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Marine fishery resources of the Pacific Islands



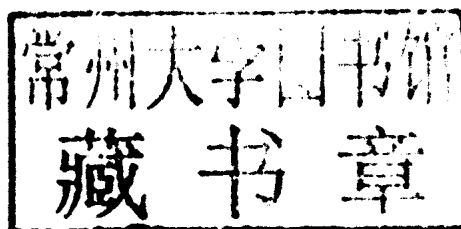
Marine fishery resources of the Pacific Islands

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AQUACULTURE
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by

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Preparation of this document

The FAO Marine and Inland Fisheries Service (FIRF) is responsible for all programmes and activities of the Food and Agriculture Organization of the United Nations related to management and conservation of fishery resources. This document was prepared as part of the work programme of FIRF and is intended to be a contribution to the understanding of the marine fishery resources of the Pacific Islands region.

This technical paper was prepared by Robert Gillett, a fisheries specialist based in Fiji, under the direction of Jacek Majkowski (FIRF).

Abstract

This document updates and expands an earlier review by FAO of the marine fishery resources of the Pacific Islands (Gillett, 2005a). The Pacific Islands region consists of 14 independent countries and 8 territories located in the western and central Pacific Ocean. In this area, there are about 200 high islands and some 2 500 low islands and atolls.

The main categories of marine fishing in the area are:

- *Offshore (oceanic) fishing*. This type of fishing is undertaken mainly by large, industrial-scale fishing vessels. Approximately 1 500 of these vessels operate in the exclusive economic zones (EEZs) of Pacific Island countries, mainly using purse-seine, longline and pole-and-line gear to catch tuna.
- *Coastal fishing*. This type of fishing can be divided into three categories: (1) small-scale commercial fishing (also referred to as “artisanal”), which can be further broadly subdivided into those operations supplying domestic markets and those operations producing export commodities; (2) subsistence fisheries, which support rural economies and are extremely important to the region’s nutrition and food security; and (3) the industrial-scale shrimp fisheries, which in the region only occur in Papua New Guinea.

The region’s fishery resources can be broadly split into two main categories: oceanic (offshore) and coastal (inshore). Oceanic or offshore resources include tunas, billfish and allied species. They are characterized by an open-water pelagic habitat and potentially extensive individual movements. Coastal or inshore resources include a wide range of finfish and invertebrates. They are characterized by their shallow-water habitats or demersal life-styles, and restriction of individual movements to coastal areas. This paper discusses these two resource categories. Information is provided on the major types of fishing, the important species, the status of those resources and the fisheries management that occurs.

In general, the coastal fishery resources are heavily fished and often show signs of overexploitation, especially in areas close to population centres and for fishery products in demand by the rapidly-growing Asian economies. With respect to the status of oceanic fishery resources, it is clear that there is most concern with bigeye. By contrast, the skipjack resource is in relatively good condition, with the large, recent catches considered to be sustainable.

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Acronyms and abbreviations

ADB	Asian Development Bank
CCM	Conservation and management measure
CITES	Convention on International Trade in Endangered Species
DWFN	Distant water fishing nation
EAFM	Ecosystem approach to fisheries management
EEZ	Exclusive economic zone
FAD	Fish aggregation device
FAO	Food and Agriculture Organization of the United Nations
FFA	Forum Fisheries Agency
FSM	Federated States of Micronesia
GDP	Gross domestic product
MPA	Marine protected area
MSY	Maximum sustainable yield
MTCs	Minimum terms and conditions (of access)
NGO	Non-governmental organization
OPF	Oceanic Fisheries Programme (of the Secretariat of the Pacific Community)
PIMRIS	Pacific Islands Marine Resources Information System
PNG	Papua New Guinea
ProcFish-C	Pacific Regional Oceanic and Coastal Fisheries Project
SOPAC	South Pacific Applied Geoscience Commission
SPC	Secretariat of the Pacific Community (formerly South Pacific Commission)
SPREP	South Pacific Regional Environment Programme
TMP	Tuna Management Plan
UNCLOS	United Nations Conference on the Law of the Sea
US	United States (of the United States of America)
VMS	Vessel monitoring system
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and Central Pacific Ocean

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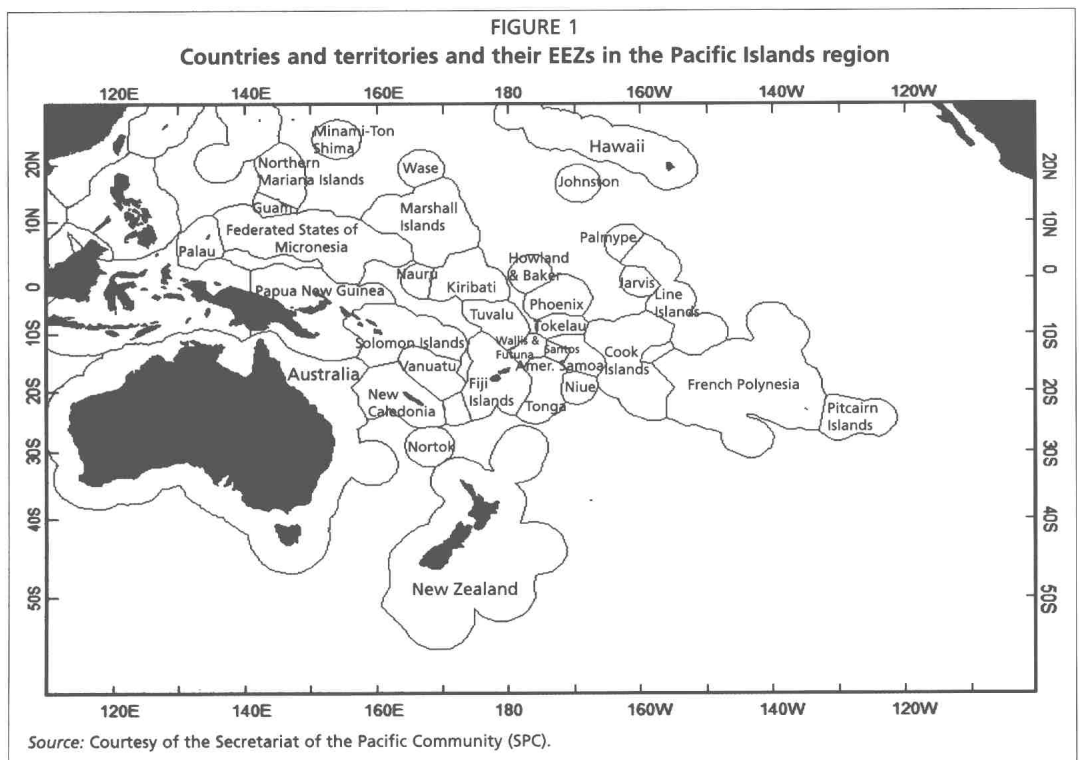
Introduction

In the Pacific Islands region fishery resources are critically important as a source of food and employment, a generator of government revenue and a foundation for economic development. A knowledge of these fishery resources is required for an understanding of many aspects of the countries of the region, including their economies, nutrition, political relationships and development aspirations.

Since the late 1950s, the Food and Agriculture Organization of the United Nations (FAO) has been involved in various fisheries activities in the region, including reviewing the fishery resources. This document updates and expands an earlier review by FAO of the marine fishery resources of the Pacific Islands (Gillett, 2005c).

1. The Pacific Islands region

The Pacific Islands region consists of 14 independent countries and 8 territories located in the western and central Pacific Ocean. There is also a substantial amount of international waters (high seas) in the area. Figure 1 shows these countries and territories, their 200-mile zones and the international waters, and Table 1 gives summary details on the countries and territories.



The Pacific Islands region contains about 200 high islands and about 2 500 low islands and atolls. Apart from the Pitcairn group and the southern part of French Polynesia in the east of the area, all the islands of the area lie in the tropical zone.

In general, the islands increase in size from east to west, with Papua New Guinea at the western-most edge of the region having most of the region's land area. The islands mostly rise steeply from the deep ocean floor and have very little underwater shelf. Coral reefs characteristically surround the islands, either close to the shore (fringing reef) or further offshore (barrier reef), in which case a coastal lagoon is enclosed. The area includes many atolls, which are the remnant barrier reefs of islands that have subsided. Some of the more recent islands in the area lack

coral reefs. Mangrove forests often border the inshore waters, especially of the larger islands, and provide habitat for the juveniles of many important food fish.

TABLE 1

Land area, area of 200-mile zones and population of 22 Pacific Island countries and territories¹

	Country/territory	Land area (km ²)	Area of 200-mile zone (km ²)	Estimated population ² (July 2007)
Independent Pacific Island countries	Cook Islands	180	1 830 000	15 473
	Federated States of Micronesia	702	2 978 000	109 999
	Fiji	18 376	1 290 000	834 278
	Kiribati	726	3 550 000	93 707
	Marshall Islands	720	2 131 000	52 701
	Nauru	21	320 000	9 930
	Niue	258	390 000	1 587
	Palau	500	629 000	20 162
	Papua New Guinea	461 690	3 120 000	6 332 751
	Samoa	2 934	120 000	179 478
	Solomon Islands	29 785	1 340 000	503 918
	Tonga	696	700 000	102 264
	Tuvalu	26	900 000	9 701
Pacific Island territories	Vanuatu	12 189	680 000	227 146
	American Samoa	197	390 000	65 029
	French Polynesia	3 521	5 030 000	260 072
	Guam	549	218 000	173 995
	New Caledonia	19 103	1 740 000	242 561
	Northern Marianas	475	1 823 000	64 050
	Pitcairn Islands	5	800 000	54
	Tokelau	12	290 000	1 170
	Wallis and Futuna	124	300 000	15 369

Source: Gillett and Preston (1997) and SPC (2008b).

Because of the relatively small size of most islands, major bodies of fresh water are not widespread in the region, with substantial rivers and lakes only being found in some of the larger islands of Melanesia. The small land areas of most islands create limited freshwater and nutrient runoff, resulting in low enrichment of the nearby sea. The ocean waters of the region are usually clear and low in productivity. Upwelling occurs in the boundaries between currents and in other localized areas, and has important implications for the harvesting of marine resources.

The dispersed nature of the region's land among this vast area of water has several consequences for fisheries management. In regard to coastal resources, the presence of numerous patches of land and their associated coastal and coral reef areas, separated by large distances and sometimes abyssal depths, means that many species with limited larval dispersal can be effectively managed as unit stocks. On

¹ Unless otherwise stated, the remainder of this technical paper deals with the fishery resources and associated fisheries of the independent Pacific Island countries.

² From SPC, 2008.

the contrary, management of shared stocks of highly migratory species such as tunas can only be effective if carried out on a multicountry basis. The presence of extensive areas of international waters among the region's exclusive economic zones (EEZs) greatly complicates the region's fishery management efforts.

The Pacific Island countries have two regional organizations with major involvement in fisheries. At least some knowledge of those organizations is a prerequisite to appreciating the management of fisheries of the area (Box 1).

BOX 1

Fisheries and the regional organizations in the Pacific Islands

Compared to other fishing regions of the world, an important feature of the Pacific Islands area is the strong regional organizations active in the fisheries sector. The two main organizations are:

- **The Secretariat of the Pacific Community (SPC).** SPC, based in Noumea, New Caledonia, helps its member countries and territories in matters relating to (a) coastal fisheries development and management and (b) scientific research and catch data compilation on the tuna resources of the region.
- **The Forum Fisheries Agency (FFA).** FFA, based in Honiara, the Solomon Islands, assists its member countries in matters dealing with the management of the region's tuna resources, including economics, surveillance and legal aspects.

Other regional organizations also have responsibilities in fisheries. These are the South Pacific Regional Environment Programme (SPREP), based in Apia, Samoa, the South Pacific Applied Geoscience Commission (SOPAC), in Suva, Fiji, and the University of the South Pacific in Suva, Fiji.

