fisheries for application to EU for EDF aquaculture proposals	3	Nil
	• Joint Fisheries proposal for French Pacific Funds for Tahiti Aquaculture Conference 2010 approved	Nil	Nil
	• EC regulations amended to allow exemption to export live marine ornamental species into Europe	Nil	Nil
	• 1 participant funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	368,490
	• 1 participant funded to workshop on household income and expenditure surveys (HIES).	1	237,600
	• 1 participant funded to regional workshop in New Caledonia on bycatch mitigation.	1	340,000
	• 1 participant funded to CITES and giant clam management workshop in Nadi.	3	260,000
	• Attendance at stock assessment/ERA workshop	3	408,200
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• Processing of domestic longline observer and port sampling data	2.4	729,000
	• Assistance with national tuna data coordination	7.4	-
	• Support of national tuna database system	20.0	515,400
	• Operational support for observer and port sampling of domestic longliners	5.0	18,401,500
• Attendance at Tuna Data Workshop	2.0	228,700	
Guam	• Sub-regional workshop held in Guam where the methods of implementing the ecosystem approach to coastal fisheries were introduced.	2	150,000
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	696,500
	• 1 participant funded to the tilapia summit workshop at SPC Noumea.	3	301,000
	• Attendance at stock assessment/ERA workshop	3.0	412,000
Kiribati JCS: 2008–2011	• *Assistance in developing national observer skills required for the live reef fish trade, and the delivery of this training in-country.	2	Nil
	• *Provide advice in a range of areas including markets and prices for live reef fish, beche-de-mer, shark fins etc.	1	Nil
	• *Advice provided to the private sector on establishing operations for marine aquarium trade as well as marketing information.	3	Nil
	• Materials purchased for an FAD project in the outer islands of Kiribati.	3	3,130,000
	• Assist with sea cucumber project.	10	930,000
	• EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe.	Nil	Nil
	• *2 participants funded to training on study methods for spawning aggregations.	2	325,860
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish	3	685,000

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	Advisory Committee meeting.		
	• *1 participant funded to regional workshop in New Caledonia on bycatch mitigation.	1	340,000
	• *1 participant funded to CITES and giant clam management workshop in Nadi.	3	86,000
	• *2 participants funded to regional Fisheries Officers Course, Santo, Vanuatu.	4	820,000
	• * NTFSR completed	17.0	-
	• * Inputs to EAFM provided (completed 2008)	-	-
	• * Attendance at stock assessment/ERA workshop	3	403,800
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• * Processing of foreign licenced tuna fisheries data	6.0	1,863,800
	• * Support of national tuna database system (including two in-country visits)	20.0	735,200
	• * Assistance with WCPFC data submission	1.0	-
	• * Assistance with national tuna data coordination	38.2	548,400
	• * Attendance at Tuna Data Workshop	2.0	20,400
	• Attendance at Regional Observer Coordinators Workshop	1.5	86,200
	• Assistance with artisanal tuna catch monitoring	5	260,100
	• 1 observer training course (2 cadet courses implemented)	30.0	594,000
	• * 1 tuna statistics attachment (deferred to 2010)	-	-
	• 3 tagging cruises in Kiribati waters (WP2, CP2 and CP3)	44.0	30,547,400
Marshall Islands	• *Review of marine aquarium fish management policy and ongoing advice provided.	5	Nil
JCS: 2008–2010	• *Follow-up work with the resource survey report on the marine aquarium trade, with in-country development of management arrangements for this fishery.	1	Nil
	• EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe.	Nil	Nil
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	865,600
	• *2 participants partially funded to attend sub-regional workshop in Guam where the methods of implementing the ecosystem approach to coastal fisheries were introduced.	1	308,000
	• *1 participant funded to CITES and giant clam management workshop in Nadi.	3	496,000
	• 1 participant funded to regional Fisheries Officers Course, Santo, Vanuatu.	2	410,000
	• NTFSR completed	25.0	-
	• Attachment training during NTFSR development	5.0	500,000
	• Inputs to EAFM provided	28.0	840,900
	• * Attendance at stock assessment/ERA workshop	3.0	419,500
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• Processing of domestic and foreign licenced tuna fisheries data	7.4	2,287,500
	• Support of national tuna database system	20.0	515,400
	• Assistance with WCPFC data submission	1.0	-
	• Assistance with national tuna data coordination,	10.7	2,225,700

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	including operational support for observer <ul style="list-style-type: none"> • Attendance at Tuna Data Workshop • Attendance at Regional Observer Coordinators Workshop • * 1 observer training course • * National-level ecological risk assessment incorporated into NTFSR • * Tuna tagging in RMI waters (WP2) 	2 1.5 24.0 5.0 19.0	241,200 542,600 243,800 10,965,700
Nauru JCS: 2008–2010	<ul style="list-style-type: none"> • *Planning meetings held for DEVFISH-funding of an outboard motor repair and maintenance training with the tuna fishing association. • * Train the trainer training in outboard-motor repairs and maintenance (DEVFISH) • *Conduct a sea safety workshop (to introduce sea safety grab bags) in conjunction with Nauru Fishers' Association (NFA) and Nauru Fisheries and Marine Resources Authority (NFMRA), and to train NFMRA staff in how to use Argos small boat beacons. Around 50 fishers and NFMRA staff attended the workshop. • Assistance provided through the funding of an executive officer for the fishing association. • *Funding research student at USP, working on the whale depredation issue. • Assistance in preparing funding proposals in regard to developing the aquarium industry. • Assistance with stakeholder consultations to develop marine aquarium trade management plan • EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe. • *Assistance with the review of the current community-based fisheries management programme. • 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. • *1 participant funded to regional Fisheries Officers Course, Santo, Vanuatu. • NTFSR completed • Inputs to EAFM provided • * Data summaries provided for access negotiations • Attendance at stock assessment/ERA workshop • Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session • Processing of foreign licenced tuna fisheries data • Support of national tuna database system (including one in-country visit) • Assistance with national tuna data coordination • Attendance at Tuna Data Workshop • 1 national tuna database training session at SPC • Tuna tagging in Nauru waters (WP3) 	5 3 12 2 3 3 5 Nil 9 3 2 23 14.0 2.0 3.0 3.7 3.8 20.0 8.5 2.0 2.0 7.0	202,787 490,000 425,900 595,000 895,000 Nil Nil 291,800 583,366 410,000 - 261,800 - 503,100 55,600 11,789,00 515,400 - 451,400 - 1,566,500
New Caledonia	<ul style="list-style-type: none"> • Advice provided to both the public and private sector in regard to the live reef food fish industry and the culture of appropriate local species, and their value on the international market. • Conduct experiments on FAD designs and deployment 	1 4	Nil 381,100

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	methodologies (2 FADs deployed).		
	• Ongoing monitoring of the fish silage project in Lifou.	10	Nil
	• Assisted with the development and publication of a booklet on the main sea bird species in New Caledonia.	7	Nil
	• In-country assistance to ADECAL funded scallop and lobster juvenile collection trials.	15	60,000
	• Field visit with North Province officials for advice on farming of local freshwater prawn.	10	93,000
	• Run a regional workshop on bycatch mitigation through the hiring of a suitable consultant.	5	1,219,255
	• 1 participant funded to regional workshop in New Caledonia on bycatch mitigation.	1	220,000
	• 1 participant funded to CITES and giant clam management workshop in Nadi.	3	173,000
	• 1 participant funded on a study tour of NACA in Bangkok plus attending Asia Pacific Aquaculture 2009.	5	305,000
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• Assistance with national tuna data coordination	7.4	-
	• Processing of domestic longline observer and port sampling data	2.5	429,000
	• Support for satellite-based vessel detection trial	-	11,900,000
	• Operational support for observer and port sampling of domestic longliners	5.0	11,266,500
New Zealand	• Assistance in undertaking observer and port sampling of NZ purse seiners	10.0	1,305,800
	• Tagging of albacore in NZ waters	40.0	17,850,000
Niue	• *Assistance provided with the funding of the renovations of office space and the provision of office equipment.	1	595,000
Draft JCS: 2009–2013	• Assistance with trialling small-scale fish silage operations.	5	644,910
	• *Contribute to Niue's tuna fishery management / development plan	5	251,325
	• *Provision of logbooks from old FAD research project, but all finished now.	Nil	18,000
	• Produced two fish posters	8	180,000
	• EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe.	Nil	Nil
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting	Nil	667,97
	• Attendance at stock assessment/ERA workshop	3.0	345,300
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• Support of national tuna database system	20.0	760,400
	• Assistance with artisanal tuna catch monitoring (deferred 2010)	-	-
	• Processing of domestic and foreign licenced tuna fisheries data	0.1	22,100
	• Assistance with WCPFC data submission	1.0	-
	• Assistance with national tuna data coordination	8.5	228,000
	• Participation in Vanuatu sub-regional observer training course	21.0	-
	• Attendance at Regional Observer Coordinators		

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	Workshop • Attendance at Tuna Data Workshop	1.5 2.0	356,500 20,400
Northern Mariana Islands	<ul style="list-style-type: none"> • JCS mission in May 2009 with stakeholder meetings and presentations to government officials and others on the findings of meetings in regards to marine resources. • Planning meeting with Division of Fish and Wildlife staff for tuna fishery-related development assistance as part of the JCS matrix. • 1 participant funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. • 2 participants partially funded to attend sub-regional workshop in Guam where the methods of implementing the ecosystem approach to coastal fisheries were introduced. • 1 participant funded to the tilapia summit workshop at SPC Noumea. • 1 participant funded on a study tour of NACA in Bangkok plus attending Asia Pacific Aquaculture 2009. • Attendance at stock assessment/ERA workshop 	6 2 3 1 3 5 3	387,325 Nil 802,600 246,900 309,800 938,000 425,700
Palau	<ul style="list-style-type: none"> • JCS mission in March 2009 with stakeholder meetings and presentations to government officials and others on the findings of meetings in regards to marine resources. • Conduct an institutional review of the Bureau of Marine Resources with full stakeholder participation • Advice and public awareness information provided on the live reef food fish industry. • Assistance in sourcing marine shrimp for disease analysis at CSIRO. • EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe. • 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. • 2 participants funded to CITES and giant clam management workshop in Nadi. • 1 participant funded to regional workshop in New Caledonia on bycatch mitigation. • * Attendance at stock assessment/ERA workshop • Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session • * Processing of foreign licenced tuna fisheries data • * Support of national tuna database system • Assistance with national tuna data coordination • * Attendance at stock assessment/ERA workshop • Attendance at Regional Observer Coordinators Workshop • Training for biological sampling for observers and port samplers • Operational support for observer and port sampling 	7 12 1 1 Nil 3 3 1 3.0 3.7 4.6 20.0 7.4 2.0 1.5 7.0 -	430,190 372,095 Nil 190,000 Nil 849,100 930,000 440,000 357,300 55,600 1,411,100 515,400 442,700 200,300 470,400 385,400 -
Papua New Guinea	<ul style="list-style-type: none"> • Put together materials for the development of a PNG purse seine operations training module for the National Fisheries College, Kavieng. • Assist with a training needs assessment for the 	20 3	440,887 355,225

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	fisheries sector.		
	• Follow-up work undertaken with the Fishing Industry Association as part of the DEVFISH project, with the focus on establishing a new office for the association and equipping it.	10	1,178,000
	• Assistance provided to the Fishing Industry Association with the development of their website.	5	238,000
	• Assistance provided with the funding of the executive officer for the Fishing Industry Association.	3	692,000
	• Financial support for participants and PNG's Pacific Tuna Forum	Nil	668,000
	• In-country visit to PNG to advice on aquaculture ventures in Daru, Rabaul, Lae and visit new government mariculture research facility at Nago Island.	10	367,000
	• Assist in sourcing new project funds for spat collection (AUD20,000) trial at Nago Island.	3	Nil
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	564,450
	• 2 participants funded to CITES and giant clam management workshop in Nadi.	6	272,000
	• 2 participants funded to regional workshop in New Caledonia on bycatch mitigation.	2	680,000
	• 1 participant funded to the tilapia summit workshop at SPC Noumea.	3	578,000
	• 1 participant funded to regional Fisheries Officers Course, Santo, Vanuatu.	2	410,000
	• 1 participant funded on a study tour of NACA in Bangkok plus attending Asia Pacific Aquaculture 2009.	5	586,000
	• Characterization of the PNG purse seine fishery	30.0	-
	• Attendance at stock assessment/ERA workshop	6.0	812,300
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• Processing of domestic and foreign licenced tuna fisheries data	20.5	6,341,900
	• Assistance with WCPFC data submission	1.0	-
	• Attendance at Tuna Data Workshop	4.0	279,600
	• Attendance at Regional Observer Coordinators Worksho	1.5	332,800
	• Assistance with national tuna data coordination	8.5	352,800
	• Provision of ad hoc tuna fishery data summaries for internal studies	3.0	-
	• Assistance in design and participation in PNG National Tuna Data Workshop (deferred 2010)	-	-
	• Training support at 3 observer training courses	66.0	1,190,700
	• Tuna tagging in PNG waters (WP2, WP3)	53.0	37,596,800
Pitcairn Island	• 1 participant funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting	3	210,000
JCS: 2009-2013			
Samoa	• JCS mission in July 2009 with stakeholder meetings and presentations to government officials and others on the findings of meetings in regards to marine resources.	7	218,840
	• Assist with organising FAD materials for tsunami relief	2	1,200,000
	• Assistance provided on 4 occasions with the development and finalization of the coastal and aquaculture	35	1,392,102

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	components of Samoa's Fisheries Bill, plus develop Schedules under the Bill.		
	• Ran a 1 week EAFM national workshop with 26 participants from around Samoa and from areas outside of fisheries.	10	846,000
	• Follow-up review of the monitoring programme for ciguatera, with training provided on field sampling and processing of samples.	3	Nil
	• Assistance provided to assist with the coastal fisheries databases including queries.	3	181,950
	• Funding assistance provided for fuel efficiency trials using four-stroke outboards.	5	1,670,000
	• EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe	Nil	Nil
	• Attachment of 2 fisheries staff to develop a model for ecosystem approach to community-based fisheries management in Samoa.	3	158,400
	• 1 professional staff attachment with the aquaculture section for 1 month.	10	513,000
	• 2 participants funded to training on study methods for spawning aggregations.	2	312,980
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	501,430
	• 2 participants funded to CITES and giant clam management workshop in Nadi.	6	753,000
	• 1 participant funded to the tilapia summit workshop at SPC Noumea.	3	235,300
	• 1 participant funded to regional workshop in New Caledonia on bycatch mitigation.	1	340,000
	• NTFSR completed	40.0	-
	• Inputs to EAFM provided	11	193,700
	• Attendance at stock assessment/ERA workshop	3.0	309,300
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• Processing of domestic longline data	-	-
	• Support of national tuna database system	20.0	515,400
	• Assistance with national tuna data coordination, including operational support for observer and port sampling	16.2	904,000
	• Attendance at Tuna Data Workshop	2.0	193,200
	• Attendance at Regional Observer Coordinators Workshop	1.5	324,200

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
Solomon Islands JCS: 2009–2012	• *Assist in implementing the ACIAR DABL Mini-project “Growth potential of existing tilapia strains under local conditions in PICs” – Solomon Islands country component.	10	490,000
	• *Assistance in sourcing marine shrimp for disease analysis at CSIRO.	3	10,000
	• National tilapia plan workshop.	10	214,000
	• *In-country support to ongoing rabbit fish (<i>Signadae</i>) feed trials in West Province.	10	920,000
	• *Support for WFC proposal to ACIAR for inland aquaculture farming project (AUD \$120,000).	5	Nil
	• *Release, publication and launch of National Aquaculture Plan.	10	490,000
	• *Field-visit and advice on fresh water fishery at Rennel Island World Heritage site lake.	20	400,000
	• *Training in socioeconomic analysis for 6 staff during survey carried out for FAO Global Seaweed Farming Review.	2	520,000
	• *EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe.	Nil	Nil
	• Review of the current JCS activities given many activities will now be picked up under the coral triangle initiative.	2	198,700
	• Assistance provided to establish a local fishermen’s association.	5	716,000
	• *Assistance provided with pump-boat fishing trials.	2	119,000
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	543,550
	• *2 participants funded to CITES and giant clam management workshop in Nadi.	6	270,000
	• *1 participant funded to regional workshop in New Caledonia on bycatch mitigation.	1	340,000
	• *1 participant funded to the tilapia summit workshop at SPC Noumea.	3	272,000
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
	• * Processing of domestic and foreign licenced tuna fisheries data	1.8	562,400
	• * Support of national tuna database system	20.0	515,400
	• Assistance with national tuna data coordination	10.7	243,100
• Attendance at Regional Observer Coordinators Workshop	1.5	359,900	
• 1 observer training workshop (2 cadet courses implemented)	30.0	499,900	
• Tuna tagging in Solomon Islands waters (WP2, WP3)	29.00	18,798,400	
Tokelau Draft JCS:	• EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe	Nil	Nil
	• Conduct training in FAD rigging and deployment and deploy several FADs, one at each atoll.	25	368,775
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	747,260
	• Attendance at stock assessment/ERA workshop	3.0	190,800
	• Provision of in-meeting support at WCPFC Scientific	3.7	55,600

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	Committee and WCPFC Annual Session		
	• Assistance with national tuna data coordination	6.3	-
	• Assistance with WCPFC data submission	1.0	-
	• Attendance at Tuna Data Workshop	2.0	93,600
Tonga	• JCS mission in February 2009 with stakeholder meetings and presentations to government officials and others on the findings of meetings in regards to marine resources.	7	243,650
Draft JCS: 2009–2015	• *Training needs assessment undertaken for the Tongan Fisheries Division staff with the outcomes used to develop a training plan for the Fisheries Division staff.	6	252,500
	• *National Community-based Ecosystem to Fisheries Management (CEAFM) workshop in Tonga as a strategy to promote the ecosystem component for the Tonga's Community-based Fisheries Management (CBFM) programme. 28 participants in total with 10 being women. There were 8 participants from Fisheries, 11 from Outer Islands communities, 3 from the Environment department, 4 from NGOs and 2 from the others.	13	1,101,300
	• *Facilitate and fund a national workshop on management for fisheries officers.	2	1,109,695
	• *Follow-up assistance in the development of the marine aquarium trade database both for catch records and export records.	4	257,192
	• *In-country follow-up for the finalization of marine aquarium trade management arrangements	2	Nil
	• Produced two posters, one on fish and the other on molluscs.	7	378,000
	• Assistance provided with the funding of an executive officer for the tuna fishing association.	2	596,650
	• *Assistance provided with the formulation of a development plan for the Tonga Exporters and Fisherman's Association.	4	Nil
	• *Attachment training (1 month) organized and funded for the Tonga Fisheries Department's Communication officer on publication layout.	3	401,500
	• *Production of a leaflet on the importance of marine resources to the Kingdom of Tonga.	5	45,000
	• *Planning workshops held in Tongatapu and Vava'u to prioritize aquaculture commodities for National Aquaculture Development plan.	20	326,000
	• *Assistance for new project funds and master student research for mabe pearl farming in Vava'u.	5	Nil
	• *Project for farming corals and live-rock initiated between Fisheries and private sector (AUD40,000) to support marine ornamental industry.	20	1,062,000
	• EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe.	Nil	Nil
	• *Attachment of 2 fisheries staff to develop a model for ecosystem approach to community-based fisheries management in Tonga.	3	481,112
	• 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	517,120
	• *1 participant funded to CITES and giant clam management workshop in Nadi.	3	120,000

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	<ul style="list-style-type: none"> • *1 participant funded to regional workshop in New Caledonia on bycatch mitigation. • Attendance at stock assessment/ERA workshop • Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session • * Processing of domestic longline data • * Support of national tuna database system (Incl. one in-country visit) • Advice regarding seamounts • * Assistance with national tuna data coordination, including operational support for observer • Assistance with WCPFC data submission • * Attendance at Tuna Data Workshop • Attendance at Regional Observer Coordinators Workshop 	<p style="text-align: center;">1</p> <p style="text-align: center;">3.0</p> <p style="text-align: center;">3.7</p> <p style="text-align: center;">0.7</p> <p style="text-align: center;">20.0</p> <p style="text-align: center;">8.0</p> <p style="text-align: center;">19.5</p> <p style="text-align: center;">1.0</p> <p style="text-align: center;">2.0</p> <p style="text-align: center;">1.5</p>	<p style="text-align: center;">340,000</p> <p style="text-align: center;">359,400</p> <p style="text-align: center;">55,600</p> <p style="text-align: center;">221,100</p> <p style="text-align: center;">515,400</p> <p style="text-align: center;">223,000</p> <p style="text-align: center;">934,000</p> <p style="text-align: center;">-</p> <p style="text-align: center;">177,400</p> <p style="text-align: center;">307,200</p>
Tuvalu	<ul style="list-style-type: none"> • Assistance provided with the funding of an executive officer for the local tuna fishing association. • *Assistance provided with training in outboard motor maintenance for the outer islands. • Produced two fish posters. • EC regulations amended to allow exemption of non-OIE member to export live marine ornamental species into Europe. • *2 participants funded to training on study methods for spawning aggregations. • 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. • * NTFSR initiated • * Inputs to EAFM provided • * Data summaries for access negotiations provided • Attendance at stock assessment/ERA workshop • Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session • * Processing of foreign licenced tuna fisheries data • Assistance with national tuna data coordination • * Support of national tuna database system • Attendance at Tuna Data Workshop • Attendance at Regional Observer Coordinators Workshop • * Participation in Fiji sub-regional observer training workshop • Tuna tagging in Tuvalu waters (WP2) 	<p style="text-align: center;">3</p> <p style="text-align: center;">3</p> <p style="text-align: center;">6</p> <p style="text-align: center;">Nil</p> <p style="text-align: center;">2</p> <p style="text-align: center;">3</p> <p style="text-align: center;">35.0</p> <p style="text-align: center;">24.0</p> <p style="text-align: center;">1.0</p> <p style="text-align: center;">3.0</p> <p style="text-align: center;">3.7</p> <p style="text-align: center;">1.2</p> <p style="text-align: center;">10.7</p> <p style="text-align: center;">20.0</p> <p style="text-align: center;">2.0</p> <p style="text-align: center;">1.5</p> <p style="text-align: center;">2.5</p> <p style="text-align: center;">14,0</p>	<p style="text-align: center;">835,000</p> <p style="text-align: center;">1,670,000</p> <p style="text-align: center;">248,000</p> <p style="text-align: center;">Nil</p> <p style="text-align: center;">318,220</p> <p style="text-align: center;">687,80</p> <p style="text-align: center;">-</p> <p style="text-align: center;">489,300</p> <p style="text-align: center;">-</p> <p style="text-align: center;">319,700</p> <p style="text-align: center;">55,600</p> <p style="text-align: center;">360,500</p> <p style="text-align: center;">592,500</p> <p style="text-align: center;">515,400</p> <p style="text-align: center;">310,000</p> <p style="text-align: center;">269,300</p> <p style="text-align: center;">40,800</p> <p style="text-align: center;">7,049,400</p>
Vanuatu	<ul style="list-style-type: none"> • In-country visit and assistance for the ongoing marine ornamental fish (<i>Amphiprion</i> spp.) hatchery trials in Vanuatu. • Advice provided for an ongoing FAD programme in Vanuatu, including the bulk purchase of materials to reduce overall costs. • To provide assistance and follow-up on some work and needs relating to the development of the live reef fisheries database. • Assistance provided in setting up a new server and databases for coastal fisheries following the failure of the old system. 	<p style="text-align: center;">15</p> <p style="text-align: center;">5</p> <p style="text-align: center;">3</p> <p style="text-align: center;">5</p> <p style="text-align: center;">6</p>	<p style="text-align: center;">458,000</p> <p style="text-align: center;">383,500</p> <p style="text-align: center;">84,453</p> <p style="text-align: center;">136,672</p> <p style="text-align: center;">130,000</p>

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
	<ul style="list-style-type: none"> • To look into the escalating ciguatera fish poisoning problem affecting Emao Island, communities off the Northern coast of Efate, as part of a collaborative investigation with the Institute for Research and Development (IRD) and the Louis Malarde Institute (ILM). • Assistance provided in carrying out initial consultations and run a national workshop for the development of Vanuatu's EAFM programme. • Assisted in developing and produced two fisheries management plans (tuna and aquarium fish trade) for the Department of Fisheries. • Assistance provided through the funding of an executive officer for the local fishermen's association. • Assistance provided though the funding of office equipment for the fishermen's association. • Assistance provided with the development of a fish market / bycatch utilisation plan • In country visit to advise Fisheries on proposed government facility in Efate and freshwater aquaculture opportunities in Santo • Master student research project initiated in Santo in-advance of 2009 scholarship intake • 2 participants funded to training on study methods for spawning aggregations. • 2 participants funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting. • 2 participants funded to CITES and giant clam management workshop in Nadi. • 2 participants funded to the tilapia summit workshop at SPC Noumea. • 1 participant funded to regional Fisheries Officers Course, Santo, Vanuatu. • 1 participant funded on a study tour of NACA in Bangkok plus attending Asia Pacific Aquaculture 2009. • Attendance at stock assessment/ERA workshop • Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session • Processing of domestic and foreign licenced tuna fisheries data • Support of national tuna database system (including two in-country visits) • Attendance at Tuna Data Workshop • 1 tuna statistics attachment • Attendance at Regional Observer Coordinators Workshop • Participation in Vanuatu sub-regional observer training workshop • 1 national observer training workshop (2 cadet courses implemented) • Assistance with national tuna data coordination, including domestic longline port sampling 	<p>20</p> <p>10</p> <p>3</p> <p>Nil</p> <p>2</p> <p>7</p> <p>5</p> <p>2</p> <p>3</p> <p>6</p> <p>6</p> <p>2</p> <p>5</p> <p>3</p> <p>3.7</p> <p>0.0</p> <p>20.0</p> <p>2.0</p> <p>5.0</p> <p>1.5</p> <p>7.0</p> <p>30.0</p> <p>16.2</p>	<p>1,132,750</p> <p>269,500</p> <p>400,000</p> <p>200,000</p> <p>119,000</p> <p>168,000</p> <p>Nil</p> <p>251,260</p> <p>239,820</p> <p>413,000</p> <p>202,000</p> <p>410,000</p> <p>502,000</p> <p>248,700</p> <p>55,600</p> <p>2,900</p> <p>625,300</p> <p>20,400</p> <p>200,000</p> <p>206,600</p> <p>-</p> <p>1,144,400</p> <p>1,741,500</p>
Wallis and Futuna	<ul style="list-style-type: none"> • JCS mission in January 2009 with stakeholder meetings and presentations to government officials and others on the findings of meetings in regards to marine resources. 	7	254,000

Country	Activities for 2009 (* indicates activities covered by JCS)	Staff time, work days	Travel, other cost (CFP)
Draft JCS: 2009–2013	• *Technical assistance provided with the rigging and deployment of two FADs off Futuna and the demonstration of FAD fishing methods to local fishermen.	5	204,000
	• *SPC consultant held workshops in Wallis and Futuna Islands to formulate aquaculture strategy and identify links with French overseas territories.	10	2,387,000
	• *Study tour to New Caledonia shrimp industry and rabbit fish (Pico) cage trial organized.	15	1,503,000
	• 1 participant funded to the Sixth Heads of Fisheries meeting in Noumea and the final PROCFish/C and CoFish Advisory Committee meeting.	3	233,200
	• *2 participants funded to regional Fisheries Officers Course, Santo, Vanuatu.	4	820,000
	• * Attendance at Tuna Data Workshop	2.0	245,400
	• Attendance at Regional Observer Coordinators Workshop	1.5	73,800
	• Provision of in-meeting support at WCPFC Scientific Committee and WCPFC Annual Session	3.7	55,600
USA	• Tagging in waters around Hawaii	10.0	3,9163,00



Awareness-raising consultation on community based fisheries management, Ngella, Solomon Islands

Annex 4 – Summary of training provided during 2009

By Activity Type (per Year)	Numbers
Aquaculture	55
Workshop	35
Management of Sustainable Fisheries for Giant Clams and CITES Capacity Building workshop	35
On-the-job (in-country)	20
Rabbitfish feeding and husbandry techniques (Solomon Is.) - 2009	5
Aquarium fish broodstock husbandry (Vanuatu) - 2009	4
Coral and rock farming (Tonga) - 2009	8
Spat collection and spat identification/grow out techniques (New Caledonia) - 2009	3
Coastal Fisheries Management	126
Attachment	2
Attachment to develop Coastal Zone And Climate Change Project Framework	2
Workshop	124
National Workshop on CEAFM and Climate Change	25
FAO/SPC Sub-Regional Workshop on Ecosystem Approach to Management of Coastal Fisheries	18
National Workshop on Community-based Ecosystem Approach to Fisheries Management (CEAFM)	81
Nearshore Fisheries Development	119
Regional training	22
SPC Practical Safety and Fishing Course for Fisheries Officer	11
Training of Trainers (TOT) on bycatch mitigation	11
National Training	90
FAD workshop (Futuna) - 2009	4
Argos Beacons Training (Nauru)	3
Fishing methods demonstration (Wallis)	4
Sea safety workshop (Nauru) - 2009	50
Management, Communication & Reporting Writing Skills Course (Tonga)	14
Fish Silage workshop	15
On-the-job (in-country)	3
Production of a Tuna Purse Seine Training module (PNG)	1
Training in bonefish fly-fishing guiding	2
Training Attachment	4
Training attachment FAD module, VMC, Santo (American Samoa)	2
Training attachment sport fishing Development project	2
Oceanic Fisheries Programme	242
Attachment	3
Fisheries Data Analyses	1
Database Development	1
Fishery Statistics	1
Workshop (course)	64
Ecological Risk Assessment	21
Stock Assessment	9
Advanced Stock Assessment	12
3rd Tuna Data Workshop	22
Workshop	175
Fisheries Basic Observer Course	16
Fisheries Observer Course	79
Fisheries Observer Cadet Course	80
PROCFISH Project	4
Invertebrate resource assessment	4
Reef fisheries observatory	1
Ciguatera field algal sampling procedures	1
Grand Total	547