



Australian Government
AusAID

Valuing Pacific fish

A FRAMEWORK FOR FISHERIES-RELATED
DEVELOPMENT ASSISTANCE IN THE PACIFIC

NOVEMBER 2007



www.ausaid.gov.au





Australian Government
AusAID

Valuing Pacific fish

A FRAMEWORK FOR FISHERIES-RELATED
DEVELOPMENT ASSISTANCE IN THE PACIFIC

NOVEMBER 2007

An Ocean for Growth and Stability

© Commonwealth of Australia (2007). This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Commonwealth. Requests and inquiries concerning reproduction and rights should be addressed to the Commonwealth Copyright Administration, Attorney General's Department, Robert Garran Offices, National Circuit, Barton ACT 2600 or posted at <http://www.ag.gov.au/cca>

ISBN 978-1-921285-04-2

For further information about the
Australian overseas aid program, contact:

AusAID Public Affairs Group

AusAID

GPO Box 887

Canberra ACT 2601

Phone +61 2 6206 4727

Facsimile +61 2 6206 4695

Internet www.ausaid.gov.au

Designed by GRi.D, Canberra

Printed by Pirion, Canberra

MAIN COVER PHOTO: *Women selling purse-seined tuna, Seventh-day Adventist Markets, Honiara.*

PHOTO: Rob Maccoll

COVER PHOTOS, TOP TO BOTTOM:

1. *Too and kaaloo, bivalves gathered for local sale, Vava'u Market, Tonga.* PHOTO: Mecki Kronen, SPC
2. *Diverse catch of small reef fish at market, Tongatapu, Tonga.* PHOTO: G Anderson, AusAID
3. *Tuna processing lines, RD Canning, Madang, Papua New Guinea.* PHOTO: C Bowman

PICTURE BARS:

p. iv: *Sandstar (Astropecten sp.) on sheltered back reef flat, Toberua, Fiji.* PHOTO: G Anderson, AusAID

p. 1: *Catch of juvenile fish, Seventh-day Adventist Markets, Honiara.* PHOTO: Rob Maccoll

p. 7: *Tuna long line vessels in port, Suva, Fiji.*
PHOTO: G Anderson, AusAID

p. 8: *Cast netting at reef edge, Anibare, Nauru.*
PHOTO: G Anderson, AusAID

p. 17: *High-value Sandfish (beche de mer) before processing, Suva, Fiji.* PHOTO: G Anderson, AusAID

p. 24: *Well-trussed mangrove crab at market, Tongatapu, Tonga.* PHOTO: G Anderson, AusAID

p. 34: *Stunted tilapia, which interfere with traditional milkfish culture, Buada Lagoon, Nauru.*
PHOTO: Satya Nandlal, SPC

p. 45: *Detail, woven rope and bottom of locally-made fishing boat awaiting repair after cyclone damage, Ha'apai, Tonga.*
PHOTO: G Anderson, AusAID

Contents

FISHERIES AND THE PACIFIC ISLAND COUNTRIES	1
The future in fisheries in the Pacific—value not volume	2
Fisheries and aid	4
A framework for Australia’s fisheries-related assistance	5
STRATEGIC OBJECTIVES—TOWARDS 2020	7
GUIDING PRIORITIES FOR THE NEXT FIVE YEARS	8
Improving fisheries governance and institutions	9
Supporting policy reforms and countering corruption	9
Strengthening institutions	9
Enhancing compliance	10
Supporting private sector led development of commercial fisheries and aquaculture	11
Improving infrastructure	11
Building capacity	12
Potential growth areas	12
Sustaining small-scale coastal commercial and subsistence fisheries	13
Supporting effective ecosystem-based management for sustainability	14
Improving understanding and access to information	15
Knowledge and access to information	15
Fisheries, national food security and nutritional needs	16
Fisheries, climate change and adaptation	16
IMPLEMENTATION	17
Regional activities: Increasing the effectiveness of regional organisations	17
Targeted bilateral activities: Strengthening institutional and national capacities	18
Analytical research program on fisheries issues to inform aid programming	20
Partnerships: Forging stronger links	20
The first five years: An implementation program	22
Applying lessons learned	23
IS IT WORKING? ASSESSING THE EFFECTIVENESS OF ENGAGEMENT	24
Performance	24



ACRONYMS AND ABBREVIATIONS	30
SELECTED SOURCE DOCUMENTS	31
APPENDICES	33
1 Overview of fisheries and sustainable development in Pacific island countries	34
2 Regional fisheries-related development assistance	45
BOXES	
1 Pacific tuna fisheries	4
2 Developing responsible fisheries	4
3 AusAID's Pacific fisheries framework—objectives and outcomes	7
4 Attributes of sustainable fisheries-sector development assistance	8
5 Start your fisheries business	11
6 Ecosystem-based fisheries management	14
7 Some of the lessons learned	23
8 Risk management: selected key risks and approaches to management	25
TABLES	
1 Contribution of fisheries to the economies of the three smallest and three largest Pacific island economies	18
2 Performance assessment matrix	26
3 Framework review: performance assessment matrix <i>Valuing Pacific Fish—An Ocean for Growth and Stability</i>	28

Fisheries and the Pacific island countries



Pacific island countries¹ are maritime nations with vast marine estates. They cover almost 30 million square kilometres of the Pacific Ocean and contain a high proportion of the largest and most valuable tuna fisheries in the world. The coral reefs, lagoons and deeper water habitats of the region are significant components of global tropical marine biodiversity. They form part of the fabric of Pacific cultures and society.

The future of Pacific island subsistence and market economies is tied to the health of the freshwater, coastal and oceanic ecosystems of the region and the long term sustainability of their fisheries². Food harvested locally from those systems is a critical source of nutrition to island populations, with subsistence fisheries important contributors to overall food security and the informal economy. Where there has been domestic development, locally based fishing businesses of all sizes form a core area of private sector growth, creating direct and indirect employment for men and women in towns and villages.

Increasing the benefits from sustainable fisheries to Pacific islanders offers one of the best opportunities to address some of the key economic issues facing the countries of the region. In the smaller island

and atoll states in particular, where there is very little land, there are few other opportunities for sustainable economic development. For some countries, commercial fisheries are possibly the only sector with that potential. Improving the sustainability of fisheries is likely to become of increasing strategic significance in regional economic growth and stability.

In many Pacific island countries there have long been systems of customary marine tenure and community-level controls over access and use rights for inshore and lagoonal areas, some of which are still in place. Community-based management, which can draw on the strengths of customary systems, is becoming more important. This is particularly the case in more remote coastal areas and other circumstances where centralised controls are not effective. As elsewhere, in the Pacific it is almost always men who are employed in offshore and coastal commercial fishing operations, and who are active in boat-based artisanal and subsistence fishing. In contrast, more than 80 per cent of employees in shore-based processing plants are women. It is also mainly women and young boys and girls who collect a wide range of species from shallow reef, mangrove and lagoonal areas. It is women who process and market the catch. It is vital to understand and respond to the different roles

¹ This includes all 22 Pacific island countries and Territories.

² 'Fisheries' as used in this document is intended to include oceanic fisheries, targeting tuna and associated species offshore in purse seine, pole and line and long line fisheries; small-scale inshore commercial and coastal artisanal and subsistence fisheries, taking shelf, lagoon and a wide range of reef species (for food, non-food and recreational use); coastal deepwater line and trap fisheries; freshwater fisheries; and aquaculture or mariculture of fishes, invertebrates and aquatic plants. In some areas, recreational and game fishing tourism is locally significant.



Women working in commercial tuna processing lines, RD Canning, Madang, Papua New Guinea. PHOTO: C Bowman

that men and women have in fisheries in the Pacific and how they could contribute to sustainable marine resource use and management.

There are already major challenges for fisheries in the region. There are challenges in improving governance, in developing a competitive private sector, and in safeguarding livelihoods. During the next decade, Pacific island countries will face increasingly difficult and complex tasks in managing their fisheries effectively and in ensuring a sustainable flow of benefits to their peoples. This challenge is identified in the *Pacific Plan for Co-operation and Integration* (the Pacific Plan) and reinforced in the *Vava'u Declaration*.³ Resources will be under increasing pressures from modern commercial fishing fleets and other direct and indirect impacts of onshore development and population growth. They will be affected by changes in coastal and oceanic systems, including the effects of climate change.

A major challenge for the limited and increasingly stretched Pacific island fisheries administrations and the regional organisations⁴ that support them will be managing fisheries for long term ecological sustainability in the face of these pressures. Governments will have to manage significant changes in developing and implementing ecosystem-based management in inshore areas and in oceanic fisheries (see Box 6, p. 14).

Meeting these challenges requires urgently building the capacity of national marine resource management agencies and regional organisations, in industry, and in the wider community.

THE FUTURE IN FISHERIES IN THE PACIFIC—VALUE NOT VOLUME

While there are impediments, there are still many opportunities for sustainable economic gains and community benefits from fisheries in the region. They exist to varying degrees for all Pacific island countries.⁵ There are opportunities in large-scale oceanic fisheries, for fisheries in deeper water outside the reefs, for inland and coastal fisheries, for the culture of marine and freshwater species, and for coral reef and fisheries-based tourism. The nature of the opportunities in fisheries in the region is changing as the constraints of management for long term sustainability are addressed. There is growing emphasis on adding value to fisheries production rather than increasing the volume, and to retaining more of that value in the Pacific.

Harvests of marine resources across the Pacific are approaching the limits of biological sustainability. All Pacific Forum members have endorsed the need to manage their marine natural resources sustainably, both through the Pacific Plan and

3 Pacific Islands Forum Leaders' *Vava'u Declaration on Pacific Fisheries Resources*, Tonga, October 2007.

4 Including the Secretariat of the Pacific Community (SPC), Forum Fisheries Agency (FFA) and Secretariat of the Pacific Regional Environment Programme (SPREP).

5 *Pacific 2020: Challenges and Opportunities for Growth*, published in 2006, provides an overview of factors influencing economic growth in the Pacific. Appendix 1 also provides a broad description of the oceanic, coastal and freshwater resources and development opportunities, and identifies some impediments.



Catch of serranids, lutjains and trigger fish from reef slope, roadside stall, Nauru. PHOTO: Darren Cameron, FFA

BOX 1: PACIFIC TUNA FISHERIES

Western and Central Pacific Ocean tuna fisheries are the world's most valuable tuna fisheries. They have a total landed value annually of around US\$2 billion and an estimated market value of US\$6–8 billion. Almost half of this catch is reported as taken from the waters of Pacific island countries, with a landed value of US\$800–900 million. Access agreements for the fleets of distant-water fishing nations that take most of the industrial tuna bring US\$60–70 million annually, and there is increasing emphasis on establishing domestic tuna fisheries. Catches in 2006, estimated at over 2.3 million tonnes, were the highest recorded; but two of the most valuable species, yellowfin and bigeye tuna, are at serious risk of overfishing.

through the development of the *Pacific Islands Regional Oceans Policy* and its *Plan of Action*.

Pacific island countries have many shared development issues, as well as shared responsibilities for highly-migratory fish stocks. They have limited resources to meet the many demands of effective government and must rely heavily on coordinated regional approaches (see Box 1). That approach is more evident in fisheries than in other sectors in the Pacific—where cooperation on management of shared oceanic stocks is perhaps better developed than in any other oceanic region in the world.

Meeting new national obligations under international fisheries agreements is a further challenge.

FISHERIES AND AID

The last two decades have been a period of major change in fisheries policies in many countries, with growing international concern over increasing fishing pressure on decreasing global resources. The shift towards sustainability is also seen in the use of risk-averse strategies that optimise economic returns while addressing environmental impacts (Box 2). Fisheries management sets out to limit fishing effort and set catches within ecologically sustainable limits. Economic development policies have also changed. They now emphasise the role of the private sector, seek to integrate developing countries in the global economy, and recognise the potential of linking small-scale operators to markets. There has also been a growing awareness of the contributions of women in the fisheries sector, and of the need to address

BOX 2: DEVELOPING RESPONSIBLE FISHERIES

The 1995 FAO Code of Conduct for Responsible Fisheries was the result of global concerns about the sustainability of fisheries. A range of non-binding International Plans of Action have now been developed, incorporating key components of the Code. They are being implemented through Regional Fisheries Management Organisations and domestic measures. They include:

- > International Plan of Action for reducing incidental catch of seabirds in long line fisheries. Rome: FAO. 1999.
- > International Plan of Action for the conservation and management of sharks. Rome: FAO. 1999.
- > International Plan of Action for the management of fishing capacity. Rome: FAO. 1999.
- > International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Rome: FAO. 2001.

Sustainable fisheries commitments were agreed in the Plan of Implementation of the World Summit on Sustainable Development, including a commitment to:

Maintain or restore stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015.

The precautionary approach is a key component of these measures.

gender and other social issues directly in fisheries development activities.

Governments and donors have moved away from promoting higher catches and expanded fleets. They are increasingly supporting policies aimed at sustainability and ecosystem-based and integrated management, recognising the basic dependence of economic sustainability on continued ecosystem health. There is increasingly an emphasis on improved fisheries policy, legislation and administration and institutional strengthening, fisheries research and compliance services, and increased education and training.

Australia has been one of the primary donors in the Pacific for decades. Total Australian fisheries-related aid for the Pacific over the five years to 2004 ranked fourth after Japan, the European Union, and the USA. As a proportion of each donor's total aid for the Pacific, Australian fisheries-related assistance (at 0.55 per cent over that period) was lower than that from Japan (13.34 per cent), the United Kingdom

(12.07 per cent), the European Commission (6.73 per cent), and the USA (1.75 per cent), indicating the differing priorities amongst donors.⁶

AusAID's recent direct commitment to fisheries-related development assistance in Papua New Guinea and the Pacific has been A\$6–8.5 million annually. There has also been a substantial Australian investment in other aid activities that have had indirect fisheries benefits, including governance, infrastructure, and community development activities. In addition, the Defence Cooperation Program funds the Pacific Patrol Boat Program, which is a major Australian contribution to regional security and surveillance and the regional capacity to combat illegal fishing.

Through AusAID, Australia has been the main long term donor to the two primary regional fisheries-related organisations, Secretariat of Pacific Communities (SPC) and FFA. It has supported their programs on sustainable management of coastal and oceanic fisheries and Pacific island input into the Western and Central Pacific Fisheries (WCPF) Commission. Australia continues to play a major role in developing the capacity and continued effectiveness of these regional organisations to coordinate and provide technical support to national marine resource management agencies. Australia has also provided targeted bilateral support to strengthen the effectiveness of national fisheries management agencies, most recently in Papua New Guinea and Samoa, with one project in Tonga current in 2006.

Australian agencies and institutions have much strength and experience in designing, delivering and assessing fisheries-related aid. They are recognised as world leaders in tropical marine science and oceanography; aquaculture; fisheries management, monitoring and enforcement; and in social and economic analysis.⁷ There is also a depth of experience that can be drawn on from the Australian industry in fishing and fish processing operations and business and market development.

A FRAMEWORK FOR AUSTRALIA'S FISHERIES-RELATED ASSISTANCE

Australia's overall aid effort is provided within the mandate of the 2006 White Paper *Australian Aid: Promoting Growth and Stability*. The key themes of Australia's development assistance are accelerating economic growth, fostering functioning states, investing in people, and promoting regional stability and cooperation. The White Paper provides a whole-of-government commitment to providing effective aid though a focus on performance, combating corruption, enhancing engagement in the Asia-Pacific Region, and working in partnership with regional governments and other donors.

AusAID's framework for engagement in fisheries-related development assistance in the Pacific has built substantially on the analysis, consultation and outcomes of the *Pacific 2020* process (See Box 9, Appendix 1).

This framework will support increasingly effective engagement by AusAID and other Australian Government agencies in fisheries-related aid in the Pacific region. It will improve coordination in the design and delivery of Australia's fisheries-related aid. It will be implemented by strengthening relationships with regional organisations and other partners, and by targeting bilateral and multi-country programs that meet the needs and priorities identified by Pacific island countries. Strategic research to improve the focus and assess the effectiveness of Australia's fisheries-related aid will also be strengthened.

The framework provides a structured and strategic approach to fisheries-related assistance in the region so that:

- > fisheries are an integral component of Australia's development assistance in the Pacific, recognising that they are a key potential growth sector, with the prospect of direct contributions to regional and national economic growth, poverty alleviation and food security

⁶ See Appendix 2 for more detail.

⁷ See Appendix 2.

- > there is a framework for development of fisheries-related input to the major regional initiatives responding to the priorities identified in *Australian Aid: Promoting Growth and Stability*, including those in governance, anti-corruption, infrastructure, incentives, rural development and environment
- > fisheries are included appropriately in AusAID's Pacific regional and country engagement strategies, in response to the priorities identified by Pacific island countries
- > there is a coherent framework and a capacity to provide leadership for partnerships in fisheries-related aid and engagement with other Australian government agencies, Australian research institutions, other donors and international financial institutions, as well as government agencies, industry groups and communities in the Pacific.



LEFT: *Small fish in ice slurry, Seventh-day Adventist Market, Honiara.* PHOTO: Rob Maccoll

RIGHT: *Dressing red snapper (Etelis carbunculus) for export. Koumac, New Caledonia.* PHOTO: Ben Ponia, SPC

Strategic objectives—towards 2020



The broad aim of *Valuing Pacific Fish—An Ocean for Growth and Stability* is: To assist Pacific island countries to increase the contribution of fisheries to reducing poverty and achieving sustainable development.

It has two primary objectives (Box 3):

- > to maximise the flow of benefits to Pacific island peoples from sustainable commercial and subsistence fisheries
- > to implement effective ecosystem-based fisheries management for sustainability.

The outcomes will contribute directly to the four major themes identified in *Australian Aid: Promoting Growth and Stability*, in accordance with its overarching principles of gender equality, untied aid, and partnerships.

This framework is focused on the opportunities in the region in oceanic and coastal fisheries and aquaculture. This focus will support Pacific island countries in addressing the priorities for fisheries in the Pacific Plan.

It is expected that Australia's fisheries-related aid objectives in the region will inform the activities of other government agencies. The framework for engagement does not address activities of the Australian private sector.

BOX 3: AUSAID'S PACIFIC FISHERIES FRAMEWORK—OBJECTIVES AND OUTCOMES

STRATEGIC OBJECTIVE 1

Maximising the flow benefits to Pacific island peoples from sustainable commercial and subsistence fisheries

- OUTCOMES
- Improved fisheries governance
 - Sustainable fisheries business
 - Increased benefits from oceanic and deep-water fisheries
 - Enhanced livelihoods from aquaculture, small scale commercial and fresh water and marine subsistence

STRATEGIC OBJECTIVE 2

Implementing effective ecosystem based fisheries management for sustainability

- OUTCOMES
- Strengthened national and regional fisheries management frameworks for ecosystem-based management
 - Increased capacity in fisheries management
 - Improved understanding of fisheries resource needs for food security and nutrition
 - Improved knowledge and understanding for sustainable fisheries—resources, status and economic and social components

Guiding priorities for the next five years



The immediate focus of this framework is to guide AusAID's engagement in the sector for the next five years, in the context of long term economic development and sustainability goals.

Australia's fisheries-related aid will be focused on the priorities identified by Pacific island countries and where support is needed in one or more of the priority areas below. This assistance may be supported through partnerships with other donors, regional organisations and in bilateral programs (see Box 4). A gender-sensitive and equitable approach will be taken to ensure that men and women are involved, are able to participate, and can benefit from these activities.

The five priority areas for AusAID's regional and bilateral engagement in the sector over the next five years are:

- > improving fisheries governance and regulation, strengthening institutions, enhancing legal frameworks and compliance, and countering corruption
- > supporting private sector led development in commercial fisheries and aquaculture, including improvements in the investment climate, trade and market access, infrastructure and in private sector capacity
- > sustaining small-scale coastal commercial and subsistence fisheries, with the development of effective community-based management of inshore resources a key component

- > supporting effective ecosystem-based management for sustainability, with an emphasis on capacity building, training and education in government agencies, in fisheries businesses and in the wider community
- > improving knowledge to build accessible information in key areas, including fisheries resources, levels of use and sustainability, impacts of factors such as climate change on ecosystem processes, fisheries and national food security and nutritional needs, and economic and social components.

BOX 4: ATTRIBUTES OF SUSTAINABLE FISHERIES-SECTOR DEVELOPMENT ASSISTANCE

Activities should:

- > promote equitable arrangements for resource rents, taxation, cost recovery and flows of benefits
- > sustain increased transparency and prevent corruption
- > promote private sector-led development
- > encourage regional cooperation
- > promote integration of Pacific island countries into the regional and global economies
- > apply an ecosystem-based approach to fisheries management
- > address the problems of open access in fisheries, including the use of community and rights-based management in ways that are adapted to the situation in each Pacific island country
- > sustain livelihoods of men and women dependent on subsistence and small-scale harvesting.

PRIORITY:

IMPROVING FISHERIES GOVERNANCE AND INSTITUTIONS

The capacity of Pacific island countries to realise the potential contribution of their fisheries to sustainable development can be significantly improved by addressing gaps and weaknesses in the institutional structures for fisheries governance at national, regional and community levels.

Australia has played a leading role in developing modern approaches to fisheries policy and management. These include the application of fisheries rights-based management and resource allocation and the development of ecosystem approaches to fisheries management. It has also been active in combating corruption, and supporting global measures to counter illegal fishing in international waters. In development assistance in the region, Australia has already made a major contribution in regional cooperation, the pursuit of good governance, and in institutional strengthening in national governments and marine resource management agencies.

Drawing on this experience, priority will be given to support for revenue, regulatory, compliance, and administrative and policy reforms relating to the fisheries sector. These will be delivered through regional organisations, bilateral initiatives and cooperative programs with other donors.

SUPPORTING POLICY REFORMS AND COUNTERING CORRUPTION

Of continuing concern is the lack of accountability and transparency in decision-making, in the implementation of fisheries legislation, and in enforcement mechanisms. In some cases, national accounts have suffered and local communities have lost income because of corruption around licensing and the management of foreign fishing and access arrangements.

AusAID will continue to encourage improved financial controls and measures to counter corruption in resource management agencies. It will encourage agencies in the region to apply the approaches outlined in AusAID's policy document

Tackling Corruption for Growth and Development: A Policy for Australian Development Assistance on Anti-Corruption. Such reforms to the fisheries sector cannot be effective in isolation. They complement and benefit from broadly-based anti-corruption initiatives within governments, as well as initiatives aimed at fostering wider public demand for transparency and accountability.

STRENGTHENING INSTITUTIONS

As a priority, AusAID will continue to work in partnership with governments in the region to build stronger local ownership of institutional and governance reforms and a commitment to them. Mechanisms to provide the long-term periodic support that is needed to reinforce gains in institutional strengthening and sustain change will be considered. Effective technical assistance, which has been a core element of past support for institutional strengthening projects, requires a long term commitment by donors. It must be structured to overcome internal opposition to change and to foster wider government support and long term commitment.

The Pacific region is known for the strength of its regional cooperation in fisheries management. The establishment of the WCPF Commission and the 2004 Pacific Forum directive for increased Ministerial engagement in regional fisheries matters are important steps in further improving that effectiveness.

Both as a donor and as an active member, Australia will continue to play its part in whole-of-government efforts to maintain and strengthen the relevance, technical competence and currency of fisheries-related regional institutions and their effectiveness and integrity. It will also maintain its commitment to funding that supports the strategic programs of these organisations, rather than funding discrete projects with corresponding detailed reporting and management requirements.

The scope of AusAID's fisheries-related assistance will continue to include activities to enhance the role of non-government groups in fisheries, including industry associations and other regional and international environmental and community groups.



Transporting cultured seaweed to drying area, Solomon Islands. PHOTO: Gideon Tiroba, SPC

ENHANCING COMPLIANCE

Levels of illegal, unreported and unregulated fishing are difficult to estimate accurately. They are a growing concern because of the potential effects on fish stocks and non-target species, the income lost to Pacific island countries and others fishing legally, and the reduced credibility and effectiveness of national and international management arrangements.

Australia's investments in fisheries monitoring and compliance in the Pacific have underpinned efforts to combat illegal fishing in the region. These include the Pacific Patrol Boat Program, Australia's own maritime patrol activities, and joint surveillance activities with New Zealand and France. An important component has been support for FFA compliance activities and compliance components in bilateral institutional strengthening projects. Establishing a compliance regime for the high seas under the WCPF Commission will increase the effectiveness of the existing national and regional compliance programs but will also increase demands on them.

Regional institutions, including FFA and SPC, are recognising the need to rationalise, strengthen and coordinate fisheries activity and agencies in addition to strengthening regional multilateral frameworks to permit the more effective exchange of enforcement information and powers in relation to fisheries.

Initiatives under active consideration by the region include expanding agreements, patterned on the existing Niue Treaty Subsidiary Agreement model, which allow Pacific island nations to share fisheries surveillance data, cross-vest national enforcement powers, and permit better use of fisheries surveillance data for law enforcement to deter illegal fishing and better protect regional fisheries.

AusAID will encourage continued Australian whole-of-government efforts in fisheries monitoring, compliance and surveillance in the region. This includes identifying areas in which additional support may be required for regional and Pacific island compliance and inspection capacities, increasing cost recovery from the industry, and supporting effective and transparent legal action and deterrence.

Pacific island countries have new flag and port state responsibilities as a result of the formalisation of Exclusive Economic Zones (EEZ), other expanded national fisheries jurisdictional limits, and implementation of binding international maritime agreements since adoption of the UN Convention on the Law of the Sea (UNCLOS). These nations will need assistance to exercise their responsibilities, and to meet the range of other binding commitments under Regional Fisheries Management Organisations such as the WCPF Commission and the proposed South Pacific Regional Fisheries

Management Organisation (SPRFMO).⁸ There are already strong FFA, SPC and Global Environment Facility programs in this area, and the WCPF Commission is also expected to assist.

PRIORITY:
SUPPORTING PRIVATE SECTOR LED DEVELOPMENT OF COMMERCIAL FISHERIES AND AQUACULTURE

Building capacity in the private sector is an important driver for economic growth in the region; it will determine the future contribution of fisheries in the economies of Pacific island countries. Along with high business costs and other constraints, the growth of domestic commercial fisheries has also been impeded by inadequate infrastructure and services. These include ports and harbours, fuel and other energy supplies, transport services, markets, cold storage and processing centres, and shortfalls in the way the facilities are operated both by government and the private sector. Those inadequacies have also severely limited the benefits that some countries might otherwise have generated from servicing foreign vessels and domestic fleets. In some areas, there is a need for increased certainty over access and tenure of areas for land-based and aquaculture facilities. While there are obvious difficulties in establishing competitive domestic fishing enterprises in the Pacific, there has been a shift away from donor support for direct, public sector ownership of major facilities that can be financed, built and operated competitively by the private sector.

Education and training in industry, government and community organisations, and successful small business and resource management will be made more accessible (see Box 5). The types of education and training that could be eligible for AusAID support include:

- > regional initiatives in private sector skills training, competency-based vocational training, and mentoring arrangements for men and women engaged in fisheries-related businesses
- > public sector skills in science, research, law, economics, and monitoring and enforcement needed for sound ecosystem-based

BOX 5: START YOUR FISHERIES BUSINESS

The Start Your Fisheries Business' (SYFB) program was begun in Papua New Guinea and was extended to Vanuatu and the Solomon Islands in 2005. It is a collaborative program between the SPC, the Small Business Development Centre, the Papua New Guinea National Fisheries Authority and the Commonwealth Secretariat. The program provides a model for the delivery in the Pacific of training for small business planning and management aimed at artisanal fishers. Further gains may be possible from longer-term support for new businesses and continuing mentoring in applying business skills for men and women engaged in the sector.

fisheries management and integrated coastal zone approaches

- > economics, trade-related development and maritime law and social sciences relevant to fisheries policy-making and management.

IMPROVING INFRASTRUCTURE

AusAID has supported the work required to address infrastructure policy issues, including equitable cost recovery, operational efficiency, private sector development, and transparency in contracting. While it has funded construction of wharfs and shore-based processing and training facilities in the past, AusAID has not been involved recently in major capital projects in fisheries-related infrastructure.

AusAID has, however, provided support for improved infrastructure for small-scale fisheries. Examples include village-based freezer and ice-making capacity built as a component of larger outer island development programs or small-scale local projects. Australia will also continue to provide assistance in infrastructure and capacity in areas of customs and quarantine (including sanitary and phyto-sanitary capacity), which should contribute to reduced transaction costs and promote fisheries-specific export growth.

The Infrastructure for Growth Initiative announced in *Australian Aid: Promoting Growth and Stability* will provide an opportunity to re-examine the potential for involvement in fisheries-related infrastructure. The approach for infrastructure

⁸ A new regional agreement is being negotiated to establish the SPRFMO, which is intended to cover a range of commercially important species not managed under the WCPF Commission.



Clam rearing hatchery—for restocking and live export, Kiribati. PHOTO: Ben Ponia, SPC

development proposed under that initiative is intended to improve the linkages between rural areas, lagging regions and centres of growth. Projects that build small-scale community-driven infrastructure in rural areas may also be appropriate where they are done in partnership with local communities and the private sector.

Where possible, AusAID will work in partnership with other donors and agencies that are active in infrastructure in the region. There are opportunities for cooperation with the European Union, Japan, the Asian Development Bank and the World Bank.

BUILDING CAPACITY

Australia has the range and quality of expertise and workplace settings necessary to build fisheries-related capacities in the public and private sectors in the Pacific. A more strategic approach will require an assessment of current regional capacity and needs along with the most effective approaches to capacity building. It will identify the potential linkages between Australian institutions and the existing regional programs of the SPC and FFA, regional institutions such as University of the South Pacific (USP) and University of Papua New Guinea (UPNG), and other national facilities providing technical training for seafarers and fisheries managers and the industry. There are current programs aimed at small-scale fisheries (Box 5). Other programs supported

by SPC and FFA provide training for larger-scale commercial operations, processors and exporters in Pacific facilities and in New Zealand and Australian training institutions.

POTENTIAL GROWTH AREAS

Development of aquaculture in the Pacific has had varied success, both in village-level enterprises designed to increase local incomes and available food products, and in larger commercial operations for high-value products such as pearls. Market access and production and transport costs may preclude intensive aquaculture for fresh and frozen products in more isolated areas, but there is increasing interest in some countries in expanding pearl culture, seaweed and a range of other aquatic organisms for local consumption and export markets. There is potential for significant gains from private sector engagement in developing high-value, low-volume products for export, including disease-free broodstock and biopharmaceutical products. SPC has active regional programs in freshwater aquaculture and mariculture. The Australian Centre for International Agricultural Research (ACIAR) has had a long term engagement in the region, developing capacity in government agencies and the private sector. AusAID will continue to support these types of activities and will explore potential collaboration, cooperation and integration with FAO projects and other donor assistance in business development.

PRIORITY:
**SUSTAINING SMALL-SCALE COASTAL COMMERCIAL
AND SUBSISTENCE FISHERIES**

A better understanding of the resource base and the economics of small-scale commercial and subsistence fisheries is needed to underpin sustainable use and to maintain the livelihoods these fisheries support. AusAID will continue to support initiatives, such as the SPC Coastal Fisheries Program, that are geared to increasing the benefits from sustainable small-scale fisheries. For some small commercial fisheries, there are opportunities from access to markets through local processing and transport infrastructure that has been developed to service large-scale commercial operations. Support may also be needed to improve local processing and in market development to meet food quality and export requirements.

Effective community-based management for inshore resources will become more important as pressures on resources grow. Potential conflicts in resource use must be identified and addressed, particularly where offshore operations could interact with small-scale fisheries, or where they could compete for access to commercially valuable species in coastal fisheries. To promote long term sustainability, management agencies need to build the skills to support communities in assessing the attributes, status, potential and limits of local resources. Local men and women can then decide how they want to address environmental and other impacts and the sustainable livelihood options they consider most appropriate. In some cases, changes may be needed in governance and institutional frameworks to regulate access and strengthen transparency and accountability in community-based management groups.

Community-based fisheries management can provide a cost-effective means to extend and complement capacities in national fisheries management agencies. It does, however, need national governments to invest resources in those agencies and in the communities, both for initial development and to sustain and monitor the effectiveness of activities over time. Resources and support are required to maintain the strategies and the consultation processes that are necessary to engage and enfranchise men and women who

are involved in artisanal and subsistence fishing. That will be particularly important where local communities have had little or no input into more recent and centralised decision-making.

Fisheries are an important part of household activities and food security. Women and, to a varying extent, youth have a major role in coastal subsistence fisheries, in small-scale commercial fisheries, and in shore-based components of offshore fisheries, either directly or in processing and local marketing and business activities. The potential roles of women in the sector must be recognised, better understood and factored into the design and implementation of fisheries assistance. Women must have a part in developing management arrangements, including community-level committees and action groups.

Industrial offshore fisheries development can pose risks to local communities and their economies. It may create conflict over access to inshore resources and increased pressure on artisanal fisheries. It can have other effects, such as the unloading of surplus or low quality fish on local markets at prices that cannot be matched by local small-scale producers. Of particular concern is the high risk of increased sexual exploitation of women and children, increased HIV/AIDS transmission, and impacts on culture and local traditions associated with onshore processing, inshore transshipment and servicing of foreign industrial fleets.

Reducing the risks of these economic and social impacts requires a range of policies and practical measures, including the development and delivery of appropriate education programs to men, women and youth in local communities, to local fishers, policy makers and foreign fishers. Other elements include implementing codes of conduct for foreign fishing vessels and crew; strengthening of civil society and 'watchdog' groups, including women's organisations and other community groups; and monitoring of foreign fishing vessels and local market prices.

AusAID will negotiate targeted programs with partner governments for assistance in sustaining small-scale coastal commercial and subsistence fisheries activities as bilateral or multi-country activities. AusAID supports sector-wide approaches, promoting strong national government leadership, and aligning with national planning and priorities.

PRIORITY:
**SUPPORTING EFFECTIVE ECOSYSTEM-BASED
 MANAGEMENT FOR SUSTAINABILITY**

Pacific island countries may need further assistance to develop and adopt improved national strategies for ecosystem-based oceanic and coastal fisheries management and sustainable aquaculture.

Ecosystem-based management (Box 6) requires national legislation that incorporates system-based objectives for sustainability and integrated management and the maintenance of ecosystem health. It requires:

- > approaches that address the problems of open access fisheries
- > approaches that provide clear mechanisms governing the allocation of rights for resource access and use, including community rights, that are adapted to the situation in each country

- > new skills and capacity in management agencies, the industry and the wider community
- > improved skills in the collection, analysis and dissemination of information required for management.

Improved coordination and collaboration is needed between the different government agencies that are likely to be involved. Making sure that donor activities are coordinated with each other and with other initiatives in coastal zone and fisheries management is also important.

FFA and SPC already have programs to develop model legislation and to assist countries in the development of national measures and ecosystem-based management of offshore and coastal commercial and subsistence fisheries. AusAID will support those developments and encourage complementary and coordinated approaches.

BOX 6: ECOSYSTEM-BASED FISHERIES MANAGEMENT

The future of fisheries depends on the continued health and productivity of the ecosystems in which they occur. Fishing affects more than the species that are sought. It may also remove by-catch species and can affect other organisms that interact with commercially important species. Fishing operations can change water quality and habitats. Fishing and fish stocks can also be affected by other activities. Fisheries management must take account of those interactions.

Ecosystem-based fisheries management aims to take these interactions into account as it is progressively refined and put into practice. It aims to conserve the natural structure, function and productivity of aquatic ecosystems, so that fisheries resources can be conserved and rebuilt. The underlying principle is to ensure that, despite variability, uncertainty and natural changes, the capacity of aquatic ecosystems to produce food, revenues, employment and other essential ecosystem services and livelihoods is maintained indefinitely, with sustained benefits for present and future generations. Systems of management that have focused on individual species have not achieved that objective. Economic activities and other values that aquatic ecosystems could otherwise support have in many cases been compromised.

Ecosystem-based fisheries management complements and extends the emphasis on single-species management in fisheries. It will continue to be critically dependent on sound information on the status and dynamics of exploited species, but provides a broader framework of ecosystem-based policy, principles, objectives and operational procedures for management and fishery operations.

Amongst other things, the approach requires that fisheries management regimes are increasingly:

- > spatially structured and can address trans-boundary linkages
- > precautionary and take account of limits to ecosystem knowledge and the uncertainties
- > adaptive and able to respond quickly to changes that require management action
- > able to consider multiple external influences
- > structured to provide a balance across diverse and sometimes conflicting objectives in society, recognising a fundamental dependence on continued ecosystem health and productivity.

While it has not always been applied in this way, the precautionary approach is one that requires that the greater the uncertainty, the more conservative, or precautionary, should be the approach of managers and users of the resources.

PRIORITY:
IMPROVING UNDERSTANDING AND ACCESS TO INFORMATION

There are critical gaps in information in the Pacific on freshwater and marine systems and fisheries, on national food security needs, and on changes in aquatic resources, including those due to climate change. Ecosystem-based fisheries management must be built on the sound management of commercial and subsistence fisheries.

Ecosystem-based management requires a better understanding of ecosystem dynamics and the effects of fisheries and other human activities on aquatic organisms (target species and others) and, more broadly, on ecosystem health and services. There is a need to develop new techniques and tools and a capacity for adaptive management where there is limited information.

With limited resources for assessment and monitoring of resources, even in areas close to urban centres, it will become increasingly important to develop innovative approaches to resource mapping and monitoring, and to increase local capacities for assessing levels of use and management.

KNOWLEDGE AND ACCESS TO INFORMATION

The region has been well served by the scientific work of the SPC and other agencies on the status of oceanic tuna stocks and associated environmental issues. There is much work needed to underpin new management decisions that are required by changes in policy and new obligations under international conventions.

There is some information on resource use as a result of regional programs under SPC and monitoring by national agencies of catches, trade and exports, and irregular assessments of household expenditure; but there are also gaps. Management of coastal fisheries is severely impeded by the lack of information on the status, trends and levels of use of

many coastal species. It is also impeded by a lack of information on their contribution to subsistence and local market economies, nutrition and food security, and the vulnerability of many species to localised overexploitation and decline.

As pressures on the resources increase, there will be a need for stronger regional capabilities and information in marine science⁹ and fisheries management. SPC and other regional institutions will continue to be supported to meet the information needs that are associated with incorporating coastal fisheries and aquaculture into integrated ecosystem-based coastal zone management frameworks.

Better access to the available information will help in addressing some gaps. Information sharing between Pacific island fisheries management agencies could also be strengthened, as could links with other agencies in the region. Through engagement and partnerships with other agencies, AusAID will encourage better cooperation and collaboration in regional fisheries-related research, analysis and information sharing. There are already regional initiatives underway, such as PIMRIS¹⁰ and ACP-FISH II¹¹, which are intended to improve access to information, and international initiatives such as ReefBase. Improved access for the Pacific island fisheries management agencies and other groups through Australian initiatives, such as the Oceans Portal project¹² and other web-based information gateways, will also be developed.

There is potential for AusAID to foster new linkages and participation in this regional research at the national level. It is logical to support and sustain Australian–Pacific island partnerships, drawing on the strengths in Australian institutions, including a world-leading capacity in marine science and fisheries in universities, the CSIRO, and the Australian Institute of Marine Science and through collaboration with ACIAR.

9 This includes biodiversity patterns and processes, biosystematics and regional biogeography, oceanography and oceanic and coastal fisheries science.

10 Pacific Islands Marine Resources Information System, run by SPC, FFA, Pacific Information Centre of the University of the South Pacific and South Pacific Applied Geoscience Commission.

11 A European Community funded global fisheries information initiative, which is intended in part to expand the capabilities of the PIMRIS publications archiving and distribution network.

12 Currently under development through the National Oceans Office and CSIRO.



Trading large dried beche de mer, Kavieng markets, Papua New Guinea. PHOTO: Mecki Kronen, SPC

FISHERIES, NATIONAL FOOD SECURITY AND NUTRITIONAL NEEDS

Similarly, through its engagement with regional organisations and in bilateral programs, AusAID can support improved assessment of the contribution of fisheries to nutrition and food security requirements. A critical step is to develop national strategic assessments and plans for the use of fisheries resources to meet the needs of people for high quality food, and to optimise the numbers of livelihoods and the national revenues that can be sustained from their fisheries resources.

Donor assistance may be needed to support national programs to quantify current and future needs, to estimate any projected shortfalls in the capacity of national fisheries resources to meet those needs, and to identify how to fill the gaps sustainably.

AusAID will continue to support SPC and national agencies to integrate information on demography, household incomes and the status of freshwater and marine fisheries resources. Information that can be used to assess the potential gains from increased production for domestic consumption through improved management, increased domestic use of offshore fisheries products and aquaculture will underpin the development of government policies and priorities in the sector.

FISHERIES, CLIMATE CHANGE AND ADAPTATION

Climate change will have direct and indirect impacts on freshwater and marine organisms and on fisheries through changes in sea level, temperature and acidity and oceanographic cycles (see Appendix 1, p. 34). This is in addition to any direct impacts of on low-lying coastal areas.

AusAID, drawing on strengths in the region and in agencies such as CSIRO Marine and Atmospheric Research, will support the collation and updating of earlier work on the potential impacts of climate change on coastal and oceanic fisheries. The analyses will help governments re-evaluate the likely impacts on commercial and subsistence fisheries and inform the development of approaches to adaptation.

Implementation



A cooperative approach is essential to achieve the aims set out in this framework. Stronger partnerships are needed between AusAID and regional organisations, national governments, other key donors, and other Australian Government agencies. AusAID's fisheries-related aid will be implemented through:

- > supporting and increasing the effectiveness of regional organisations
- > bilateral and multi-country assistance, with a focus on the priorities of national governments in institutional strengthening and implementation of ecosystem-based management
- > analytical research to improve the effectiveness of Australia's fisheries-related development assistance
- > new and strengthened partnerships.

The many opportunities for cooperation amongst stakeholders require closer links between regional and bilateral activities, and an improved analysis and understanding of current priorities and proposed activities. Australian interventions in supporting sustainable fisheries development in the Pacific islands will become more effective by identifying and drawing on Australia's strengths in the design, delivery and assessment of fisheries-related aid. Information on key strengths in Australia is in Appendix 2, p. 45.

AusAID will promote a coherent approach and leveraging of Australian government and research organisational capacity in implementing the framework. AusAID will also ensure that regional initiatives developed under *Australian Aid: Promoting Growth and Stability*—including those on anti-corruption, private sector development, infrastructure, governance and capacity building—will incorporate fisheries-related components where that is appropriate. Care will be taken, through contractual arrangements and ongoing consultation, to ensure that regional and bilateral activities supported by AusAID meet the commitments to gender equality under Australia's aid program and that specific initiatives support women's engagement in fisheries.¹³

IMPLEMENTATION: REGIONAL ACTIVITIES: INCREASING THE EFFECTIVENESS OF REGIONAL ORGANISATIONS IN DELIVERING SERVICES TO THEIR MEMBERS

Regional fisheries programs and activities will continue to be funded as a major component of AusAID's assistance for fisheries in the Pacific.

AusAID's support for regional fisheries activities will be largely delivered through regional organisations of the Pacific, particularly FFA and SPC, but also the Forum Secretariat, Secretariat of the Pacific Regional

¹³ Gender equality in Australia's aid program—why and how, AusAID, 2007.

Environment Programme and the University of the South Pacific. Components of the South Pacific Applied Geoscience Commission programs are also directly relevant to fisheries, including maritime boundary and seabed and resource mapping. AusAID will take account of the priorities and directions established by Pacific leaders, with a strong commitment to maintaining the breadth and high standard of technical advice and services available in the region and those required to meet emerging needs. Effective mechanisms for regular consultation with the regional organisations will be critical. With their broad-based capacity and keen understanding of the regional context, they are logical agents for supporting reform and meaningful change in the sector.

One of the key activities of FFA and SPC is to provide general support for Pacific island countries to participate in the WCPF Commission and in subregional arrangements. The agencies also provide fisheries management, biological, catch and economic analyses, and other support for countries engaged in access negotiations. Greater transparency and more critical assessments of the flow of benefits from access and licensing arrangements are important for managing the resources and in strengthening the negotiating position of FFA members.

There have been several proposals for approaches to access and licensing arrangements to increase revenues. Options include negotiating directly with vessel operators, rather than at fleet or government level, conducting open auctions, and employing professional, independent negotiators. Recent assessments indicate that bigeye and yellowfin tuna, two of the most valuable tuna resources in the region, are under immediate threat of serious overfishing. Stocks are considered now to be reduced to levels well below those at which maximum economic yields could be obtained. Increasing domestic involvement in tuna fisheries in the region and changes in fleet size, fishing operations and tuna prices are changing the revenue flows from domestic operations and from access and licensing fees. Domestic and distant water fishing fleets will be affected by management measures to implement the catch reductions necessary for stock recovery. Improving transparency and increasing

the direct benefits from access, licensing and charter operations will be emphasised in AusAID support to regional organisations and national agencies.

Intergovernmental organisations (such as FAO or the WCPF Commission), non-government organisations, such as the WorldFish Center, and partnerships involving Australian agencies such as CSIRO, ACIAR, Geoscience Australia, and the Bureau of Meteorology are also potential avenues for increasing effectiveness of regional action.

TABLE 1: CONTRIBUTION OF FISHERIES TO THE ECONOMIES OF THE THREE SMALLEST AND THREE LARGEST PACIFIC ISLAND ECONOMIES

Country	GDP US\$m	Total fisheries value US\$m	Fisheries contribution to GDP	EEZ Area (millions km ²)
Kiribati	48	30.9	64.30%	3.5
Tuvalu	14	6.9	49.60%	0.9
Nauru*	40	6.5	16.25%	0.3
Solomon Islands	280	15.6	12.90%	1.1
Fiji	1,821	37.2	2.40%	1.1
PNG	3,416	59.5	1.70%	2.4

Data in US\$ millions, based on 1999–2000 estimates (ADB 2002); * Estimated 2004. Nauru figures have risen to be some 60% of government revenues as phosphate revenues have declined.

IMPLEMENTATION: TARGETED BILATERAL ACTIVITIES: STRENGTHENING INSTITUTIONAL AND NATIONAL CAPACITIES FOR THE EFFECTIVE IMPLEMENTATION OF ECOSYSTEM-BASED MANAGEMENT

Pacific island countries differ in the size and contribution of their fisheries sectors to national economies (see Table 1 above and Appendix 1, p. 34). They also differ in their priorities and needs in addressing sustainable fisheries development and in the capacities of agencies responsible for marine resource management. In addition to increased engagement in regional activities, AusAID will examine opportunities to include fisheries components in bilateral programs developed under AusAID country strategies. The focus will be to build national capacities to deal with the increasing demands on national management agencies. The type and scale of assistance will necessarily be driven



Tuna and shark, from domestic long line fishery, Apia Market, Samoa. PHOTO: Lorraine Hitch, WWF Australia

by the priorities identified by partner governments in national development strategies, and by the potential for results and long term sustainability.

One group of countries where assistance may be particularly important is the small island and atoll countries of the central Pacific. Domestic resources are limited in some of the countries, and day-to-day functioning and future economic development prospects are heavily dependent on sustainable fisheries. They can be expected to need long term support to gain as much as possible from their fisheries resources.

Fisheries are also important in the Melanesian countries, but the broader base of their economies provides alternative opportunities for growth. There is the potential for more local benefit from offshore and coastal fisheries in these countries, and there is a basis for development assistance that can lead to sustainable change. In some cases, poor governance and instability may threaten results.

In some countries in the region, previous investments by national governments, AusAID and other Australian government agencies or donors in development assistance for fisheries provide

the basis for further advances. Long term, periodic support may be required in these countries to consolidate gains.

AusAID assistance for fisheries will take into account the different needs and priorities in these groups of countries. Alignment with priorities identified in existing national development plans will be essential, as will government commitment to implementation. There must be a strong demand for good governance in the sector. AusAID support could range from short term engagement on specific issues in management or private sector development, long term institutional strengthening, to much more broadly based sector-wide approaches that are co-ordinated with several donors. Programs will need to be led by Pacific island governments and would be developed in close consultation with regional agencies and other donors.

The initial priorities that have been proposed as part of this framework, to be refined in developing the implementation program in consultation with Pacific island countries and other donors, are as follows:

The fishery-dependent small island and atoll states in the central Pacific (Nauru, Kiribati and Tuvalu) where

there is much to be done to realise their potential in a difficult economic setting. Development of a multi-country approach may be warranted to strengthen national fisheries management, improve returns from foreign fishing and domestic engagement, and promote sustainability in small-scale coastal fisheries and aquaculture.

Papua New Guinea, recognising the high priority given to fisheries in the *Papua New Guinea Medium Term Development Strategy 2005–2101*, where there is an opportunity to examine the potential for strengthened bilateral assistance. The complexities of ensuring effective national, provincial and local programs and sustainability require a sustained commitment from more than one donor. The phased development of a sector-wide approach led by the Papua New Guinea Government may be the best mechanism to support national measures to overcome impediments and realise the potential contributions from aquaculture and inland, coastal and offshore fisheries in the long term.

Solomon Islands, Vanuatu, and Fiji, where there is potential for development, although each faces different challenges in increasing the contribution of fisheries to economic growth and food security. In the Solomon Islands, for example, there is potential to engage and coordinate with other donors to accelerate progress in institutional strengthening in both central and provincial government, as well as in the industry, and in small-scale and subsistence fisheries and community-based activities.

Specific initiatives in other Pacific island countries, including Samoa and Tonga, which are geared to the development and growth opportunities and priorities that are identified in national development plans. Support should build on previous Australian and other donor assistance and incorporate involvement by other Australian Government agencies.

IMPLEMENTATION: ANALYTICAL RESEARCH PROGRAM ON FISHERIES ISSUES TO INFORM AID PROGRAMMING

There is a clear need for increased support for research and analysis to improve the region's collective understanding of key issues in fisheries-

related development assistance. Better information is needed now to assess developments and trends in the sector and to identify emerging needs. It is also needed for future assessments of the effectiveness of AusAID's engagement. Some of the work will need to be done in partnership with regional organisations, other donors and international financial institutions. AusAID will consult with Australian and other agencies in developing specific proposals. Important areas that could be examined include:

- > development of regularly updated and disaggregated information on the contribution of subsistence, small-scale commercial and industrial fisheries to the economies of Pacific island countries, and to food security and nutrition
- > improved understanding of major developments and trends in existing and potential markets for Pacific islands fisheries products, projections of fishing fleet developments in distant water fishing nations and their deployment, and impacts on regional tuna fisheries economics
- > critical assessment of fisheries management capacity and private sector needs in the Pacific, current levels of training and education, and the regional capacity to meet emerging needs for community-level support and implementation of ecosystem-based management.

IMPLEMENTATION: PARTNERSHIPS: FORGING STRONGER LINKS WITH OTHER DONORS AND AUSTRALIAN GOVERNMENT AGENCIES AND RESEARCH INSTITUTIONS

No single agency can address all of the issues in the sector or provide assistance to all of the areas in which there are growing needs in the region. Australia's fisheries-related aid will be most effective if it is designed to target areas where Australia has a comparative advantage, where it can meet strategic needs otherwise unmet, and where it can benefit from and complement the activities of other donors.

AusAID will work closely with other Australian Government agencies when engaging in fisheries-related issues in the Pacific. These include the Department of Agriculture, Fisheries



Large tuna purse seine vessel, Majuro. PHOTO: David Itano

and Forestry (which has carriage of Australian engagement in regional fisheries management organisations such as the WCPF Commission), the Department of Foreign Affairs, the Department of Defence, and the Department of Environment and Water Resources.

Close relations with ACIAR, Bureau of Rural Sciences (Department of Agriculture, Fisheries and Forestry) and CSIRO and other Australian agencies will capitalise on past research investments. Mutually reinforcing programs of work in countries and on regional matters will be developed where the priorities in aid and research coincide.

A structured engagement with bilateral donors active in the region will be important, with the highest priority being the European Union, New Zealand and Japan. Efforts to improve coordination and harmonisation of fisheries-related development assistance will continue. There is considerable scope for greater strategic engagement on fisheries issues with the Asian Development Bank, the World Bank and other International Financial Institutions such as the European Development Bank and multilateral organisations, including the FAO and the United Nations Development Program. The Global Environment Fund and its implementing agencies have large programs in the sector, and there would be considerable advantage in increased cooperation and harmonisation of initiatives.

There is also a need for engagement with other donors who are now active in the fisheries sector, such as China and Taiwan. Areas in which cooperation could be productive should be examined, with a view to considering ways to address potential differences in aid objectives to promote sustainable development.

Links with French and USA territories could aim to strengthen technical capacity and identify opportunities for partnerships and cooperative programs with regional organisations.

Greater engagement with private sector organisations, including industry associations, will be assessed. Existing programs intended to generate new industry associations where there is a need for an industry focal points will be examined, such as those under the DEVFISH project funded by the European Union. There is a need to support effective fishing industry input in consultations on management issues.

It may be advantageous to seek strengthened partnerships with existing and developing regional and national industry associations, such as tuna fishery associations, the Marine Aquarium Council, the Marine Stewardship Council, and other private sector groups. Strengthened linkages may be developed with regional and national non-government groups with the credentials and capacity to engage productively in the fisheries sector. There is a range of such groups, including

Transparency International, World Wildlife Fund, the World Conservation Union (IUCN), The Nature Conservancy, Conservation International, Greenpeace, Traffic Oceania and International, the Foundation for the Peoples of the South Pacific, and local community groups.

AusAID programs addressing cross-cutting themes, such as improved governance, enhancement of private sector participation, environmental sustainability and gender equity, will support AusAID's strategic approach to fish-related issues where appropriate.

There may also be opportunities for collaborative work on fisheries and aquaculture in the Pacific with the Department of Agriculture, Fisheries and Forestry, the Department of Environment and Water Resources and ACIAR, the Bureau of Rural Sciences, CSIRO and other Australian Government agencies engaged in fisheries-related development.

In all cases, any Australian engagement should be one of several contributions to the achievement of

the high-level outcomes this strategic approach has identified. These are the key elements that need to be achieved if the Pacific island countries are to maximise the flow of benefits from their inland, coastal and offshore fisheries.

THE FIRST FIVE YEARS: AN IMPLEMENTATION PROGRAM

This framework for engagement provides the analysis to inform programming towards 2020, with a focus on the first five years. A detailed implementation program will be prepared for the initial five years, addressing the identified priority areas and responding to the priorities of Pacific island governments. Initiatives will be subject to AusAID's accountability and quality assurance practices.

The implementation program will be results-focused, with regular monitoring and review of progress. A second five-year plan will be developed after a mid-term review early in the fifth year of the initial program.

Hand feeding young itsi (tamed frigate birds), traditionally used in fishing and ribbon itsi competitions, Nauru.
PHOTO: Darren Cameron, FFA



APPLYING LESSONS LEARNED

Development of this framework has drawn on key lessons learned from past engagement in the sector and on the wealth of guidance available in broader development assistance and capacity building. A series of selected sector-specific lessons and implementation responses are outlined in Box 7.

BOX 7: SOME OF THE LESSONS LEARNED

Selected lessons learned	Responses
Effective fisheries management requires re-investment of a proportion of government revenues, including access fees and penalties for illegal activities.	Recognise that inadequate information on the potential long term value of sustainable fisheries and failure of governments to invest adequately in fisheries management and enforcement can erode national capacity. It can result in a spiral of reduced compliance, falling direct and indirect revenues and unsustainable fisheries. Monitoring, surveillance, enforcement and penalties for illegal fishing should provide effective deterrence and offset management costs. Improved understanding of the scale and the social, economic and food security values of subsistence and small-scale fisheries can provide a powerful argument for allocation of resources needed for management.
Investment in a single agency, such as fisheries departments, can be high risk if the broader governance environment is not supportive.	Assess issues such as transparency of financial management both prior to and during engagement. Develop links with broader anti-corruption initiatives where possible. Change in corporate culture takes time and political will; ensure that there is sufficient depth in the initiative to engage for the long term and generate internal and external demand for progressive improvement.
Long term commitment of marine resource management agencies and community groups is essential to establish and maintain the effectiveness of community-based management.	Recognise that active engagement of local coastal communities in decisions on how best to use local natural resources is essential to sustainable production for food and income. Local community-based fisheries management can provide a cost effective means of complementing capacity in national management agencies. To ensure long term commitment, build wider community engagement and political support.
Across the Pacific, the fisheries sector is where most women entrepreneurs and home supporters are, but access to information and training is limiting development.	While women have a strong role in the informal economy and as labour in commercial processing operations, they are moving into some male-dominated areas and emerging fisheries. Improved access to markets, and training in marketing, product quality, budgeting and access to credit and ownership of assets underpinning small businesses is needed. Bridging gaps in the transfer of information and skills and in educational opportunities for women in rural coastal areas can enhance their roles and participation in fisheries. ¹⁴
Other impacts in highly connected aquatic ecosystems have to be taken into account when assessing fisheries stocks, management plans and developing fisheries businesses.	Onshore activities, such as land reclamation and pollution, impact on inshore marine resources. Integrated and multi-disciplinary management and planning that underpin an ecosystem-based approach require good communication between departments, donors and communities. It will need new approaches and commitment to coordination.
Better donor coordination is needed in the fisheries sector to prepare for and respond to natural disasters affecting coastal areas.	Cyclones and tsunamis can have severe impacts on coastal-based fishers, fish stocks and livelihoods. Uncoordinated and ill-structured aid to fishers following such natural disasters can result in chronic over fishing, with serious unintended long term social and economic effects. Structured support should be based on assessments of sustainable levels of fishing (catches, numbers of boats, types of gear) and carefully-managed re-establishment of fishing fleets and markets. Coupled with alternative support in the short to medium term, the sector can underpin long term recovery and sustainable economic development.

14 *Women's changing participation in the fisheries sector in Pacific Island countries*, Aliti Vunisea, SPC Women in Fisheries Bulletin #16, March 2007

Is it working?

Assessing the effectiveness of engagement



PERFORMANCE

This framework provides the direction for a more effective engagement by AusAID in the fisheries sector in the Pacific—in commercial and subsistence fisheries as well as aquaculture. It is also intended to provide useful guidance for other agencies involved in fisheries-related aid. As in other sectors, the direct component of AusAID and other Australian fisheries-related aid in the Pacific is a relatively small proportion of total regional expenditure on fisheries management and commercial operations. It is also a small proportion of the total annual value of fisheries production in the region, and expectations of its direct impact should be realistic. Nevertheless, strategic and targeted support for the regional fisheries agencies and national administrations is intended to maximise the effectiveness of the investments, as is strengthening and broadening of key partnerships with other donors, regional and national agencies and industry and community groups.

There are significant and continuing risks in the fisheries sector, which may reduce the effectiveness of engagement by AusAID and other donors. Some key risks and ways in which they could be managed are set out in Box 8.

There are two components to assessing the effectiveness of the framework. One component, and the main measure of the outcome of a more strategic approach, is the effectiveness of each of the programs and activities. The other is the extent to which adoption of the framework has addressed the

known gaps and improved the strength, focus and delivery of AusAID's engagement in the sector.

A detailed monitoring and evaluation framework and development effectiveness component will be incorporated in each of the programs or other initiatives developed as part of the implementation program. They will contain appropriate indicators and identification of those responsible for gathering the data and the timing of collection and analysis.

An overall monitoring and evaluation matrix for the two major objectives and the outcomes of the framework is set out in Table 2 (see pp. 26–7).

A performance assessment matrix for the framework itself is set out in Table 3 (see p. 28). An evaluation of the overall framework, to be carried out early in the fifth year, would consider all aspects of the implementation program and aid effectiveness, including relevance, efficiency, effectiveness within the sector, impact, sustainability and gender sensitivity.

It will include assessments of effective incorporation and consistency with AusAID's gender, anti-corruption and environment policies and strategies, and of the contribution of activities in the sector to regional and national rural development and growth programs. Assessments of activities under the framework will be structured to contribute to AusAID's input to the Annual Review of Development Effectiveness.

Progress will be reported against framework and implementation program objectives and performance indicators. Those reports will also provide the basis for agency-level reporting of progress in its engagement in the sector against the Millennium Development Goals and components of the Pacific Plan.

BOX 8: RISK MANAGEMENT: SELECTED KEY RISKS AND APPROACHES TO MANAGEMENT

KEY RISK	MANAGEMENT
Information on resource status, economic and food security contributions from the sector is insufficient for policy development and effective management.	Support increased emphasis on development of significantly improved regular national and regional assessments of resource status and the contribution of subsistence and commercial fisheries and aquaculture and their incorporation in national accounts.
The capacity in regional organisations and national agencies in a period of escalating pressure on natural resources is not sufficient to meet management needs.	In the short term, develop joint needs assessments and augment regional and national capacity. In the long term, provide structured support for increased training and development in national agencies, industry and wider community.
Serious impediments to private sector capacity continue, or development is very uneven.	Ensure regional and national private sector development efforts are inclusive of fisheries businesses and address lagging areas. Ensure that there are clear sector linkages with wider business environment, tax and public sector finance initiatives.
Continued decline in major commercial tuna species results from delayed implementation of required regional management measures (including controls over catch levels and fishing capacity) and increasing impact of Illegal, Unregulated and Unreported (IUU) fishing. Domestic fisheries and access-based revenues for Pacific island countries are significantly reduced.	Commission and provide clear assessments of short and long term economic and social costs of mismanagement. Strengthen national management measures and management capacity within the region. Encourage and support strengthening of coordinated action in regional and global fisheries management agencies to implement management measures required for recovery. Strengthen capacity in national agencies for engagement in regional management arrangements. Strengthen regional and national capacity in monitoring, control and surveillance and combatting illegal, unreported and unregulated fishing.

Outrigger and outboard, Kuria, Kiribati. PHOTO: Mecki Kronen, SPC



TABLE 2: PERFORMANCE ASSESSMENT MATRIX

Aim: To assist Pacific island countries to increase the contribution of fisheries to reducing poverty and achieving sustainable development

Objective and outcomes	Performance indicators	Means of verification
Strategic Objective 1 Maximising the flow of benefits to Pacific island peoples from sustainable commercial and subsistence fisheries	<ul style="list-style-type: none"> > Value and trends in contribution of commercial and subsistence fisheries to GDP > Trends in proportion of national fish product needs met from national production > Increasing component of value chain captured in Pacific island countries 	<ul style="list-style-type: none"> > National accounts and periodic estimates of formal and informal markets in fisheries production > Analysis of household income and expenditure surveys and periodic surveys > National estimates and projections of food security needs
Outcome 1.1 Improved fisheries governance	<ul style="list-style-type: none"> > Improved legislative basis for management of oceanic, coastal and freshwater fisheries and aquaculture > Improved capacity in national agencies > Increased transparency in access negotiations and revenue generation > Lower incidence and impact of corruption > Improved enforcement action 	<ul style="list-style-type: none"> > Regional assessments of status of fisheries legislation and national capacity > Public records of access and related agreements, periodic FFA assessments > Transparency International-like ratings of performance of sector governance; regional and self-assessments
Outcome 1.2: Sustainable fisheries businesses (emphasis on private sector development)	<ul style="list-style-type: none"> > Trends in number and proportion of commercial fishing operations under effective national control > Gender equality in fisheries businesses > Trends in start-up and insolvency rates, employment in fisheries businesses, > Trends in number and performance of State Owned Enterprises in the sector 	<ul style="list-style-type: none"> > National business statistics > Forum Secretariat > Fisheries business start-up program performance, periodic surveys > Disaggregated census and other sector employment data
Outcome 1.3: Increased benefits from oceanic and deep-water fisheries	<ul style="list-style-type: none"> > Increased value of fisheries revenues flowing to Pacific island countries from catches > Increase in domestic engagement in oceanic fisheries > Increasing employment in shore-based processing and service 	<ul style="list-style-type: none"> > National catch, trade and market statistics, FFA/SPC catch and market information > Regional tuna fisheries performance indicators
Outcome 1.4: Enhanced livelihoods from aquaculture, small scale commercial, and fresh water and marine subsistence fisheries	<ul style="list-style-type: none"> > Value of subsistence and small-scale commercial fisheries products in informal and formal economies > Numbers of households engaged in fishing considered sustainable > Income from marine and freshwater aquaculture 	<ul style="list-style-type: none"> > National accounts, > Household income and expenditure surveys and census information, > Periodic specific commissioned surveys

TABLE 2: PERFORMANCE ASSESSMENT MATRIX continued

Objective and outcomes	Performance indicators	Means of verification
Strategic Objective 2 Implementing effective ecosystem-based fisheries management	<ul style="list-style-type: none"> > Numbers of countries with legislation > Proportion of fisheries under explicit ecosystem-based management regimes 	<ul style="list-style-type: none"> > Oceanic fisheries—FFA periodic legislative review > Coastal fisheries—SPC program > National and external assessments of management regimes against agreed guidelines
Outcome 2.1 Strengthened national and regional fisheries management frameworks for ecosystem-based management	<ul style="list-style-type: none"> > Fisheries agencies with legislative base and other capacity to implement ecosystem-based fisheries management > Fisheries management plans with explicit ecosystem based criteria or equivalent objectives 	<ul style="list-style-type: none"> > National reports and regional overviews > Periodic commissioned assessments
Outcome 2.2 Increased capacity in fisheries management	<ul style="list-style-type: none"> > Assessments of national capacity to manage offshore, coastal and freshwater fisheries 	<ul style="list-style-type: none"> > National reports and regional overviews, periodic commissioned assessments
Outcome 2.3 Improved information on needs and contribution of fisheries to food security	<ul style="list-style-type: none"> > Number of countries with estimates of current and projected fish needs in food security > Assessment of coverage, quality and currency of estimates 	<ul style="list-style-type: none"> > Periodic regional and selected national assessments of strategic food security plans and implementation > Regular census or commissioned household income and expenditure surveys > National accounts
Outcome 2.4 Improved knowledge and understanding for sustainable fisheries: resources, status and economic and social components	<ul style="list-style-type: none"> > Status of information on fisheries, fish stocks and freshwater, coastal and oceanic ecosystems, and economic and social importance > Assessments of coverage, quality and currency of information 	<ul style="list-style-type: none"> > Periodic regional and selected national assessments, based on national and regional reporting

TABLE 3: FRAMEWORK REVIEW: PERFORMANCE ASSESSMENT MATRIX VALUING PACIFIC FISH—AN OCEAN FOR GROWTH AND STABILITY

Objectives	Performance indicators	Means of verification
The incorporation of a fisheries component where appropriate in broader programs in initiatives under <i>Australian Aid: Promoting Growth and Stability</i>, such as corruption and governance, infrastructure, and rural development	<ul style="list-style-type: none"> > Potential areas of engagement identified, options identified and decision made on engagement or other action 	<ul style="list-style-type: none"> > Program and activity reports and assessments, component in sector evaluation and reporting processes
Improved coherence with other Australian Government agencies	<ul style="list-style-type: none"> > Current partnerships strengthened and potential for new partnerships identified > Structured annual or biannual consultations on programming and priorities with key agencies in place 	<ul style="list-style-type: none"> > Feedback from partner agencies, including through an annual Interdepartmental Committee on Pacific fisheries issues
The incorporation of sound fisheries components in regional and country-level strategies and plans, which reflect country needs and priorities	<ul style="list-style-type: none"> > Increase in direct treatment of fisheries-related issues in development of AusAID's Pacific regional and country-level strategies > Incorporation of fisheries-related components and priorities 	<ul style="list-style-type: none"> > Assessment of identification of fisheries sector in national development plans and extent to which AusAID country strategies engage
Effective engagement and support for regional organisations	<ul style="list-style-type: none"> > Funding discussions include assessment and support for fisheries-related priorities > AusAID support 	<ul style="list-style-type: none"> > Performance assessment reporting against strategic and business plans > Client assessment of agency effectiveness > Feedback from regional organisations
Structured and effective engagement with other donors in the region	<ul style="list-style-type: none"> > Fisheries included as an element of high-level donor consultations > Annual or biannual consultations developed to support harmonised programming and coordination with key donors active in sector 	<ul style="list-style-type: none"> > Feedback from donors > Extent of engagement in cooperative activities
Structured and effective delivery on the government's commitment to gender equality in fisheries-related activities	<ul style="list-style-type: none"> > All activities under the strategy assessed against AusAID's gender equality policy > Gender-specific activities and assessments incorporated in programs 	<ul style="list-style-type: none"> > Activity design documents and activity reporting > Periodic assessments of performance of activities > Component in sector report
Development of a body of analytical work that supports effective programming	<ul style="list-style-type: none"> > Key analytical requirements identified and funded > Work used in directing priorities and program components and in improved basis for assessment of effectiveness 	<ul style="list-style-type: none"> > Periodic assessment of component and impact on activity identification, design and implementation



TOP: *Shallow water netting, Papua New Guinea.* PHOTO: Tsoi Andra, Papua New Guinea, P Boblin, SPC
BOTTOM: *Manta tow, coral reef resource survey.* PHOTO: Kim Friedman, SPC

Acronyms and abbreviations

ACIAR	Australian Centre for International Agricultural Research
AusAID	Australian Agency for International Development
CSIRO	Australian Scientific and Research Organisation
DAFF	Department of Agriculture, Fisheries and Forestry
DEWR	Department of Environment and Water Resources
DoTaRS	Department of Transport and Rural Services
EEZ	Exclusive Economic Zone
ENSO	El Niño /Southern Oscillation Index event
ESD	Ecologically Sustainable Development
FAO	Food and Agriculture Organisation (UN)
FFA	Forum Fisheries Agency
HIES	Household Income and Expenditure Surveys
IUU	Illegal, Unreported and Unregulated fishing
IUCN	World Conservation Union
MPA	Marine Protected Area
SOI	Southern Oscillation Index
SOPAC	South Pacific Applied Geoscience Commission
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
UNEP	United Nations Environment Program
UNDP	United Nations Development Program
WCPF Commission	Western and Central Pacific Fisheries Commission

Selected source documents

Asian Development Bank 2001, *The Contribution of Fisheries to the Economies of Pacific Island Countries*.

AusAID 2007, *Tackling Corruption for Growth and Development. A Policy for Australian development assistance on anti-corruption*, Canberra.

AusAID 2007, *Gender Equality in Australia's Aid Program—Why and How*, March 2007, Canberra.

AusAID 2006, *Australian Aid: Promoting Growth and Stability*. A White Paper on the Australian Government's Overseas Aid Program, Canberra.

AusAID 2006, *Pacific 2020 Challenges and Opportunity for Growth*, Canberra 2006.

AusAID 2006, *The Potential of Fisheries to contribute to Growth and Poverty Reduction*, Pacific 2020 Output Paper.

AusAID 2005, *Australia and the Millennium Development Goals*, Canberra.

AusAID 2004, *Pacific Regional Aid Strategy 2004–2009*, Canberra.

DFAT [Department of Foreign Affairs and Trade] 2004, *Papua New Guinea—The Road Ahead*, Canberra.

FAO [Food and Agriculture Organization] 2005, 'Mainstreaming fisheries into national development and poverty reduction strategies: current situation and opportunities', *Fisheries Circular* No. 997, Rome. 84 pp.

Pacific Islands Forum Secretariat 2004, *Pacific Islands Regional Ocean Policy*, <<http://www.spc.int/piocean/forum/New/welcome.htm>>.

Pacific Islands Forum Secretariat 2005, *The Pacific Plan for Strengthening Regional Cooperation and Integration*.

SPC 2006, *Gender Issues in the Pacific Island Tuna Industry* SPC / FFA Development of Tuna Fisheries in the Pacific ACP countries (DEVFISH) project report, December 2006 1:51.

SPC 2003, *Strategic Plan for fisheries management and sustainable coastal fisheries in Pacific islands* SPC/ Commonwealth Secretariat, 2003.

World Bank 2004, *Saving Fish and Fishers—Towards Sustainable and Equitable Governance of the Global Fishing Sector*.



Family collecting shellfish along causeway, South Tarawa, Kiribati. PHOTO: Lorrie Graham

Appendices

APPENDIX 1: OVERVIEW OF FISHERIES AND SUSTAINABLE DEVELOPMENT IN PACIFIC ISLAND COUNTRIES	34
Coastal small-scale commercial and subsistence fisheries and aquaculture	34
Nearshore fisheries	35
Oceanic fisheries	36
Climate change and Pacific fisheries	37
Development opportunities in Pacific fisheries	38
Developing sustainable oceanic fisheries	38
Sustaining coastal fisheries	40
Developing sustainable aquaculture	41
Sustaining fisheries for recreation and tourism	42
APPENDIX 2: REGIONAL FISHERIES-RELATED DEVELOPMENT ASSISTANCE	45
Australian Development Assistance and engagement in Pacific fisheries	45
Opportunities to draw on Australian strengths	47
BOXES	
9 <i>Pacific 2020: Challenges and Opportunities for Growth</i> —Pacific fisheries	36
10 Papua New Guinea and Kiribati—a contrast in economies	38
FIGURE	
1 Patterns of fisheries development assistance, 1973–93 and 1994–2004	46
TABLES	
4 Ranked contribution of fisheries to GDP in Pacific island countries, 1999–2001	43
5 Country characteristics and fisheries-related indices	44
6 Ranked total Pacific ODA and fisheries-related ODA 2000–2004	45

Overview of fisheries and sustainable development in Pacific island countries



Fisheries contribute to the development of Pacific island countries in two main ways—through the spread of community and local benefits from small-scale coastal artisanal and subsistence fisheries, and through the major direct and indirect economic benefits from large-scale commercial oceanic and inshore fisheries.

Fisheries development generally, and small-scale coastal artisanal and subsistence fisheries in particular, contribute directly to the health, nutrition, living standards, culture and other aspects of the livelihood of most Pacific island families and coastal communities. Freshwater resources are particularly important in communities engaged in subsistence fishing and small-scale pond culture in inland Papua New Guinea, the Solomon Islands and other large islands of Melanesia; and they are locally important elsewhere in the region.

Sustainable commercial fisheries development is one of the best opportunities for all Pacific island nations to generate substantial economic growth. They can contribute directly and indirectly to increases in Gross National Income, jobs, exports, and integration with the global economy. Government revenue from access fees and domestic taxation of local fisheries developments can support the provision of government services and other social developments.

For some countries, commercial fisheries may in fact be the only sector with that potential.

The incidence of poverty in the region gives added significance to the potential contribution of commercial fisheries. Several of the countries with the greatest fisheries potential in their waters, including Kiribati, Tuvalu, Papua New Guinea, and the Solomon Islands, are those with the lowest living standards.¹ Fisheries potential is particularly important to a group of states, including Kiribati, Niue, Nauru and Tuvalu, where there are very limited alternatives for economic development.

COASTAL SMALL-SCALE COMMERCIAL AND SUBSISTENCE FISHERIES AND AQUACULTURE

The livelihoods of many Pacific island people depend on the use of a wide range of living marine resources in a continuum that extends from the shore to the oceanic expanses. Along the shore, and from the reefs, estuaries and lagoons, shellfish and shells, corals, crustaceans, marine plants, finfish and other species are harvested for subsistence and for sale to local and export markets. Fish and other organisms may be captured by gleaning and fishing by hand, in fish traps and nets, and fishing from traditional canoes, and from small craft using more modern design and construction. There is also increasing use of more sophisticated gear in rural

¹ *Pacific 2020: Challenges and Opportunities for Growth*, published in 2006, provides an overview of factors influencing economic growth in the Pacific.

communities for small-scale commercial fishing in the inshore fisheries (scuba, night diving and spear fishing), contributing to accelerating resource use. Aquaculture may supplement harvests of wild stocks, and in Papua New Guinea, the Solomon Islands and Fiji in particular, there are locally significant subsistence and commercial inland freshwater fisheries in rivers, lakes and ponds. Operations are typically small, although those involved in harvesting products such as bêche-de-mer and trochus, aquarium fish and some high value foodfish species for the live trade are involved in industries with a global reach. A wide range of other non-fishery activities also occurs in the inshore area, where there are direct and indirect impacts on reef and lagoon ecosystems and their productivity from reclamation, storage, transport, sanitation, waste disposal, mining, tourism and recreation.

Exploitation of marine resources started with the settlement of the islands—in some cases thousands of years ago, in others much more recently. Some inshore resources have been overfished, others are showing signs of overfishing, and the effects of other impacts on productivity are becoming more apparent. The diverse resources of these inshore areas may be able to sustain modest increases in catch in many places, but stocks close to heavily populated areas and those harvested for domestic and export markets are already heavily exploited. Inshore reef and lagoonal fisheries are likely to be particularly vulnerable to the impacts of changes in mean sea level, temperature and ocean acidification on coral reefs, mangroves and other habitats, with the potential for significant shifts in heavily exploited coral reef communities.

For coastal fisheries, the challenge is to maintain or rebuild yields, especially for subsistence fisheries, and maintain or increase the value of harvests, in the face of increasing local demand from growing coastal populations and stronger export markets, commercialisation of traditionally harvested resources, and increasing degradation of reef and lagoon systems.

NEARSHORE FISHERIES

In the nearshore areas outside the reefs and in many of the larger deep-water atoll lagoons, there is greater scope for increasing the volume as well as the value of outputs, targeting pelagic species such as tuna. There is also some potential in the fisheries taking high-value deep-water snapper and other species from deeper water off the reefs, although the areas suitable for fishing are not extensive. These inshore, deep-water fisheries have been the target of many small development projects and programs, intended to increase the local supply of high value species while avoiding increased harvesting of reef and lagoonal species. In these fisheries, too, there needs to be an emphasis on increasing the value, rather than volume of coastal fisheries. Post-harvest processing and other value-adding activities, including meeting export market food quality standards, are likely to be increasingly significant.

Overall, coastal fisheries remain vitally important, but the information available on the resource base, potential sustainable yields, catch, value and use is uneven and poor. Their value tends to be understated in official estimates.² Consequently, employment opportunities directly related to coastal fisheries are undervalued, and assessments of management value, costs and risks are unreliable. The value of coastal fisheries in the Pacific was estimated at around US\$180 million in the late 1990s, divided about evenly between subsistence-oriented and commercial fishing. That included both domestic food fish and a range of exported commodities. Exported commodities, including bêche-de-mer, trochus, aquarium fish, live food fish, pearls and coral were valued at around US\$50–80 million. An estimate of catch disposal in the region in 1996 suggested that 80 per cent of the domestic food fishery catch did not then enter the local economy.³ Since those studies, commercialisation of coastal fisheries has grown rapidly, and it is likely that a greater volume of harvested resources now enters the market.

Worldwide, aquaculture now provides up to 35 per cent of global fisheries production by value. A significant proportion is freshwater production, but there has not been the emphasis on establishing

² Figures are provided in Tables 4 and 5.

³ Bain, D. 1996. *A Guide to Estimating the Value of Household Non-Market Production in the Pacific Island Developing Countries*. Noumea: SPC

intensive aquaculture in the Pacific that has occurred in South East Asia. The contribution of aquaculture to Pacific economies, with the exception of pearl culture in a few countries and territories, is currently limited, although once again attracting increasing attention and investment.

OCEANIC FISHERIES

The oceanic tuna fishery of the Western and Central Pacific Ocean is the world's largest tuna fishery, with a total landed value of around US\$2 billion and an estimated market value of \$US6 billion annually. Around 45 per cent of this catch originates from the waters of Pacific island countries, with a landed value of US\$800–900 million. Payments under access agreements with the distant-water fishing nations that have traditionally taken most of the industrial tuna catch, total US\$60–70 million annually for catches taken within Pacific island Exclusive Economic Zones (EEZs). There are major differences in the levels of access fees gained, but they remain the main source of revenue for some of the smaller Pacific countries.

In some countries, an increasing proportion of the catch is processed onshore, adding further value, whilst locally based vessels are gradually taking a greater share of the regional tuna harvest.

Like the resource, the benefits from oceanic resources are not equally distributed amongst Pacific countries, and remain elusive for many of them. The tuna biomass is concentrated in equatorial areas, with the result that six countries receive more than 90 per cent of the access revenues, and account for a comparable amount of the catch. Comparative advantages also apply to those countries (such as Papua New Guinea, Solomon Islands, Federated States of Micronesia, American Samoa and Fiji) in which there is onshore processing and vessel servicing, and to the countries in which there is domestically based fishery development. Those development options are not possible for the Pacific island countries where limited fresh water and available land, limited infrastructure and poor market access impose severe constraints on development either by nationals or by external investors.

BOX 9: PACIFIC 2020: CHALLENGES AND OPPORTUNITIES FOR GROWTH—PACIFIC FISHERIES

Pacific 2020 was a broadly based process of analysis and dialogue on policy priorities to stimulate discussion on the challenges and opportunities for sustainable economic growth in the Pacific, building on the Pacific Leaders' vision and commitments in the *Pacific Plan*. It was based on assessments of four cross-cutting factors—investment and capital, labour, land, and political governance—and five productive sectors—agriculture, fisheries, forestry, mining and petroleum, and tourism.

Core constraints to securing greater gains from fisheries in the region were identified as:

- > Weaknesses in national governance
- > Poor market access
- > Gaps in regional fisheries governance
- > Institutional and human resource capacity
- > Limited private sector capacity
- > Investment risks
- > Inadequate information, knowledge and understanding
- > Increasing environmental concerns about the impact of fishing
- > Lack of infrastructure
- > Illegal fishing

Key opportunities for increasing the contribution of fisheries to economic growth in the region are:

- > Developing domestic fisheries
- > Ensuring the sustainability of coastal fisheries
- > Increasing benefits from licensing foreign fishing vessels
- > Improving fisheries governance
- > Increasing the capacities of local people.

The sector review put forward five practical policy actions for increasing the contribution of fisheries to economic growth and poverty reduction in the period to 2020:

- > Increase the benefits from access to resources—value not volume
- > Improve transparency in fisheries decision-making
- > Strengthen private sector institutional arrangements and government stakeholder consultation
- > Promote mentoring and partnerships to develop entrepreneurs and business management skills
- > Maintain the health of coastal fisheries through community involvement by drawing on regional success stories

Despite the vast potential offered by the oceanic fisheries of the region and their steady expansion in the past two decades, the sustainable limits of the tuna resource have been approached for bigeye and yellowfin, two of the four main tuna species taken in the fishery. Under the current management arrangements and assessments of the status of the stocks, there is some potential to expand skipjack and albacore catches, but under current operations this would be at risk to the sustainability of the bigeye and yellowfin stocks. The interactions between market prices, fleet economics and the components of the fish stocks taken in purse seining, trolling and pole and line fisheries and the impacts of fish aggregating devices (FADs) are complex. There has been some concern too that a long term decline in prices for both skipjack and yellowfin tuna in south East Asian markets may have an impact on industry investment and profitability in that sector, particularly with increasing fuel costs. Those trends, may, however, provide an added incentive for local processing and value-adding before export to major overseas markets.

There is also increased focus on environmental and ecosystem impacts from the fisheries, including concerns that incidental catches of sharks, turtles and other species of particular vulnerability are not sustainable and may require urgent action. Those issues and other concerns about the wider ecological impact of long term reductions in the abundance and size of target species call for the application of an ecosystem approach to the management of these fisheries.

CLIMATE CHANGE AND PACIFIC FISHERIES

The Southern Ocean Oscillation Index (SOI), defined as the normalised differences in surface pressure between Tahiti, French Polynesia and Darwin, is a measure of the strength of the trade winds, which have a component of flow from regions of high to low pressure. A high SOI, with large pressure differences across the Pacific is associated with stronger than normal trade winds and a cooling of eastern and



Tagging a medium-sized yellowfin tuna near Midway Atoll, Hawaii Tuna Tagging Project.t. PHOTO: Gary Eldridge

central Pacific waters—La Niña conditions. A low SOI is associated with El Niño conditions, with a weakening of trade winds and warming of the surface layers in the eastern and central Pacific. Under those conditions the Western Pacific Warm Pool⁴ can extend eastward into the central Pacific by nearly 4000 kilometres, and countries in the central Pacific experience higher catches of tuna species taken in purse seine fisheries. Countries in the western Pacific, such as the Solomon Islands and Marshall islands, have higher purse seine catches in La Niña years, with the Western Pacific Warm Pool contracted to the western Pacific. The full range of variability in the SOI, including El Niño and La Niña events, is termed an ENSO cycle, with intervals of 3–7 years, and a duration for El Niño components of 7–18 months.

Over the past two decades, there have been significant shifts in the distribution of catches as oceanic fishing fleets have followed the changes in

⁴ An area of surface waters warmer than 28–29 °C, relatively nutrient poor and with lower overall productivity, but within which almost all of the tuna taken by purse seine vessels for canning are taken in the Central and Western Pacific. Where the Western Pacific Warm Pool meets with upwelling of colder nutrient rich waters in the central equatorial Pacific cold tongue, productivity is strongly affected by ENSO variability.

the Western Pacific Warm Pool and associated tuna species. Current sea surface temperature monitoring and modelling is allowing progressively more sophisticated forecasting and industry adjustment of fishing fleet deployment to target areas of predicted higher catches. The impact of increasing mean sea surface temperatures on the strength, frequency and duration of ENSO cycles driving those changes is cause for concern, as it may be associated with lowered overall productivity, declines in tuna abundance and changes in the spatial distribution and catchability of different components of tuna resources in the longer term. That would have different impacts in the western and central Pacific and could require regional adjustments to current resource access arrangements. The potential impacts of other longer-term climatic cycles, such as the Pacific Decadal Oscillation, where warm and cool components may be apparent for 20–30 years, and which may have a primary impact on eastern north Pacific productivity, and a secondary climate fingerprint in equatorial and southern Pacific waters, are less well understood.

Other potential impacts of climate change on coastal fisheries include those from sea level rise on reef, lagoonal and mangrove areas, and the impacts of increased frequency and intensity of extreme events on resources and coastal communities. Increases in mean sea surface temperatures have the potential for direct impacts on coastal species, including more frequent and extensive coral bleaching,⁵ and longer-term effects, with associated changes in coral cover, reef structure, and reef fisheries. There is the potential for overfishing of components of reef fish assemblages, with trophic changes resulting in a sequential loss of high value predatory fishes and increasing targeting of herbivores capable of reducing algal overgrowth. That can reduce re-establishment of corals and may result in persistent phase shifts and reduced productivity in reef fisheries in the longer term.

A more recent concern has been the potential impact of increases in oceanic acidity on the growth of corals and other organisms dependent on structures formed from calcium carbonate—corals, shelled animals and

many planktonic animals and plants. Until relatively recently, it was assumed that normal oceanic processes would be sufficient to buffer the effects of increased carbon dioxide in sea water. Changes are already evident in ocean acidity, with the potential for reduction of carbonate saturation to levels at which skeletal elements may erode or may not be deposited at rates sufficient to support normal growth.

DEVELOPMENT OPPORTUNITIES IN PACIFIC FISHERIES

DEVELOPING SUSTAINABLE OCEANIC FISHERIES

The oceanic fisheries of the Pacific are dominated by tuna, but a range of associated species is taken. There is potential for increasing economic gains from domestic development and for increasing returns from access arrangements for foreign distant water fishing fleets. There are opportunities to increase the national benefits from access fees through improved governance and transparency of information, coordinated and more effective negotiation, and critical assessment of the costs and benefits of different resource use options. Most Pacific island countries emphasise domestic development and about half have phased out the licensing of foreign distant water vessels under access agreements. Strengthening of domestic fleets and onshore processing will be more important in the Pacific island countries which are closer to productive fishing grounds, which have the necessary onshore facilities and resources (such as labour, water, land), which have infrastructure and market access, and in which there is an enabling private sector environment. Private sector driven development is a key element in success of domestic fishery development. High domestic costs, a poor investment climate and weak private sector capacities are the key constraints.

Domestic development is pursued through a range of different strategies—some countries such as Fiji and Samoa with stronger domestic private sectors

5 Coral bleaching occurs when assemblages of live coral are exposed to prolonged periods of water temperatures higher than the range to which they are normally exposed. Affected corals expel from their tissues the symbiotic algae on which they depend. If exposure is not too severe, corals can recover, although growth is slowed; in severe cases, death of affected corals can be extensive and may require long periods for resettlement and regrowth.

and skilled seagoing crews focus on the development of local fleets. High seas catches are often landed to a mix of local and foreign-owned processing plants. Others, such as the Marshall Islands, see their comparative advantage in onshore processing, rather than fishing, and they encourage foreign vessels to operate from local bases and land fish locally, particularly through charter arrangements.

There are significant opportunities for associated small-scale fishing enterprises and support services. If carefully developed, these can increase domestic revenues and supply both domestic and value-adding export-oriented markets, taking advantage of infrastructure and market access as spin-offs from industrial-scale developments.

Countries with more severe constraints on domestic development and larger potential yields from oceanic fisheries than can realistically be taken by their own fleets in the medium term place more emphasis on

increasing benefits from foreign fishing, including fishing by domestic fleets from other Pacific island countries. Access fees are the primary benefit from foreign distant water fishing, but shore-based facilities for fleet servicing and other fleet support activities, including the provision of trained crews, can provide significant financial inflows. Achieving gains from foreign distant water vessels will require improved governance and transparency, greater sharing of information amongst Pacific island countries and development of more cohesive strategies for negotiating access arrangements and fees. As limits on catches are progressively imposed to ensure ecological sustainability, transparent competition for foreign access will provide better results.

Access revenues are vitally important to Nauru, Tuvalu and Kiribati, Federated States of Micronesia and the Marshall Islands. There will be some risk of declining external revenues to some Pacific island countries as domestic fishing activity expands within the region and income from foreign fishing fleet access fees declines. In addition, there are major and unpredictable annual differences in the availability of tuna within the EEZs of the some countries, reflecting short term and long term oceanographic cycles and shifts and major changes in local fish abundance. In poor years, domestic catches in some EEZs may drop to unprofitable levels, and the continued economic viability of some domestic fleets may depend on negotiation of new preferential arrangements for fishing access in other Pacific island areas where catch rates can provide sufficient profit margins.

The effectiveness of the new WCPF Commission will be crucial to the sustainable development of Pacific oceanic fisheries. It will provide one avenue to ensure that distant water fishing nations do not exert undue external pressure in pursuit of outcomes that undermine the opportunities for sustainable development for Pacific island countries. The application of future effort and catch limits and other controls, which may be developed under the WCPF Commission to conserve stocks, also creates opportunities for Pacific island countries to grant longer term, more secure and more valuable access rights for both domestic and foreign fishers.

BOX 10: PAPUA NEW GUINEA AND KIRIBATI— A CONTRAST IN ECONOMIES

Australia also has a continuing and special relationship with neighbouring Papua New Guinea, and has provided significant fisheries-related development assistance in the past, including recent support for the National Fisheries Training College. Papua New Guinea has huge overall fisheries potential as one component in a more broadly based economy. Based currently primarily on commercial tuna fisheries, the Papua New Guinea fisheries sector is the largest in the region, but is only a small proportion of its national GDP. Some twenty percent of the population of 5.8 million people are subsistence fishers. Although some inshore stocks have been over-fished, such as *bêche-de-mer*, coastal and inshore fisheries are considered overall to have considerable potential for sustainable contributions to national, provincial and community-level economies. Fisheries in major river systems and fresh water culture of selected native and already-introduced species are important inland resources with the potential for increased and sustainable contributions to food security and community nutritional needs. The Papua New Guinea Medium Term Development Strategy 2005–2011 recognises that, with careful management, small scale fisheries can contribute significantly to village-level economies.

Kiribati, in contrast, has one of the largest EEZ of Pacific Island countries, a population of some 98,000. It is fisheries-dependent, with a high proportion of government revenues derived from fisheries access and licence fees, high dependence on subsistence fishing, and limited alternatives for economic growth.



Staff of tuna processor/exporter, Apia, Samoa. PHOTO: Michel Blanc, SPC

As access to fisheries becomes more limited and their value increases, incentives for illegal fishing will increase and there will be a need for greater capacity in combating illegal fishing (more correctly referred to as illegal, unregulated or unreported (IUU) fishing, which may occur within national waters under national jurisdiction, waters under the control of regional bodies, or on the high seas). Substantial efforts have already been made in regional maritime surveillance by a number of countries, and in implementing domestic controls and effective controls over national fleets operating outside national waters. Flag-of-convenience vessels, both from those Pacific island countries that have open vessel registries, and others outside the Pacific, continue to be an issue. It will require concerted international action and the development of compelling incentives to ensure that any open registries provide effective controls over flag vessels. The establishment of the WCPF Commission and its requirements for binding conditions relating to vessel and activity reporting is an important development. It will reduce some of the burden on Pacific countries of detecting and combating illegal

fishing countries within their EEZs and on the high seas, as will improved coordination of surveillance and enforcement activities across all jurisdictions in the region. Further investments will still be needed in innovative approaches, including forensic investigative techniques and enhanced detection and interdiction. Support may also be required to ensure that legal systems are robust and independent and that prosecution and penalties for resource theft are not subverted by inappropriate political interference.

Industrial offshore fisheries development poses some risks to local communities, including the increased sexual exploitation of women and children, increased HIV/AIDS transmission, and impacts on culture and local traditions. It may also create competition for, and increased pressure on, artisanal fisheries and the unloading of surplus or low quality fish on local markets at prices that cannot be met by local small-scale producers. Reducing the risks of these social and economic impacts requires a range of policies and practical measures. These include the provision of appropriate education programs to local communities, local fishers, policy makers and foreign fishers; codes of conduct for foreign fishing vessels and crew;

strengthening of civil society and ‘watchdog’ groups; and monitoring of foreign fishing vessels and local market prices. It may require measures to protect local markets, rural development programs to slow rates of rural–urban migration, and urban development programs to promote the pursuit of sustainable and legal livelihoods in urban areas.

SUSTAINING COASTAL FISHERIES

Coastal fisheries cover a wide range of commercial and subsistence activities, providing many-faceted values and opportunities for rural communities, including women and youth. Using and strengthening customary fishery management practices, with appropriate support from national government and other partners for co-management, offers perhaps the best hope of sustaining harvest volumes and increasing harvest values from inshore reefs, estuaries and lagoons and from freshwater fisheries. Building on traditional systems of marine resource use, the Pacific region already provides some very successful examples of the wide development of community-based management systems for both subsistence and small-scale coastal commercial fisheries. The approach is one where a return of distributed responsibilities and authority to local communities is replacing some ineffective approaches to management through centralised national controls. It may be particularly effective in rural coastal communities and more remote areas in maintaining subsistence fisheries that provide food security for local communities. Locally based approaches foster the involvement of a wider range of those with direct interests, including women.

Rapid commercialisation of traditional fisheries, increasing catches unrelated to local nutritional needs, poaching and other illegal activities outside those normally dealt by the communities can strain local capacities for resource management, monitoring and enforcement. It is critical that national agencies support provincial and community-based management initiatives through the development of policies and legislation-based regulatory framework. Support is also required in the provision of information and the resources and technical assistance for resource assessments and

monitoring and for action required for effective enforcement and deterrence in the longer-term. Fisheries and their markets and products and fisheries management can change quite rapidly, and effective community-based management will require sustained investment of resources to provide the information and training needed.

Provided ecological sustainability can be assured, growing domestic commercial demand for foodfish and strengthening export demand for high-value specialised products such as *bêche-de-mer*, aquarium fish and live reef species provide particularly important income-earning opportunities for coastal communities. The protection of critical coastal habitats, and other programs supporting the development of community-based management, are important elements to achieving and sustaining those gains. This includes the establishment of locally managed marine areas and marine protected areas that have strong local support and the inclusion of fishery concerns as a core component of integrated coastal zone management policies. There is a need for more strategically planned national and regional management interventions and collaboration amongst all those involved with fisheries management to reduce duplication and coordinate activities implemented through local communities.

While there are not extensive areas of shallow continental shelf in countries other than Papua New Guinea, the Solomon Islands and to a certain extent Fiji, there is greater scope for expanding small-scale coastal fishing outside the reefs. Such development needs to be keyed to ecological sustainability for demersal and pelagic species. Support needs to be provided for improving infrastructure, (for example the deployment of fish aggregating devices, and the provision of wharfage and refrigerated storage), and for encouraging small-scale fishing enterprises. Post-harvest activities and activities to improve quality and add value to currently harvested species will be important. Inshore fisheries with critical constraints in small business management capacities and market access will benefit from assessments of resource capacity and ecologically sustainable production, and from extension services and credit facilities.

DEVELOPING SUSTAINABLE AQUACULTURE

There is growing confidence that investments in aquaculture will prove profitable, with various initiatives currently underway. Pursuing high-value opportunities such as pearl culture will continue as the primary approach, though some aquaculture opportunities will arise as global wild stocks of commercially valuable species decline and prices for products from aquaculture or ranching increase. Production of non-perishable products from cultured species (such as seaweed) has a substantial potential to augment outer island incomes. There is potential for increased contributions to food security from small pond fresh and brackish water aquaculture in a number of countries. As aquaculture expands in the region, the strengthening of marine tenure systems and needs for effective biosecurity and quarantine measures will increase. With increasing importance of disease control in cultured species, the development of certified disease free strains of endemic species from the Pacific may provide local and export opportunities and allow replacement of some introduced species.

SUSTAINING FISHERIES FOR RECREATION AND TOURISM

Pacific island countries provide rich and varied opportunities for the development of diving, charter and shore-based recreational game fishing and marine ecotourism ventures. Tourism is already very important in some Pacific island economies and it is one in which some Pacific island countries have competitive advantages in global markets. Tourism development nevertheless requires astute promotion, planning and management to ensure that sustainable benefits accrue at the community level, to reconcile competing interests in coastal ecosystems, and to avoid adverse social and environmental impacts. Development of marine based tourism will depend on private sector engagement and investment. The role of governments will be in creating conditions in which investment can be attracted and implementing resource management regimes to ensure ecological sustainability.



LEFT: *Experimental sponge culture, Marakei, Kiribati. PHOTO: Antoine Teitlebaume, SPC*

RIGHT: *Recreational fishing off cyclone damaged wharf, Nuku'alofa, Tonga. PHOTO: G Anderson, AusAID*

TABLE 4: RANKED CONTRIBUTION OF FISHERIES TO GDP IN PACIFIC ISLAND COUNTRIES, 1999–2001⁶

Country	GDP* (2000–2001 estimates US\$millions)	Estimated domestic fisheries production- (US\$millions)	Domestic fisheries as % of GDP	Access fees (US\$ millions)	% of regional access fees	Access fees as % of GDP	Total fisheries contribution to GDP	Value of estimated annual fisheries production in EEZ ** (US\$m)
Kiribati	48.1	10.3	21.50%	20.6	35.34%	42.81%	64.30%	146.5
Tuvalu	13.8	1.0	7.00%	5.9	10.12%	42.60%	49.60%	39.2
Federated States of Micronesia	229.9	21.8	9.50%	15.4	26.42%	6.70%	16.20%	181.0
Solomon Islands	279.6	35.8	12.80%	0.3	0.47%	0.10%	12.90%	80.0
Cook Islands	82.4	8.2	9.90%	0.2	0.29%	0.21%	10.10%	12.3
Marshall Islands	97.3	3.7	3.80%	5.0	8.55%	5.12%	8.90%	54.8
Palau	113.5	9.1	8.00%	0.8	1.37%	0.70%	8.70%	17.9
Nauru	51.6	1.1	2.10%	3.4	5.83%	6.59%	8.70%	38.5
Tonga	157.0	11.8	7.50%	0.2	0.26%	0.10%	7.60%	18.6
Samoa	233.5	15.4	6.60%	0.2	0.32%	0.08%	6.70%	23.7
Niue	7.5	0.1	1.90%	0.2	0.26%	2.02%	3.90%	0.2
Fiji Islands	1821.3	43.7	2.40%	0.2	0.36%	0.01%	2.40%	66.1
Vanuatu	226.3	5.0	2.20%	0.2	0.37%	0.10%	2.30%	4.9
Papua New Guinea	3415.6	53.6	1.57%	5.8	10.02%	0.17%	1.70%	161.0
Total	6777.5	220.6	3.25%	58.3	100%	0.86%		844.7
	Gillett Table 7		Gillett Table 5	Gillett Table 11				Gillett and Lightfoot p36, table 7

⁶ Based on Gillett and Lightfoot (2002)

TABLE 5: COUNTRY CHARACTERISTICS AND FISHERIES-RELATED INDICES

	Land area (sq. km)	NFZ area ('000 km ²)	Population ('000s)	GDP per capita (US\$)	Fish consumption (kg/head/year)	Fish. contrib as % of GDP	Total tuna catch 2001–2005 (tonnes)	Access fees 2003 (US\$ million)	Value of coastal production	Length of coastline (km)	Length of 100f isobath
Melanesia											
Fiji	18,272	1,135*	840	1,926	50.7	2.34	43,059	0.2	39.9	1,129	~1,800
PNG	462,840	2,400	5,800	796	16.9	0.56	1,379,394	15.7	41.6	5,152	7,305
Solomon Islands	28,370	1,116*	521	521	44.8	12.8	334,979	1.7	9.9	5,313	2,444
Vanuatu	12,190	680a	213	1,558	27.0	0.96	6,000	1.2	4.7	2,528	~1,400
Polynesia											
Cook Islands	237	1,830	20	8,563	67.8	2.84	15,560	1.4	11.5	120	223
Niue	259	390	2	5,854	62.3	1.65	298	0.1	0.2	64	53
Samoa	2,935	96*	181	2,108	31.8	7.99	14,453	0.2	13.7	403	243
Tokelau	12	290*	1.5	n/a	129.4	n/a	13,509	0.2	n/a	n/a	56
Tonga	650	596*	102	1,893	34.5	7.13	5,054	0.3	14.8	419	893
Tuvalu	26	719*	11	1,563	113.0	6.77	39,719	6.1	1.2	24	128
Micronesia											
Federated States of Micronesia	701	2,780*	112	2,113	73.4	4.70	721,207	11.1	24.5	6,112	1,332
Kiribati	811	3,463*	90	613	181.6	11.8	1,055,968	21.4	14.1	1,143	708
Marshall Islands	181	2,131	61	2,362	67.8	7.40	165,187	3.3	4.8	370	1,420
Nauru	21	431	10	3,500	50.0	2.12	301,406	4.5	1.4	30	10
Palau	488	592*	21	5,808	107.7	2.77	19,721	0.7	5.1	1,519	232
American Samoa											
American Samoa	200	390	62,600	7,821			21,927				143
Commonwealth of the Northern Mariana Islands											
Commonwealth of the Northern Mariana Islands	471	777,000	78,000	n/a			n/a				(285)
French Polynesia											
French Polynesia	3,521	5,030	250,500	15,637			30,652				2,971
Guam	541	219	166,100	22,118			n/a				(200)
New Caledonia	18,576	1,740	237,300	17,436			9,838				1,550
Pitcairn	39	800	52	n/a			67				33
Wallis and Futuna	142	300	14,900	n/a			415				70

The set, presented as a table, is intended to provide at a glance, key country attributes relevant to fisheries and fisheries development in each of the Pacific island countries and territories. More specific, fisheries development indicators will require considerable refinement.

Notes

- 1 Land areas from SPC 2005 Pocket Statistical Summary
- 2 National Fishing Zone sizes (EEZ plus territorial sea) in '000 km²; various estimates available; smallest used in each case (asterisk where more than one); Vanuatu estimate does not include Mathew & Hunter, claimed by both France and Vanuatu
- 3 Population and GDP figures from SPC (2005)
- 4 Total tuna catch 2001–2005 from SPC 2006; provides a better relative estimate than historic high catch
- 5 Access fees for 2003 from Lewis (2004)
- 6 Length of shoreline from SIDS website
- 7 Length of 100f isobath (SPC sources); proxy for shelf area; relative index of outer reef slope fishery habitat
- 8 Value of coastal fisheries production and contribution of fisheries to GDP from Gillett and Lightfoot (2001)
- 9 Per capita fish consumption figures from SPC

Regional fisheries-related development assistance



Australia has been one of the primary donors in the Pacific for decades, providing almost half of the total of some US\$17.1 billion Official Development Assistance (ODA) from all donors for the region for the period 1973–2004⁷. During that period, more than 50 per cent of the regional overseas aid has been to Papua New Guinea, in part an indication of the high proportion of Australia's aid in the region that has been directed to that country—some 83 per cent of the overseas aid for the period from 1973–1999. While the overall level of Australian aid to Papua New Guinea has been maintained during the past five years, there has been a significant increase in Australian aid to address emerging issues elsewhere in the region. Assistance to the rest of the Pacific, including the Solomon Islands, Fiji, Vanuatu and Nauru, and increased support for regional organisations, reached 50 per cent of the regionally-allocated Australian expenditure for 2004.

While it is one of the major regional donors overall, total Australia fisheries aid over the past five years ranks fourth after Japan, the European Union, and the USA. Reflecting the differing priorities amongst donors, at about 1.6 per cent, Australian fisheries-related assistance is a much smaller proportion of its regional aid during that period than is the case for Japan (13.34 per cent), the UK (12.07 per cent), and the European Commission (6.73 per cent).

TABLE 7: RANKED TOTAL PACIFIC ODA AND FISHERIES-RELATED ODA 2000–2004

US\$	Total ODA 00–04 Ranked by amount	Ranked by proportion of overall aid
44.45	Japan	13.34% Japan
25.45	EC	12.07% United Kingdom
14.13	United States	6.73% EC
10.17	Australia	4.24% AsDF
5.54	AsDF	1.75% United States
3.87	United Kingdom	1.73% Spain
0.94	New Zealand	0.56% Canada
0.52	France	0.55% Australia
0.06	Canada	0.54% New Zealand
0.01	Spain	0.07% France

During the past ten years there has been a significant trend away from support for the expansion or development of new fisheries towards support for improved fisheries policy, legislation and administration and institutional strengthening, improved management, fisheries research and compliance services, and increased education and training (Figure 1, p. 46).⁸

AUSTRALIAN DEVELOPMENT ASSISTANCE AND ENGAGEMENT IN PACIFIC FISHERIES

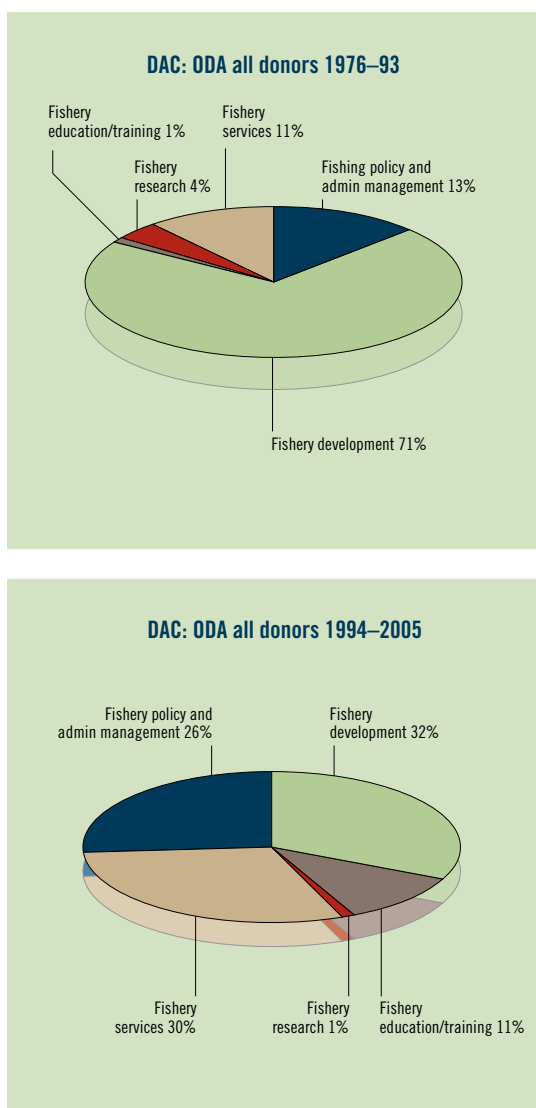
The primary responsibility for the delivery of Australia's aid program rests with AusAID. About 25 per cent of Australian overseas development

⁷ Development Assistance Committee (DAC) CRS 2006 All commitments, ODA, grants, grant-like, ODA/OA loans for Oceania; Australia 49.95%, Other major donors over that period are Japan (10.8%), France (10.6%), the EC (8.6%), USA (6.9%), UK (2.9%); New Zealand (1.9%). The totals do not include all assistance provided by France to its Pacific territories.

⁸ As reflected in projects and allocations in DAC reporting categories for fisheries (Fishery Development, Fishing Policy & Administrative Management, Fishery Education/Training Fishery Research).

aid, outside the Defence Cooperation Program, is delivered by other government agencies. Several Australian Government agencies are engaged with fisheries in the Pacific. They provide development assistance and direct engagement in international fisheries policy matters through regional fisheries management organisations and active membership of FAO and other multilateral organisations.

FIGURE 1: PATTERNS OF FISHERIES DEVELOPMENT ASSISTANCE, 1973–93 AND 1994–2004



AusAID provided a total of about A\$57 million in fisheries-related development assistance during the five-year period from 1998–99 to 2003–04, with an estimated A\$39.5 million of that to the Pacific region. There is an overall trend in recent years of

growing support to the two regional organisations with a fisheries focus—the Secretariat of the Pacific Community (SPC) and the Forum Fisheries Agency (FFA) (total A\$4.329 million annually for the current triennium and additional allocations in 2005–06)—and limited and declining bilateral support. AusAID has recently supported bilateral projects in Papua New Guinea, Samoa and Tonga, to the value of A\$4.3 million in 2004–05, with a single project in Tonga continuing in 2006.

AusAID’s role in the Pacific regional fisheries organisations is as a donor agency, with a focus on the effective operation, performance and accountability of the FFA and SPC for the funding they receive under Australia’s aid program. It has also supported the development of effective Pacific island engagement in the development and implementation of the West and Central Pacific Fisheries Convention and its Commission.

ACIAR funds research projects developed within a framework reflecting the priorities of Australia’s aid program and national research strengths and the agricultural research, and development priorities including fisheries, of partner countries. Papua New Guinea and the Pacific islands form one of the five priority regions for ACIAR activity. The ACIAR fisheries program currently has more than ten ongoing projects with a focus on aquaculture research. Recent ACIAR projects have provided the basis for commercial clam culture, and community-based projects on pearl oyster culture and spat collection and fish larval netting for the aquarium trade. There is potential for a more effective partnership between AusAID and ACIAR in developing the commercial and economic potential of some fisheries and aquaculture research projects.

The Australian Department of Agriculture, Forestry and Fisheries (DAFF), provides policy advice on bilateral, multilateral and regional fisheries agreements and related issues, leading Australian participation as a member of the WCPF Commission, the Forum Fisheries Agency and its Commission (FFA and FFC), and the Commission for the Conservation of Southern Bluefin Tuna. Other DAFF responsibilities include Australia’s bilateral relationships with Papua New Guinea, and engagement through joint Torres Strait management

arrangements on transborder fisheries issues. DAFF is developing a Pacific strategy to guide its future involvement in the Pacific, including involvement in fisheries issues.

Within DAFF, the **Bureau of Rural Sciences** provides scientific advice on Australia's use of marine living resources and the sustainable harvesting of fish stocks. Bureau of Rural Sciences activities include collaboration with regional agencies in providing management advice on high seas fisheries, research into target and by-catch species, analysis of human interactions with the marine environment; and management of national fisheries information systems.

DAFF also receives fisheries science support from the other Commonwealth marine research agencies, with CSIRO engagement in research on Pacific tuna biology and management, and fisheries management input from the Australian Fisheries Management Agency.

The **Department of Defence**, through its Defence Cooperation Program and the Pacific Patrol Boat Program, continues to provide Pacific island countries with a significant level of maritime surveillance capability and a credible enforcement capacity, in addition to the roles of the patrol boats in disaster relief, search and rescue and general police support. From an initial commitment of 10 patrol boats to eight countries, 22 standard vessels are currently in service in 12 Pacific island countries, at a total cost of A\$175 million since its inception. Maintenance of the vessels is undertaken in Queensland and Fiji and major refurbishing programs underway are expected to extend the operation of the Pacific Patrol Boat Program to 2027. The program includes specific fisheries-related patrol and interception and bilateral and multilateral enforcement exercises as well as broader border control and security capacities. The Pacific Patrol Boat Program has been a successful component in building greater self-reliance in the maritime patrol and surveillance capacities in the Pacific, but there are increasing concerns about the level of routine surveillance and enforcement activity that is achieved in some areas.

Training is provided through the Australian Maritime College, Launceston, which since 1988 has provided 32 courses each year at an annual cost of some A\$1.5 million, and through the Defence Cooperation Program, in naval skills, leadership and management training

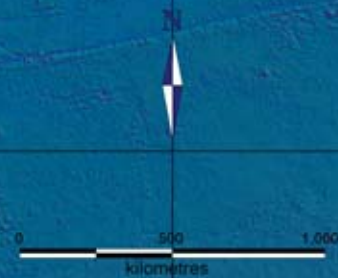
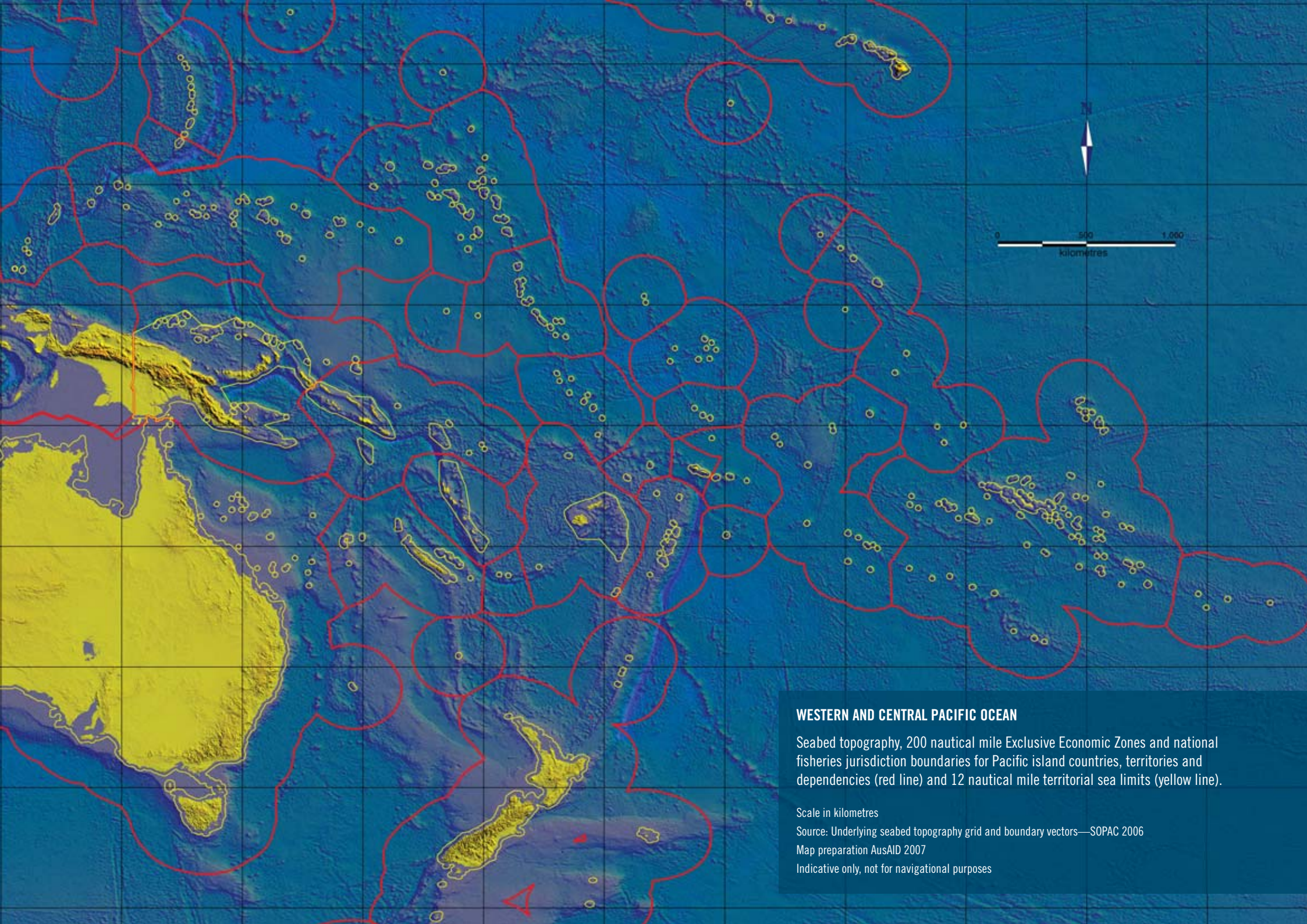
Other Australian Government Departments and agencies are involved a range of programs in the Pacific which impinge on fisheries issues, including Environment and Heritage, the Bureau of Meteorology, Geoscience Australia, Foreign Affairs and Trade (notably trade policies which impact markets for fisheries products), Treasury (in fiscal development, governance and anti-corruption measures), and Customs (on biosecurity, excise and related issues).

A range of state government agencies are also involved in the Pacific, either through ACIAR or AusAID-funded programs, or in bilateral arrangements for the provision of services to regional organisations and national agencies. There are also strong linkages developed between Australian universities and training facilities with campuses of the University of the South Pacific and Papua New Guinea, including James Cook University, the Australian National University, Macquarie University, the Australian Maritime College and others in marine science, fisheries science, economics and fisheries-related social science.

OPPORTUNITIES TO DRAW ON AUSTRALIAN STRENGTHS

- > The wide range of scientific skills and experience is embodied in the range of fisheries management structures and scientific advisory groups at Commonwealth and state level, including tuna and billfish, prawn, lobster, reef fish, tropical trawl, small pelagic, and artisanal and traditional fisheries.
- > Australia has been a fisheries management innovator that many other countries outside our region look to for advice and information on lessons learned. There is considerable direct fisheries management expertise in a range of government bodies serving the Commonwealth-managed fisheries, Australian Fisheries

- Management Agency and DAFF, state and territory fisheries departments and international fisheries organisations. There is also experience and capacity in maritime management in a broader role in agencies such as the Department of Transport and Regional Services and the Department of Defence.
- > Australia has significant experience with international fisheries management bodies including CCSBT (southern bluefin tuna), CCAMLR (Antarctic fisheries), IOTC (Indian Ocean tuna fisheries), and most recently and more directly, the WCPF Commission, and fisheries-related bodies such as FFA, FAO bodies such as COFI, and the APEC Fisheries Working Group.
 - > Research for development fisheries programs planned and managed by ACIAR and experience with a range of tropical and sub-tropical fisheries directly relevant to Pacific island situations, involving CSIRO, state and territory fisheries, and universities, and expertise in seabed and resource mapping (Geoscience Australia).
 - > Australia manages its fisheries in accordance with the principles of ecologically sustainable development and has instituted an assessment process addressing the ecological sustainability of all fisheries generating export product. Experience and support in dealing with this emerging aspect of fisheries development is available from Australian Fisheries Management Agency, the Department of Environment and Water Resources (including the Great Barrier Reef Marine Park Authority and the National Oceans Office).
 - > Australia is renowned for the quality and range of its training institutes, including maritime training (Australian Maritime College and the Australian Fisheries Academy, both of which are already extensively utilized by Pacific island countries), and academic institutions that provide a range of marine science and more directly fisheries-related qualifications and training. These include James Cook University, Australian Institute of Marine Science, Charles Darwin University, University of Wollongong, University of Queensland, and a range of other tertiary institutions offering marine science and related courses.
 - > Marine science and marine resource management training in Australia has provided a pool of Australian and Pacific island expertise in the region that has been drawn on in providing key fisheries personnel to regional and national fisheries management organisations in the Pacific.
 - > State museums provide training and facilities in biosystematics, collection management and curatorial techniques which are otherwise not available in the region. Some have arrangements with Pacific islands institutions, house major biological reference collections including significant material from the region and have some capacity to augment regional capacities.
 - > There is considerable commitment to the maritime surveillance of Australia's fisheries and those in adjacent waters, including Torres Strait, with recent upgrading of that commitment in northern Australia; ongoing support for the Pacific Patrol Boat Program active in many Pacific island countries; aerial surveillance of its own waters and participation in joint surveillance of the region, and direct personnel support for existing regional surveillance activity at FFA.
 - > Market access and marketing problems, including the capacity to meet stringent seafood quality standards, are major constraints for isolated Pacific island countries. Australia has the potential to strengthen capacity and assist in the development of alternative markets for Pacific fisheries products and to assist Pacific island countries to meet import requirements for access to its own markets.



WESTERN AND CENTRAL PACIFIC OCEAN

Seabed topography, 200 nautical mile Exclusive Economic Zones and national fisheries jurisdiction boundaries for Pacific island countries, territories and dependencies (red line) and 12 nautical mile territorial sea limits (yellow line).

Scale in kilometres

Source: Underlying seabed topography grid and boundary vectors—SOPAC 2006

Map preparation AusAID 2007

Indicative only, not for navigational purposes