

# 1 Executive Summary

## The study

In 2001 and 2008 the Asian Development Bank undertook studies to quantify benefits from the fisheries sectors of Pacific Island countries. Summaries of those studies are provided in Appendix 1 of the present book.

In February 2014 discussions between the Pacific Community (SPC) and the Australian Department of Foreign Affairs and Trade (DFAT) resulted in an agreement to sponsor an update of the earlier publications. A consultant was retained and the fieldwork to collect information began in early August 2014, and was completed in early November. Country-specific information was assembled, analysed, and written up from mid-November to late January, and the main text of the book was produced in early 2016.

## The contents of this book

This book contains a fisheries-oriented discussion of macroeconomics, country information on specific topics (fisheries production, contribution to GDP, etc.), a discussion of important topics across all countries (e.g. the regional significance of fisheries access fees and exports of fishery products), some important features of the benefits from fisheries that have emerged from this study, and recommendations on improving the measurement of fisheries benefits and assuring the continuity of those benefits.

## GDP, fishing and fisheries

Background information on estimating gross domestic product is provided, along with guidelines on estimating the contribution to GDP of fishing.

For national accounting purposes, the sector is referred to as “fishing”, rather than the broader “fisheries”. Post-harvest activities, including fish processing, are not included in the fishing sector when estimating GDP.

## Country data on benefits of fisheries

Information on the benefits of fisheries is provided for each of the 22 Pacific Island countries and territories (PICTs). These country and territory chapters contain recent, readily available data in the following areas:

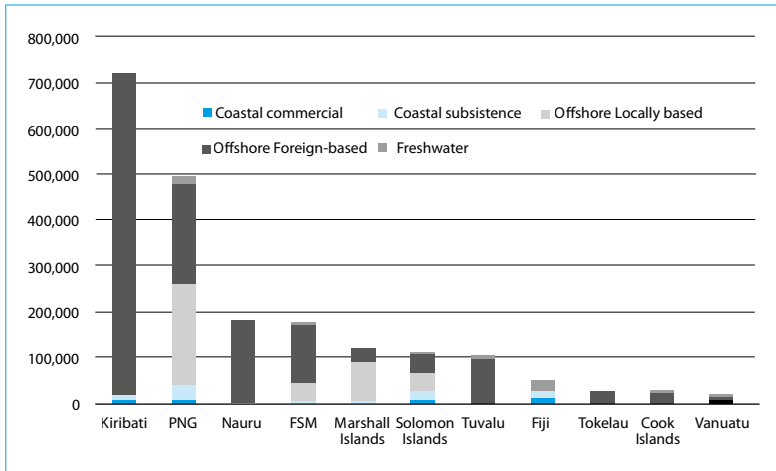
- Recent annual fishery harvests: values and volumes covering the six fishery production categories: (1) coastal commercial fishing, (2) coastal subsistence fishing, (3) locally based offshore fishing, (4) foreign-based offshore fishing, (5) freshwater fishing, and (6) aquaculture.
- Fishing contribution to GDP: the current fishing contribution, how it was calculated, and re-calculation based on annual harvest levels obtained during the study.
- Fishery exports: amounts and types, and the ratio to all exports.
- Government revenue from the fisheries sector: access fees and other revenue.
- Fisheries-related employment.
- The contribution of fisheries to nutrition.

## Regional fisheries and aquaculture production information

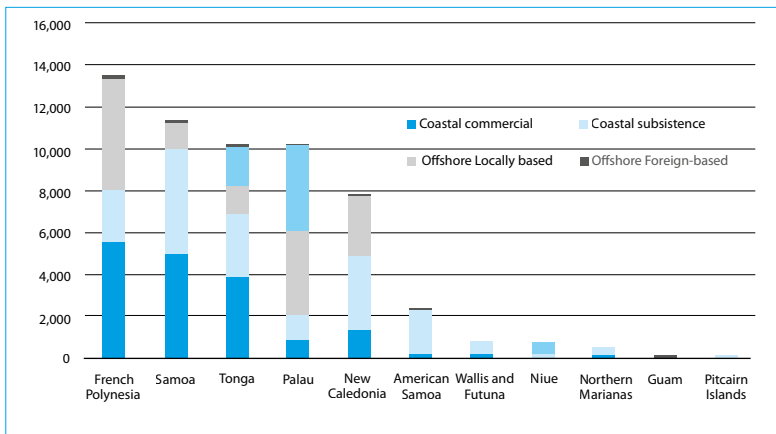
It is estimated the volume of all fisheries and aquaculture production in the region in the six fisheries categories in 2014 was about 2.0 million metric tons (mt), worth US\$3.2 billion.

In comparing these figures to estimates by other studies it is important to consider carefully how the “region” is defined, and where in the value chain the value is estimated. The present study defines the region as the 22 Pacific Island countries and territories and their 200-mile zones. The values used reflect the prices paid to the producer or (for offshore fisheries) in-zone prices.

## Volume of fishery production in 2014 in the higher-producing countries (mt)



## Volume of fishery production in 2014 in the lower-producing countries (mt)



### Key features of coastal fisheries production

The following are some of the key features of coastal fisheries production:

- The volume for all coastal fisheries (i.e. commercial and subsistence) in Papua New Guinea (PNG) is about one-third of the regional total.
- The production from Fiji's coastal commercial fisheries is greater than that of any other PICT, even for that of PNG, with a population almost nine times greater than Fiji's.
- Considering the level of overall development of Samoa and Tonga, the degree of commercialisation of the coastal fisheries (reflected in their relative positions on the comparison graph) is high.
- Considering that New Caledonia and American Samoa are quite developed, the degree of commercialisation of their respective coastal fisheries (reflected in their relative positions on the comparison graph) is relatively low.

### Key features of offshore fisheries production

The following are some of the key features of offshore fisheries production:

- The value of offshore fishing in the Kiribati zone in 2014 (US\$1.1 billion) approaches the combined value of offshore fishing of all other PICTs, excluding PNG (US\$1.3 billion).
- The effects of the 2014 El Niño conditions on offshore fisheries production is readily apparent, and has resulted in higher catches in the central equatorial region.
- Three countries in an area of relatively productive tuna fishing had no locally based offshore fishery production (Nauru, Tuvalu and Tokelau). Kiribati had only a tiny amount of locally based offshore fishery production.
- In about one-third of the countries that are significantly involved in offshore fisheries, the fleet is all locally based. In another third of countries the fleets are a mixture of locally and foreign-based, while the remainder have foreign-based fleets.
- Although Palau is a party to the Nauru Agreement (one of the parties to the Nauru Agreement – PNA), the production from its offshore fishing is less than that of several non-PNA countries.

## Aquaculture production in the region

In 2014 aquaculture production in the region is estimated to have been 4,217 mt and 9,122,169 pieces, worth US\$116,005,524. Two French territories were responsible for more than 93% of the value of all aquaculture production in the region. In only six PICTs was the value of aquaculture production in 2014 greater than 5% of the value of coastal fisheries. All but one of those PICTs (Cook Islands) are territories.

## Changes in fisheries and aquaculture production during the period 2007–2014

The following are some of the significant changes in in fisheries and aquaculture production during the period 2007–2014:

- In the 22 countries and territories the total volume of fishery production increased by 431,354 mt (32%).
- The value of fishery and aquaculture production increased by \$738,662,323 (30.7%).
- In relative terms, the share of offshore foreign-based fishing expanded, largely at the expense of offshore locally based fishing.
- Coastal fisheries production has been largely stable, despite an increased coastal fishing effort in most PICTs in the region.
- Aquaculture decreased in value by 32.7% across the region. This was mostly attributable to the fall in the value of pearl production in Cook Islands and French Polynesia.

## Some issues in measuring fisheries production in the region

The offshore fisheries statistical systems are in relatively good condition, both at a national and regional level, but the situation for coastal fisheries statistics is not nearly as good. Typically, national government fisheries agencies give a low priority to estimating the total amount of coastal catches. In some respects this situation is a tragedy. The importance of food security and the roles played by coastal fisheries are beyond dispute, but, in order to effectively safeguard the flow of food from coastal fisheries, that flow needs to be quantified: “You can manage what you can measure”. In view of the poor statistics on coastal fisheries production in most countries and territories in the region, and the potential for household income and expenditure

surveys (HIES) to improve the situation, the applicability of HIES to coastal fisheries deserves more attention.

### Household income and expenditure survey (HIES)

The HIES has the appeal of being capable of providing information about fisheries production with little or no expense to fisheries agencies. In the past a drawback has been that there were doubts about the accuracy of the HIES in making annual coastal fisheries production estimates. The Federated States of Micronesia chapter of this book indicates promising results using the new “fisheries-friendly” HIES (which is discussed further in Chapter 29). This should serve to encourage fisheries departments in the region to make more use of HIES in their coastal fisheries work.

### Contribution of fishing to GDP

In the country and territory chapters of this book the official gross domestic product (GDP) and the official fishing contribution to GDP are presented. Methods used in the official calculation of the fishing contribution to GDP are also presented, and some comments are made about the suitability of those methods. For each country the consultant re-estimated the fishing contribution to GDP using a standard methodology. In many cases the re-estimation varies substantially from the official contribution. Some possible reasons for the differences are discussed.

### Improving the estimates of fishing contribution to GDP

Several technical suggestions are made for improving the estimates of the fishing contribution to GDP. In the longer term – on the level of the institutions supporting Pacific Island fisheries – some assistance is identified that would be of considerable value in the interface between the fishing sector and national accounts. It is suggested that three issues should be addressed: value added ratios, the GDP status of locally based foreign fleets, and formulating satellite accounts for fisheries in each country

### Exports of fishery products

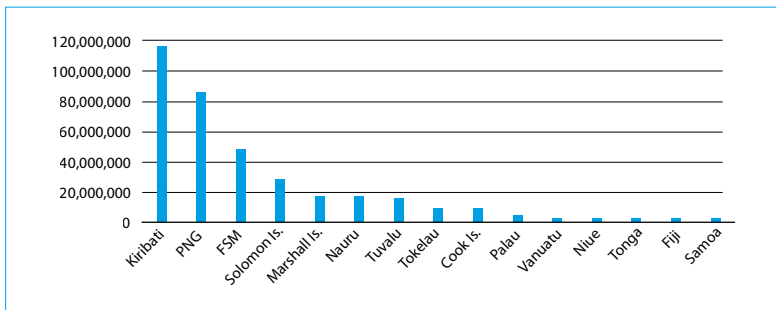
The annual value of fishery exports in 2014 is given for each country, in absolute terms and relative to all exports. The findings show that, while fishery exports represent less than 40% of the value of all national exports, in some countries they are quite large in nominal terms, for example: PNG

(US\$136 million), Fiji (US\$58 million), Solomon Islands (US\$54 million), and New Caledonia (US\$22 million). American Samoa, PNG and French Polynesia have the largest value of fishery exports (the former and the latter being territories). Of the approximately US\$820 million in total fishery exports from the region in 2014, about 76% is represented by these three PICTs. Over the period 2007–2014 the total amount of fishery exports from the region fell by about 42% in real (inflation-adjusted) value. The fall in the value of canned tuna exports from American Samoa was responsible for about 37% of the total regional decline. Of the major exporting countries, only PNG and Solomon Islands increased their fishery exports in the period.

### Access fees for foreign fishing

In each of the country and territory chapters of this book, information is provided on access fees received for foreign fishing, and these fees are compared with total national government revenue. In 2014 foreign fishing access generated US\$349,335,572 across all 22 Pacific Island countries and territories. Given the lack of authorised foreign fishing in most territories, the US\$349.3 million represents access fees generated in the independent Pacific Island countries as well as Tokelau.

### Access fees for foreign fishing in 2014 (US\$)



### Other aspects of access fees

The following are some further key points about access fees:

- Four countries in the region received access fees in 2014 representing more than US\$1,000 per capita.

- Kiribati, despite having one of the largest 200-mile zones in the region, had a relatively high ratio of access fees per square kilometre of zone in 2014.
- In the period 2007-2014 access fees increased in all countries that receive them.
- The countries with the largest increases in access fees were those that participate in the PNA Vessel Day Scheme (in which foreign purse seine vessels purchase fishing days from PNA countries).
- In real terms (i.e. adjusted for inflation) the region has experienced an eight-fold (848%) increase in the value of access fees in the period 1982–2014.

### Employment related to fisheries

Information about fisheries-related employment is provided in each of the country and territory chapters of this book. Most of the information presented is a heterogeneous collection of various types of data (with the exception of the Forum Fisheries Association's tuna-related employment data, which is collected uniformly across the region). The incomparability of the data creates difficulties in summarising the fisheries-related employment situation at the national level, and in making inter-country comparisons. In reviewing the interface between employment surveys and the fisheries sector, one of the most significant observations made is that government statistics offices collect fisheries-related employment information with their own priorities and with diverse, often ineffective, methods, which results in incomparability of these data across the region. Considerable knowledge of the sector is required to enable the collection of useful information for the purposes of producing publications such as this one. Government fisheries officials and fishing industry participants have an important role to play in working with statistics office staff in defining terms and categories, formulating survey strategies and scrutinising survey results.

### Fish consumption

The information about the consumption of fish that is readily available is provided in the country and territory chapters of this book. This information is used to compile and compare the ranges in estimates of fish consumption across the region, from which the following observations can be made:



- In general, countries comprising mainly atolls, such as Kiribati, Tuvalu and Federated States of Micronesia (FSM), have the highest fish consumption rates. The low fish consumption levels in Marshall Islands appears to be counter-intuitive, while the low consumption levels in Tokelau can be explained by its close association with New Zealand which, with its relative affluence, facilitates the importation of protein alternatives to fish.
- The countries and territories with the lowest fish consumption rates either have large inland populations (such as PNG and Vanuatu), or are relatively affluent territories.
- In the context of fish consumption surveys, comparisons between different fish consumption studies must be embarked on cautiously. There is a strong argument for avoiding comparing fish consumption surveys, unless the methods used by the comparative studies are known and these methods are comparable with the subject study, or the data are capable of adjustment to ensure comparability.

### Significant findings

The most important findings of the present study are the following:

- Coastal fisheries production has not increased significantly in the 15-year period 1999–2014. This is despite indications at the national level of increasing fishing pressure. This is consistent with the thesis that the fish resources that support coastal fisheries in the region are fully or over-exploited. Because the population of the region is increasing, the per capita production of fish from coastal fisheries is decreasing, at a rate of approximately 6% in the period 2007–2014. This is a remarkable decrease in such a short period.
- Foreign-based offshore fishing continues to increase, with this fishing being responsible for almost all of the regional increase in fish catches in the period 2007–2014. This increase was mostly due to increased purse seine catches. This occurred despite the introduction of the PNA Vessel Day Scheme and the associated steep increase in access fees, which were mostly paid by the foreign purse seine fleets. The largest jump in access fees was between 2013 and 2014 (for countries where it was possible for the study to obtain access fees for both years), even though prices for skipjack (the main target of purse seining) decreased in that period. The fact that access fees increased, even though skipjack prices decreased, is a powerful argument for the effectiveness of the Vessel Day Scheme.

## Technical recommendations

23 technical recommendations are made about how to improve the measurement of the benefits of the fisheries sector in the region. Because many of the suggestions involve enhanced interaction between fisheries and statistics agencies, a general priority arising from the present study is that mechanisms should be explored for encouraging this inter-agency cooperation. Other technical recommendations are the following:

- The paucity of information on coastal fisheries production is a problem in most countries in the region. If a fisheries agency cannot afford some type of snapshot fisheries survey, consideration should be given to that country obtaining such information from studies outside of the fisheries sector, such as a HIES, an agriculture census or a national census.
- In-country assistance from a specialist in small-scale fishery statistical systems could improve coastal fishery production estimates made by fisheries statistical systems, or alternatively this assistance could assess the degree of credibility (or lack of credibility) of the data produced by countries' existing systems.
- In-country assistance from regional and international development agencies in the production of fisheries agency annual reports could encourage the production and availability of reliable information on coastal fisheries. This would contribute to better measurement of the benefits of the fisheries sector.
- In analyses of benefits from specific fisheries sub-sectors, efforts should be made to ensure that the analytical work is entirely independent from individuals involved in promoting the particular sub-sector.

## Recommendations

The study makes two specific high-level recommendations:

- The remarkable drop of per capita production from coastal fisheries over the period 2007–2014 should serve as a “wake-up call” for countries that do not place great attention on effective coastal fisheries management. Because coastal fisheries provides most of the fisheries-related employment and food in the region, there is both a moral and economic imperative to pursue the difficult task of implementing effective coastal management measures with greater vigour.
- Fees paid by foreign fishing operations for fishing in the region increased almost three-fold (279%, in real terms) between 2007 and

2014. This increase coincided with the period when the PNA Vessel Day Scheme was introduced and became fully operational, and the scheme had increased its fees in countries that are parties to the Nauru Agreement. Access fees increased in real terms in all Pacific Island countries that licensed foreign fishing vessels. This is, among other factors, likely to reflect the long-term increase in the value of tuna globally. It is clear that increases in regional tuna catches experienced over the last six decades, and the associated increase in access fees, cannot continue forever. Efforts to diversify the benefits from offshore fisheries, including in the areas of GDP (e.g. by more local basing of tuna vessel), exports, employment and food, should receive more attention from PICTs in the region, drawing on earlier efforts to expand catches and increase foreign access fees.

#### Box 1: Some Surprising Facts to Emerge from the Study

- The 2014 tuna catch in Kiribati was 40.7% of the regional total, and was valued at about US\$1 billion.
- 52.7% of all employment in the region that is directly related to the tuna industry is in Papua New Guinea.
- The volume of production from the coastal commercial fisheries of Samoa in 2014 was almost equivalent to PNG's levels. The volume of production from the coastal commercial fisheries of Fiji is almost twice as high as that of PNG, despite PNG's population being almost 9 times greater than Fiji's.
- 93% of the value of all aquaculture in the region is produced in two French territories: French Polynesia and New Caledonia.
- In only six PICTs in the region is aquaculture a significant commercial activity (i.e. where the production value is greater than 5% of that of coastal fisheries) – all but one of those PICTs (Cook Islands) are territories.
- American Samoa's fishery exports represent almost half (47%) of the fishery exports of all other countries and territories combined. The value of PNG's fishery exports represents about 41% of the value of fishery exports from all other independent countries combined.
- The total value of fishery exports from the region fell by about 42% (in real terms) in the period 2007–2014. The fall in the value of canned tuna exports from American Samoa was responsible for about 37% of the total regional decline.
- In the period 2007–2014 (coinciding with the period when the PNA Vessel Day Scheme was introduced and became fully operational) access fees for foreign fishing increased almost three-fold (279%).
- In 2014 four countries in the region received access fees that represented more than US\$1,000 per capita.