

Fisheries Production Levels

Summary Information

Information on the annual fisheries production in each of the Pacific Island country is given in Appendix 2. These data are used to compile the following summary tables (Table 6 and Table 7) and figure (Figure 8).

Table 6: Estimated Annual Fisheries Production of Pacific Island Countries by Volume, late 1990s (in mt)

Country	Subsistence Fishing	Coastal Commercial Fishing	Offshore Local Fishing	Offshore Foreign Fishing	Total
PNG	26,000	5,500	50,500	85,000	167,000
Kiribati	10,000	6,000	0	132,000	148,000
FSM	5,000	5,000	2,499	127,000	139,499
Solomon Islands	13,000	3,200	73,328	948	90,476
Tuvalu	880	220	0	40,532	41,632
Nauru	110	315	50	41,000	41,475
Fiji Islands	21,600	9,320	5,500	917	37,337
Marshall Islands	2,800	444	0	33,217	36,461
Samoa	4,293	3,086	5,156	100	12,635
Tonga	2,863	4,173	800	45	7,881
Palau	1,250	865	2,500	124	4,739
Vanuatu	2,700	230	0	118	3,048
Cook Islands	795	80	75	300	1,250
Niue	194	12	0	2	208
Total	91,485	38,445	140,408	461,303	731,641

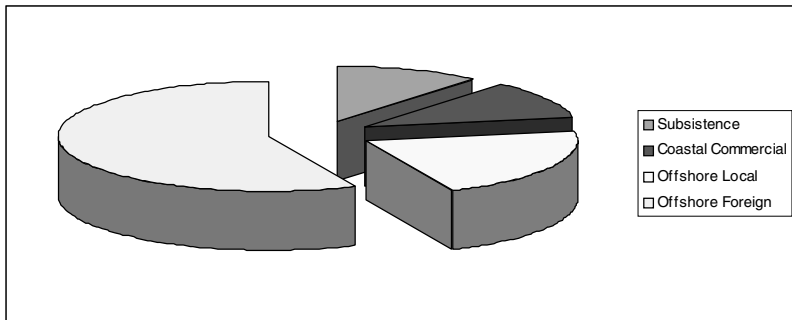
FSM = Federated States of Micronesia; mt = metric ton; PNG = Papua New Guinea.
Source: As per country production sections in Appendix 2.

Table 7: Estimated Annual Fisheries Production of Pacific Island Countries by Value, late 1990s (in US\$'000)

Country	Subsistence Fishing	Coastal Commercial Fishing	Offshore Locally Based	Offshore Foreign Based	Total
FSM	10,000	14,500	12,495	144,000	180,995
PNG	20,227	21,394	44,344	75,074	161,039
Kiribati	7,890	6,310	0	132,258	146,458
Solomon Islands	8,061	1,902	69,242	827	80,032
Fiji Islands	24,675	15,232	25,640	555	66,102
Marshall Islands	3,836	973	0	50,000	54,809
Tuvalu	931	284	0	38,000	39,215
Nauru	332	1,118	250	36,774	38,474
Samoa	7,143	6,583	9,840	99	23,665
Tonga	3,992	10,856	3,676	104	18,628
Palau	2,500	2,595	12,500	270	17,865
Cook Islands	1,164	10,320	397	407	12,288
Vanuatu	3,975	682	0	253	4,910
Niue	167	51	0	4	222
Total	94,893	92,800	178,384	478,625	844,702

FSM = Federated States of Micronesia; PNG = Papua New Guinea.
 Source: As per country production sections in Appendix 2.

Figure 8: Estimated Annual Value of Fisheries Production for All Pacific Island Countries, late 1990s



The methods used to assign values to fisheries production require some explanation.

- **Subsistence Fisheries.** There are several ways of determining the value of subsistence fisheries production. Passfield (1997) discusses some of these methods. "Farm gate" pricing is the method recommended by SPC in Bain (1996), and is the method used in the present study.
- **Coastal Commercial Fisheries.** The valuation of the production of coastal commercial fisheries is made using the best information available. Depending on the country, this ranges from recent studies on fish marketing to a near lack of any documentation. In the latter case, information was obtained by telephone from the countries concerned and by using information in Dalzell et al. (1996), with adjustments for price changes.
- **Offshore Fisheries.** For the offshore fisheries, the values used for locally-based vessels are estimated using free on board (FOB) prices. Applying this concept to the foreign-based offshore fisheries, the values given are the overseas market prices less the costs of getting the products to these markets. The Market Adviser of FFA provided the average values of the average species mix for the various Distant Water Fishing Nation (DWFN) gear/nationality combinations. Transshipment costs were subtracted from these prices to arrive at an in-country value for the catch.

As 1999 is the most recent year for which most the Pacific Island countries have GDP information, efforts to estimate fisheries production were focused on that year. Given the relative size of the offshore fisheries, any atypical features of the tuna fisheries in 1999 may affect the average situation that the estimates were intended to portray. Because Hampton et al. (2000) indicate that 1999 was typical of a La Niña situation, with the Southern Oscillation Index remaining in the positive range throughout 1999, it is likely that the year was not unusual for tuna fishing.

General Comments

In attempting to obtain national fisheries information for this study, it became apparent that most countries in the region have

very limited knowledge of overall national fisheries production. Typically, government fisheries agencies give low priority to estimating the total amount of domestic catches. In general, the smaller the scale of the fishing, the less is known about the production levels, with quantitative information being especially scarce for the subsistence fisheries. Samoa, where a survey of village fisheries has recently been completed, is a notable exception.

Where attempts have been made to estimate national production from small-scale fisheries, the estimates have usually been made from data gathered from HIES, nutrition, and other surveys outside the fisheries sector. In the cases where this information has come from surveys focused on fisheries, the techniques have usually involved dietary recall rather than methods such as creel surveys or sampling at landing points. Considering this dependence on recall, some validation (“ground truthing”) may be in order.

In calculating national fisheries production, once a figure for the national production of the fisheries sector (or subdivision) has been established, it is common practice to use that figure for years or even decades with little adjustment except for population growth. This can produce erroneous estimates, especially when the original estimates were of poor quality.

Some notable patterns in the fisheries production data are:

- (i) The weighted average price per kg for the whole region for the various categories are \$1.04 for the production from subsistence fisheries, \$2.41 for coastal commercial, \$1.28 for locally-based offshore, and \$1.04 for foreign-based offshore.
- (ii) The ranking of countries by total fisheries production is strongly influenced by the level of tuna catches.
- (iii) There is a general pattern of decreasing total national catches if one goes from west to east across the region, and from equatorial to higher latitudes.
- (iv) The value of longline tuna relative to purse seine tuna is apparent from the ranking of FSM (third place in volume but first place in value) due to relatively more longlining activities in FSM than in PNG or Kiribati.
- (v) The Fiji Islands appears to have the largest non-tuna production, in terms of both volume and value.
- (vi) The production from Tuvalu and Nauru is almost entirely related to tuna fishing.

Comparisons with Previous Work

The only previous attempt to estimate and summarize volumes and values of national fisheries production in the Pacific Island region was that by Dalzell, Adams, and Polunin (1996) in "Coastal Fisheries in the Pacific Islands" (herein referred to as the Dalzell study). The information contained in the Dalzell study, as well as in numerous other studies of fisheries in the region, has proven extremely useful for the present survey. For some countries, the Dalzell study remains the sole estimate of total national coastal fisheries catches.

The present survey used, among others, the Dalzell study, more recent surveys, and studies outside the fisheries sector containing relevant information. There are some differences in the results of the Dalzell study and the present study. Some of these differences reflect actual changes in fisheries over the past 10 years (e.g., increased commercialization of fisheries in FSM). Others arise because of the availability of additional information on which to make the estimates (e.g., the use of HIES information in Tonga); while others reflect distortions due to changes in the value of local currencies relative to the US dollar (e.g., the PNG kina devalued 270% during the decade).

Bearing the above in mind, some observations can be made on the differences between the present study and that of Dalzell's:

- **Subsistence Production.** The volume estimates made in this study are about 25% higher than those in the Dalzell study. This seems reasonable considering the population of the region increased by about 27% during the 1990s (Ryan and Stepanoff 2000). The country which showed the largest difference in volume estimates was Tonga, where the difference is mainly due to the use by the present study of information from an HIES. Differences in the value of the subsistence catch between the two studies were also significant, with the present study using value estimates which are about 50% less than those used in the Dalzell study. This difference in value estimates can mostly be attributed to (i) the method used to value subsistence catches (the present study used the "farm gate" scheme for valuation, while the Dalzell study mostly used full market values), and (ii) the changes in local currency exchange rates relative to the US dollar, especially in PNG and the Solomon Islands.

- **Commercial Coastal Production.** In this study, estimates of the catch volume are almost 50% higher than in the Dalzell study. FSM and Samoa reported significant *real* increases in volume estimates, while other countries showed increases which are mainly due to the availability of better information (e.g., Tonga, Solomon Islands, and Tuvalu). The value estimates in US dollars of the commercial coastal production generally increased by about 35%. There are, however, countries that showed a decrease in value estimates. The drop may be due to actual declines in either activity (Vanuatu) or exchange rates (Fiji Islands). The major increase in volume/value reported for the Cook Islands is due to the inclusion of pearl aquaculture in the estimates of the present study.