

SciCOFish

SCIENTIFIC SUPPORT FOR THE MANAGEMENT OF COASTAL AND OCEANIC FISHERIES IN THE PACIFIC ISLANDS REGION

Year 5 Progress report



DECEMBER 2014

This project is funded by



This project is implemented by



Signature page:

On behalf of the implementing agency, I have the pleasure in providing herewith the 2014 annual report:

Signed:

Date:

Dr Colin Tukuitonga
Director General
Secretariat of the Pacific Community

Seen and noted on behalf of the European Union:

Signed:

Date:

Mr Andrew Jacobs
Ambassador
Delegation of the European Union for the Pacific

TABLE OF CONTENTS

LIST OF ABBREVIATIONS	3
INTRODUCTION	4
1. EXECUTIVE SUMMARY	8
1.1. Human resources	8
1.2. Difficulties and changes	9
1.3. Main achievements.....	11
2. REVIEW OF PROGRESS AND PERFORMANCE	16
2.1. Description of activities.....	16
2.2. Resources and budget.....	31

LIST OF ABBREVIATIONS

ACP	African, Caribbean and Pacific
CITES	Convention on International Trade in Endangered Species
CMM	Conservation and Management Measure
E-monitoring	Electronic Monitoring
EU	European Union
FAD	Fish Aggregating Device
FAME	Fisheries, Aquaculture, and Marine Ecosystems
FFA	Forum Fisheries Agency
Fmsy	Fishing Mortality associated with Maximum Sustainable Yield
FSM	Federated States of Micronesia
GIS	Geographic Information Systems
ID guide	Identification guide
ISNR	Issue Specific National Report
MSG	Melanesian Spearhead Group
MSY	Maximum Sustainable Yield
N-Pacific	North Pacific
P-ACP	Pacific-African, Caribbean and Pacific
PNA	Parties to the Nauru Agreement
PNG	Papua New Guinea
REPICOR	Resilience of Pacific Islands coral reef social-ecological systems in times of global change
ROCW	Regional Observer Coordinators Workshop
RWSA	Region-Wide Stock Assessment
SBmsy	Spawning biomass associated with maximum sustainable yield
SC	Scientific Committee
SciCOFish	Scientific support for the management of coastal and oceanic fisheries in the Pacific Islands region
SPC	Secretariat of the Pacific Community
TUBS	Observer data management system
TUFMAN	Tuna fishery data management system
WCPFC	Western and Central Pacific Fisheries Commission

INTRODUCTION

The SciCOFish project, « Scientific support, for the management of coastal and oceanic fisheries in the Pacific Islands region », implemented through the Contribution Agreement between the Secretariat of the Pacific Community and European Union, is planned, after adoption of 2 addendums, for execution from the 17th April 2010 to the 3 September 2015, with a budget of € 9,478,000.

In 2014, the progress to the overall objective of the conservation and sustainable use of oceanic fisheries resources has evolved as follow:

- The estimated total catch of the four main target tuna species was approximately 2.6 million mt in 2013. New stock assessments for skipjack, yellowfin and bigeye tuna estimate:
 - Skipjack spawning biomass has reached approximately 50% of the average 2001-2011 unexploited level, with fishing mortality below the level providing the maximum sustainable yield;
 - yellowfin spawning biomass has declined to 38% of the average 2002-2011 unexploited level, which is above the limit reference point of 20% and fishing mortality remains beneath the level providing the maximum sustainable yield; and
 - bigeye tuna spawning biomass is estimated to have declined to 16% of the average 2002-2011 unexploited level, and has breached the agreed limit reference point of 20% and fishing mortality remains well above the MSY level. Under certain simplifying assumptions, Conservation and Management Measure (CMM2013-01) is predicted to result in reduced fishing mortality for bigeye tuna to around Fmsy by 2017.
 - Continued upwards pressure on fishing mortality rates for the above three tropical species and South Pacific albacore is expected because of continued increases in fishing effort, and in the effectiveness of fishing effort, in both the purse seine and longline fisheries. Some 80 new purse seiners are currently being built, the combined tonnage of which is in excess of the tonnage of vessels to be replaced. This excess is estimated to be equivalent to approximately 40 new vessels.
- During 2013, the estimated tuna discard on purse seine vessels was 1%, the lowest rate since 1995. The average tuna discard rate for 1995-2015 was 2.6%.

The project purpose 2014 advances for oceanic fisheries are:

- Stock assessments for bigeye, yellowfin and skipjack tuna were accepted by the WCPF Commission and used as the basis for forming management advice for these three tuna species. In addition, a stock assessment for blue shark in the north Pacific was completed to advise fishing nations and authorities on the conservation status of this stock. A trend analyses for the south Pacific albacore longline fishery was used to assist with management advice in the absence of a stock assessment for this species in 2014.

- An evaluation was undertaken to estimate the risks of exceeding the limit reference point for south Pacific albacore. The results of this work have implications for the setting of target reference points with fishing mortality rates well below F_{msy} and spawning biomass levels over double those at SB_{msy} needed to maintain a low risk of exceeding the limit reference point.
- Purse seine observer coverage rates (data currently received by SPC) in 2010, 2011, 2012 and 2013 were 92%, 82%, 75% and 63%, respectively, of all trips. More data are expected to be received. E-monitoring trials have started as an approach to assist with reaching observer coverage targets (particularly for longline vessels where observer placement is logistically difficult).

For **coastal** fisheries, progress towards the overall objective of the conservation and sustainable use of resources during 2014 included:

- Management advice has been provided for sea cucumber fisheries across the region under the project; however, the uptake has been mixed. In the Cook Islands the fishery remains closed following the project's advice, while the staff trained by the project continues surveying around the country to fully assess the national stocks and a management plan put in place. Vanuatu, where the project recommended the fishery remains closed, has chosen to open the fishery on a rotational basis with quotas set for some species. In the Solomons, again where the project recommended keeping the fishery closed, they opened the fishery in 2013 for a season and are looking again at opening the fishery against the best scientific advice from the fisheries department and the project. Both in Vanuatu and the Solomon Islands, the advice of the fisheries department using the project results to maintain a closed fishery were adopted; however, changing political situations that were not foreseen reversed the original decision. PNG maintains their closure of the sea cucumber fishery as part of their management of the fishery.
- General coastal fishery management plans have been developed for Kiribati and Samoa, and the draft Niue plan developed in 2013 was further progressed during the year. After several years of assistance, a sea cucumber management plan has been finalised for Fiji, which included extensive stakeholder consultations, and now needs to go to Cabinet for endorsement in 2015. The coastal fishery management plans have been requested by government so they can tag on regulations for different fisheries. In the case of Samoa, the government has approved the plan and a 5-year implementation strategy with timelines being approved for developing management arrangements for specific fisheries, such as trochus, sea cucumber and aquarium fish. For Kiribati, the situation is different and they are still finalising the plan as it requires inclusion of island councils and this is a slow and costly process that will take at least another year.

Progress towards achieving the project purpose (a reliable and improved scientific basis for management and decision making) in 2014 included the following in coastal fisheries:

- The scientific knowledge for sea cucumber stocks and their numbers continues to expand with the survey work being undertaken, with this being used to provide the best possible management advice.
- Countries are now looking to better understand the stocks of other invertebrate species, with the project training up local staff in survey methodologies for trochus in Samoa, anadara in Kiribati and coconut crabs in Niue, with the science being turned into management advice for these fisheries.
- The interest in finfish science has also increased as fisheries departments require more fishery dependent data on which to base management decisions. In this regard creels surveys and the collection of biological samples was undertaken in Tonga, Palau and PNG. Some of the biological sampling will allow growth estimates of some species to be made and compared across the region to see if there is any difference in growth between the countries that have been sampled. Genetic work will also allow a better understanding of connectivity between the same species of fish in different locations as to whether they are the same stock, sub-stocks or have no connection at all.

Late in 2014 the coastal component of the project hired a consultant to conduct an assessment of the “development effectiveness” of some of the trainings and management advice provided under the project. Vanuatu and Cook Islands were the countries chosen for the study with the focus on the sea cucumber fishery and the capacity development in surveys methodologies and management advice provided, and the results of this study will be presented at the final SciCOFish steering committee meeting in March 2015, and the report can be downloaded from the SPC SciCOFish web page.

Progress towards meeting the two result areas for the project are covered below:

Result 1: P-ACP governments, the FFA and the WCPFC are provided with scientific data, modelling, and advice to underpin their management decision making and strategic positioning.

- Support for the development of national observer programmes continued in 2014. Observer training for 67 trainees resulted in 62 newly certified observers during the year. Debriefing training workshops initiated the training of 87 debriefer trainees, who have subsequently continued towards certification through additional on-the-job training. Seven debriefer trainees were recommended for certification during 2014. Development of observer trainers also continued, with two trainee trainers assisting in observer training courses during the year. The region now has 11 certified trainers from 5 P-ACPs.
- The rollout of the TUFMAN tuna data management software and TUBS observer data software continued during 2014, with relevant training in the use of these tools conducted. In-country (3) and remote (8) audits of 2013 national tuna fisheries data were conducted, improving the quality and coverage of national data holdings.
- National scientific advice on two important tuna fishery management issues (FAD closures and oceanographic impacts on albacore catch rates) were conducted for 13 P-ACPs during the year. Additionally, the regional bioeconomic model of the WCPO tuna fishery was completed as a preliminary version, and will be further enhanced for the provision of fishery management advice to sub-regional groups of P-ACPs involved in both the tropical tuna fishery and the South Pacific albacore fishery.

- Modelling of WCPO tuna stocks and fisheries using the spatial-ecosystem model SEAPODYM continued in 2014 (utilising resources external to the project), with an analysis of climate change impacts on South Pacific albacore published and an initial SEAPODYM model for yellowfin developed. This means that we now have functional SEAPODYM models for all four main tuna species, and analyses of climate change impacts for three species – skipjack, bigeye and South Pacific albacore – now completed.

Result 2: P-ACP governments, private sector and communities are equipped to monitor coastal fisheries to provide scientific advice in support of sustainable management of these resources P-ACP governments, private sector and communities will be provided with technical methods and training to monitor coastal fisheries, scientific advice to inform management decisions, and development of in-country capacity to evaluate their effectiveness.

- Closer linkages have been developed with the members of the Locally-Managed Marine Area (LMMA) Network and other NGOs working in community-based fisheries and/or natural resource management, drawing on the lessons that have learned from their work on community-based data collection and monitoring, which has need found to have limited use. The outcome of this has been more focus on awareness raising and dissemination of useful materials for community members to be able to manage their resources.
- In collaboration with LMMA and others, the project focused on raising awareness of management options at the community level, with 29 information sheet covering finfish and invertebrate species and families, three brochures, three posters and a guide booklet as a guide to the information sheets and other information. These have been translated into Portuguese for Timor Leste, Fijian under a different project, and other countries are looking to translate these into local language.
- The project has worked closely with staff from the fisheries departments, and in some countries, conservation departments and NGOs when conducting training in survey methodologies, and when survey work is undertaken, the communities are included with briefing before the survey work is undertaken to explain what is happening and to gain their support or permission, and after the survey work to brief the communities on the initial findings based on the surveys.
- The development of specific fishery management plans, such as for sea cucumbers, is a long and consultative process, including stakeholder consultation covering communities, the private sector, government departments, women, youth and church groups, NGOs, tourism and others with an interest in the marine environment. The project has supported this approach and assisted with the presentation of scientific advice and management recommendations, which are further refined based on the input from the different consultations.

This report summarizes the activities during the project's fifth year (January-December 2014). It has been prepared with the collaboration of Section heads from the SPC Fisheries, Aquaculture and Marine Ecosystems (FAME) Programme involved in the SciCOFish project and focuses on the achievements of 2014 activities and achievement against the two project result areas

1. EXECUTIVE SUMMARY

1.1. Human resources

In 2014, 4 new staff started to work for the SciCOFish project, under one-year contracts. The Fisheries economist, based in FFA, completed his contract and work in December.

At the end of December 2014, the staff situation is as follows. All contracts are planned until 31/03/2015 and 30/06/2015 in the case of the Project Administration and Communications Officer.

SciCOFish component	SPC Section		Title	Name	Began
1: Oceanic Fisheries	Stock assessment and modeling	1	Fisheries Information Technology Officer	Fabrice Bouyé	1/06/2011
		2	Fisheries Scientist (bioeconomic modeling)	Alex Tidd	7/04/2014
		3	Fisheries Economist (bioeconomic modeling) - FFA	Work completed	–
		4	Fisheries Scientist (national scientific support)	Steven Hare	15/03/2014
	Ecosystem monitoring	–	Fisheries Scientist (ecosystem modeling)	Work completed	–
	Data management	5	Fisheries Data Audit Officer	Andrew Hunt	03/03/2014
	Fisheries monitoring	6	Observer Support and Development Coordinator	Peter Sharples	01/01/2011
–		Observer Training and Support Officer (N-Pacific)	Work completed	–	
7		Observer Training and Support Officer	Siosifa Fukofuka	01/07/2011	
2: Coastal Fisheries	Science and management	8	Reef Fisheries Information Manager	Franck Magron	16/08/2010
		9	Fisheries Scientist (finfish)	Bradley Moore	14/04/2014
		10	Fisheries Scientist (invertebrates)	Kalo Pakoa	27/08/2010
3: Coordination	FAME	11	Project administration and communications Officer	Anne Lefeuvre	01/09/2010

1.2. Difficulties and changes

- ✓ A change in the EU financial requirements late in the project has affected the drawdown of funding, as this now can only be done based on having audit reports to show threshold expenditure has been reached. This has created a cash-flow problem and the need for additional audits to be undertaken.
- ✓ With 586 newly trained and certified observers during 2000–2013, observer training was scaled back during 2014, with 62 newly trained and certified observers, compared to an average of 146 per annum in previous years. The on-the-job training of trainee debriefers was hampered by the lack of certified debriefers, therefore SPC took a more active role in on-the-job training and 7 trainees were recommended for certification by the end of the year. The path to becoming an observer debriefer involves participation in introductory training, and on-the-job training under the direction of a certified debriefer. The training of 87 trainees referred to in this paragraph relates to the introductory training. They constitute a pool of debriefer trainees who will gradually move through the on-the-job training phase, subject to the capacity of national programmes to deliver this. As stated, seven debriefer trainees were recommended for certification in 2014.
- ✓ Technology is evolving quickly and will make data acquisition and management more efficient via “E-Reporting”. Clearly, the technology now exists to implement “E-Reporting” on a broad scale but progress is being hindered by uncertainty in areas such as capacity development and resource needs, fundamental legislation updates and political will.
- ✓ No stock assessment and training workshop was conducted in 2014 due to staff turnover.
- ✓ For result area 2, the granting of the project extension with over-run funding allowed a coastal fisheries finfish scientist to be recruited in the second quarter of 2014 for the last 12 months of the project, to address one of the concerns raised in the mid-term review.
- ✓ With the finfish scientist, capacity development was possible in several countries covering creel survey methodologies, data entry and analysis, and biological sampling for both aging of some fish species and connectivity of fish stocks
- ✓ The field testing of the market and creel survey manual was completed with some modifications needed to the draft manual as well as the decision to develop species identification sheets to complement the manual. With the added work, the manual will now be completed in the first half of 2015, before the project is completed with possible co-funding from Australia.
- ✓ Most of the backlog of formal reports to countries with the analysis of data, results and management advice has been cleared and all reports will be completed before the end of the project.

- ✓ There continues to be problems with the remote maintenance of the mini-servers in some countries, where band width for internet access is restricted, and there does not seem to be a solution for these countries. The main aim of deploying the mini-servers was to address data storage needs (as also identified under the PROCFish/C project), as in the past, data was stored on individual computers with no back-up, and a lot of data was lost when computers crashed over the years. The mini-servers cost around Euro 2,000 each and with their installation, training could be provided in-country in their use and the use of GIS that was also loaded onto the mini-server, the storage of other information, digital library and training videos, as well as data, and in some locations a WiFi router was included to allow more staff to connect to the local network and the server. Most of the mini-servers are still in operation, and those countries where an IT technician is available the mini-servers seem to work better.
- ✓ With the end of the project in mid-2015, the EU Delegation in Suva expressed concerns about the sustainability of activities and services provided under the project, as all coastal fisheries scientists and information managers were project funded. This has now been rectified with new “core” funding from Australia allowing the recruitment of a coastal fisheries scientist and information and database manager, who will be able to continue the work started under the project.



Biological sampling training in Koror, Palau, September 2014
(image: Brad Moore, SPC Fisheries Scientist (finfish))

1.3. Main achievements

Observer training and systems

- ✓ A total of 67 observers for the national programmes of Cook Islands, Fiji, Marshall Islands, Nauru, Samoa, Solomon Islands, Tonga, Vanuatu and Tuvalu were trained at six observer training courses, of which 62 were certified.
- ✓ Five debriefer workshops were held in PNG and Fiji; 87 trainees from Fiji, Kiribati, Marshall Islands, PNG, Samoa, Solomon Islands, Tonga and Vanuatu received introductory training. Following on-the-job training of debriefer trainees, seven trainees from FSM, PNG, Solomon Islands and Tuvalu were recommended for certification.
- ✓ There are now eleven certified observer trainers, from FSM (1), Kiribati (1), Nauru (1), PNG (5) and Solomon Islands (3). During 2014, two trainee trainers from FSM and Fiji did attachment training during four courses. Eleven trainers and trainee trainers from FSM, Fiji, Kiribati, Marshall Islands, Nauru, PNG and Solomon Islands attended the Regional Observer Trainers Workshop in Noumea in November. SciCOFish, over the course of the project, has contributed to the training of 567 observers, most of whom have undertaken observer employment subsequent to training. A total of 239 individuals received observer debriefer training, while 11 fully certified observer trainers have been developed to the point where they can deliver observer training. Of the individuals who have received debriefer training, 43 have completed their on-the-job training and are now PIRFO-certified debriefers.
- ✓ A species ID guide for use by observers on purse seiners and a purse-seine observer training video were completed.



Observer subregional training in Nadi, Fiji, September 2014
(image: Manoi Kutan, SPC Observer Debriefing Training and Support Officer)

Integrated tuna fisheries databases

- ✓ Enhanced TUFMAN (Tuna Fisheries Database Management System) software installed in 14 P-ACP countries (PNG have their own custom-developed system).
- ✓ The new web-based online TUFMAN (logbook data) Reporting tool with secure login is now fully operational and was used by P-ACP countries to prepare data summaries for their WCPFC Part 1 Reports during 2014.
- ✓ The new web-based online TUBs (observer data) Reporting tool with secure login is now fully operational and was used by P-ACP countries to prepare data summaries responding to their flag-state reporting obligations and their WCPFC Part 1 Reports during 2014.



Data quality training, Port Vila, Vanuatu, October 2014
(image: Andrew Hunt, SPC Fisheries Data Officer)

Bioeconomic modelling and national advice for tuna fisheries

- ✓ Potential economic-based target reference points for South Pacific albacore tuna were estimated through bioeconomic modelling.
- ✓ A regional bioeconomic model covering the four main tuna species and all significant fisheries was developed, and preliminary results reported to the WCPFC Scientific Committee. The model indicates that higher levels of economic rent would be possible at reduced effort levels, assuming that higher catch rates results from the maintenance of reduced effort.
- ✓ Country specific advice on the likely impacts that FAD closures have had on foreign purse seine fleets fishing inside PNA country waters, and PNA-flagged vessels fishing throughout the region, was provided to PNA countries.

Develop local capacity to implement field monitoring protocols for coastal fisheries

- ✓ Monitoring of invertebrate stocks remained a high priority for the project, however, the focus changes somewhat with only one field training for sea cucumber survey methodologies in Tonga, with 6 staff trained. Other invertebrate survey training included trochus methodologies in Samoa (11 people) and anadara methodologies in Abaiang, Kiribati (6 people). In addition, a coconut crab survey was undertaken in Niue with 8 staff trained in the methodologies.
- ✓ The manual “assessing tropical marine invertebrates” was published in 2014 after years of development based on the work undertaken by the project. The manual is complemented with a set of plastic invertebrate identification sheets that can be used in the field to assist surveyers identify the different species.
- ✓ Growing interest in fishery dependent data for finfish and the trialling of the creel survey manual including biological sampling in-country saw three countries requesting training in this area. Training in creel survey methods and biological data collection were conducted in Tonga (13 people), Palau (9 people) and PNG (8 people).
- ✓ Some of the biological data includes the taking of otoliths (ear bones) for aging the fish and genetic samples. The otoliths are being collected from a group of indicator species in seven countries to see if the same species have any difference in growth rates around the region. The genetic work is to detect and connectivity between the same species; are they the same stock or sub-stock? Results from this work will be available in the first half of 2015.

Develop and implement secondary data collection protocols for coastal fisheries

- ✓ In support of the new market and creel survey manual, two sub-regional workshops were held in Noumea to introduce participants to the database and query system to allow analysis and interpretation of market and creel survey data. Representatives from 13 countries attended the training, which was very successful as participants were eager to learn.



Creel and market surveys in Tongatapu, Tonga, July 2014
(image: Brad Moore, SPC Fisheries Scientist (finfish))

- ✓ The last of the mini-servers were installed in Chuuk and Yap in FSM, and this included training in their use and the use of GIS, a standard part of the training as countries wish to better display the analysis for senior staff.
- ✓ In collaboration with the Australian aid funded Fisheries and Food Security project, a workshop was held in Noumea in the use of the export database, with a focus in CITES requirements, with 12 countries represented. Countries need to meet all CITES requirements if they want to export species on Appendix II, such as clams and corals for the aquarium trade.

Develop management advice for coastal fisheries

- ✓ Management advice has been provided to Samoa on trochus, Abaiang, Kiribati for anadara, and coconut crabs in Niue, this follows on from the survey work discussed above. Further assistance was also provided to Tonga with training in sea cucumber surveys in the Ha'apai group given the decline in catches and the probable need to close the fishery.
- ✓ The formal reports with management advice continue to be rolled out with reports published for Vanuatu sea cucumber fishery, Solomon Islands sea cucumber fishery, Vanuatu green snail fishery and Palau sea cucumber fishery. All remaining reports will come out before the project is completed.

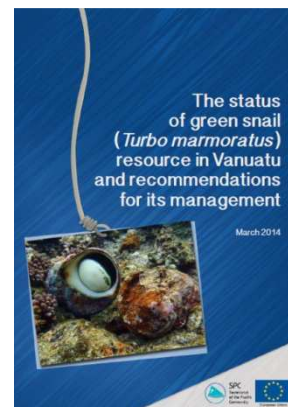
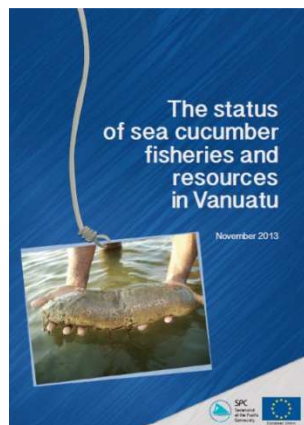
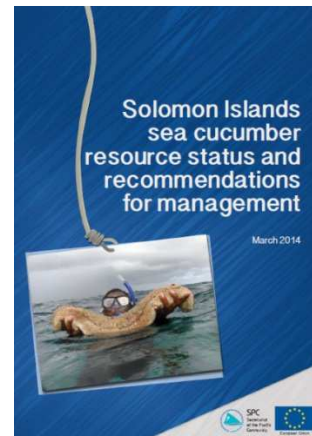
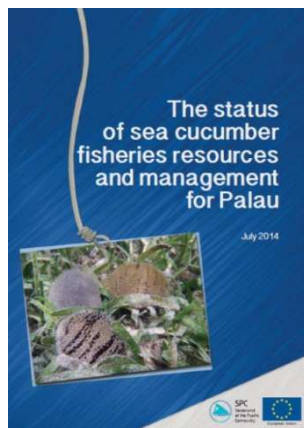


Finfish survey in Manus, Papua New Guinea, May 2014
(image: Brad Moore, SPC Fisheries Scientist (finfish))

- ✓ Specific management advice was provided to Kiribati for their bonefish fishery and for their paddle-tail (red snapper) fishery. In the Marshall Islands, advice was provided for the minimum and maximum sizes of 22 common reef fish species so that could be managed better. This information was also produced in a Poster for the country to promote management of these species.
- ✓ A general coastal fisheries management plan was developed for Kiribati as they work towards better management of coastal resources. The same approach was taken with Niue last year, with this being progressed in 2014 as well.

Project coordination and dissemination of results

- ✓ On May 9th 2014 took place the fourth SciCOFish Steering Committee in Apia, Samoa. Representatives of Fisheries departments and ministries of all Pacific ACP countries met and discussed the annual project work plan. Comments from EU representatives gave some feedback on EU expectations.
- ✓ During the Pacific Media Summit in Noumea, in February 2014, the TUNANOMICS initiative organised jointly by SciCOFish and DevFish-2 raised awareness and standards of reporting in Pacific media about the scientific and economic dimensions of Fisheries management.
- ✓ The visibility of the project has been ensured in 2014 by the regular update of the SciCOFish webpages, the release of 6 press articles, the publication of 3 national reports on sea cucumber management, 1 on green snail status, a manual on assessing invertebrates and the production of a training video for fisheries observers. Those documents are available on the website : <http://www.spc.int/fame/en/projects/scicofish/documents> and <http://www.spc.int/fame/en/projects/scicofish/about-scicofish/in-the-news>.



2. REVIEW OF PROGRESS AND PERFORMANCE

The following description of activities presents the status of SciCOFish overall objective and project purpose, and also the activities planned for year 5 with progress assessed against the work plan (January to December 2014). The third column “Action required for the project closure” mentions the few outstanding items to be completed by the end of the project in 2015.

2.1. Description of activities

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
Overall objective: conservation and sustainable use of coastal and oceanic fisheries resources in the Pacific Islands region			
<ul style="list-style-type: none"> Effort on yellowfin and bigeye tuna reduced to at least the level required to reach Fmsy (the fishing mortality associate with the maximum sustainable yield) or lower, for both species 		<ul style="list-style-type: none"> The estimated total catch of the four main target tuna species was approximately 2.6 million mt in 2013. New stock assessments for yellowfin and bigeye tuna estimate: yellowfin spawning biomass has declined to 38% of the average 2002-2011 unexploited level, which is above the limit reference point of 20% and fishing mortality remains beneath the level providing the maximum sustainable yield; and bigeye tuna spawning biomass is estimated to have declined to 16% of the average 2002-2011 unexploited level, and has breached the agreed limit reference point of 20% and fishing mortality remains well above the MSY level. Conservation and Management Measure (CMM2013-01) is predicted to result in reduced fishing mortality for bigeye tuna to around Fmsy by 2017. This expectation may be compromised by the 	

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
<ul style="list-style-type: none"> • Tuna discards by purse seiners reduced to less than 1% of catch (<12,000 t) confirmed by 100% observer coverage • At least some management measures adopted in each of 5 coastal areas with measureable signs of recovery observed in baseline monitoring (indicators to be established under this project) 		<p>increasing number of purse seine vessels operating in the fishery (~300, excluding domestic vessels in Philippines and Indonesia). Moreover the tonnage of 80 new purse seiners currently being built is in excess of the tonnage of vessels to be replaced. This excess is equivalent to approximately 40 new vessels.</p> <ul style="list-style-type: none"> • During 2013, the estimated tuna discard on purse seine vessels was 1%, the lowest rate since 1995. The average tuna discard rate for 1995-2015 was 2.6%. • Through the project, management advice continues to be given to countries for sea cucumber fisheries, yet some of this advice is ignored as a result of political pressure to open or not close the fishery even when stocks are severely depleted. Other countries are following the advice to allow stocks to rebuild, although this will be a long (3 to 10 year) process in some countries. • A coastal fishery management plan was developed for Kiribati as well as a sea cucumber management plan for Fiji. In the Fiji case, there was extensive stakeholder consultations held as well. • Indicators or regional reference densities for healthy sea cucumber stocks have been established as well as for several other 	

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
		<p>invertebrate species. These have been published in the “Assessing Tropical Marine Invertebrates – a manual for Pacific Island resource managers” survey manual, page 41 for sea cucumbers and in Appendix 4 for other selected invertebrate species.</p>	
<p>Project purpose: to provide a reliable and improved scientific basis for management advice and decision making in oceanic and coastal fisheries</p>			
<ul style="list-style-type: none"> 100% of project stock assessment results for 4 main tuna species accepted by WCPFC Scientific Committee and forwarded to full Commission for decision-making 		<ul style="list-style-type: none"> Stock assessments for bigeye, yellowfin and skipjack tuna were accepted by the WCPFC Commission and used as the basis for forming management advice for these three tuna species. In addition a stock assessment for blue shark in the north Pacific was completed to advise fishing nations and authorities on the conservation status of this stock. A trend analyses for the south Pacific albacore longline fishery was used to assist with management advice in the absence of a stock assessment for this species in 2014. An evaluation was undertaken to estimate the risks of exceeding limit reference points for south Pacific albacore. The results of this work have implications for the setting of target reference points with fishing mortality rates well below Fmsy and spawning biomass levels over double those at SBmsy needed to satisfy industry standard risk profiles. 	

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
<ul style="list-style-type: none"> Observer coverage rates reach regionally-agreed levels by 2012 (100% for purse seine vessels) with no decrease in data quality 		<ul style="list-style-type: none"> From available information, purse seine observer coverage rates in 2010, 2011, 2012 and 2013 were 84%, 78%, 84% and 76%, respectively. Observer data currently received by SPC represents 92%, 82%, 75% and 63%, respectively, of all trips. More data are expected to be received. E-monitoring trials have started as an approach to assist with reaching observer coverage targets (particularly for long-line vessels where observer placement is logistically difficult). 	



SPC contribution to WPFC SC10, Marshall Islands, August 2014
(image: Steven Hare, SPC Fisheries Scientist (national scientific support))

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
<ul style="list-style-type: none"> At least 5 P-ACP countries adopt coastal fisheries management measures in line with project recommendations 		<ul style="list-style-type: none"> Sea cucumbers fisheries remain a focal area for management in the region; however, countries are now looking at other invertebrate species as well. Management advice was provided to Samoa for their Trochus fishery, Kiribati for their anadara fishery at Abaiang, and Niue for their coconut crab fishery. There is a growing interest in data collection using creels surveys and biological sampling to get more fishery dependent data on finfish stocks on which to base management measures. In 2014, Tonga, Palau and PNG received training in these methodologies using the manual (in final draft form at present) developed by the project. 	

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
Result 1: P-ACP governments, the FFA and the WCPFC are provided with scientific data, modeling, and advice to underpin their management decision making and strategic positioning			
1.1. Observer training			
300 observers trained, 10 observer trainers and 10 observer debriefers operational	<ul style="list-style-type: none"> • Continuation of observer training for all P-ACP countries. • Continuation of trainers' training. • Continuation of debriefers' training. • Organisation of 2014 ROCW. • Production of training tools. 	<ul style="list-style-type: none"> • Six observer training courses were held in Marshall Islands (May), Nauru (Jun), Solomon Islands (Jun-Jul), Tonga (Jul), Vanuatu (Aug-Sep) and Tuvalu (Nov-Dec). A total of 67 observers were trained for the national observer programmes of the countries listed above and for Cook Islands, Fiji and Samoa, of which 62 were certified. • There are now eleven certified trainers, from FSM (1), Kiribati (1), Nauru (1), PNG (5) and Solomon Islands (3). During 2014, two trainee trainers from FSM and Fiji did attachment training during four courses. Eleven trainers and trainee trainers from FSM, Fiji, Kiribati, Marshall Islands, Nauru, PNG and Solomon Islands attended the Regional Observer Trainers Workshop in Noumea in November. • Five debriefer workshops were held in PNG (Feb, Apr, May, Aug) and Fiji (Sep); 87 trainees from Fiji, Kiribati, Marshalls, PNG, Samoa, Solomon Islands, Tonga and Vanuatu received introductory training. Following on-the-job training of debriefer trainees, seven trainees from FSM, PNG, Solomon Islands and Tuvalu were recommended for certification. • The Regional Observer Coordinators Workshop was held in Noumea, Mar 10-14. • A species ID guide for use by observers on 	<ul style="list-style-type: none"> • Continuation of observer training for all P-ACP countries, coordinated by SPC, but with the training increasingly by the newly-certified trainers. • Continuation of trainers' training. • Continuation of debriefers' training. • Organisation of 2015 ROCW.

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
		purse seiners was completed. A purse-seine observer training video was completed.	



Introductory debriefer training for observers in Pohnpei, Federated States of Micronesia, July 2014
 (image: Manoi Kutan, SPC Observer Debriefing Training and Support Officer)

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
1.2. Integrated tuna fisheries databases			
<p>National tuna fisheries databases operational in 15 P-ACPs</p> <p>Tuna data audits conducted for at least 10 P-ACPs</p> <p>14 P-ACP's report data to WCPFC as per their obligations</p>	<ul style="list-style-type: none"> • Keep maintaining the web-based data audit and electronic-reporting tool. • Make the tool more user friendly to be used by any data management staff during country visit. • Four in-country data audits to be conducted. 	<ul style="list-style-type: none"> • Latest version of the TUFMAN system (v6.40) has been installed in P-ACP countries. • The TUFMAN web-based reporting is fully operational and has been used by P-ACP's to produce the WCPFC Part 1 reports for the SC10 meeting (August 2014). • The TUBS (Observer) web –based reporting tool is fully operational and was used by P-ACP's to respond to obligations for flag state WCPFC CMM reports and WCPFC Part 1 reports during 2014. • All countries trained in using these new products during the Eighth Regional Tuna Data Workshop (April 2014), SPC attachments and in-country visits. • Three in-country audits conducted during visits by SPC staff. • Remote audits of 2013 data at SPC of the data from the TUFMAN databases of 8 countries. 	<ul style="list-style-type: none"> • Systems have been developed and implemented. • Document the proposed future work to extend systems into the next major phase involving comprehensive E-Reporting and data auditing and data sharing via the internet “cloud”.
1.3. Bioeconomic modeling and national advice			
<p>10 region-wide stock assessments (RWSA) for key tuna species, using the latest updated data, provided to decision-makers during 2010-2013</p> <p>1 regional and 10 national reports providing bioeconomic modelling</p>	<ul style="list-style-type: none"> • Continuation of RWSA production for region-wide advice on tuna fishery. • Continuation of Issue Specific National Reports. 	<ul style="list-style-type: none"> • Activity completed • Eight ISNRs on the economic impacts of FAD closures on foreign and domestic purse seine fleets; and five ISNRs on oceanographic and climate impacts on longline catch rates of albacore, bigeye, and yellowfin tuna – including economic 	<ul style="list-style-type: none"> • Further testing and finalization of the longline and tropical tuna fishery bioeconomic models.

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
advice	<ul style="list-style-type: none"> • Refinement of the regional bioeconomic model for the south longline fishery. • Development of the bioeconomic model based on the stock assessment for skipjack. • Capacity building at national level on stock assessment. 	<p>considerations.</p> <ul style="list-style-type: none"> • Further development of two potential bioeconomic models for the southern longline fishery – applied to define several potential economic target reference points for the South Pacific albacore stock. • A fully integrated bioeconomic model including the four main tuna species in the tropical and south Pacific fisheries was developed for SC10 and is currently undergoing testing. • No stock assessment training course was possible in 2014 due to turnover of key staff. 	
1.4. Ecosystem modeling of management and climate change			
1 regional and 10 national reports (including Timor Leste) providing advice on tuna resource vulnerability to environmental variability including climate change	Activity completed	Activity completed	Activity completed
1.5. Validate key model parameters through tagging			
5,000 tuna tagged of which 80% are bigeye ¹	Activity completed	Activity completed	Activity completed

¹ Suggested indicator: non provided in Contribution Agreement

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
Result 2: P-ACP governments, private sector and communities are equipped to monitor coastal fisheries to provide scientific advice in support of sustainable management of these resources. P-ACP governments, private sector and communities will be provided with technical methods and training to monitor coastal fisheries, scientific advice to inform management decisions, and development of in-country capacity to evaluate their effectiveness.			
2.1. Conduct stakeholder consultation			
Country specific needs prioritised for all P-ACPs	<ul style="list-style-type: none"> • Reassess priorities at the 2014 project steering committee meeting for final year of project. • Incorporate management and monitoring priorities in at least 3 joint country strategy documents. 	<ul style="list-style-type: none"> • Activity completed • Activity completed 	<ul style="list-style-type: none"> • Activity completed • Activity completed



Creel and market surveys in Manus, Papua New Guinea, May 2014
(image: Brad Moore, SPC Fisheries Scientist (finfish))

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
2.2. Develop local capacity to implement field monitoring protocols			
Standard monitoring protocols implemented and sustained in at least 5 P-ACPs	<ul style="list-style-type: none"> • Undertake at least 2 national workshops/trainings on creel survey methodologies, biological sampling methodologies or spawning aggregation survey techniques. • Undertake at least 3 national workshops/trainings on invertebrate survey methodologies. • Finalise the market and creel survey manual and publish. • Finalise all formal reports on data analysis and management advice for countries where survey work was undertaken. • Undertake at least 2 national workshops/trainings on market and/or creel survey methodologies. • Undertake at least 1 ad hoc request by a country covering an urgent issue. 	<ul style="list-style-type: none"> • Biological sampling training undertaken in Tonga (13 people), Palau (9 people) and PNG (8 people), with growing interest in this area by other countries. • Invertebrate survey training undertaken in Kiribati for anadara (6 people), Samoa for trochus (11 people) and Tonga for sea cucumbers (6 people). • Market and creel survey manual in final draft form with database queries to develop. • Invertebrate survey report completed for Solomon Islands (sea cucumber), Vanuatu (green snail) and Palau (sea cucumber). • Training undertaken in Palau (9 people) and PNG (8 people) with growing interest in creel survey work by countries. • Undertook a coconut crab training and survey in Niue (8 people) as an urgent request from the fisheries department. 	<ul style="list-style-type: none"> • Activity completed as no time for more training in-country. • Activity completed as no time for more training in-country. • Finalisation, printing and distribution in first half of 2015. • Remaining reports will be completed for Kiribati, Samoa, Tonga, Palau and PNG. • Activity completed as no time for more training in-country. • Activity completed as no time for more training in-country.
2.3. Develop and implement secondary data collection protocols			
Regional data repository maintained and national data provided for backup from at least 5 countries/fisheries	<ul style="list-style-type: none"> • Export database covers CITES permits, but need to look at linking this to the CITES global database. • Undertake training/workshop on how to use the export database. • Establish market and creel database in at least 2 countries. • Undertake database training with staff from at least 2 countries through 	<ul style="list-style-type: none"> • CITES export database being field tested at present and will be finalised in early 2015. • Workshop undertaken in December 2014 with 12 participants from 9 countries (Fiji, Cooks, Tonga, Solomons, RMI, Palau, FSM, Kiribati and Vanuatu). • Creel survey database in use in Tonga and Palau. • Attachments from PNG and Fiji plus a workshop on database use conducted with 	<ul style="list-style-type: none"> • Finalise CITES export database • Activity completed • Training in Fiji in early 2015 in database use. • Activity completed

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
	attachment training in Noumea. <ul style="list-style-type: none"> • Develop additional modules for the in-country servers (document repository; query system for databases etc.). • Develop country specific databases as required (water quality for the Cooks etc.). • Install 1 or 2 additional servers to meet any specific requests. • Produce an on-line GIS training package. • Undertake in-country GIS training in at least 2 countries. • National data from monitoring training and subsequent surveys provided from at least 3 additional countries. • Expand the current on-line training programme to include the identification of another 2 species groups. 	13 countries participating. <ul style="list-style-type: none"> • No progress in 2014, with activity deferred to early 2015. • Cook Island water quality database work deferred to early 2015 at their request. • Servers installed in Chuuk and Yap in FSM. • Insufficient time so activity cancelled • GIS training undertaken in FSM (Chuuk and Yap), Palau and Cook Islands. • Some data provided by Kiribati, Tonga and Fiji, with countries starting to think more about this for back-up of data. • Insufficient time to do this so activity cancelled. 	<ul style="list-style-type: none"> • Document management system to be developed in early 2015. • Develop water quality database for the Cook Islands. • Activity completed • Activity cancelled • Activity completed • Activity completed, however, SPC will maintain this service. • Activity cancelled
2.4. Develop management advice			
Assessments and management recommendations given for at least 5 major coastal fisheries	<ul style="list-style-type: none"> • Assessment of finfish monitoring, biological sampling and/or survey data undertaken for 2 countries and management advice provided. • Assessment of invertebrate survey and/or monitoring data undertaken for 3 countries and management advice provided. • Attachments from at least 5 countries undertake training and analysis of their own data at SPC for developing management arrangements. • Provide management advice for specific fisheries in at least 2 countries. • Assist the Melanesian Spearhead Group 	<ul style="list-style-type: none"> • Management advice for paddle-tail and bonefish in Kiribati, and minimum and maximum sizes for 22 species in the Marshall Islands. • Invertebrate management advice provided for trochus in Samoa, coconut crabs in Niue and anadara in Abaiang in Kiribati. • Attachments from Kiribati (2), Pohnpei FSM (2) Cook Islands (1) and Samoa deferred their attachments to early 2015. • General coastal fisheries management plans develop for Kiribati and Niue. • No requests received and MSG countries 	<ul style="list-style-type: none"> • Advice to be provided to Tonga. • Advice to be provided to Tonga for sea cucumbers. • Attachments from Samoa. • Activity completed • Activity completed

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
	(MSG) members develop and implement national plans under the MSG Roadmap. <ul style="list-style-type: none"> • Participate in regional and international meetings covering coastal fisheries monitoring and/or management. • Produce at least 2 management posters, possibly on sea cucumbers/green snails. 	seem to be using consultants to assist them. <ul style="list-style-type: none"> • Attended REPICORE workshop in Germany, Ciguatera workshop in Noumea and Sea cucumber summit in Fiji. • Poster for Marshall Islands on max and min sizes of 22 species and minimum size of sea cucumbers poster for Vanuatu. 	<ul style="list-style-type: none"> • Activity completed • Activity completed

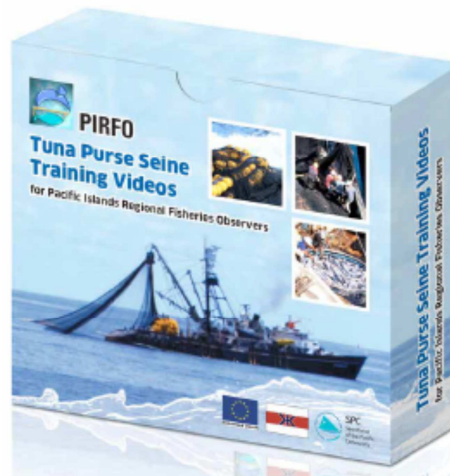
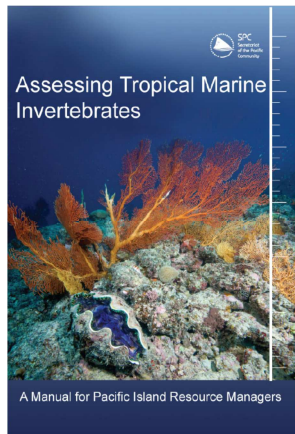


Introductory debriefer training for observers in Tarawa, Kiribati, June 2014
(image: Manoi Kutan, SPC Observer Debriefing Training and Support Officer)

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
3. Shared project activities			
3.1. Cross-cutting issues			
SciCOFish contribution to environmental sustainability, gender equality, good governance and human rights ¹	<ul style="list-style-type: none"> • Finalisation of Observers training tools and code of conduct introducing gender equality. • Continuation of activities, contributing to environmental sustainability, gender equality, good governance and human rights. 	<ul style="list-style-type: none"> • Activity completed • 2014 activities were related to environmental sustainability, gender equity, good governance and human rights respect. 	<ul style="list-style-type: none"> • Continuation of activities, contributing to environmental sustainability, gender equality, good governance and human rights.
3.2. Coordination			
SciCOFish project run efficiently in terms of time and resources ¹	<ul style="list-style-type: none"> • Holding of fourth SciCOFish steering committee meeting. • Following-up the activities in terms of finances and plan. 	<ul style="list-style-type: none"> • Activity completed • Activity completed 	<ul style="list-style-type: none"> • Holding of fifth SciCOFish steering committee meeting. • Following-up the activities in terms of finances, plan and project closure.
3.3. Dissemination of results			
Project results presented to ACP as tools –for fisheries management and decision making- and adopted ¹	<ul style="list-style-type: none"> • Communication on SciCOFish activities and results. • Promotion of EU visibility. 	<ul style="list-style-type: none"> • TUNANOMICS initiative raised awareness and standards of reporting in Pacific media about the scientific and economic dimensions of Fisheries management. • Update of SciCOFish webpages: 5 web articles; 6 pages on meetings and trainings and 10 SciCOFish productions and contributions. 	<ul style="list-style-type: none"> • Communication on SciCOFish activities and results. • Promotion of EU visibility.

¹ Suggested indicator: non provided in Contribution Agreement

Performance and success indicators Target 2014	Planned activities for 2014-2015	Progress /issues	Action required for the project closure
		<p>21 articles or interviews on SciCOFish activities in various national newspapers, websites, radio and television.</p> <p>Production and distribution of 1 video for observers training, 4 published reports and a manual.</p> <p>EU funding mentioned on all materials published and visible for all regional trainings.</p>	



2.2. Resources and budget

The following tables are presented at the date of 19/12/2014.

SciCOFish Year4 expenses by budget lines

ACTIVITIES	Year 4 Budget		Expenditure for Year 4		% of year 4 budget spent
	in XPF	in EUROS	in XPF	in EUROS	
A-Staff costs	147,374,666	1,235,000	149,010,842	1,248,711	101.11
B-Travel and subsistence costs	27,446,297	230,000	23,003,557	192,770	83.81
C-Training costs	30,429,594	255,000	32,851,926	275,299	107.96
D-Equipment	5,369,927	45,000	3,822,794	32,035	71.19
E-Consumables	4,176,611	35,000	4,367,315	36,598	104.57
F-Sub-contract / consultancies	10,501,193	88,000	3,509,625	29,411	33.42
G-Fieldwork costs	8,353,222	70,000	7,143,798	60,116	85.88
H-Dissemination of results	11,038,186	92,500	4,296,750	36,007	38.83
I-Eligible indirect costs	17,128,276	143,535	15,941,526	133,590	93.07
TOTAL	261,817,972	2,194,035	243,978,133	2,044,537	93 %

SciCOFish Year4 expenses by project component

ACTIVITIES	Year 4 Budget		Expenditure for Year 4		% of year 4 budget spent
	in XPF	in EUROS	in XPF	in EUROS	
Component 1 - Oceanic	143,517,856	1,202,680	143,818,358	1,205,198	100
Component 2 – Coastal	106,489,257	892,380	95,562,253	800,812	90
Dissemination of results	11,810,859	98,975	4,597,522	38,527	39
TOTAL	261,817,792	2,194,035	243,978,133	2,044,537	93 %

SciCOFish Year5 expenses by budget lines

ACTIVITIES	Year 5 Budget		Advance received for Year 5		Expenditure for Year 5		% of adv. spent	% of budg. spent
	XPF	EUROS	XPF	EUROS	XPF	EUROS		
A-Staff costs	69,234,582	580,186	21,582,147	180,858	30,388,505	254,656	140.80	43.89
B-Travel and subsistence costs	8,353,219	70,000	2,603,902	21,821	1,966,069	16,476	75.5	23.54
C-Training costs	10,215,748	85,608	3,184,498	26,686	0	0	0	0
D-Equipment	0	0	0	0	0	0	-	-
E-Consumables	0	0	0	0	0	0	-	-
F-Sub-contract / consultancies	0	0	0	0	0		-	-
G-Fieldwork costs	1,193,317	10,000	371,986	3,117	0	0	0	0
H-Dissemination of results	0	0	0	0	0	0	-	-
I-Eligible indirect costs	6,229,831	52,206	1,941,954	16,274	2,264,820	18,979	116.63	36.36
TOTAL	95,226,697	798,000	29,684,487	248,756	34,619,394	290,111	117 %	36 %

SciCOFish Year 5 expenses by project component

ACTIVITIES	Year 5 Budget		Advance received for Year 5		Expenditure for Year 5		% of adv. spent	% of budg. spent
	XPF	EUROS	XPF	EUROS	XPF	EUROS		
Component 1 - Oceanic	60,739,836	509,000	18,934,090	158,668	23,399,726	196,090	124	39
Component 2 – Coastal	34,486,861	289,000	10,750,397	90,088	11,219,668	94,021	104	33
Dissemination of results	0	0	0	0	0	0	-	-
TOTAL	95,226,697	798,000	29,684,487	248,756	34,619,394	290,111	117	36