

9. Development of a Regional Strategic Plan for Fisheries Management and Sustainable Coastal Fisheries in Pacific Island Countries

Michael King, Ueta Fa'asili, Semisi Fakahau, and Aliti Vunisea

During the period April 2002 to August 2003 the Commonwealth Secretariat collaborated with the Secretariat of the Pacific Community (SPC), the lead regional organisation on coastal fisheries management and development in the South Pacific, to work with fisheries agencies and other stakeholders to develop a Strategic Plan for the sustainable management and development of coastal fisheries in Pacific island countries (PICs).

The methodology included obtaining pre-meeting information on key problems in coastal fisheries management through questionnaires. The results were presented and discussed at the SPC Regional Policy Meeting on Coastal Fisheries Management held in Nadi, Fiji, from 17 to 21 March, 2003. The purpose of the Nadi meeting was to provide a forum for country representatives to address common problems in coastal fisheries and suggest how the SPC Coastal Fisheries Programme and other agencies could assist countries to take remedial actions. Of the 22 SPC member countries and territories, 17 were represented at the meeting. Participants and resource people shared experiences and used problem-solution tree techniques to suggest actions that could solve the problems identified.

A subsequent field study in selected PICs was conducted during May and June 2003 to assist fisheries agencies to review their needs and their capacity to address the problems in fisheries management identified at the Nadi meeting. The field study was restricted to thirteen countries and other member countries were contacted by fax or email and invited to supply similar information.

During the field study, advisers were mindful to make the distinction between needs and wants; care was taken to relate stated needs to those activities required to address the most pressing problems in managing fisheries resources and protecting marine habitats.

In June 2003, the advisers used the outcomes of the Nadi meeting and the field study to compile the first draft Strategic Plan and submit it to the SPC management. The management then tabled it at the SPC Heads of Fisheries (HOF) Meeting held at its headquarter in Noumea, New Caledonia on 18–22 August, 2003. The HOF endorsed the Strategic Plan and it became the key fisheries management component of the SPC Coastal Fisheries Programme Strategic Plan 2003–05. This represents a significant step forward in the management and development of fisheries in the South Pacific region, as the Strategic Plan becomes the very first formal regional expression of there being a mechanism to promote the greater harmonisation of national policy regarding the management of coastal fisheries in PICs.

Like most developing fisheries situations in the Commonwealth, PICs coastal fisheries are managed and developed for two main purposes: export and domestic consumption.

PICs export a small number of products aimed to very specific markets. They include: sea-cucumber (beche-de-mer); trochus shell; mother-of-pearl shells; black pearl; red

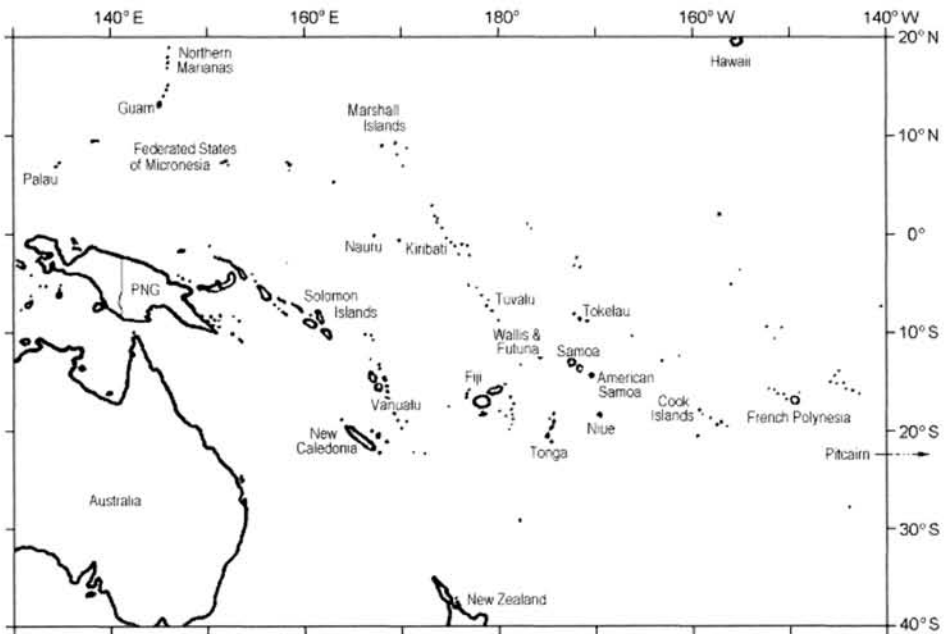


Figure 9.1. The Pacific island region showing the 22 member countries of SPC. Australia, New Zealand and Hawaii are included for geographic reference.

snapper (deep-slope eteline snapper); giant clam; and live aquarium fish and fish for caged fish farming. There is no accurate information available on the volumes being extracted, but Table 9.1 provides an estimate of current exports of major coastal products from PICs.

Fishers' catches are sold to middlemen or exporters either processed or fresh, depending on the type of product. For example, sea-cucumber (beche-de-mer) is sold and exported in dried form, deep-slope red snapper is exported chilled, and aquarium fish are exported live. Shells of mother-of-pearl collected from the wild and cultivated wild stocks (*Trochus niloticus*, *Pinctada margaritifera*, *Turbo marmoratus*, in decreasing order of volume) are exported for natural shirt buttons and traditional furniture inlays. Only a few PICs have so far been successful in producing black pearl on a commercial basis for export. Again, only a few PICs catch and chill red snapper and other species prior to export. The supply of live fish for aquarium and caged fish farming is becoming important to an increasing number of PICs.

Increasingly, PICs are concerned about the sustainability of these fisheries. Some organisms (such as trochus, smaller aquarium fish, and shallow-water holothurian species) are resilient enough to adapt to the seasonal fishing practices. However, other species (such as grouper, giant clam, green snail and pearl oyster) are often fished far beyond their capability for short-term recovery. PICs also acknowledge that reef fishery resources are vulnerable to overfishing and cannot be sustainable if subjected to uncontrolled foreign investment and pressure from the cash economy.

In most, if not all, PICs, the total weight of seafood caught in subsistence, or village, fisheries is greater than that from commercial fisheries. And when a nominal value per kilogram is put on the subsistence catch, it is found to be of greater value than commercial catches. This is particularly so if one considers the net profits from commercial fisheries, many of which rely on imported boats, equipment, and even bait. Subsistence fisheries on the other hand, are labour-intensive but generally low in other

Table 9.1. Current annual exports of major coastal fisheries products from Pacific island countries (data from SPC)

<i>Commodity</i>	<i>Amount</i>
Sea-cucumber	1,500 tonnes (dried, equivalent to 15,000 tonnes live weight)
Trochus shell	2,000 tonnes of shell
Mother-of-pearl shell	400 tonnes (mainly spent farmed shell)
Black pearls	US\$100 million value
Eteline snapper (mainly Tonga)	300 tonnes
Giant clam (mainly Fiji)	20 tonnes of adductor muscle
Live serranids (i.e. live fish for aquariums and caged fish farming)	Unknown

fishing costs. In addition, the catches from coastal areas result in health benefits and cost savings beyond their intrinsic value.

Traditionally, seafood has been the most important source of protein in PICs, and this is particularly so in low-lying islands and coral atolls where soils are too poor to support agriculture. In some atolls the per capita seafood consumption is as high as 180kg, compared with the world average of about 12 kg per/capita (see Table 9.2). Even in high islands where agriculture is well developed, seafood consumption often approaches 50kg per person per year.

It is estimated that about 80 per cent of the coastal fishery production of around 100,000 tonnes annually (excluding the export commodity production described above) do not enter the cash economy.

Because of the small size of the islands, almost all Pacific islanders live within the coastal zone. In rural areas, virtually every person fishes and women do most of the shoreline fishing and reef-gleaning. A great variety of marine organisms are consumed. In Fiji, for example, over 100 species of finfish and 50 species of invertebrates are consumed locally. Although there is an increasing concern about the apparent over-fishing of certain fish and shellfish stocks around national capitals, the marine food base of most PICs appears to be currently secure. Nearly all PICs have the sustainable resource capacity to feed their populations, even at the present high rates of consumption. The domestic coastal fisheries production in Table 9.3 is estimated from data from a wide range of sources with a wide range of reliability.

However, in many PICs densely populated towns' catches of the most accessible seafood - the fish, seaweed and shellfish of the lagoons and reefs - have been declining in

Table 9.2. Per capita fish consumption (1990s), present population (2003) and the total fish requirement at 1990s consumption levels

Country	Per/capita intake (1990s)	Population (2003)	Fish requirement* (Mt)
Cook Islands	68	18,400	1,250
Kiribati	182	90,000	16,380
Marshall Islands	61	63,000	3,843
Nauru	50	11,200	560
Niue	62	2,500	155
Palau	108	18,500	1,998
Tonga	35	100,000	3,500
Vanuatu	27	170,000	4590
Samoa	32	170,000	5,440

Source: Gillet et al (2001)

*Total fish requirement based on the level of per capita consumption in the 90s.

Table 9.3. Domestic coastal fisheries production (data from SPC)

Country or territory	Production		
	Commercial	Subsistence	Total
American Samoa	52	215	267
Cook Islands	124	858	982
Federated States of Micronesia	637	6,243	6,880
Fiji	6,653	16,600	23,253
French Polynesia	2,352	3,691	6,043
Guam	118	472	591
Hawaii	10,206	2,000	12,206
Kiribati	3,240	9,084	12,324
Marshall Islands	369	2,000	2,369
Nauru	279	98	376
New Caledonia	981	2,500	3,481
Niue	12	103	115
Northern Marianas	141	2,825	2,966
Palau	736	750	1,486
Papua New Guinea	4,966	20,588	25,554
Pitcairn	0	8	8
Solomon Islands	1,150	10,000	11,150
Tokelau	0	191	191
Tonga	1,429	933	2,362
Tuvalu	120	807	927
Vanuatu	467	2,045	2,512
Wallis & Futuna	296	621	917
Western Samoa	208	3,281	3,489
Total	34,534	85,914	120,448

some island countries over many years. Reductions in the availability of seafood from inshore areas and changes of lifestyle have created a greater reliance on unhealthy diets (consisting mainly of imported low-quality protein food) that are contributing to the high incidence of heart disease, diabetes and other diet-related diseases in PICs. Growth in population sizes (approaching 4 per cent per year in some islands) is continuing to place pressure on coastal ecosystems and their resources. And as demand for seafood species increase, the ability of the marine environment to sustain them is likely to decrease. The coast is in increasing demand for housing and development. And the sea that supports coastal ecosystems is being polluted by silt and by chemicals and waste from towns, forestry, agriculture, and industry.

Concern over such problems by member countries and territories at the second SPC Head of Fisheries meeting in July 2001 prompted a recommendation for a broadly based regional consultation on fisheries management. In response, SPC and the Commonwealth Secretariat undertook to arrange for a participatory examination of issues and concerns in relation to coastal fisheries management in PICs.

Lifestyle changes and the requirements of a growing cash economy in PICs will continue to result in further shifts from subsistence to commercial fishing. Fisheries managers in PICs have to address the implications of this, not only in terms of development and income generation, but in terms of sustainability and food security. This Strategic Plan will help develop the capacity of island governments, and the region as a whole, to achieve both the Millennium Development Goals (MDGs) on poverty reduction and the outcomes of the 2002 Johannesburg World Summit on Sustainable Development (WSSD, 2002). The relevant ones are:

- Implement strategies for sustainable development by 2005
- Reverse the loss of environmental resources by 2015
- Maintain or restore fisheries stocks on an urgent basis and where possible by 2015

The impact of globalisation on socio-economic development and the sustainable use of fisheries resources in the region emphasises the use of international instruments under both the United Nations Convention on the Law of the Sea (UNCLOS, 1982) and the United Nations Conference on Environment and Development (UNCED, 1992). In particular, Chapter 17, Agenda 21 of UNCED provides a basis for national policies and strategies on the sustainable development and management of coastal fisheries.

The outcomes of the policy meeting and field study identified the following key fisheries management problems and possible solutions:

1. The reduction in catches of inshore marine species was of most concern. Catches of the most accessible seafood – the fish, seaweed and shellfish of the lagoons and reefs – have been declining in some island countries for many years. In Guam, for example, catch rates have decreased by 70 per cent during the past 15 years.
2. The main reasons for the decline in inshore catches include overexploitation; a shift from subsistence to commercial fishing; the use of overly efficient and destructive fishing methods; and environmental degradation. Growth in human populations (approaching 4 per cent per year in some islands) is placing increasing pressures on coastal ecosystems and their resources. In response to the declining stocks of inshore species, fisheries agencies need to change their focus from development to conservation in order to allow fish stocks to recover. Whereas in the past the emphasis has been on making exploitation more efficient (e.g. by encouraging the use of modern boats and fishing gear), at present the emphasis is on reducing fishing mortality (e.g. by controlling fishing effort and by restricting the use of certain fishing gear).

3. There is a need to control the use of overly efficient gear – gill nets in lagoons, underwater torches to spear fish sheltering on reefs at night, and scuba gear to spear fish and lobsters are all examples of bad practice. The use of destructive fishing methods, including the use of explosives and poisons, needs to be eradicated.
4. Local fisheries agencies need sufficient resources and expertise to assess and manage coastal fisheries.
5. Fisheries agencies' staff need training as well as attachments to regional organisations and to the national programmes of other countries in order to enhance their expertise. In particular, skills are required to assess the status of fish stocks and to collect catch and effort data from subsistence fisheries. There is a widespread need for a simple method (using household surveys) of collecting fisheries data, including sociological information, from fishing communities.
6. PICs' fisheries regulations are in need of review in order to improve their effectiveness in terms of restricting both fishing (input controls) and the catch (output controls), and protecting the marine environment.
7. The involvement of stakeholders is increasingly regarded as essential. Some fisheries agencies are promoting community-based fisheries management (CBFM), often with SPC assistance, and many others have expressed interest in receiving help to do so. Gender issues in this respect are regarded as particularly important and efforts are being made to involve women and untitled men in management decisions ('untitled' meaning men without chief status in societies where all decisions are made by chiefs).
8. Currently, public support for the aims of fisheries management and the necessity of fisheries regulations is weak. The situation is serious and calls for training and other assistance in the production of publicity material, including the preparation of media releases and information sheets to increase public awareness.
9. The degradation of fish habitats including coral reefs, lagoons and wetlands and the decline of inshore fish stocks requires a broader ecosystem approach to fisheries (EAF) to replace the narrower target-species approach to fisheries management. In some PICs, the problems of achieving EAF are exacerbated by the lack of coordination between the two separate government authorities responsible for fisheries and the marine environment. PICs should be encouraged to establish marine protected areas (MPAs) to provide refuges in which invertebrate and fish stocks can grow and reproduce without interference. Although the number of MPAs, both nationally and community-owned, is growing, throughout the region some countries are encountering problems in establishing workable MPAs. Both attachments to countries with successful MPAs and training is required.

The Strategic Plan consists of six main goals and strategies that represent its main objectives and encapsulate both the recommendations from the Nadi meeting and

from the needs expressed by fisheries agencies during the subsequent field visits, and the overall objectives.

Goal 1: To enhance the capacity of fisheries agency staff to manage sustainable fisheries.

Proposed strategies to achieve the above goal are:

- 1.1 Provision of in-country assistance to review or develop an organisational structure and an HRD plan for requesting fisheries agencies. The assistance could vary from three to six weeks in-country depending on requirements. At the top end of requirements, assistance would include working with fisheries staff and stakeholders to develop a mission statement, goals, activities, outputs and an annual work plan for the agency. A review of staff and training needs should be included. At the low end of requirements, assistance would involve a participatory review of the existing organisational structure and functions.
- 1.2 Provision of support for attachments of individuals from fisheries agencies to relevant SPC programmes and to successful national programmes of other countries for the purposes of training and capacity building. Individuals will be attached to an experienced mentor and required to translate reports, working documents and publicity material into his or her national language.
- 1.3 Provision of short courses in the preparation of fisheries management plans. Each two to three-week course could be run either at SPC or another central location. The course would take into account the need for a broader ecosystem approach to fisheries (EAF) to replace the narrower target-species approach to fisheries management. The course could also address alternative and innovative ways of applying fisheries controls (see discussion in Section 3.3 and Strategy 3c).
- 1.4 Provision of short courses on *practical* fisheries management issues for staff of fisheries agencies in Pacific island countries. Each course would be suitable for new recruits to fisheries agencies and as refresher training for more experienced staff. Each course, of perhaps two to three weeks, could be run either at SPC or another central location for up to 12 participants per course.
- 1.5 Provision of short courses on the preparation of proposals for funding, designing projects, report writing, and the preparation of papers for publication. Each two-week course could be run either at SPC or another central location for up to 15 participants per course. Follow-up activities (written assignments, etc.) could be conducted by email via a trainer/tutor based at SPC.

Other strategies relating to capacity-building are included under other goals.

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.

Proposed strategies to achieve the above goal are:

- 2.1 Provision of a manual, database and training for the collection and storage 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.
- 2.2 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. Two-week workshops (using sample data) could be conducted at a central location for relevant staff of fisheries agencies.

Goal 3: To assist countries to review, update and/or develop practical and enforceable fisheries regulations.

Proposed strategies to achieve the above goal are:

- 3.1 Provision of legal expertise to assist island countries in drafting or reviewing legislation related to coastal fisheries. The assistance could be related to both national fisheries regulations and community by-laws. An in-country visit by a legal adviser and a fisheries management adviser is required; the latter to advise on the practicality and enforceability of proposed laws.
- 3.2 Provision of recommendations on size limits for important species on a regional basis to assist countries in the preparation of fisheries regulations. This assistance could be in the form of a booklet containing recommended size limits from studies in the Pacific and elsewhere. Ideally, differences in growth and in attaining reproductive age in different latitudes and environments would have to be considered.
- 3.3 Provision of a workshop on the application and enforcement of fisheries regulations.

The one-week course could be run at a central location and address alternative and innovative ways of applying fisheries controls. As an alternative, this workshop could be attached to other workshops - e.g. on the preparation of management plans.

Goal 4: To assist countries to involve fishers and other stakeholders in fisheries management and to assist with the development of property-use rights.

Proposed strategies to achieve the above goal are:

- 4.1 Provision of training and continuing assistance to enable fisheries agencies to establish community-based fisheries management (CBFM). Training in community motivation techniques and facilitation may be conducted in a central location for nominated participants from several countries. Both women and men will participate, as gender-sensitive approaches will be used when working in communities.

Each requesting country will require several visits of an adviser. An initial visit is needed to assess existing laws, policies, and the agency, as well as to design a culturally acceptable process for a national CBFM programme. A second visit is required to conduct a 'train the trainer' exercise for fisheries agency staff. A third visit (and subsequent visits) will be needed to review progress and help solve any problems that are encountered.

- 4.2 Provision of assistance in developing community by-laws to be used as tools for fisheries management. An in-country assignment of one to two weeks in each requesting country would be required to review existing laws and to recommend requirements.
- 4.3 Provision of assistance with the formation of fisheries management advisory committees (F-MACs) and to promote the involvement of other stakeholder groups in the management of specific inshore fisheries (e.g. on deepwater bottom-fish or sea-cucumbers). At least one in-country assignment for an adviser is required to recommend the composition of the committee(s) and to assist in devising terms of reference.

Goal 5: To assist countries in raising public awareness of the need for conservation, fisheries management and fisheries regulations.

Proposed strategies to achieve the above goal are:

- 5.1 Provision of training in preparing non-technical publicity material to raise public awareness of the need for conservation, food security, fisheries management and fisheries regulations. A gender-sensitive approach will be emphasised in training, which would include the preparation of media releases (press and radio), information sheets, and fisheries newsletters. A two or three-week course (or courses) could be conducted at SPC with participation preferences given to information officers from agencies responsible for fisheries and the marine environment.
- 5.2 Provision of non-technical publicity material to raise public awareness of the need for conservation, food security, fisheries management and fisheries regulations. This material, including information sheets and posters, could be prepared in draft form at SPC in English and/or French. This material would be printed in the relevant country languages after translation by local counterparts.
- 5.3 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 management

Proposed strategies to achieve the above goal are:

- 6.1 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 be provided to requesting countries.
- 6.2 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.
- 6.3 Provision of assistance to countries pursuing an ecosystems approach to fisheries (EAF). Initially, this could involve a workshop for two counterparts (one from a fisheries agency and the other from an environmental agency) from each requesting country. The workshop, perhaps a week long, could be held at SPC or in another central location. The workshop would involve discussing ways in which environmental issues threatening inshore fisheries could be addressed in a co-operative manner.
- 6.4 Provision of training in environmental impact assessment (EIA) techniques. Some fisheries agencies are now being required to conduct EIAs involving the marine environment. Depending on final demand, a workshop, perhaps a week long, could be designed and conducted at SPC or in another central location.

The Strategic plan contains high-priority fisheries management activities under strategies related to the six goals. It is estimated that a total of US\$891,000 (£536,747) is required to fund these activities. Although it is impossible for SPC to directly address all of the identified needs, those that can will be incorporated in the work plan of the Coastal Fisheries Management Section. In others, SPC will undertake to identify available sources of assistance and seek donor funds. On many issues, SPC will play the role of an advocate or facilitator in the provision of assistance and capacity building. The Commonwealth Secretariat will continue to support the work of the SPC and its member countries in order to achieve the goals set out in the Strategic Plan.

References

- Gillet, R., McCoy, M., Rodwell, L., and Tamate, J. (2001) *Tuna: A Key Economic Resource in the Pacific*. ADB, Manila.
- UNCED (1992) Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June, 1992.
- UNCLOS (1982) United Nations Convention on the Law of the Sea, signed at Montego Bay, Jamaica, 10 December 1982.
- WSSD (2002) The United Nations World Summit on Sustainable Development, August 26 to September 4, 2002, Johannesburg, South Africa.