

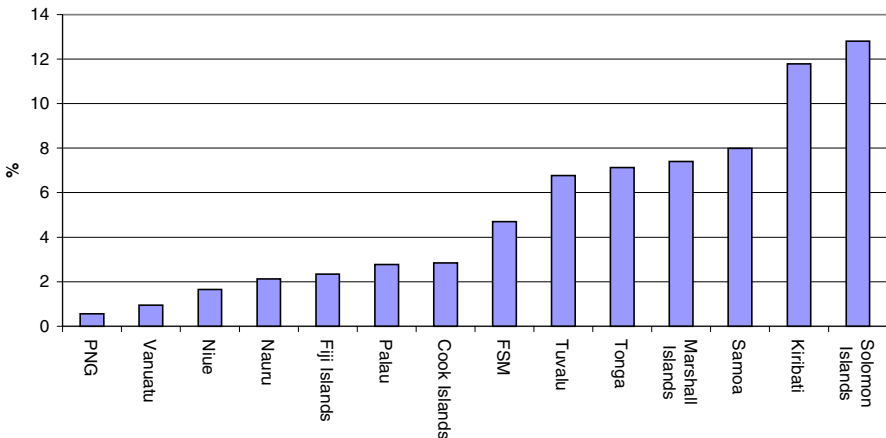
Conclusions and Recommendations

The objectives of the present study were to measure the economic contribution of fisheries to the economies of Pacific Island nations from available data and to contribute to improving the accuracy of this measurement. The conclusions and recommendations are therefore grouped according to these objectives.

Measuring the Economic Contribution

The official fishing contribution to GDP in various Pacific Island countries in 1999 is given in Section 4.1. The importance to the economies of Pacific Island countries, as measured by the percentage of GDP, is given in the Figure 9.

Figure 9: Official Estimates of Fishing Contribution to GDP of Pacific Island Countries, 1999



In countries where official estimates are not available (Solomon Islands, Nauru), estimates were made during this study for purposes of comparison.

A major conclusion of the present study is that, in most Pacific Island countries, the fishing contribution to GDP has been underestimated. In five countries, the consultants’ estimates are more than double that of the official figures. In two cases, the consultants’ estimates are lower than the official estimates albeit, in the case of the Cook Islands, the difference is too small to be significant. The differences between the consultants’ estimates and the official estimates are shown in Table 13.

Table 13: Difference between Consultants’ and Official Estimates of Fishing Contribution to GDP

Country	Difference in Estimates (+ / -) (%)
Increased	
Palau	+441.1
Papua New Guinea	+154.3
Vanuatu	+138.8
Fiji Islands	+131.8
Kiribati	+127.9
Federated States of Micronesia	+103.1
Niue	+18.2
Tonga	+5.1
Tuvalu	+4.3
Decreased	
Cook Islands	-10.6
Samoa	-18.0
Marshall Islands	-50.0
No Official Estimates	
Nauru	—
Solomon Islands	—

There is no single reason for the differences in the estimates. In some countries, notably FSM and PNG, the differences are primarily due to the inclusion of subsistence fishing in the consultants’ estimates. In other countries, in particular Palau, the difference is primarily due to the methods used. In most, it is a combination of differences in the estimate of production and the method used to calculate the contribution. For example, in Samoa, subsistence production was valued at the full market value, rather than at “farm gate” prices.

At one extreme, both Nauru and the Solomon Islands have major problems preparing their national accounts. The difficulty in computing the fishing component of these accounts is part of the overall problem. At the other extreme, Cook Islands, Niue, Tonga and Tuvalu all compile soundly based national accounts that include reasonable estimates of the fishing contribution. In most of these latter countries, the differences between the consultants' estimates are small. In general, where the differences between the estimates are 5.0% or less, they are not significant.

The major difference between the consultants' estimate and the official Marshall Islands estimate is due to what seems to be the inclusion in the official figures of a contribution from foreign vessels that ceased operating sometime earlier.

The main lesson learned is that, in the countries where the estimates are markedly different, the process of preparing the national accounts tends to rely on outdated surveys, inappropriate indicators, and/or poorly understood methods. In most of these cases, the compilers of national accounts do not appear to have consulted the relevant fisheries agencies or the industry when preparing their estimates.

Where there is a marked difference between the consultants' estimates and the official estimates, the compilers of national accounts should carefully examine and evaluate the data, the assumptions, and the methods that they are using. This evaluation should include consultation with the relevant domestic and regional fisheries agencies. Where significant problems are identified, they should consider changing their methods and/or seeking outside assistance to revise their methods and approaches to estimating the fishing contribution to GDP.

Improving the Fishing Contribution Estimates

A major conclusion of this study is that the accuracy of the estimate of fishing contribution to GDP could be improved with a closer liaison between the fisheries and the statistics agencies. The fisheries agencies are in a position to provide information on new developments, technical insights, and recent data, all of which could improve the GDP estimates. This cooperation, however, rarely occurs in the Pacific Island countries. Because fisheries agencies have a vested

interest in assuring that the importance of their sector is not underestimated, they should take the lead in improving this cooperation. It is recommended that the fisheries agencies identify an appropriate staff member to serve as the liaison with the statistics agency and with regional organizations. The work program of this individual should be modified to include duties related to measuring the fishing sector's economic contribution.

One of the factors causing an underestimation of the fishing contribution is related to the valuation of the production of small-scale fisheries. The fundamental difficulty is lack of knowledge of volume of production (for which values could easily be estimated). The low quality of fisheries statistics is a persistent problem in the Pacific Island countries, and there do not appear to be any practical solutions for many of the data problems in the fisheries sector. At a recent Food and Agriculture Organization (FAO)/SPC Pacific Islands Regional Workshop on Fisheries Statistics, most of the country representatives acknowledged the low level of information on small-scale fisheries production and the lack of expertise and/or funding in obtaining the information. Given this reality, it is recommended that maximum use be made of survey opportunities *outside* the fisheries sector. At little additional cost, production information on small-scale fisheries could be collected through such tools as the national census, nutrition surveys, agriculture census, HIES, and poverty studies. This would require a pro-active approach on the part of fisheries agencies in the planning stage of these surveys to assure that useful fisheries data are obtained.

In many countries, the underestimation of the value of fisheries exports in official customs statistics is a major source of error in the estimation of the fisheries contribution. The export information situation is worse in fisheries than in other sectors. In the countries where this problem is especially acute, it is recommended that export valuation be based on a broader spectrum of information than solely those provided by customs officials. These additional data could be obtained from the government fisheries agency, industry, and knowledgeable individuals. In addition, the regional organizations involved in fisheries collect data that could be used in valuing exports.

Additional information on the economics of small-scale fisheries would contribute to improving the measurement of the fisheries contribution to GDP. This information would improve the under-

standing of input ratios (for the production approach to GDP) and the various forms of income (for the income approach). Such studies need not be complex but should cover the major small-scale commercial and subsistence fisheries.

The regional organizations could play an important role in improving the measurement of fisheries contribution to the economies of their member countries. Initiatives could include:

- (i) Measures to inform the national statistical agencies of the availability of information relevant to fisheries GDP calculations:
 - (a) SPC databases have detailed information on tuna production and some information on several important export commodities (i.e., trochus, beche-de-mer);
 - (b) FFA has information on the price of tuna in international markets.
- (ii) Specifically targeting the fisheries sector in national/regional national accounts training courses;
- (iii) Developing a capability within the regional organizations to undertake analysis of the economics of small-scale fisheries;
- (iv) Advice on enhancing the work programs of the fisheries economists of government fisheries agencies to facilitate more involvement in measuring the economic impact of their sector;
- (v) Sponsorship of a regional meeting of fisheries economists. It is noted that although the regional organizations have held a multitude of meetings for the various fisheries subsectors (surveillance, law, management, and statistics), there has never been a regional gathering of fisheries economists. Such a meeting could have a positive impact on increasing understanding of technical issues, as well as generating interest among government fisheries agencies in measuring economic contributions.

Other Conclusions and Recommendations

The income approach versus the production approach for the fisheries sector

In those circumstances where the compilers of national accounts have access to comprehensive and detailed information on the income/expenditure of the participants in one or more sectors of the

fishing industry, the income approach is the most appropriate method of calculating the value-added to GDP. In the Pacific Island countries, it is, however, rare for this data to be available for fishing. In these circumstances, the production approach is likely to be the most accurate method for estimating the contribution of fishing to GDP. Even when the compilers of national accounts have access to good quality income/expenditure data, it would be prudent if they cross-checked their calculations against estimates made using the production approach, giving special attention to obtaining accurate value-added ratios and fish prices.

Level of aggregation in national accounts

In the national accounts of most Pacific Island countries, fishing is aggregated with agriculture and other primary industry. In several cases, the fishing component of subsistence is lumped together with all other subsistence activities. This aggregation with other activities can make it very difficult to identify the contribution of fishing to GDP. This practice is understandable and is not really a problem when the fishing contribution to GDP is very small. But when fishing makes a significant contribution to GDP, that contribution should be clearly identifiable in national accounts.

In the future, it is likely that an increasing share of the benefits from the fisheries sector will come from fish processing. Thus, there is a strong argument for the national accounts to disaggregate within the food processing sector the specific contribution of fish processing.

ISIC categories

There are marked differences between the value-added by different fishing activities and, therefore, it is important to distinguish between these activities when estimating their contribution to GDP. At a minimum, analysts should distinguish between large-scale off-shore fishing, small-scale commercial fishing, and subsistence fishing. The small-scale commercial fishing should be further disaggregated into export-oriented and local supply. Creating expanded ISIC sub-categories to cover at least these activities could facilitate this.

Classifying subsistence activities

One of the difficulties facing any analysts using the production approach is determining the appropriate value-added ratios. This

can be particularly difficult for subsistence fishing where the activities range from reef gleaning, which requires very few inputs, to trolling for tuna, where the costs of fuel, lures and boat maintenance are substantial. The large differences between the value-added ratios of these activities make it important to have a clear idea of the proportion of fishing undertaken using each activity. While it may be impractical to try and identify the value-added ratios for each possible subsistence activity, at the least the ratios between motorized and nonmotorized activities should be differentiated.

Extrapolation of HIES data

In most cases, HIES are sample surveys that rely on the memory of the respondents to estimate the level of consumption/expenditure. Even when properly implemented, there is considerable scope for errors in the estimates produced by HIES. As the length of time over which the data are extrapolated increases, the risk of error is compounded. It is normal for changes in the overall population size to be used to extrapolate consumption/expenditure data. Given the marked differences between the consumption and production patterns of rural/urban and coastal/inland populations, the use of changes in the overall population size to extrapolate HIES data could result in a biased estimate.

Economic impact of fisheries

While GDP is an important measure of the role of fishing in an economy, it does not give the overall impact that fishing has on an economy. Although a study of the multiplier effects of fishing would lead to a greater understanding of economic impacts, there is little information in the Pacific Island countries from which the multiplier effects of fishing can be estimated. In fact, there is very little information available to estimate the multiplier impact of any activity in the Pacific economies. It is recommended that further work be undertaken to estimate the multiplier effects of fishing on national income and employment in the Pacific Island countries.

