



PROSPECTUS

Regional Workshop on Improving Information on Status and trends of fisheries in the Pacific region

Apia, Samoa 22-26 May 2006,

1. Background

Knowledge of the status and trends of capture fisheries, including socio-economic aspects, is a key to sound policy-development, better decision-making and responsible fisheries management. The adequate and reliable fishery information is also required for assessing the validity of fishery policy and for tracking the performance of fisheries management. Furthermore, there has been a high level of public interest in terms of sustainable use of fishery resources and there is an increasing need for the relevant information to reach at community level. A better-informed public will support the efforts of managing fisheries and aquatic resources in a responsible manner.

The collection and analysis of fishery data is a costly, time-consuming and effort-intensive exercise. Fishery line agencies, which in many cases suffer from chronic problems of budget and human resource limitations, often struggle to produce reliable information in a timely manner. Poor quality of information creates a general sense of distrust on fishery information among intended users (e.g. policy makers and fisheries managers) which results in non- or very limited use of fishery statistics. This would further lead to a situation where low priorities/attentions are attached to data collection activities. Thus a vicious cycle of problems is created, which continues to inhibit effective fishery administration and management based on the information.

Many fisheries in the Pacific region are typically characterized as multi-species/multi-gear tropical fisheries, in which a large number of small-scale operations predominate. Conventional data collection methods that are primarily designed to monitor large-scale commercial fisheries in temperate waters may not be always adequate if applied to such fisheries. The geographically scattered archipelago, coupled with high degrees of dependancy on aquatic resources among coastal communities, is another marked characteristic of some countries, which illustrates spatial dispersion of fishing communities and diversity of their activities. This would pose additional difficulties in data collection in terms of logistics and data collection methods. There would be no easy and immediate solutions to deal with such difficulties associated with fisheries in small island countries and to eventually terminate the vicious cycle of problems. Only continued and dedicated efforts could pave the way to mitigate the problems.

Development or improvement of any fishery data collection system requires a logically structured approach¹. The structured approach includes a sequential pathway, starting from the understanding on “Why data are needed?”, through the clarification of data requirements

¹ Guidelines for the Routine Collection of Capture Fishery Data, FAO Fisheries Technical Paper 382, Rome 1999.

(What data need to be collected?), and the consideration of “How data will be collected?”. Periodical review of these fundamental aspects of data collection systems (i.e. to validate why, what and how) is important since data collection systems need to be responsive to the dynamics of the fisheries sector as well as to the changing needs for fishery information.

FAO and SPC have been working on this challenging task of improving the quality of fishery information through a series of activities, which include;

- Pacific Islands Regional Workshop on Fishery Statistics in Noumea 2001
- SPC Regional Policy Meeting on Coastal Fisheries Management in Nadi, March 2003
- SPC/WPRFMC/FAO Workshop on Fisheries Legislation and Community-based Fisheries Management in Honolulu, April 2005
- SPC/FAO Training Workshop in Fisheries Management and Statistics in Nadi, November 2004
- a number of field visits to consult with countries

This regional workshop is to follow-on these earlier activities as a part of collaborative efforts between FAO and SPC for the improvement of fishery information and improvement of fisheries management at large.

2. Objectives

Overall objective of the workshop is to facilitate the effective generation and use of fishery statistics and information as a foundation of sound policy-development and responsible fisheries management in the Pacific region. More specifically it is tasked to:

- Review existing national fishery data and information collection systems in the region, taking account of critical aspects of the systems, namely a) linkage with policy/management objectives, b) institutional arrangement/coordination, c) data collection strategies and d) data collection methods as well as e) assessment of small-scale (subsistence) fisheries
- Examine viable options to improve the quality of fishery data and information, which suit specific requirements of different sub-regions (Micronesia, Melanesia and Polynesia) and are operational in a budget and man-power limited situation;
- Exchange national knowledge and experiences in designing and developing the fishery statistics and data collection systems among participating countries;

3. Expected Outcomes

The workshop is expected to deliver the following outcomes:

- 1) National reviews/descriptions of fishery data and information collection systems (country profiles of fishery statistical monitoring), together with regional synthesis and comparative analysis, are compiled as a single document to provide reference information on fishery data collection in the Pacific region²;
- 2) Priority areas of improvement in data collection are identified, taking account of specific requirements of different sub-regions

² FishCode-STF project has been producing a series of technical documents on fishery data and information collection systems. Southeast Asian and Central American regions have been covered and this document will be the 3rd publication of this kind.

- 3) The scope of follow-up activities at national/sub-regional level is tentatively defined and national/sub-regional plans of work are drafted;
- 4) Operational arrangements for regional cooperation/partnerships in implementing follow-up activities are formulated.

The report of the workshop will be prepared and circulated to the participants in due course, which include a brief description of discussions and the scope of follow-up activities.

4. Scope and Strategies

- The workshop addresses data collection on capture fisheries, both oceanic fisheries and coastal fisheries. Aquaculture will not be included since this important sub-sector requires dedicated approaches.
- Special emphasis will be placed on coastal fisheries during working group sessions in the workshop and oceanic fisheries will be given a lower priority as they are considered to be well-monitored by regional fisheries bodies.
- Limited financial and human resources allocated for data collection is a common problem among countries in the region and it is a fair assumption that this problem would persist. Therefore the workshop focuses on approaches that can be implemented in a budget and man-power limited situation (e.g. best use of existing data collection mechanisms) rather than unrealistically seeking for a solution of the budget and man-power problem.
- In order to effectively address the differences in cultures, customs and traditions in countries of Micronesia, Melanesia and Polynesia, sub-regional approach will be taken/considered when appropriate.
- There have been a series of regional efforts exerted to improve fishery information in the region (see **ANNEX 2** for summaries of preceding activities). This workshop will be built on the achievements of these preceding activities

5. Organization of the Workshop

- 1) This workshop is jointly organized by FAO sub-regional office for the Pacific Islands (under GCP/RAS/183/JPN: Improving statistics on coastal, subsistence fisheries and aquaculture), FishCode- STF project, and SPC Coastal Fisheries Programme.
- 2) Prior to the workshop, a questionnaire survey will be conducted to review and describe national fishery data and information collection systems in a comprehensive and comparative manner. The information obtained by the survey will be compiled as country profiles of fishery statistical monitoring. This document will be used as a working paper for the workshop.
- 3) Preliminary regional synthesis and thematic comparative analysis of the national data collection systems will be conducted based on the information provided in the country profiles and presented at the workshop as background for discussion.
- 4) The workshop will consist of plenary discussion sessions and group discussion sessions in order to facilitate active participation of the participants. Working groups are basically formed by sub-regional groups to address specific issues of sub-regions. Facilitations tools will be mobilized for group discussions. (See attached agenda and time table for details)

6. Participants

Two participants from each country will be invited for the workshop, of whom one should be a senior fisheries officer (representing the user of fishery information, e.g. fishery policy makers) and the other should be a technical officer directly involved in fishery data collection (representing the provider of information).

Communication between information users and providers is essential for good data collection/management, in which information providers well understand the requirements of users and information users recognise the limitations of the information to reflect in their decision making. The involvement of these two key stakeholders of fishery information is vital for constructive discussion in the workshop.

Notes

Strategy for improving information on status and trends of capture fisheries (Strategy–STF)³

The Strategy, which was adopted by COFI in 2003, is aimed at providing a practical framework for the improvement of knowledge and understanding of fishery status and trends. It is a document that provides guiding principles for implementation arrangements, and sets forth objectives, policies, programmes, actions and decisions that define who will do what and why.

FishCode-STF project

A global project for improving information on status and trends of fisheries formulated under the umbrella of the FishCode Programme “*Assistance to developing Countries for the Implementation of the Code of Conduct for Responsible Fisheries*”. This project is one of major instruments to implement the Strategy- STF and aimed at addressing the improvement of collection, processing and use of data and information on the status and trends of capture fisheries.

³ FAO, 2003. Strategy for improving Information on Status and Trends of Capture Fisheries, Rome. 34 p

Annex 1: Process of group discussions

| | Group tasks | Remarks |
|--------|---|--|
| Step 1 | Review of policy/management objectives and problems related to coastal fisheries Each group selects most relevant topics (management issues) to respective sub-regions Also identify related fishery(ies) to the topics | <ul style="list-style-type: none">• Problems have been identified by preceding meetings (see annex 2)• Each group select 2 topics each• This is because data collection needs to take it consideration the characteristics of fishery(ies) |
| Step 2 | List management measures/actions required to address selected issues | |
| Step 3 | Define information requirements in planning/ implementing identified management measures | <ul style="list-style-type: none">• Indicators and data variables |
| Step 4 | Evaluate existing data collection systems and identify information gaps/irrelevancies | <ul style="list-style-type: none">• |
| Step 5 | Discuss appropriate approaches for collecting required data and information | <ul style="list-style-type: none">• Different approaches may be necessary for different fisheries |
| Step 6 | Formulated plan of actions to implement data collection Also identify the needs for capacity building (training and field testing of data collection, etc) | <ul style="list-style-type: none">• |

ANNEX 2: Summaries of the outcomes of preceding efforts to improve fishery information in the Pacific region

1. Pacific Islands Regional Workshop on Fishery Statistics in Noumea 2001

1-1) Summary of recommendations made at the workshop

| Constraints | Recommendations |
|--|--|
| (Institutional aspects) | |
| Increasing gaps between national and existing regional and global agencies are noted | A regional forum should be established to ensure statistical co-ordination and co-operation in the region, and to discuss harmonisation and standardisation of approaches and definitions used. |
| | A mechanism in the form of regular (annual) meetings or study tours should be put in place whereby the exchange of experience between countries in all areas of fishery statistics as well as policy, planning and fisheries management is encouraged and supported |
| | National technical staff should be involved in the formulation of priority areas for fishery statistical projects. |
| Weakness in national systems for fishery statistical co-ordination in a broader form | Central governments should consider developing committees or working groups in-country to address fisheries statistical issue. |
| | Areas within government statistics departments and fisheries statistics that overlap each other should be identified to increase efficiency and cut cost due to duplication of effort. |
| Limited resources allocated to support national fisheries data collection systems. | Public awareness campaigns should be considered in order to improve relation between the government sector and fishers and stake holders. |
| Limited national capacity to establish an independent unit that specifically co-ordinates statistical issues for fisheries | Central governments should recognise the importance of fishery statistics and should consider establishment of a fishery statistical unit within the appropriate structure. |
| | Incentives (financial or otherwise) to retain staff , especially qualified staff should be considered in order to maintain the quality of the statistical output. |
| Lack of sufficiently trained staff | Computer as well statistical skills should be improved for fishery statistical staff through short (sub) regional training courses. |
| (Data collection) | |
| Insufficient data on non- targeted species | Catch statistics should be improved to increase coverage for non-targeted species through the observer programmes. |
| Lack of data for the subsistence fisheries sector | External funding (and technical assistance) is needed to assist Pacific Island countries in the collection of data for subsistence fisheries. |
| | Assistance is needed for the design of methodologies for the coverage of subsistence and artisanal fisheries , either in the form of regular sample surveys or the use of household/fisher logbooks. |
| | Involvement of communities in data collection should be encouraged. |
| Incomplete knowledge on statistical coverage at a regional level | A review should be carried out to establish the gaps in statistical coverage and those sectors of the fisheries where existing coverage is insufficient. |

| (Data management) | |
|---|---|
| Outdated hardware and software that hinder data processing and analysis | External funding is needed for upgrading software and hardware within the fishery statistical offices. |
| Badly maintained databases | There is an urgent need for assistance in the upgrading of existing national databases . |

(Reformulated from the meeting report)

2. SPC Regional Policy Meeting on Coastal Fisheries Management in Nadi, March 2003

2-1) Summary of discussions (fishery statistics related topics only)

| Related recommendations | |
|---|--|
| <ul style="list-style-type: none"> • SPC examines ways to assist countries to collect inshore fisheries data and develop a statistical data storage system with special emphasis on national fisheries agencies with small numbers of personnel. (Recommendation 1) • SPC identifies resources to conduct training on statistics and data collection. In addition SPC provide advice on the use of these data for fisheries management. (Recommendation 2) • SPC conducts socio-economic surveys in countries that have MPAs to determine if there are difference between areas with MPAs and areas without MPAs. (Recommendation 3) | |
| Problems identified with regard to coastal fisheries management | |
| <ul style="list-style-type: none"> • Overexploitation of marine species • Inadequate or outdated fisheries regulations • Inadequate enforcement of fisheries regulations • Lack of capacity in the country – eg in stock assessment, data collection • Destructive fishing methods – eg explosives, breaking coral • Overly efficient fishing methods – eg night diving, small mesh nets, SCUBA • Overlap between national/provincial/island responsibilities • Shift from subsistence to commercial fishing • Ciguatera fish poisoning • Illegal fishing by foreign vessels | <p>78%</p> <p>50%</p> <p>50%</p> <p>50%</p> <p>39%</p> <p>22%</p> <p>17%</p> <p>11%</p> <p>11%</p> <p>6%</p> |
| Issues/points relating to Fishery statistics | |
| <ul style="list-style-type: none"> • A point was raised regarding the impracticality of running large-scale data collection surveys on smaller islands with staffing constraints. There is a need for a tool box of methods for both small and large islands. • There was a need for training in data collection at all levels and the possibility of developing a simple, region-wide method of surveying subsistence fisheries and a database system to store information was required. There was also a need for awareness materials to be developed by SPC for the use of all countries. | |
| Findings from post-workshop field survey | |
| <ul style="list-style-type: none"> • Demand for a simple method of collecting fisheries data (using household surveys) from fishing communities is widespread. Where data are collected from different community fishing areas with similar ecological characteristics it may be possible to apply a surplus yield model (over area rather than time) to estimate the average sustainable catch and to indicate villages in which resources are presently under pressure (King 1995). The provision of short-term training using a step-by-step manual | |

including a purpose-built database on a compact disc has been suggested.

2-2) Training and assistance requested by participants. Numbers represent each country's rating of importance (1 = high priority)

| SERVICES TO BE PROVIDED | COUNTRIES | | | | | | | | | | | | | | | | |
|------------------------------------|-----------|----------|----------|------|----------|-------------|----------|----------|----------|----------|----------|----------|------------|----------|----------|----------|----------|
| | Am. Samoa | Cook | FSM | Fiji | Kiribati | Marsahll Is | Nauru | Niue | CNMI | Palau | PNG | Samoa | Solomon Is | Tokelau | Tonga | Tuvalu | Vanuatu |
| Legislation | 3 | 6 | 1 | 6 | 5 | 4 | 5 | 6 | 2 | 3 | | 2 | 6 | 6 | 7 | 6 | 5 |
| Stock Assessment | 6 | 3 | 4 | 4 | 3 | 2 | 6 | 5 | 1 | 2 | 1 | 3 | 4 | 4 | 4 | 1 | 4 |
| Minimum size limits | | 7 | 7 | 5 | 4 | | 7 | 7 | 3 | 1 | | 4 | 5 | | 6 | 8 | 7 |
| Coastal Fisheries Management plans | 2 | 4 | 2 | 1 | 6 | | 4 | 2 | 4 | 4 | | 6 | 3 | 7 | 3 | 4 | 6 |
| Statistics | 4 | 1 | 3 | | 1 | 1 | 2 | 1 | 7 | 5 | 4 | 1 | 7 | 2 | 2 | 2 | 2 |
| CBFMP | 1 | 5 | 6 | 7 | 7 | | 3 | 3 | 6 | 6 | 3 | 5 | 2 | 1 | 5 | 3 | 1 |
| Training | 5 | 3 | 5 | 2 | 2 | 3 | 1 | 4 | 5 | 7 | | 3 | 1 | 5 | 1 | 5 | 3 |

(Table 5 in the meeting report)

2-3) Progress of recommendations from the policy management meeting as of September 2004

| Recommendations | Progress of recommendation |
|---|--|
| 1. It is recommended that SPC examine ways to assist countries in collecting inshore fisheries data and developing a statistical data storage system with special emphasis on national fisheries agencies with small numbers of personnel | The Reef Fish Observatory has developed a simple manual in consultation with other regional organization and the manual is in now draft form. This manual is to assist island countries in the collection of their fish catches. |
| 2. It is recommended that SPC identify resources to conduct training on statistics and data collection. In addition it is recommended that SPC provide advice on the use of these data for fisheries management. | SPC had already made arrangement with FAO to host a fisheries statistics training in November 2004 Nadi. The use of the manual will be introduced to the countries. |
| 3. It is recommended that SPC conduct socioeconomic surveys in countries that have MPAs, to determine if there are differences between areas with MPAs and areas without MPAs | Consultation with countries that have MPAs set under the SPC community-based Fisheries programs are forthcoming. This work is intended to start mid 2005 if not earlier. |

3. Strategic plan for fisheries management and sustainable coastal fisheries in Pacific islands

3-1) Goals (relevant items only)

| | |
|---|---|
| Goal 2: To assist fisheries agency staff in their efforts to collect, store, retrieve and analyse basic fisheries data and/or indicators to monitor the status of fish stocks. | |
| 2a) | Provision of a manual, database and training for the collection and storing of fisheries data from subsistence fisheries. The assistance would include the preparation and provision of a step-by-step manual and a simple database on compact disc. Workshops based on using the manual and the database could be conducted at a central location for staff of fisheries agencies. An in-country visit by an adviser would be necessary for an initial trial run in each requesting country. |
| 2b) | Provision of short courses on the use of basic fisheries data in assessing the status of fish stocks. Several fisheries agencies are presently collecting catch and effort data and require training in their use. Others plan to collect data from subsistence fisheries (see 2a) and require similar training. Workshops of 2 weeks duration (using sample data) could be conducted at a central location for relevant staff of fisheries agencies. |
| Goal 5: To assist countries in raising public awareness of the need for conservation, fisheries management and fisheries regulations. | |
| 5c) | Provision of assistance in conducting socio-economic assessments of subsistence fisheries in requesting countries. Such assessments are believed necessary in order to raise government awareness of the direct and indirect value of subsistence fisheries and the work done by fisheries managers in this regard. Assessments should include estimates of catch value (based on market prices), import substitution value (in reducing the need to import low quality protein) and health care value (in reducing the long-term health costs of treating diet-related diseases such as diabetes and heart disease). |
| Goal 6: To assist countries to site, survey and monitor marine protected areas and to assist with an ecosystems approach to fisheries | |
| 6a) | Provision of assistance to countries by providing training in methods used to assess the suitability of sites for MPAs and to monitor MPAs. Requirements vary from country to country but assistance could include conducting UVCs in requesting countries. |
| 6b) | Provision of assistance to conduct socio-economic surveys to determine the benefits of MPAs in requesting countries. This assistance would require in-country work in requesting countries. |

3-2) Training and assistance required by Pacific island countries.

SC = Short course/workshop; ICA = In-country assistance and training;
 MAN = Manual or booklet to be developed and distributed

| Training/assistance required | Type | Requesting countries/territories |
|--|--------------|--|
| <i>Assistance/training related to Goal 2 – fisheries data.</i> | | |
| Household surveys of subsistence fisheries using a basic and standard methodology and database | MAN, SC, ICA | Recommendation 1 from Nadi meeting A.Samoa; Cooks; Fiji; FSM; Kiribati; Marshalls; Nauru; New Caledonia; Niue; Palau; Samoa; Solomons; Tonga; Tuvalu; Vanuatu; Wallis & Futuna |
| Fisheries management for experienced staff Assessment of status of fish stocks Use of statistics/indicators in assessment | MAN; SC; | Recommendation 2 from Nadi meeting Cooks; FSM; Fiji, Kiribati; Marshalls; Niue; New Caledonia; Marianas, Palau; PNG; Samoa; Solomons; Tokelau; Tonga; Tuvalu; Vanuatu; Wallis & Futuna |

| | | |
|---|------------|--|
| Assistance/training related to Goal 5 – public awareness. | | |
| Socio-economic surveys to determine the value of subsistence fisheries (for government awareness raising) | ICA | Fiji, American Samoa, Tuvalu, Solomons; Niue |
| Assistance/training related to Goal 6 – MPAs and ecosystems. | | |
| Training in siting, surveying and monitoring of MPAs (inc. UVC methods) | SC; ICA | Nauru; Niue; Tuvalu ; Samoa |
| Socio-economic surveys to determine the benefits of MPAs. | ICA | Recommendation 3 from Nadi meeting |

3-3) Progress of goals and strategies under the strategic plan for fisheries management and sustainable coastal fisheries in the Pacific islands as of September 2004

| Goals and Strategies | Progress |
|--|--|
| Goal 2: To assist fisheries agency staff in their efforts to collect, store..... | |
| 2a) Collection and storing of subsistence fisheries data | The Reef Fisheries Observatory is collaborating with Fisheries Management Section on the development of data base for subsistence. |
| 2b) Using fisheries data in stock assessments. | SPC in consultation with other regional organisations is developing a simple manual to help countries collect and analyse their fish catches. The manual is in draft form. |
| Goal 5: To assist countries in raising public awareness of the need for fisheries management... | |
| 5c) Socio-economic assessments of subsistence fisheries. | The Fisheries Management Officer had carried out some socio-economic survey in Vanuatu. |
| Goal 6: To assist countries to site, survey and monitor marine protected areas and ... | |
| 6a) Siting and monitoring MPAs – UVC training. | Still seeking funds to implement this. |
| 6b) Socio-economic surveys on benefits of MPAs. | Same as in 6a. |

4. SPC/FAO Training Workshop in Fisheries Management and Statistics in Nadi, November 2004

| Issues/points relating to Fishery statistics |
|--|
| <p><u>Involvement of fishers/fishers groups</u></p> <ul style="list-style-type: none"> Guam has introduced local fisheries management practices that involve volunteers for data collection. Comments from local fisherman are also utilised. Additionally an awareness programme about the data collection program has been implemented. MPAs based on different ecosystems have been set up and villagers have commented favourably on the improvement in biodiversity, fish abundance and sizes. <p><u>Aquarium trade</u></p> <ul style="list-style-type: none"> Regarding an aquarium fish programme, data is easiest to obtain from the export agency, which has a license and is required to keep records of species composition and catch amount. The effort data would have to be collected at the village collection level. Fiji mentioned that there were aquarium dealers that have particular forms to fill and have to adhere to CITES requirements. The collection is regulated by having particular sites fished at different times. Vanuatu said that it had a growing |

aquarium trade since two years ago. Because of its small size, the industry was thought not to have a huge impact until the Fisheries Department started receiving complaints last year.

Fishery surveys in Marshals

- The leaders (traditional leaders, council members) selected fishers to represent the communities and encouraged them to return their completed questionnaire; they know the local fishers and their fishing activities and know if the information given in the questionnaire is correct.
- Some concerns were expressed on representation of villages in terms of five fishers per village as this did not reflect the size of the village. Fiji said that its islands are scattered and it is very difficult to collect data from these places. To overcome this problem, the Fisheries Division has set up a rural fisheries service centre where fish are bought and catch data are recorded at the same time.

Money incentives

- Money incentives were given by the SPREP's International Waters Project in Niue for a similar purpose and some problems were created. Samoa had a similar experience with payments. Initially, a village refused to participate in the community-based management programme unless there were monetary and other benefits to the village. However, they later wanted to participate after observing the success of the programme in other villages. PNG said that monetary incentives can create bias in data collection and might actually result in an increase in fishing effort.

Fishery Surveys in Samoa

- The Village Fishery Survey was carried out in 2000 on value and consumption of fishery products under the AusAID Fisheries Project. Artisanal and commercial inshore data were collected under the survey which covered 20% of all Samoan villages (8,377 fishing households, 11,700 fishers).
- The Fisher Creel Census funded by AusAID was conducted in 2002/2003. Data were obtained by interviews, observations of daily fishing activities and monitoring catch landing. In the survey, 877 fishers from 112 villages were interviewed (40% Savaii, 60% Upolu).
- There is a feedback mechanism established in Samoa in which information is provided to the communities at annual meetings and 6-monthly reviews with communities.

Resource Assessment and Monitoring

- "What should indicators indicate?" is a question that needs to be addressed before monitoring is undertaken. Indicators may relate to ecological health and change. The socio-economic importance of species must be also considered.
- Survey methods include Rapid Assessment Protocol, Rapid Appraisal Techniques, Coral Reef Assessment and Monitoring Program, Reef Check, Global Reef Monitoring Network and SPC Protocol. Community-based monitoring methodologies include PRA/RRA, PART (Participatory Aquatic Resource Techniques) and REA (Rapid Ecological Assessment Techniques).

Community-based management

- Feed back of the information to the communities can be achieved by involving communities in planning, development, fieldwork, analysis and monitoring of the resources.
- It was asked whether problems identified by villages are confirmed by scientific surveys. And how long does it take between initial contact and returning the management plan to the village. Are the same people involved in surveying and reporting to the communities? In Fiji, they are experiencing delays in reporting due to constraints.
- In Samoa fishing communities made their own judgements but scientific advice was provided by fisheries staff. The process is a long one and the time between initial contact and returning the management plan to the village is about 13 weeks. There is a difference between the methodologies used in Fiji and in Samoa. In Samoa, a management plan is prepared by the community. In Fiji, FLAMMA works and implements plans and surveys as they go along. Both are good ways.

(Other points)

- There is little biological data to implement some management measures, such as placing size limits on species. Biological assessments of reef fish are needed. - Size limits can be based on other sources of information for the species, including details on the same species from overseas countries in similar latitudes.
- Guidelines on socio-economic studies and surveys on fisheries are needed.
- Guam agreed that fisheries officers involved in data collection should not be involved in enforcement as it would affect people's attitude and willingness to provide information. Other sectors, such as tourism, also rely on fisheries.
- Guam noted the impact of technology. The use of fish finders, for example, has allowed boats to fish more effectively causing CPUE to appear to remain stable even though there is overfishing. It was questioned how to deal with such an impact in managing fisheries. Such technology creep is a problem in many fisheries; there is a method of applying correction factors to adjust data values.
- Fiji suggested that accurate information on breeding seasons for commercially important species would assist managers in making the right management decisions.
- Marshall Islands asked whether any information is available on size limits on collection of shells (e.g. Cowrie is an important resource that women use in making handicrafts). PNG said that stock assessment is also very important in community-based management – if there is any indication of catch rates reducing, there is a need for management.

PROCFish socio-economic manual

The manual for socio-economic surveys of subsistence and small scale artisanal fisheries in the South Pacific represents the concerted efforts of experts from SPC's Reef Fisheries Observatory and SPREP's International Water Programme. A survey of Fisheries Authorities in the region was conducted that produced 8 major questions common to all fisheries authorities. The socio-economic survey was designed to provide answers to all of these 8 questions in the shortest and most efficient way. Experiences gained and research undertaken in the framework of previous projects were used to select best approaches and methods to date.

The software package that is currently being developed by PROCFish/C was mentioned as a useful tool to help countries with data entry and analysis. It is planned to make available this software package on-line. The joint database and analysis was highlighted as one of the major advantages in developing such regional tools for survey collection and analysis as this would not be possible at the country level due to financial, human resource and time restrictions. Similar to the manual, the software needs to be seen as a guideline in terms of providing outputs as described in the manual and in response to the 8 major questions posed by the regional Fisheries authorities. However, data entered will also be made available in an Excel spreadsheet so that each fisheries service can explore and process data as desired.

This manual is to be understood as a guideline that provides the minimum data set pertinent to answer the 8 major questions mentioned above. Such a tool needs to take into account the variations between capacities, needs and requirements of all the PICs. It may therefore be necessary to tailor the survey to meet exactly the needs of questions to meet their particular needs.

Examples for local or country specific surveys were provided. For example, surveys on the live reef fish trade, mud crabs survey in New Caledonia), and several surveys that are ongoing in Guam in both inshore and offshore fisheries including the impact of by-catch dumping.

Major questionnaire sheets of the socio-economic manual include household survey, fin fisheries and invertebrate fisheries surveys components. Additional information that is needed is to be collected using the key informant and general information data sheets was discussed. It was again highlighted that the information can be collected in the framework of a wide range of approaches, including snapshot to long-term monitoring surveys. Survey results can also be used to compare communities, regions or countries as to detect communalities and differences. Each country needs to

decide the interval at which it wants to perform a survey if the objective is that of a regularly updated census. Usually, intervals of five years are viable and appropriate. Socio-economic surveys can also be complemented with creel surveys if desired. The Samoan example also served to demonstrate that national capacities may be fully utilized during the preparation, implementation and analysis of such a national survey and that this human resource and other requirements needs to be taken into account.

PROCFish suggests to use survey sampling methods which are currently used and established in any of the countries concerned. The sample size of any such survey depends on the scale at which the survey is to be conducted, for instance at the village level only, or comprising a greater region or even at the national level.

PROCFish introduced a sample household survey for discussion, i.e. an easy to use table that is included in the manual and that helps identifying sample size of any survey scale. This table is promoted by comparative manuals developed for instance by SocMon, WorldFish etc..

Solomon Islands asked if the survey determined whether all the boats owned by a family were actually used for fishing. Also, there are difficulties in verifying that people are giving correct answers and not trying to please you. It was explained that answers prompted by the survey format will bring forward direct links between fishers and boats, i.e. fishing that is supported by the use of boats, and those that are not. Data reliability and accuracy always depends on the skills and communication between the surveyor and the interviewee.

Samoa stressed why the manual did not include any questions on remittances. Niue and Tuvalu commented on the questions regarding the giving of fish and believed that the focus should be on who gives rather than who receives. Guam was concerned that the number of fishers by time, proportion of fishers, type of fishers, frequency were not taken into account in the questionnaire. Also, the age limit of 15 year olds for fishers appeared too old. Samoa suggested that tilapia could be included in the category of fresh fish in the questionnaire. Wallis and Futuna also suggested the inclusion of crabs and other species (e.g. coconut crabs) in the list.

Tonga queried the relationship between fishing effort and consumption patterns. Samoa commented that the questions HH9 and HH10 needed to be quantified. Regarding the HH4, Fiji and Tuvalu suggested that other equipment should be included in the questions (e.g. hiring, cost-sharing).

Samoa suggested that the finfish survey questionnaire should include the costs of fuel used. French Polynesia also requested that the horse power of the boats used should be included. Vanuatu said that log sheets in the countries could provide additional important information such as fuel. Nauru asked if inland waters could be included in the questionnaire. Vanuatu suggested that boat specifications data should be included.

Regarding the invertebrate component, Wallis and Futuna said that some invertebrates were targeted mainly for commercial purpose (e.g. beche-de-mer, pearl, trochus, lobster) and that this should be specified in the questionnaire.

The manual aims at providing the minimum data set needed to answer the most important questions that have been voiced by the regional fisheries authorities. Any information though that is considered necessary can easily be included, i.e. the manual promotes a survey format that is a basic guideline and open for additions.

The indicators or proxies identified in the project could be useful for local and national reef fishery management. Tool kits are being developed for this purpose. It is also intended to increase the capacity of the region in survey methodology.

PROCFish project which integrates ecological and socio-economic aspects of marine resources is

the first attempt to have a regional approach to monitor trends in the region. Data collection this far has targeted the development and use of standardised methods with a multi-disciplinary approach. A large database is now available and the current focus is to have this information finalised and reported back to the countries. The project is trying to work on data sets that could be a benchmark for the region.

Training and capacity building are a major component of the project activities and has thus far included a number of six-month field attachments. However, the first field activities were conducted in Fiji and Tonga without any field attachments. It has been a difficult task to collect information from all the sites. The constraints faced have included the remoteness, isolation and spatial spread of sites as well as the sheer volume of work.

5. SPC/WPRFMC/FAO Workshop on Fisheries Legislation and Community-based Fisheries Management in Honolulu, April 2005

5-1) Fishery statistics related issues/points (taken and summarized from the meeting report)

| Formal recommendations |
|---|
| <ol style="list-style-type: none"> 1) Training on the use of the SPC socio-economic manual be conducted at the earliest opportunity. 2) Training to enable countries to develop their own fisheries management plans should be conducted as soon as possible. 3) The management of “live food fish” fisheries was discussed as a major problem in some countries. The destructive nature of fishing on spawning aggregations was a concern to many. It was recommended that a regional approach be taken in resolving the problems faced by countries in the management of their live food fish industries. 4) Due to the differences in cultures, customs and traditions in countries of Micronesia, Melanesia and Polynesia, it was recommended that workshops should be sub-regional in order to resolve difficulties encountered in the development of community-based fisheries management. |
| Issues/points relating to Fishery statistics |
| <p>(Approaches for data collection)</p> <ul style="list-style-type: none"> • There are the need to have systems in place to record catch and effort data and the need to have different data collection methods for the various areas. • The introduction of licenses for inshore fisheries to fill some of the gaps in the data would face the opposition by local people as such scheme requires the people to obtain a license to do what they had always done. • A voluntary logbook system (whenever fishers sell fish they fill in the log book) is in place in Saipan. In Hawaii, a commercial selling license is required to sell fish and with voluntary reporting there is at least a check of those with licenses and selling. • Samoa is conducting a subsistence fisheries survey every three years. For the tuna long line fishery, log books are used. • PNG has commercial log book data and other forms of data monitoring and collection, eg buyer’s license, and this is entered into a database. Recording of the numbers of fishers, boats, etc is a difficult task because of the size of the country. It is not easy to collect this type of information. <p>(Technical issues)</p> <ul style="list-style-type: none"> • Data collection is very difficult especially in setting up collection systems as most systems are basically designed for commercial fisheries. The question is how to address these issues within our own localities. It is always difficult for the government to work in areas that are traditionally |

owned. This can be facilitated through the process of community-based management, which is the challenge in this case.

- Samoa mentioned the problem faced when they set up market surveys and people started using other avenues for selling their fish.
- Palau said that one problem is that filleted fish cannot be measured. An additional problem was that undersize seafood species, such as mud crab, are imported and regulations are not applied in this case.
- If communities do their own data collection, verification programmes have to be run at intervals.

(General points)

- People need to really take data collection and analysis seriously as this is the basis for a starting point in fisheries management. To convince politicians and those in management positions, there is a need to have reliable and accurate data. However, in the case of subsistence fishing, data is difficult to get and management decisions may have to be made on anecdotal information, especially when there is an urgent need to take management actions to address problems with depleted stocks.
- It is important to know what the decision making process is, and where the data can be used before discussing data collection.