MINISTRY FOR FOREIGN AFFAIRS


# Pacific Islands Regional Coastal Fisheries Management Policy

*and Strategic Actions*

## (Apia Policy)

## (2008–2013)

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Developed and endorsed by Heads of Fisheries in the Pacific Region during the special session conducted from 11 to 13 February 2008, Apia, Samoa

with financial support from the Commonwealth Secretariat and Government of Iceland

Facilitated by the Secretariat of the Pacific Community

Endorsed by the fourth Ministerial Meeting of the South Pacific Forum Fisheries Committee, held May 2008, Koror, Palau

COMMONWEALTH SECRETARIAT

MINISTRY FOR FOREIGN AFFAIRS

SPC Secretariat of the Pacific Community

Original text: English

Secretariat of the Pacific Community Cataloguing-in-publication data

Pacific Islands Regional Coastal Fisheries Management Policy and Strategic Actions (Apia Policy) (2008-2013) / developed and endorsed by Heads of Fisheries in the Pacific Region during the special session conducted from 11 to 13 February, 2008, Apia, Samoa.

1. Fishery management – Pacific Area. 2. Fishery policy – Pacific Area.

I. Title. II. Heads of Fisheries Meeting. III. Secretariat of the Pacific Community.

338.372 7 AACR2

ISBN 978-982-00-0263-0

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Prepared for publication at
Secretariat of the Pacific Community headquarters
Noumea, New Caledonia, 2008
and printed by Stredder Print Ltd (New Zealand)

# FOREWORD

The *Pacific Islands Regional Coastal Fisheries Management Policy and Strategic Actions (Apia Policy)* was developed by regional Heads of Fisheries with technical support from the Secretariat of the Pacific Community (SPC) and financial support from the Commonwealth Secretariat and Government of Iceland. It was endorsed by the fourth Forum Fisheries Committee Ministerial Meeting held in Palau in May 2008.

The Apia Policy is one of SPC's responses to the expectations of Forum Leaders expressed in the Vava'u Declaration on Pacific Marine Resources, which placed priority on the development and management of coastal fisheries to support food security, sustainable livelihoods and economic growth for current and future generations of Pacific people.

This regional policy on coastal fisheries management is the first to address the collective concerns of regional government leaders and fisheries authorities. It was developed from interviews, questionnaires completed by fisheries agencies, results from regional workshops held in Noumea in October/November 2007, and recommendations from fish stock assessment and policy and planning workshops held in 2008. A draft was discussed and endorsed by all SPC member countries at a meeting in Samoa in February 2008.

As the consultations showed, regional authorities have serious concerns. Stocks of exploited marine species appear to be declining due either to overexploitation or other impacts on the marine environment. The demand for seafood is high and increasing. In some Pacific Islands, population growth rates are approaching 3 per cent per year — at this rate, populations will increase by 50 per cent by the year 2030.

According to fisheries managers, non-fisheries activities, including development work on coastal zones, public works, agriculture and forestry, are affecting the marine environment and fish stocks. Other than overexploitation, the most common human impacts on marine ecosystems and fish stocks relate to sewage and nutrients in coastal waters, garbage dumps located at the sea edge, excessive coastal development, silt entering the sea, and loss of beaches due to sand mining.

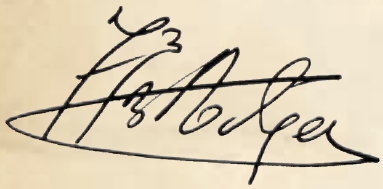
This policy therefore emphasises the need to manage coastal fisheries on an ecosystem basis. In other words, conventional fisheries management needs to be broadened to include the coastal systems that support fisheries and must involve a wider range of government agencies and stakeholders.

Most fisheries agencies, many with SPC assistance, are involving fishing communities in fisheries management. The engagement of these communities and the promotion of traditional systems that allocate fishing rights to a limited number of users may be the only way that subsistence fisheries can be exploited sustainably. The establishment of marine protected areas (MPAs) is of moderate to high priority for 90

per cent of all countries surveyed and this is regarded as an important tool in managing fish stocks and marine ecosystems.

As stated in this policy, the collective vision of Pacific leaders and heads of fisheries agencies is 'Healthy marine ecosystems and sustainable coastal fisheries that provide seafood security and continuing livelihoods for current and future generations of Pacific people'. The goal that addresses this vision is 'To ensure the optimal and sustainable use of coastal fisheries and their ecosystems by Pacific Island communities'.

Most importantly, the policy describes the strategic actions that fisheries authorities have prioritised as vital to achieving this goal. The urgent need now is to secure donor funding and assistance to pursue these strategic actions and thus ensure the sustainability of our irreplaceable coastal resources.



Dr Jimmie Rodgers
SPC Director-General

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## Glossary

Fisheries and ecological terms in this policy are used as defined in relevant papers and instruments.

**Anthropogenic effects:** The effects, usually negative, of human activities on the marine environment.

**Biodiversity:** The variability among living organisms from all sources and the ecological complexes of which they are part. This includes diversity within species and ecosystems.

**Ecosystem:** A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit (Convention on Biological Diversity definition).

**Eutrophic:** Water so rich in nutrients that it encourages dense growth of plants, the decomposition of which uses up available oxygen and therefore kills animal life.

**Overexploitation:** From a biological viewpoint, the situation in which so many fish are removed from a stock that reproduction cannot replace the numbers lost.

**Precautionary principle:** The principle that the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation where there are threats of serious or irreversible damage.

# 1. Our coasts, our fish, our future

1

There are 30,000 islands scattered across the Pacific Ocean. These islands are divided into 22 Pacific Island countries and territories (PICTs) with a total land area of 0.5 million square kilometres. They are inhabited by over 9 million people and cover a total EEZ (exclusive economic zone) area of almost 30 million square kilometres. The Pacific Ocean contains the largest array of marine habitats and coastal biodiversities in the world and sustains the largest stocks of albacore, bigeye, skipjack and yellowfin tuna. It has extensive coral reefs, consisting of 70 coral genera supporting over 4,000 fish species, 30 mangrove species and a range of reptiles, marine mammals and sea birds. The marine habitat and ecosystems of this vast area provide the pelagic and coastal fisheries resources on which the people of the Pacific depend for food security and continuing livelihoods.

2

Due to a lack of land mammals and limited prospects for agriculture on the smaller islands, most PICTs depend heavily on coastal marine species for protein for human consumption. Per-capita seafood consumption in some remote atolls is over 250 kg annually, whilst other agriculturally oriented PICTs consume over 50 kg of marine protein. This is a very high level of annual consumption compared with about 8 kg per capita in continental countries. It is estimated that about 80 per cent of the region's coastal fishery production of around 100,000 tonnes annually does not enter the cash economy. Of the remaining 20 per cent that enters the cash economy, only a few high-value marine products are exported from the region, including dried sea-cucumber (beche-de-mer), trochus, mother-of-pearl shells and black pearls from cultured pearl oysters, dried shark fins, chilled deep-water red snapper, live reef fish species, *Euchema* seaweed, giant clams and coral.

3

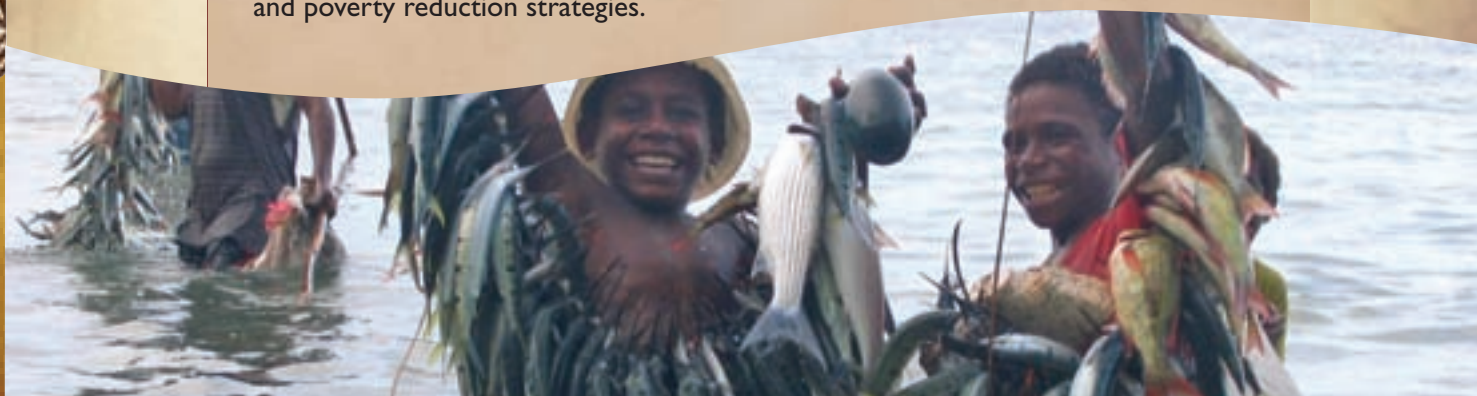
Except for people living in a few high islands such as Papua New Guinea, almost all people in PICTs live on the coast where entire communities are involved in fishing. The concept of customary ownership of resources is common in most PICTs, with the exception of Tonga and Kiribati where there is open access to fisheries resources. Most PICT governments now accept and recognise that community-based fisheries management, under which the community is empowered to be responsible for sustainable fisheries management within the boundaries of its traditional fishing grounds, is the most effective approach to coastal fisheries management. Customary resource ownership rights act to reduce the involvement of the government in the management of coastal fisheries.

4

In most PICT coastal communities, women play an important role in obtaining food on a daily basis through shoreline fishing and reef-gleaning. They also earn family income through processing fish products and selling them in local markets.

5

There is no absolute poverty and lack of food in PICTs. In reality, hardship and poverty in PICTs are associated with difficulties in meeting basic needs. Although PICT societies are predominantly based on subsistence lifestyles, they are becoming urbanised. Furthermore, increasing external forces due to globalisation are causing changes in lifestyles and greater demand for cash incomes, whilst subsistence agriculture and coastal fisheries contribute significantly to incomes for rural and outer island households. One of the strategic objectives of PICTs is to ensure sustainable fisheries initiatives are included in national plans and poverty reduction strategies.



# 2. Need for a regional coastal fisheries policy

6 The Apia Policy was developed in response to a directive by Pacific Islands Forum Leaders under an amendment made to the Pacific Plan for Strengthening Regional Cooperation and Integration (Pacific Plan) at their meeting in Tonga in 2007. This policy also accommodates the Vava'u Declaration on Pacific Fisheries Resources, which places high priority on 'the development and management of coastal/inshore fisheries and aquaculture to support food security, sustainable livelihoods and economic growth for current and future generations of Pacific people'. The Pacific Plan aims to promote economic growth and sustainable development with the objectives of reducing poverty and improving natural resource and environmental management. This policy document also takes into account the situation and needs of PICTs as stated in the 'Strategic plan for fisheries management and sustainable coastal fisheries in Pacific Islands', which was endorsed by Heads of Fisheries in 2003.

7 This policy is the first regional mechanism developed to harmonise national policies and activities that address the long-term sustainability of coastal fisheries resources and maintenance of healthy marine ecosystems. It provides guiding principles for strategic action at national and regional levels to address the problems and challenges encountered by PICTs in managing their coastal fisheries.

8 The Strategic Plan for Fisheries Management and Sustainable Coastal Fisheries in Pacific Islands (Strategic Plan) that was endorsed by PICT Heads of Fisheries in 2003 was reviewed in 2007–08 to produce this regional policy for coastal fisheries.

9

Strategic actions identified under this policy will include the provision of technical assistance to PICTs to translate the international instruments and guidelines referred to below into harmonised policy directions that can be incorporated in national plans, national legislation, national economic development strategies, fisheries sector plans, environment management plans, etc. for implementation at a local or national level. This technical assistance will take into consideration changes that may have occurred over time within coastal fisheries management. It will also identify and address external and internal or endogenous factors, e.g. type of government structure, political history, national laws and regulations, influence of traditional authorities, and institutions such as customary and traditional rights within PICTs, that affect the policy formulation process.



# 3. Relevant international and regional instruments

10

The Apia Policy was formulated to meet the expectations of regional government leaders as expressed in the 2007 amendments to the Pacific Plan and the Vava'u Declaration on Pacific Fisheries Resources. Formulation of the policy also necessarily took into account the importance to PICTs of regional cooperation on fisheries, which has been formalised in a number of instances through regionally adopted instruments. The purpose of these instruments is to strengthen the conservation and management of shared fisheries in the region and put in place arrangements that will facilitate long-term sustainable and responsible practices. Regional instruments are political directives that need to be implemented. PICTs are therefore obligated to develop policy that supports the instruments and take action to put legislation in place that gives effect to them. In addition to the Pacific Plan and Vava'u Declaration, the 2002 Pacific Islands Regional Ocean Policy and Integrated Strategic Action Framework, which was endorsed by Pacific Island leaders, is also applicable to coastal fisheries. It is the first such regional policy in the world. The framework's vision and goal emphasise the need for future sustainable use of the ocean and its resources by PICT communities and their external partners, and introduces guiding principles to achieve the goal. The framework will influence the development of the workplans of regional organisations and provide guidance to national governments in implementing sustainable development and management of ocean, coastal and island resources, in partnership with local communities.

The policy also takes into account the following international and regional instruments that relate to coastal fisheries management: 1982 United Nations Convention on the Law of the Sea (UNCLOS), which provides the global legal framework for all activities in the oceans and seas and describes the fundamental obligation of all states to protect and sustainably use the marine environment and conserve and manage marine living resources within areas under national jurisdiction and beyond; 1992 United Nations Conference on Environment and Development (UNCED), Agenda 21 (particularly Chapter 17, programme areas A and D), which provides a basis for national policies and strategies on the sustainable development and management of coastal fisheries; 1994 Barbados Programme of Action (BPoA) for Small Island Developing States (SIDS), Chapter IV, Programme of Action, which focuses on conservation and sustainable management of coastal and marine resources as a priority area; 1995 Kyoto Declaration and Plan of Action on the Sustainable Contribution of Fisheries to Food Security, which puts emphasis on food security in terms of sustainable management of fish, forests and wildlife, and stresses the enhancement of food security through effective management of fisheries resources and minimisation of wastage and discards; 2002 World Summit on Sustainable Development (WSSD) and the Johannesburg Plan of Implementation (JPOI) — Paragraph 31, Sections a, b and h of the JPOI are directly relevant to coastal fisheries; 2000 UN Millennium Development Goals (MDGs) on eradicating extreme poverty and hunger and achieving environmental sustainability, which incorporate overall broad goals for coastal fisheries; 2001 Reykjavik Declaration on Responsible Fisheries, which aims to protect marine ecosystems by calling for fisheries to use gear and techniques that reduce bycatch and discards and take into consideration ecosystem interactions and relationships; and 1995 Code of Conduct for Responsible Fisheries, which refers to the development of long-term sustainable fisheries management as an ideal goal for all fisheries managers, and includes objectives (stated in Article 2) relating to principles and criteria for implementing national policies for responsible conservation of fisheries resources and fisheries management and development.

# 4. Development of a regional coastal fisheries policy

12

The present policy document is based on the 2003 Strategic Plan, interviews, questionnaires completed by fisheries agencies, results from regional workshops held in Noumea in October/November 2007, and recommendations from fish stock assessment and policy and planning workshops held in 2007 and 2008.

13

The policy document includes needs identified in the 2003 plan that fisheries managers regard as having continuing priority (Appendix 1, Table 1 and Figure 1). The eight areas of highest priority (on a collective country basis) are short courses on the preparation of fisheries management plans and project funding proposals, collection of data from subsistence fisheries, use of basic data to assess fish stocks, legal assistance with preparing legislation and developing community by-laws, formation of fisheries advisory committees to manage commercial fisheries, and in-country assistance in fisheries policy and planning.

14

Stocks of exploited marine species appear to be declining in PICTs due either to overexploitation or impacts on the marine environment. Although excessive exploitation is often cited as the cause of depleted fish stocks, its effects are difficult to distinguish from those caused by impacts on ecosystems such as altered marine food webs, pollution and habitat loss.

15 The assessment of PICT fisheries managers is that non-fisheries activities, including development, public works, agriculture and forestry, are affecting the marine environment and fish stocks (Appendix 1 and Table 2). It is pointless to attempt to address the problem of depleted fish stocks by reducing fishing effort or restricting catches if the key threats to their recovery are environmental or otherwise. Hence, this policy document recognises an imperative need to manage coastal fisheries on an ecosystem basis.

16 Other than overfishing, the most common anthropogenic impacts on marine ecosystems and fish stocks appear to be related to the presence of sewage and nutrients in coastal waters, garbage dumps located at the sea edge, excessive coastal development, silt entering the sea, and loss of beaches due to sand mining (Appendix 1 and Figure 2). The high level of concern about eutrophic conditions, often caused by inadequate treatment of sewage, seems to be justified considering the increasing occurrence of harmful algal blooms (HABs), including those responsible for ciguatera. Thirty-eight per cent of all PICTs believe that there has been at least some increase in the occurrence of HABs. It is noteworthy that the adverse environmental impacts listed above are caused by actions that are beyond the usual responsibilities of fisheries agencies. This reinforces the view that the management base for ecosystem-based fisheries management must be broadened to include all relevant government agencies.

17 Many PICTs promote community-based fisheries management (CBFM) and this is a reflection of the fact that fisheries management is about managing people rather than fish stocks. Indeed, the involvement of fishing communities and the promotion of traditional systems that allocate fishing rights to a limited number of users may represent the only chance for subsistence fisheries to be exploited on a sustainable basis. Regardless of national legislation and enforcement, the responsible management of fisheries resources will only be achieved when fishing communities themselves see it as their responsibility rather than that of the government.

18

Global warming is of concern to many PICTs, particularly those with low-lying atolls. In addition to the disastrous effects predicted, global warming is believed to be associated with coral bleaching in the region. Shifts in climate regimes can be incorporated in ecosystem-based fisheries management using adaptive management techniques that enable stock reference (or target) points to be adjusted to changing situations. However, many PICTs believe that addressing current problems relating to marine ecosystems must be given priority.

19

The establishment of marine protected areas (MPAs) is regarded as an important tool in managing fish stocks and marine ecosystems and also in providing a buffer against possible climate regime shifts. The establishment of MPAs is of moderate to high priority for 90 per cent of all countries surveyed.

20

Urgent action on the management of fisheries and coastal ecosystems is required as the demand for seafood and for participation in fishing is high and increasing. In many Pacific Islands, population growth rates are approaching 4 per cent per year — at this rate, populations will double in less than 19 years.

# 5. Vision

21

Taking into account the declarations of Pacific leaders and the relevant instruments, an appropriate vision is **'Healthy marine ecosystems and sustainable coastal fisheries that provide seafood security and continuing livelihoods for current and future generations of Pacific people'**.

# 6. Goal

22

The goal that addresses this vision is **'To ensure the optimal and sustainable use of coastal fisheries and their ecosystems by Pacific Island communities'.**

# 7. Guiding principles, strategic actions and assistance required

23

Taking into account the views of Heads of Fisheries agencies (Appendix 1), the guiding principles for achieving the stated goal are as follows:

1. Improving our understanding of important fisheries species and of the ecosystems on which they depend.

2. Sustainably managing coastal fisheries, reducing their adverse impacts on coastal ecosystems, and optimising production to meet local nutritional needs and contribute to economic development.

3. Creating community partnerships to support the customary and traditional management of nearby ecosystems and fish stocks.

4. Creating stakeholder collaborations to manage ecosystems and reduce the negative environmental impacts of non-fisheries activities, including those that result in high loads of silt and nutrients in coastal waters.

5. Promoting the participation of women and youth in all fisheries-related activities.

6. Enhancing regional exchange and sharing of information on common areas of interest relating to the management of ecosystems and fisheries.



24

The strategic actions required to address the guiding principles, and the areas in which assistance is required, are outlined below. These views on actions and requirements are based on input from Pacific Island fisheries agencies (Appendix 1). Some of the assistance required relates to needs identified in the 2003 Strategic Plan that fisheries managers regard as having continuing high priority.

## Principle 1: Improving our understanding of important fisheries species and the ecosystems on which they depend.

25

All marine species have habitats on which they rely and many have specific habitats that are critical at particular stages in their life histories. Typically, these critical habitats are nursery and spawning areas, such as sheltered bays, mangrove areas and wetlands, and some of these areas require protection from human activities, including overexploitation. Non-fisheries activities, such as reclamation, development and wood gathering, are threatening some nursery areas (see Principle 4).

26

Some species of fish gather in large aggregations at particular times of the year and in specific places to reproduce. These spawning aggregations involve species such as grouper and snapper, many of which normally live separately. They may migrate hundreds of kilometres to reach the spawning areas. The sites and timing of aggregations are often well known to traditional fishers, and more recently to commercial fishers, who target the vulnerable fish milling about in dense aggregations as they release sperm and eggs. Some countries either ban fishing at particular spawning times or protect the spawning sites. There is some concern that even moderate fishing may break up aggregations and thus affect the overall reproductive success of the spawning stock.

27

Strategic actions include obtaining and collating existing information on important species from the literature, websites and local community sources of traditional knowledge. This knowledge may allow the establishment of closed areas or closed seasons to protect vulnerable species. Additional information useful in fisheries management based on minimal data (see Principle 2) would include estimates of the mean abundance of important species in unexploited areas that are unaffected by negative environmental impacts.

**Strategic actions**

(a) To broaden our knowledge of important species and their ecosystems.

(b) To identify species that are particularly vulnerable and take appropriate management measures.

**Areas where assistance is required**

(a) Collation of knowledge on the life histories of commonly harvested species and their ecosystems.

(b) Assistance in preparing management plans, particularly for vulnerable species.



Principle 2: **Sustainably managing coastal fisheries, reducing their adverse impacts on coastal ecosystems, and optimising production to meet local nutritional needs and contribute to economic development.**

28 According to fisheries managers, overfishing of exploited species remains an important cause of decreasing fish stocks. However, in tropical countries, stock assessment aimed at estimation of optimum yields is often less than useful, particularly in the management of multi-species fisheries. It is generally impractical to apply, and difficult to enforce, restrictions on the amount of fishing done and quantity of fish caught in subsistence or community fisheries.

29 Conventional fisheries controls (regulations) have often been applied in the absence of formal stock assessment, and these will continue to be necessary and useful. Size limits are widely used, although compliance is often low. These limits are more likely to be effective for commercially harvested species such as beche-de-mer and trochus. The use of overly efficient gear, such as SCUBA to catch lobsters, has been banned and some fishing communities have banned the use of underwater lights to spear large coral reef fish at night. Catch quotas have been used less frequently, although a notable form of quota has been applied in the Cook Islands: the allowable catch of trochus in fishing areas is set at 30 to 40 per cent of the available population of individuals sized between 80 and 110 mm. Such a precautionary catch limit set in the absence of formal stock assessment has much to recommend it.

30 In regards to the assessment of fish stocks, needs include the interpretation of graphs, a detailed manual on statistics and stock assessment, biennial meetings to review stock assessment progress and re-surveying of sites covered by PROCFish (recommendations from the training course on stock assessment and statistics, January 2008, and subsequently approved by Heads of Fisheries).

31

All fishing affects the marine environment in some way. In world fisheries, bycatches and discards from fishing operations are of great concern because of wastage as well as effects on biodiversity and marine ecosystems. FAO data suggest that prawn trawls, tuna longlines and dredges account for most discards in world fisheries. However, other than prawn trawling in Papua New Guinea, these fishing methods are not used in Pacific Island coastal fisheries (and tuna longlining is outside the scope of this document).

32

Most of the coastal catch is used for human consumption and few species are discarded. However, some commonly used fishing gear, including fence or maze traps and loosely hung monofilament gill nets, appear to catch organisms indiscriminately. In addition, this equipment can continue to 'ghost fish' for many years after it has been abandoned or lost. Some fisheries agencies and fishing communities have restricted the number, or mesh size, of gill nets and traps allowed in particular areas. Methods of controlling the use of damaging and even overly efficient fishing gear must be developed.

33

Direct damage to marine ecosystems is caused by the use of explosives and poisons to disable and capture fish. It must be recognised that some traditional fishing methods are also destructive; examples include the use of plant-derived fish poisons (*Derris* and *Barringtonia*) and communal fish drives across vulnerable reef areas. The effects of these traditional methods have been exacerbated by increasing population numbers. In the past, the marine environment was able to sustain occasional, localised damage because the frequency of the activity was low and fewer people were involved.

34

There is global concern over the removal of a target species from an ecosystem and the resultant flow-on effects (trophic cascades). However, the species and size composition of catches made by artisanal fishers in coastal tropical fisheries, using many different fishing methods, often resemble the structure found in ecosystems. As a result, ecosystems may be less affected by the removal of sizes and species from many different trophic levels rather than from one. However, the selective removal of some targeted species can affect coral reef ecosystems, often in complex ways (e.g. removal of parrotfish allows algae to grow over and smother corals).

35

In addition to artisanal fisheries and subsistence fisheries, recreational fisheries are important in some islands, such as New Caledonia, e.g. recreational fisheries on species such as bonefish attract overseas visitors and foreign exchange.

36

Strategic actions include the provision of training for existing fisheries staff, particularly in the management of fisheries for which there are minimal data, and the need to restrict exploitation to conservative levels.

37

Fisheries agencies should produce policies for coastal fisheries and subsequent fisheries management plans that incorporate the essential elements of effective management regimes, i.e. based on the requirement to optimise production within safe limits and with minimal effects on ecosystems. In cases where recreational fisheries are important, steps should be taken to assess available stocks, determine precautionary levels of fishing effort and apply appropriate management measures to ensure that benefits to the country are maximised. All fisheries that produce income should be managed to maximise economic benefits to the country.

38

International forums that play an influential role in fisheries policy at the national level throughout the world are poorly attended by representatives from the Pacific region because of lack of funding. As a result, Pacific Island people feel they have no influence over international instruments that may impose obligations on them.

39

The use of FADs (fish aggregating devices) and suitable artificial reefs to supply local food and to relieve fishing pressure on more sensitive reef and lagoon ecosystems are attractive options. The deployment of FADs, however, relies on identifying ways of financing their replacement using national funds. Similarly, aquaculture development and stock enhancement (e.g. beche-de-mer, milkfish, tilapia, pearls, seaweed) have the potential to not only increase the production of seafood and exportable commodities, but also reduce the current amount of fishing on coral reefs.

## Strategic actions

(a) To enhance the capacity of fisheries agency staff to carry out effective biological, social and economic stock assessments and manage sustainable fisheries.

(b) To manage fisheries using precautionary ('safe') levels of exploitation, even in the absence of formal stock assessments.

(c) To identify and control, reduce or ban damaging fishing practices.

(d) To develop comprehensive national coastal fisheries policies and subsequent fisheries management plans that incorporate the essential elements of effective management regimes, including maximising economic yield from all income-producing fisheries.

(e) To facilitate the attendance of Pacific Island regional representatives at relevant international forums.

(f) To assess costs and benefits associated with recreational fisheries and apply appropriate management measures.

(g) To employ near-shore FADs and, where suitable, artificial reefs to divert fishing effort from more sensitive coral reef ecosystems.

(h) To support appropriate aquaculture and stock enhancement activities that divert fishing effort from more sensitive coral reef ecosystems.



### Areas where assistance is required

(a) Follow-up training on fisheries policy analysis and formulation and development of a manual and template for national fisheries policies.

(b) Provision of in-country assistance on the preparation and implementation of national fisheries policies and management plans for coastal fisheries and ecosystems.

(c) Provision of in-country assistance on the use of biological and socio-economic models to assess artisanal, recreational and subsistence fisheries.

(d) Funding support to enable Pacific Island regional representatives to attend relevant international forums.

(e) Provision of postgraduate scholarships in fisheries studies for fisheries agency staff.

(f) Training in the preparation of project proposals, project design and report writing.

(g) Training in the collection, use and analysis of minimal and appropriate data to assess and manage fisheries.

(h) Production of a detailed manual, such as the PASGEAR manual, on statistics and stock assessment.

(i) Biennial meetings to review stock assessment progress.

(j) Support for re-surveying sites covered by PROCFish, and for surveying additional sites.

(k) Training in the use of fisheries controls and regulations.

(l) Working with fishing communities to ban damaging fishing methods.

(m) Aquaculture development and stock enhancement of species including beche-de-mer.

(n) Design and deployment of artificial reefs and FADs and development of plans to finance their maintenance and replacement.

*Principle 3:* **Creating community partnerships to support the customary and traditional management of nearby ecosystems and fish stocks.**

40

Fishing communities are often repositories of valuable traditional knowledge of fish stocks and have a high level of awareness of the marine environment. In addition, many communities have some degree of control, either legal or traditionally assumed, of adjacent waters. Collectively, these factors provide an ideal basis for encouraging and motivating communities to manage their own marine resources. If communities are encouraged to set their own conservation rules, as many have done in the past, they are more likely to be respected. In addition, under community ownership, management measures are enforced by the communities themselves. Community-based fisheries management (CBFM) may provide the best opportunity for exploiting subsistence seafood species on a sustainable basis. Regardless of national legislation and enforcement, the responsible management of subsistence fisheries resources will only be achieved when fishing communities themselves see it as their responsibility rather than that of the government.

41

Strategic actions involve fisheries agencies actively encouraging fishing communities to take responsibility for their adjacent coasts and fisheries. Many models of CBFM exist and different forms may be found in different Pacific Islands. SPC has produced a manual for use in Pacific Islands and has assisted many countries to implement CBFM.

42

To enable them to manage adjacent coastal waters, fishing communities require some degree of control, either legal or traditionally assumed, of these waters. Where fishing communities have no control over people fishing in adjacent waters, marine usage rights may have to be allocated to fishing communities (e.g. 'special management areas' in the Kingdom of Tonga). In most Pacific territories, the property-use rights of communities do not exist or are not recognised.

| Strategic actions | |
|---|---|
| | (a) To support and strengthen the involvement of fishing communities in fisheries management and monitoring.<br><br>(b) To develop legal frameworks that allow for the development of community fisheries by-laws.<br><br>(c) To develop, re-establish or strengthen property-use rights. |

| | Areas where assistance is required |
|---|---|
| (a) Implementation or strengthening of community-based fisheries management.<br><br>(b) Legal advice on legal frameworks, property rights and community fisheries by-laws.<br><br>(c) Collection of data from subsistence (community) fisheries. | |

**Principle 4:** **Creating stakeholder collaborations to manage ecosystems and reduce the negative environmental impacts of non-fisheries activities, including those resulting in high loads of silt and nutrients in coastal waters.**

43 Marine ecosystems, and therefore fish stocks, are threatened by many non-fisheries activities in addition to fishing. Fisheries managers in PICTs have identified several anthropogenic impacts, the most common of which relate to the presence of sewage, nutrients, garbage dumps, and silt.

44 As the non-fisheries impacts on marine ecosystems, including eutrophication, siltation and garbage disposal, result from activities that are outside the responsibilities of fisheries agencies, it is imperative to involve all relevant government agencies in the management of marine ecosystems that sustain fish stocks. This may involve input from agencies responsible for public health, public works and roads, water supply, agriculture, forestry and others. In some countries, a major constraint is the lack of cooperation between different government agencies, which often compete rather than cooperate with each other.

45 The establishment of MPAs is likely to become increasingly important because of their perceived role in protecting exploited fish stocks and ecosystems. The effects of natural and anthropogenic environmental fluctuations on a population may be mitigated if some part of it is protected by a marine reserve. In spite of the gaps in our knowledge concerning the benefits of MPAs, their role as an important tool in managing fish stocks and marine ecosystems will be increasingly significant. However, the establishment of large MPAs by government authorities with little stakeholder consultation is likely to generate resentment in local communities that lose access to fishing areas, and may result in high levels of poaching. This emphasises the importance of community involvement in establishing MPAs.

46 There is a need to raise public awareness of the benefits of protecting fish stocks and marine ecosystems. When people are aware of and sympathetic to the need to conserve fish stocks and protect the marine environment, they are more likely to respect and comply with related conservation rules and regulations. If the majority of users support the aims of the regulations, peer pressure becomes a strong deterrent to those disregarding the law.

47 Strategic actions include fisheries agencies playing a lead role in the formation and functioning of an inter-agency, multi-stakeholder group tasked with addressing non-fisheries activities affecting marine ecosystems and fisheries.

48 As centres of expertise in marine science, fisheries agencies are often required to work with environmental agencies in conducting ecosystem impact assessments (EIAs) of all activities and developments that have the potential to impact wetlands and the marine environment.

49 Fisheries agencies may also play an advocacy role in promoting the establishment of MPAs, ideally under community control, to protect parts of marine ecosystems and fish stocks from fishing and other impacts.

50 A key function of fisheries agencies is to raise public awareness of the need to protect fish stocks and marine ecosystems. Public meetings, radio talks, press articles and posters may all be used to publicise regulations and promote appreciation of the need for conservation rules. In the longer term, fisheries staff could assist teachers in introducing aspects of marine environment conservation into high school curricula.

## Strategic actions

(a) To engage relevant government agencies and other stakeholders in ecosystem management.

(b) To identify, prioritise and address issues that are impacting coastal ecosystems.

(c) To establish a programme of monitoring physical, chemical, biological, social and economic parameters of coastal waters and formulate appropriate standards.

(d) To protect and preserve portions of marine ecosystems and fish stocks.

(e) To raise public awareness of the need for fisheries and ecosystem conservation.

## Areas where assistance is required

(a) In-country assessment of non-fisheries impacts on marine ecosystems.

(b) Implementation of ecosystem-based fisheries management.

(c) Establishment of programmes to monitor physical, chemical, biological, social and economic parameters of coastal waters and establish appropriate standards.

(d) Positioning, establishment and monitoring of marine protected areas.

(e) Design of multimedia campaigns and preparation of publicity material.

(f) Environmental impact assessments relating to the marine environment.

## Principle 5: Promoting participation of women and youth in all fisheries-related activities.

51 National fisheries authorities should play an advocacy role in promoting careers in fisheries management and in ensuring that regional training institutions offer courses that match the requirements of fisheries authorities. In addition, undergraduate training in fisheries science and policy-making should be given a high priority by national governments. In the interests of generational continuity, young people should be given opportunities to take up careers in fisheries management.

52 Fisheries agencies should urge their governments to ensure that agencies are adequately staffed in accordance with the size of the country or territory and the importance of local marine resources. Given the shortage of qualified staff in fisheries agencies in small island states, it is recognised that both short-term and long-term technical assistance is necessary to progress development.

53 Non-academic careers in the fishing industry should also be promoted. Future fishers, for example, are likely to require training in maritime, fishing and seafood safety skills. Ideally, youth training should include attachments to operations run by experienced local fishers.

54 Women account for a substantial proportion of seafood catches in most countries. In Samoa, for example, 18 per cent of all fishers are female and they harvest about 23 per cent of the total subsistence catch (AusAID Fisheries Project). Women are usually responsible for collecting most of the catch of bivalve molluscs and other invertebrates. These species represent important food sources, particularly in periods when the weather is unsuitable for fishing at sea.

55

Women are also major contributors to post-harvest processing and marketing of all seafood. Although they make up a substantial proportion of employees in many fish processing plants, there are generally fewer women than men in managerial roles. In addition, there are few female professional staff in senior roles in fisheries agencies.

56

As community-based fisheries management programmes have shown, the participation of women in ecosystem-based fisheries management is crucial, not only in the interests of equity but also because women are more likely than men to take a long-term (inter-generational) view of the benefits of conservation.

57

Strategic actions include fisheries agencies recognising the role of women in subsistence fisheries and providing special opportunities for training and participation in relevant workshops. Fisheries agencies should also encourage gender equity and provide equitable promotional opportunities for women and youth.

**Strategic actions**

a) To enhance the availability of young well-trained recruits for fisheries agencies by providing university scholarships.

b) To encourage regional training institutions to develop fisheries courses that address the needs of PICTs.

c) To provide youth training in maritime, fishing and seafood safety skills, with practical work including attachments to operations run by experienced local fishers.

d) To promote gender equity in national fisheries agencies and provide equitable promotion opportunities for female staff.

e) To provide opportunities for women and youth to participate in all fisheries training courses and regional meetings, gain employment in fisheries agencies, and receive formal scholarships.

f) To provide specific training for women in fisheries businesses and enterprises.

g) To provide short- and long-term technical assistance to fisheries agencies with a lack of qualified staff.



**Areas where assistance is required**

(a) Provision of youth scholarships at regional universities.

(b) University scholarships for women employed in fisheries agencies.

(c) Development by regional training institutions of fisheries courses that address the needs of PICTs.

(d) Provision of youth training in maritime, fishing and seafood safety skills, with attachments to operations run by experienced local fishers.

(e) Workshops specifically designed for women on businesses related to fisheries.

(f) Workshops on fish handling and seafood safety with an emphasis on the participation of women.

(g) Provision of short- and long-term technical assistance to fisheries agencies with a lack of qualified staff.

Principle 6: **Enhancing regional exchange and sharing of information on areas of common interest relating to the management of ecosystems and fisheries.**

58

Although PICTs differ in many respects, the majority of problems relating to the management of ecosystems and fisheries are common to many islands. Sharing of problem-solving methodologies, for example, would avoid duplication in national efforts to implement ecosystem-based fisheries management. SPC produces several special interest group newsletters (e.g. on *Trochus* and beche-de-mer) and coverage should be expanded to include ecosystem-based fisheries management.

59

Strategic actions include convening a regional meeting on ecosystem-based fisheries management to be attended by representatives from national fisheries agencies, environmental agencies and relevant NGOs. The aim of the meeting would be for managers from different national government agencies to develop ways of implementing integrated coastal zone management at the national level. Ongoing sharing of information could be achieved by developing websites and producing reports and papers, and circulating these through regional organisations such as SPC.

60

A knowledge-exchange system, including a regional network of experienced people with particular skills, would enhance the exchange and sharing of ideas and expertise.

### Strategic actions

(a) To promote the exchange of fisheries and marine ecosystem information through regional meetings and workshops.

(b) To promote the exchange of fisheries and marine ecosystem information through websites, special interest group newsletters, leaflets, digital libraries and other media.

(c) To share knowledge and skills through the establishment of a knowledge-exchange system, including a regional network of experienced people with particular skills.

### Areas where assistance is required

(a) Convening of a regional meeting on PICT progress in ecosystem-based fisheries management to be attended by representatives from national fisheries agencies, environmental agencies and relevant NGOs.

(b) Development of websites on fisheries, fisheries management and ecosystem conservation by an appropriate regional organisation, such as SPC, to assist national fisheries agencies.

(c) Production of a special interest group newsletter and use of other information media to share information and disseminate the latest developments in ecosystem-based fisheries management, by an appropriate regional organisation such as SPC.

(d) Establishment and operation of a regional knowledge-exchange system, including a regional network of local experts in areas of fish stock assessment, community-based fisheries management, ecosystem-based fisheries management, and planning and management of fish businesses.

# Appendix 1

## Development of a policy to meet the needs of Pacific Island countries and territories

This policy document is based on the 2003 Strategic Plan, interviews, questionnaires completed by fisheries agencies, the results of a regional workshop held in Noumea in October/November 2007, and a policy and planning workshop held in Apia in January/February 2008. The document includes the needs identified in the 2003 plan that fisheries managers regard as continuing to have high priority (Table 1 and Figure 1).

**Table 1: Priority areas for assistance as identified by PICT fisheries managers (1 = no priority; 5 = very high priority). The information is based on questionnaires completed by Heads of Fisheries agencies.**

| Priority areas | A.Samoa | CNMI | Cook Is | Fiji | F.Polynesia | FSM | Guam | Kiribati | Marshalls | Nauru | N.Caledonia | Niue | Palau | PNG | Samoa | Solomons | Tokelau | Tonga | Tuvalu | Vanuatu | Wallis Futuna | TOTAL (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Organisational structure; HRD plan | 2 | 3 | 2 | 3 | 3 | 5 | | 5 | 4 | 4 | 3 | 4 | 5 | | | 4 | 4 | 2 | 4 | 4 | | 65 |
| Attachment to SPC programmes | 3 | 3 | | 4 | 3 | 5 | | 5 | 5 | 4 | 4 | 5 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 75 |
| Short courses—fisheries management plans | 3 | 3 | | 5 | 4 | 5 | | 5 | 5 | 5 | 3 | 5 | 4 | 2 | 5 | 4 | | 5 | | 4 | | 80 |
| Short courses—practical fisheries management | 4 | | | 4 | 3 | 5 | | 5 | 4 | 5 | 4 | 3 | 4 | 2 | 4 | 4 | 4 | 4 | 3 | 4 | | 72 |
| Short courses—prep. of project proposals, etc. | 3 | | | 5 | 2 | 5 | | 5 | 5 | 5 | 2 | 5 | 5 | 4 | 5 | 4 | 4 | 5 | 5 | 2 | | 79 |
| Collection of data from subsistence fisheries | 2 | 3 | 3 | 5 | 4 | 5 | 3 | 5 | 5 | 5 | 3 | 5 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 4 | 5 | 82 |
| Short courses—basic data to assess fish stocks | 3 | 5 | 3 | 3 | 3 | 5 | 3 | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 81 |
| Reviewing legislation relating to coastal fisheries | 3 | 4 | 3 | 4 | 4 | 5 | 3 | 5 | 5 | 5 | 4 | 5 | 4 | 3 | 4 | 5 | 4 | 3 | 5 | 4 | 4 | 77 |
| Advice on size limits for important species | 4 | 3 | | 1 | 4 | 3 | 3 | 5 | 5 | 4 | 3 | 3 | 5 | 3 | 5 | 3 | 4 | 4 | 4 | 4 | | 67 |
| W/shop—application/enforcement of fish. regs. | 2 | 5 | | 3 | 4 | 5 | 3 | 5 | 5 | 4 | 4 | 5 | 1 | 4 | 5 | 3 | 4 | 4 | 5 | 4 | 3 | 73 |
| Community-based fisheries management | 3 | | | 3 | 4 | 5 | 3 | 5 | 4 | 5 | 5 | 5 | 4 | 3 | 5 | 4 | 4 | 4 | 2 | 4 | 4 | 75 |
| Developing community by-laws | 3 | | | 5 | 4 | 5 | | 5 | 5 | 4 | 3 | 5 | 1 | 3 | 4 | 5 | 4 | 4 | 5 | 5 | | 78 |
| Formation of fisheries advisory committees | 4 | | | 3 | 3 | 5 | | 5 | 5 | 4 | 5 | 4 | | 4 | 5 | 4 | | 5 | | 3 | | 80 |
| Preparation of public awareness material | 4 | 4 | 3 | 4 | 4 | 5 | 4 | 5 | 5 | 5 | 2 | 4 | 4 | 3 | 4 | 4 | 5 | 4 | 3 | 3 | 4 | 74 |
| Socio-econ. assessments of subsist. fisheries | 4 | | | 2 | 3 | 5 | | 5 | 5 | 5 | 2 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 3 | 4 | 75 |
| MPA site selection; monitoring | 3 | | 2 | 4 | 2 | 5 | | 5 | 5 | 5 | 1 | 4 | | 4 | 5 | 4 | 5 | 4 | 5 | 4 | | 74 |
| Socio-economic surveys on benefits of MPAs | 4 | 2 | 3 | 3 | 4 | 5 | 4 | 5 | 5 | 4 | 3 | 4 | 4 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | | 75 |
| Implementation of ecosystems approach | 4 | 3 | | 4 | 3 | 5 | | 5 | 5 | 5 | 2 | 2 | 4 | 4 | 5 | 3 | | 4 | 5 | 4 | | 74 |
| Training in EIA techniques | 3 | | | 3 | 3 | 5 | | 5 | 4 | 5 | 1 | 5 | 4 | 4 | 4 | 3 | 5 | 4 | 3 | 1 | 4 | 67 |

The eight areas of highest priority for assistance needs on a collective basis (Figure 1) are:

- short courses on preparing fisheries management plans
- short courses on preparing project funding proposals
- collection of data from subsistence fisheries
- use of basic data to assess fish stocks
- legal assistance with preparing legislation and developing community by-laws
- formation of fisheries advisory committees to manage commercial fisheries
- in-country assistance with fisheries policy and planning

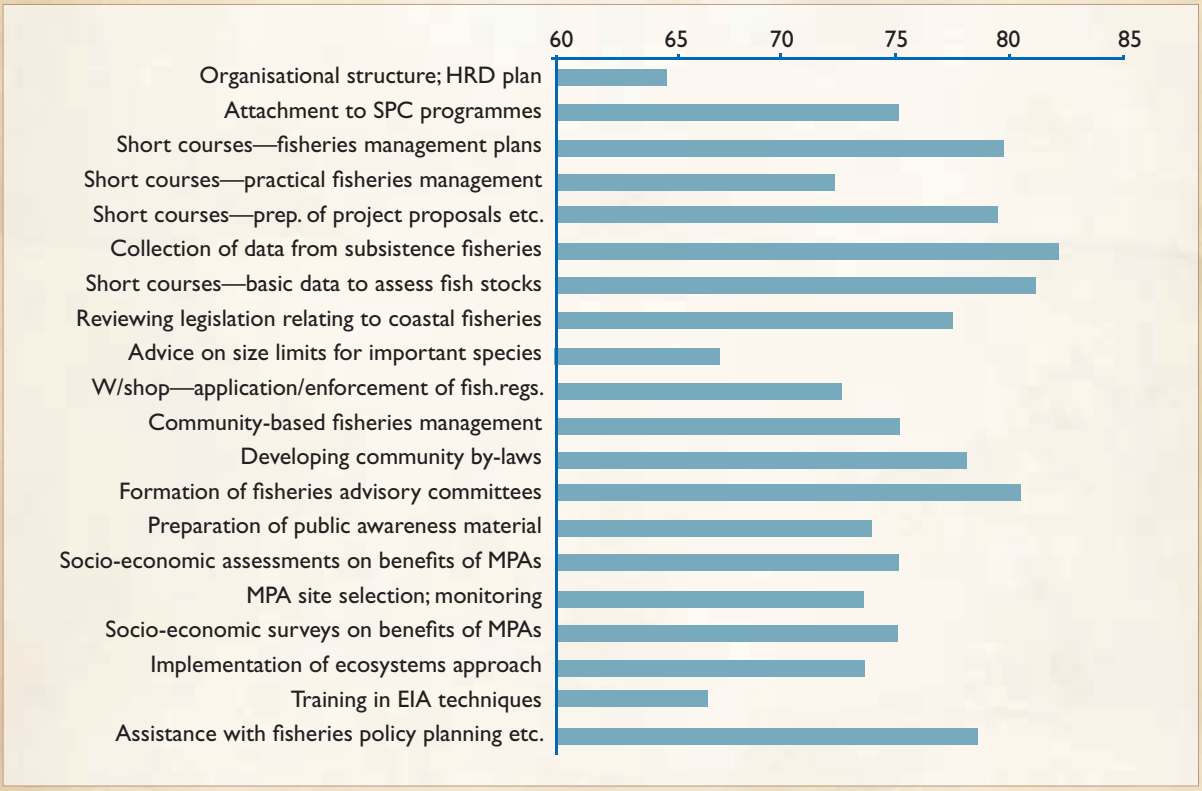



***Figure 1: Priority areas for assistance (from 50% (moderate priority) through to 100% (very high priority)) as identified by PICT fisheries managers (based on questionnaires completed by heads of PICT fisheries agencies).***

Stocks of exploited marine species appear to be declining in PICTs as a result of either overexploitation or impacts on the marine environment. Although excessive exploitation is often cited as the cause of depleted fish stocks, its effects may be indistinguishable from those caused by impacts on ecosystems including altered marine food webs, pollution, and habitat loss.

The assessment of PICT fisheries managers is that non-fisheries activities (including development, public works, agriculture and forestry) are affecting the marine environment and fish stocks (Table 1). It is pointless to address the problem of depleted fish stocks by reducing fishing effort or restricting catches if the key threats to their recovery are environmental or otherwise. If a population of marine species already depleted by excessive fishing suffers additional harm, such as degradation of its key habitats, its decline and even loss is highly likely. Hence, this policy document recognises an imperative need to manage coastal fisheries on an ecosystem basis.

The establishment of marine protected areas (MPAs) is regarded as an important tool in managing fish stocks and marine ecosystems. The establishment of MPAs is of moderate to high priority for 90 per cent of all countries surveyed.



**Table 2: Environmental impacts identified by fisheries managers in PICTs (1 = no effect; 5 = severe effect). The information is based on questionnaires completed by Heads of Fisheries.**

| Ecosystem effects due to … | A.Samoa | CNMI | Cook Is | Fiji | F.Polynesia | FSM | Guam | Kiribati | Marshalls | Nauru | N.Caledonia | Niue | Palau | PNG | Samoa | Solomons | Tokelau | Tonga | Tuvalu | Vanuatu | Wallis Futuna | TOTAL (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Overfishing of inshore marine species | 3 | 2 | 2 | 4 | 4 | 5 | 4 | 4 | 4 | 5 | 3 | 3 | 4 | 4 | 5 | 5 | 4 | 4 | 5 | 4 | 4 | 73 |
| Sewage, nutrients entering coastal waters | 4 | 5 | 4 | 3 | 4 | 5 | 4 | 4 | 4 | 3 | 2 | 3 | 3 | 1 | 4 | 4 | 4 | 2 | 4 | 4 | 4 | 64 |
| Pollutants, oil entering the sea from industry | 2 | 4 | 1 | 2 | 3 | 3 | 4 | 2 | 5 | 1 | 5 | 3 | 1 | 2 | 4 | 3 | 1 | 2 | 1 | 1 | 1 | 36 |
| Pollutants, including oil, from boats | 3 | 3 | 1 | 2 | 3 | 4 | 2 | 2 | 5 | 2 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 2 | 2 | 1 | 39 |
| Pollutants, fertilisers from agriculture | 2 | 5 | 3 | 2 | 3 | 2 | 4 | 1 | 2 | 2 | 2 | 3 | 2 | 1 | 4 | 3 | 1 | 3 | 2 | 2 | 1 | 35 |
| Garbage dumps at the edge of the sea | 5 | 3 | 3 | 2 | 4 | 5 | 4 | 2 | 5 | 2 | 2 | 4 | 3 | 1 | 3 | 3 | 5 | 5 | 3 | 2 | 2 | 56 |
| Reclamation of land; loss of marine habitats | 2 | 1 | 2 | 2 | 3 | 5 | 2 | 2 | 5 | 2 | 1 | 1 | 2 | 1 | 4 | 2 | 1 | 4 | 4 | 2 |  | 35 |
| Excessive coastal development: hotels, etc. | 3 | 3 | 4 | 3 | 3 | 3 | 4 | 3 | 4 | 2 | 2 | 2 | 2 | 1 | 2 | 3 | 2 | 3 | 3 | 5 | 3 | 46 |
| Silt entering coastal waters/lagoons | 4 | 5 | 4 | 4 | 1 | 4 | 4 | 2 | 2 | 2 | 2 | 1 | 2 | 3 | 4 | 3 | 2 | 4 | 3 | 4 | 3 | 50 |
| Loss of beaches through sand mining | 4 | 1 | 3 | 1 | 3 | 3 | 3 | 4 | 4 | 3 | 2 | 1 | 2 | 1 | 4 | 1 | 5 | 4 | 5 | 2 | 4 | 46 |
| Loss of corals—cement, buildings etc. | 2 | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 4 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 4 | 2 | 1 | 2 | 1 | 18 |
| Loss of corals—people on reef (gleaning etc.) | 5 | 3 | 2 | 2 | 2 | 2 | 4 | 1 | 2 | 5 | 1 | 3 | 1 | 2 | 2 | 3 | 2 | 4 | 3 | 1 | 2 | 37 |
| Loss of corals through coral bleaching | 3 | 3 | 4 | 2 | 3 | 1 | 3 | 2 | 2 | 4 | 1 | 2 | 2 |  | 3 | 1 | 2 | 4 | 2 | 2 | 3 | 36 |
| Destructive fishing methods (dynamite etc.) | 5 | 2 | 1 | 3 | 1 | 5 | 4 | 1 | 2 | 3 | 2 | 2 | 1 | 3 | ? | 3 | 1 | 5 | 1 | 3 | 2 | 38 |
| Presence of alien and invasive species | 3 | 3 | 1 | 2 | 3 | 4 | 3 | 1 | 2 | 2 | 1 | 3 | 1 | 1 | 2 | 2 | 4 | 2 | 1 | 3 | 3 | 31 |

Other than overfishing, the most common anthropogenic impacts on marine ecosystems and fish stocks appear to be related to:

- sewage and nutrients in coastal waters
- garbage dumps located at the sea edge

- excessive coastal development
- silt entering the sea
- loss of beaches due to sand mining

All of these impacts are believed to have greater than a moderate or 50 per cent effect (Figure 2). The very high level of concern over eutrophic conditions, often caused by inadequate treatment of sewage, seems to be justified considering the increasing occurrence of harmful algal blooms (HABs), including those responsible for ciguatera. Thirty-eight per cent of all PICTs responding believe that there has been at least some increase in the occurrence of HABs.

In response to the questionnaire, some countries listed additional ecosystem impacts, including logging (Fiji, Solomon Islands), lack of regulations relating to the export of live species (Fiji), overharvesting of bivalves (Kiribati), the presence of crown-of-thorns starfish, *Acanthaster planci* (French Polynesia), and the use of small-mesh gill nets (Solomon Islands).

It is noteworthy that all of these environmental impacts are caused by actions that are beyond the usual responsibilities of fisheries agencies. This emphasises the view that the management base for ecosystem-based fisheries management must be broadened to include all relevant government agencies.

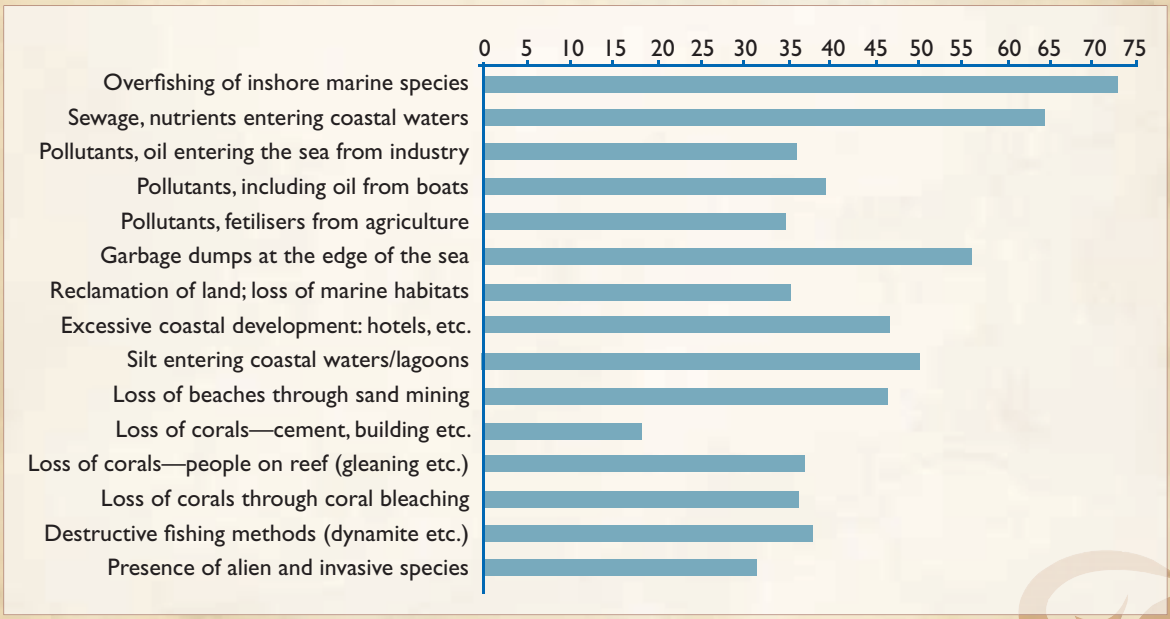



***Figure 2: Environmental impacts (from 0% (no effect) through to 100% (severe effect)) identified by fisheries managers in PICTs (based on questionnaires completed by heads of fisheries agencies).***

# Appendix 2

## Activities of SPC in response to the 2003 Strategic Plan

Activities undertaken by SPC in response to the 2003 Strategic Plan were assessed by PICTs though interviews and a questionnaire. In general, all training supplied or arranged by SPC received assessment scores in the 'very effective' to 'extremely effective' range, with the exception of training in collecting data from subsistence fisheries, and attachments to SPC programmes, which received lower scores from some PICTs. Additional comments on the provision of training include a suggestion of collaboration with USP to run short courses, e.g. on preparing fisheries management plans and proposals for funding. Some completed questionnaires included urgent requests for training in particular areas.

Due to budget and time restrictions, assistance in some areas was not provided. These areas included the provision of short courses on preparing project proposals, project design and report writing, implementing an ecosystem approach to fisheries management, and conducting ecosystem impact assessments. These areas are still regarded as priorities by fisheries managers.

**Table 1: Summary of projects carried out under the 2003 Strategic Plan**

| Project | Date / Place | PICTs involved | No. of PICT participants | Funding support |
|---|---|---|---|---|
| 1. Preparation of the strategic plan | | | | |
| 1.1 SPC policy meeting on coastal fisheries | March 2003, Nadi | Am. Samoa, Cook Is., FSM, Fiji, Kiribati, Marshall Is., Nauru, Niue, CNMI, Palau, PNG, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu (17) | 48 | ComSec, SPC, FAO, WPRFMC, French Pacific Fund |
| 1.2 Field study | May & June 2003 | Am. Samoa, Fiji, Guam, Kiribati, Marshall Is., Nauru, New Caledonia, Niue, Samoa, Solomon Is., Tuvalu, Vanuatu, Wallis and Futuna (13) | na | ComSec, SPC |
| 1.3 Production of strategic plan | June–August 2003 | Am. Samoa, Cook Is., FSM, Fiji, Guam, Kiribati, Marshall Is., Nauru, Niue, CNMI, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna (21) | na | ComSec, SPC |

| Project | Date / Place | PICTs involved | No. of PICT participants | Funding support |
|---|---|---|---|---|
| 2. Regional training | | | | |
| 2.1 Fisheries management and statistics | November 2004, Nadi | Am. Samoa, Cook Is., FSM, Fiji, Guam, Kiribati, Marshall Is., Nauru, Niue, CNMI, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna (21) | 40 | ComSec, SPC, FAO, WPRFMC, French Pacific Fund |
| 2.2 Community-based fisheries management and coastal fisheries legislation | April 2005, Honolulu | Am. Samoa, Cook Is., FSM, Fiji, Guam, Kiribati, Marshall Is., Nauru, Niue, CNMI, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu (20) | 46 | ComSec, WPRFMC, SPC, FAO |
| 2.3 Improving information on status and trends of fisheries | May 2006, Apia | Am. Samoa, Cook Is., FSM, Fiji, Guam, Kiribati, Marshall Is., Nauru, Niue, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tonga, Tuvalu, Vanuatu (18) | 24 | FAO/SPC |
| 2.4 Fisheries statistics and stock assessment — phase 1 | November/ December 2006, Suva | Am. Samoa, Cook Is., FSM, Fiji, Marshall Is., Nauru, Niue, CNMI, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna (19) | 25 | ComSec/UNU-FTP/USP/SPC |
| 2.5 Integrating ecosystem approach to fisheries management into CBFM | September 2007, Apia | Am. Samoa and Samoa | 26 | SPC/DMWR Am. Samoa |
| 2.5 Ecosystem approach to fisheries management | October/ November 2007, Noumea | Am. Samoa, Cook Is., FSM, Fiji, Guam, Kiribati, Marshall Is., Nauru, Niue, CNMI, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna (21) | 25 | EU/TNC/SPC |

| Project | Date / Place | PICTs involved | No. of PICT participants | Funding support |
|---|---|---|---|---|
| 2.6 Fisheries statistics and stock assessment — phase 2 | January 2008, Apia | Am. Samoa, Cook Is., FSM, Fiji, Marshall Is., Nauru, Niue, CNMI, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna (19) | 23 | ComSec/UNU-FTP/USP/SPC |
| 2.7 Fisheries policy planning | January/ February 2008 | Am. Samoa, Cook Is., FSM, Fiji, Guam, Kiribati, Marshall Is., Nauru, Niue, CNMI, New Caledonia, Palau, PNG, French Polynesia, Samoa, Solomon Is., Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna (21) | 25 | ComSec/UNU-FTP/USP/SPC |
| **Total of PICT participants trained** | | | **271** | |
| 3. In-country assistance | | | | |
| 3.1 Institutional strengthening | April 2005–February 2006 | Samoa, Niue, Solomon Is., Tonga (4) | 95 | ComSec, SPC |
| 3.2 Coastal fisheries legislation | April 2005–April 2006 | Tonga, Samoa, Tuvalu, Fiji, Solomon Is., Nauru (6) | na | ComSec, SPC |
| 3.2 Community-based fisheries management | March 2004–April 2006 | Am. Samoa, Marshall Is., Tokelau, Fiji, Niue, Tuvalu, Samoa, Nauru, Solomon Is., FSM (10) | 178 | SPC |
| **Total PICT participants trained** | | | **273** | |
| **Total trained at regional and national workshops** | | | **544** | |
| **4. Manuals** | | | | |
| 4.1 Fish size limits | Completed, published and distributed to PICTs | | | ComSec/SPC |
| 4.2 Socio-economic manual | Completed, published and distributed to PICTs | | | EU/SPC |

ComSec: Commonwealth Secretariat; WPRFMC: Western Pacific Regional Fisheries Management Council; na: not available

# Appendix 3

## Assistance and resources required

| Type | Guiding principles and assistance required | Resources required |
|---|---|---|
| 1. Improving understanding of important fisheries species and the ecosystems on which they depend | | |
| RA | *1.1 Collation of knowledge on the life histories of commonly harvested species and their ecosystems* | Staff adviser/consultant, home or SPC based |
| RT | *1.2 Assistance with the preparation of management plans, particularly for vulnerable species* | Regional workshop<br>Consultant required |
| 2. Sustainably managing coastal fisheries, reducing their adverse impacts on coastal ecosystems and optimising production to meet local nutritional needs and contribute to economic development | | |
| RT | *2.1 Follow-up training on fisheries policy analysis and formulation and the development of a manual and template for national fisheries policies* | Regional workshop<br>Consultants |
| IC | *2.2 Provision of in-country assistance on preparation and implementation of national fisheries policies and management plans for coastal fisheries and ecosystems* | Consultant, 12 countries — 1 week in each |
| IC | *2.3. Provision of in-country assistance on use of biological and socio-economic models to assess artisanal, recreational and subsistence fisheries* | Staff adviser/consultant, 15 countries — 1 week in each |
| RA | *2.4 Support for attendance of Pacific Island regional representatives at relevant international forums* | Attendance of 3–5 PICT nationals (e.g. at COFI) |
| RA | *2.5 Postgraduate scholarships in fisheries studies for fisheries agency staff* | Scholarships (3 per year) |
| RT | *2.6 Training in the preparation of project proposals, project design and report writing* | Consultants<br>Regional workshop |
| RT | *2.7 Training in the collection, use and analysis of minimal and appropriate data to assess and manage fisheries* | Consultants<br>Regional workshop |
| RA & IC | *2.8 Production of a detailed manual, such as the PASGEAR manual, on statistics and stock assessment* | Consultants<br>Country visits |
| RT | *2.9 Biennial meetings to review stock assessment progress* | Regional workshop<br>Resource persons |

| Type | Guiding principles and assistance required | Resources required |
|---|---|---|
| RA & IC | *2.10 Support for re-surveying sites covered by PROCFish, and for surveys of additional sites* | 2 scientists* |
| RT & IC | *2.11 Training in the use of fisheries controls and regulations* | Consultant; regional workshop/country visits |
| IC | *2.12 Working with fishing communities to ban damaging fishing methods* | SPC adviser, all countries? |
| IC | *2.13 Aquaculture development and stock enhancement of species including beche-de-mer* | SPC Aquaculture Section |
| IC | *2.14 Design and deployment of artificial reefs and fish aggregating devices and development of plans to finance their maintenance and replacement* | SPC Nearshore Fisheries Development & Training Section |
| 3. Creating community partnerships to support the customary and traditional management of nearby ecosystems and fish stocks | | |
| IC | *3.1 Implementation or strengthening of community-based fisheries management* | SPC Coastal Fisheries Management Section |
| RA & IC | *3.2 Legal advice on legal frameworks, property rights and community fisheries by-laws* | Legal adviser* |
| IC | *3.3 Collection of data from subsistence (community) fisheries* | SPC Coastal Fisheries Management Section and consultant |
| 4. Creating stakeholder collaborations to manage ecosystems and reduce the negative environmental impacts of non-fisheries activities, including those resulting in high loads of silt and nutrients in coastal waters | | |
| IC | *4.1 In-country assessment of non-fisheries impacts on marine ecosystems* | EAF adviser* |
| IC | *4.2 Implementation of ecosystem-based fisheries management* | (as above) |
| IC | *4.3 Establishment of a programme of monitoring physical, chemical, biological, social and economic parameters of coastal waters and appropriate standards* | (as above) |
| IC | *4.4 Positioning, establishment and monitoring of marine protected areas* | Consultants 14 countries |
| RA | *4.5. Design of multimedia campaigns and preparation of publicity material* | SPC Fisheries Information Section & SPC Regional Media Centre |

| Type | Guiding principles and assistance required | Resources required |
|---|---|---|
| 5. Promoting the participation of women and youth in all fisheries-related activities | | |
| RA | *5.1 Provision of youth scholarships at regional universities* | Scholarships (6 per year) |
| RA | *5.2 Provision of university scholarships for women employed in fisheries agencies* | Scholarships (3 per year) |
| RA | *5.3 Development by regional training institutions of fisheries courses that address the needs of PICTs* | USP and SPC staff to consult<br>Funds for USP staff positions |
| RA | *5.4 Provision of training for youth in maritime, fishing and seafood safety skills with attachments to operations run by experienced local fishers* | SPC Nearshore Fisheries Development & Training Section scholarships |
| RT | *5.5 Workshops, specifically designed for women, on businesses related to fisheries* | SPC Nearshore Fisheries Development & Training Section |
| RT | *5.6 Workshops, emphasising the participation of women, on fish handling and seafood safety* | SPC Nearshore Fisheries Development & Training Section |
| IC | *5.7 Assistance in the provision of short- and long-term technical assistance to fisheries agencies that lack qualified staff* | Fisheries advisers for small island states |
| 6. Enhancing the regional exchange and sharing of information regarding areas of common interest relating to the management of ecosystems and fisheries | | |
| RT | *6.1 Convening of regional meeting on PICT progress in ecosystem-based fisheries management; to be attended by representatives from national fisheries agencies, environmental agencies, relevant NGOs* | EAF adviser (see 4.1 above)<br>Consultants<br>Workshop |
| IC | *6.2 Development by national fisheries agencies of websites on fisheries, fisheries management and ecosystem conservation with assistance from an appropriate regional organisation, such as SPC* | Fisheries IT specialist* |
| RA | *6.3 Production of a special interest group newsletter and similar information products to share information and disseminate the latest developments in ecosystem-based fisheries management by an appropriate regional organisation, such as SPC* | EAF adviser & Fisheries Information Section |

| Type | Guiding principles and assistance required | Resources required |
|---|---|---|
| RA | 6.4 *Establishment and operation of a regional knowledge-exchange system, including a regional network of local experts in areas of fish stock assessment, community-based fisheries management, ecosystem-based fisheries management, fish businesses, planning and management* | Fisheries IT specialist<br>Regional specialists |

RT = regional training; RA = regional assistance; IC = in-country assistance / * Recommended new SPC staff position



# Appendix 4

## People involved in the development of the policy

### Country representatives

| | |
|---|---|
| American Samoa | Ray Tulafono |
| Cook Islands | Ian Bertram |
| Cook Islands | Nooroa Roi |
| Federated States of Micronesia | Valentin Martin |
| Fiji | Sanaila Naqali |
| Fiji | Ram Lakhan |
| French Polynesia | Stephen Yen Kai Sun |
| Marshall Islands | Glen Joseph |
| Nauru | Charleston Deiye |
| New Caledonia | Nathaniel Cornuet |
| Niue | James Tafatu |
| Northern Mariana Islands (CNMI) | Mike Tenorio |
| Palau | Theofanes Isamu |
| Papua New Guinea | Augustine Mobiha |
| Samoa | Atonio Mulipola |
| Samoa | Kerryn Kwan |
| Samoa | Olofa Tuaopepe |
| Samoa | Ulusapeti Tiitii |
| Solomon Islands | Sylvester Diake |
| Tonga | Poasi Ngaluafe |
| Tuvalu | Tupulaga Poulasi |
| Vanuatu | Graham Nimoho |
| Vanuatu | Jason Raubani |
| Wallis & Futuna | François Périnet |
| Wallis & Futuna | Bruno Mugneret |

**Organisers, resource persons, consultants**

| | |
|---|---|
| Secretariat of the Pacific Community | Ueta Fa'asili |
| Secretariat of the Pacific Community | Lindsay Chapman |
| Secretariat of the Pacific Community | Jean-Paul Gaudechoux |
| Secretariat of the Pacific Community | Etuati Ropeti |
| Food & Agriculture Organization of UN | Masanami Izumi |
| W. Pacific Regional Fishery Management Council | Manuel P. Duenas |
| Consultant | Michael King |
| Consultant | Semisi Fakahau |
| Consultant | Tukabu Teroroko |
| Consultant | Garry Preston |