

# Hot issues on Pacific Island coastal fisheries

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*In early 2014, the Economic and Social Commission for Asia and the Pacific (ESCAP) commissioned a study on the major issues and challenges in Pacific Island fisheries. The paper (soon to be available on the ESCAP website) covers a variety of topics, and this article summarizes the discussion of coastal fisheries “hot issues”.*

Not everybody involved in fisheries in the region will agree on what is “hot” in terms of coastal fisheries, but it is hoped that the subjects covered and the associated views will provoke some debate. Although many of the issues and challenges covered require extensive discussion for a thorough understanding, the purpose here is to briefly highlight the major points in a concise form. In some cases, an issue might not be the absolute or most critical, but rather an important emerging issue that has not received adequate attention.

## Population pressure

Currently, many of the coastal fishery resources are over-exploited, especially those close to urban areas where the concentrated population creates the greatest demand for fish. It is likely that in the Pacific Islands region the situation will become worse in the future: two important features of Pacific Island populations are 1) sustained high levels of natural increase throughout most of the Pacific; and 2) urbanization becoming more prominent. The region’s population will grow by about one-third in the next 25 years (i.e. an increase in people by “one New Zealand”), with growth especially high in Melanesia. In 25 years, about one-third of the population of Melanesia, one-half of Polynesia, and three-quarters of Micronesia will live in urban areas. Some of the fisheries implications of population increases and urbanization are:

- ✓ There will be an increase in overfishing conditions due to expanding urban populations and fishing intensively close to those populations.
- ✓ The production from coastal fisheries that are accessible to urban residents will probably decline due to overexploitation and habitat destruction.
- ✓ Given the large population growth, there is likely to be a growing gap between what coastal fisheries can produce and the demand for production from coastal fisheries, raising the cost of fish.

- ✓ A growing number of people in cities will result in a higher proportion of the population not being able to catch sufficient numbers of fish to provide for household consumption.
- ✓ Much more of the coastal fish consumed by Pacific Islanders will be purchased and shipped in from less populous areas, which may equate to exporting urban-type fisheries problems to rural areas.
- ✓ Many of the above points will contribute to more expensive fish.

This situation is especially tragic considering that most fish consumed by Pacific Islanders comes from coastal fisheries. The extraordinarily high consumption of fish by many Pacific Island countries underscores the vital contribution of fish to the food security of the Pacific. Nowhere else do as many countries rely so heavily on subsistence fishing to supply the majority of the protein needed for good nutrition.

## Coastal fisheries management: Needs and benefits

With the importance of food from coastal fisheries and their likely decline in productivity of those fisheries in the future, there is a great need to mitigate the factors that may be contributing to the decrease. A large-scale study by the Secretariat of the Pacific Community (SPC) across the region (Pinca et al. 2010) revealed half of all sites studied appear to be exposed to unsustainable fishing on both finfish and invertebrate populations. Some factors may be difficult or impossible to control, but many can be addressed through fisheries management, with reducing excess fishing being the most important at many locations. As stated in SPC policies, strong fisheries management is needed to maximize the yields of demersal fish and invertebrates, and reduce the size of the “food gap” between available seafood and that required to meet the needs of growing populations in

the region. Using various management techniques — such as closed areas, closed seasons, and restrictions on the numbers and types of fishers — fishing effort can be reduced to a level where the productivity of a fishery is not greatly diminished. This basic concept is well known to most fisheries specialists in the region. Problems occur, however, when:

- ✓ governments in the region perceive there is considerable opportunity to increase fisheries production — which in some cases can equate to predicating development on “non-existent potential”;
- ✓ there is a lack of political will to either allocate adequate resources for effective coastal resource management or give it priority over other activities of the government fisheries agency;
- ✓ governments equate “helping fishers” with providing the means to harvest more fish (often before an election), it is frequently not sustainable and can come back as harming fishers;
- ✓ there is a lack of enthusiasm to encourage and empower coastal communities to address problems with their coastal fisheries. Creating an enabling climate for traditional authorities to effectively manage their own fishing areas has been spearheaded by non-governmental organizations (NGOs) in several countries, but there are often insufficient efforts to institutionalize the concept within the regular work programs of government fisheries agencies; and
- ✓ there is no clear policy for the government fisheries agency that the priority in coastal fisheries should be resource protection, rather than the promotion of increases in production.

### The poorly-managed sea cucumber fisheries

Beche-de-mer — dried and processed sea cucumbers — is likely to have been the basis of the first export fishery in the Pacific Islands. Now the trade is extremely important to the region, second only in value to the significantly larger tuna trade. The non-perishable nature of the product and the simple low-technology method of processing make it an ideal commodity for production by rural areas of the Pacific Islands. There is wide recognition that the persistent overexploitation of sea cucumber resources is substantially depressing the overall value of this trade, and in doing so is also creating hardship in hundreds of coastal communities that have come to depend on this fishery as a source of cash income. This situation is being further exacerbated by a lack of transparency in the management and practice of this trade and, where moratoria have been imposed, to significant illegal fishing and trading activity (Carleton et al. 2013).



*Processed white teatfish, one of the high-value tropical sea cucumber species (image E. Tardy).*

Some notable points:

- ✓ The region’s sea cucumber stocks are so depleted that each “boom and bust” cycle yields less than half the volume of product as it did formerly.
- ✓ If it had been managed on a more precautionary basis that moved exploitation away from the boom and bust cycle that typifies this fishery, medium-run revenues derived from the beche-de-mer trade could be double those that have been achieved.
- ✓ The general quality of beche-de-mer processing in the region is not good; greater care and attention is given to processing the high-value species, but overall up to 30% of value is lost due to poor processing (Carleton et al. 2013).

Various techniques have been used by Pacific Island countries to prevent overfishing of sea cucumbers, but their failure has resulted in the necessity of closing down the fisheries in the major producing countries of the region to prevent a collapse of the resource. Such moratoria can have devastating impacts on coastal communities. If even a small portion of the amount of attention that has been focused on the tuna resources of the region had been channelled into sea cucumber management, it is doubtful that the resource would be in such poor condition as it is today.

Clearly, there is justification for countries to invest more in upgrading the management of sea cucumber fisheries. What is good for sea cucumber management is generally good for the residents of the outer islands. The documentation on the region's fisheries makes many useful suggestions, but in order to improve the situation, governments need to give sea cucumber fisheries much more attention.

### Small-scale fishers and the large tuna resources of the region

More tuna is harvested in the western and central Pacific Ocean than in any other ocean area. Small-scale fishers take only a tiny fraction of the 2.5 million annual tonne tuna catch in this region — about 2% according to one study (Gillett 2011). Because of the limits of coastal fisheries (which currently appear to have reached their maximum of about 150,000 tonnes annually), it is generally recognized that if Pacific Islanders are to maintain their present rate of fish consumption, there must be greater use of the large offshore tuna resources.

Currently, the various small-scale fishing activities that catch tuna can be placed mostly in three categories: 1) fisheries that target tuna (e.g. alia longlining in Samoa, drop-stoning in many locations); 2) fisheries that target pelagic fish in general (e.g. trolling in Niue, sportfishing in Tonga); and 3) fisheries that are more general in nature, opportunistically trolling and handlining (e.g. the fishing from banana boats in Papua New Guinea and of the fibreglass outboard fleets in Fiji and the Solomon Islands). Small-scale tuna fishing in the region is

relatively more important in small, resource-poor islands than in large, fertile islands. For example, Vanuatu has a population of about 245,000 but little small-scale tuna fishing, while Kiribati, with small islands and less than half the population, has a tuna catch from small-scale fishing that is over a thousand times greater.

There have been numerous attempts in all Pacific Island countries to encourage small-scale fishers to harvest larger amounts of tuna. These have included:

- ✓ deploying fish aggregating devices (FADs);
- ✓ governments constructing appropriate small tuna fishing vessels;
- ✓ providing subsidies and grants for vessels and gear;
- ✓ providing hire vessels for offshore fishing;
- ✓ encouraging production of tuna jerky and salted tuna;
- ✓ experimenting with novel tuna products;
- ✓ installing freezers on outer islands for holding tuna;
- ✓ collecting tuna caught by outer islands fishers;
- ✓ establishing schemes for purchasing tuna from artisanal fishers at subsidized prices;
- ✓ longlining from small boats;
- ✓ promoting “ika shibi” fishing;
- ✓ copying Maldivian tuna fishing;
- ✓ promoting small-scale pole-and-line fishing with live bait;



*Building and setting fish aggregating devices is one of the few initiatives that has been successful and continues to contribute to the success of small-scale fisheries (images: W. Sokimi).*

- ✓ sponsoring overseas study tours;
- ✓ upgrading fishers to medium-scale longlining; and
- ✓ many other schemes.

It should also be pointed out that many government fishery agencies in the region are planning to implement additional types of small-scale tuna fishery development projects.

In reviewing the history of the development of small-scale tuna fisheries, one of the few initiatives that has been successful and continues to contribute to the success of small-scale fisheries are FADs. Despite decades of small-scale tuna development efforts throughout the Pacific Islands, FADs remain one of the few innovations that allow small-scale fishers to economically take advantage of the region's large tuna resources. Other attempts may have had sporadic success or special applicability in one country, but overall, nothing comes close to producing ongoing benefits to small-scale tuna fishers as FADs. Noting the relative success of FADs, it is ironic that very few countries in the region have an effective ongoing FAD programme. By this, it is meant a FAD programme that is financed by national sources (rather than dependent on volatile donor funding) and in which, as one individual stated, "a lost FAD gets replaced in five days, not five months or five years". Although a scarcity of funds is often cited as the reason for the lack of an effective FAD programme, the reality is that, given appropriate priority, such a FAD programme is not beyond the recurrent budgetary resources of most Pacific Island fisheries agencies. It also should be noted that some of the other schemes planned for helping small-scale tuna fishers (e.g. fish collection schemes, grants for vessel purchases) could be both more expensive than a FAD programme and less likely to be successful. Another positive aspect of FADs is that SPC has been actively promoting FAD fishing as a climate change adaptation mechanism (Gillett 2003).

The above suggests that any country that is serious about assisting small-scale fishers to take advantage of the large tuna resources should have an active and well-managed FAD programme. Because SPC (which has assisted countries with FADs) simply does not have the resources to deploy and maintain all of the FADs that the region deserves, FAD programmes should be institutionalized within government fisheries agencies in terms of technical expertise and funding.

## Management distractions

In fisheries management, the hardest task is often the placing of controls on fishers to prevent resource degradation. Generating the political will for management

initiatives, carrying out research, or drafting management plans are not easy, but they are often relatively simple compared with restricting fishers from fishing as they wish to. Examples of such actions are community leaders preventing fishing in marine protected areas (MPAs) large enough to be effective, or a fisheries department blocking the use of scuba gear in spearfishing. In close-knit island societies, confronting fishers and restricting activities can be even more difficult. To avoid this situation, easy alternatives are often sought — so there would be less need to limit fishers.

A number of such alternatives to restrictive management have been used in the Pacific Islands region over the years. These have included re-establishing resource populations through the use of aquaculture ("reef ranching") and the promotion of alternatives to coastal fishing to reduce fishing pressure, including aquaculture, fishing outside the reefs (deep-slope and offshore) and activities outside the fisheries sector. These activities are more politically acceptable than placing restrictions on fishers.<sup>1</sup>

The problem is that these alternatives to restrictive management are not very successful for the objective of mitigating declines in coastal fisheries resources. Although aquaculture, deep-slope fishing, and FADs may have significant benefits and have important roles in economic development, several studies in the region have examined past experience and concluded that these are not effective alternatives to restricting fishing.

- ✓ The implications of reef ranching in the Pacific Islands have been studied with respect to beche-de-mer, coconut crab, mangrove crab, spiny lobster, green snail, trochus, pearl oyster, and giant clam. The conclusion was that reef ranching needs to be considered as part of an overall management approach and not as an alternative to management. Overseas experience underlines the fact that simply releasing large numbers of juveniles into the fishery does not produce population increases unless the fishery is also subject to some form of management that allows the released juveniles to reproduce and thus make a contribution to population growth. Reef ranching should be viewed as one of a set of management tools, and not as an easy way out of management (Preston and Tanaka 1990).
- ✓ Four main types of alternative activities have been promoted in the region to reduce coastal fishing pressure: aquaculture, FADs, deep-slope fishing, and alternatives outside the fishing sector. In reviewing the situation over the last 30 years, it is difficult to identify cases where the use of these activities could be considered clearly successful. Past experience in the use of alternative activities points to

<sup>1</sup> Y. Sadovy (pers. comm. 2014) refers to this ineffective approach as "anything but management"

some important overall conclusions. Perhaps the most important lesson learned about alternatives to restrictive management in the Pacific Islands is that its performance has not been to the level where it can be considered an effective resource management tool (Gillett et al. 2008).

### Lack of adequate data on coastal fisheries

Above it was stated that government fisheries agencies typically 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 production levels, with quantitative information being especially scarce for the subsistence fisheries in most countries. Estimating the production from coastal fisheries in about half of the Pacific Island countries is largely guesswork — in very few countries are the levels of coastal catches well known.

The lack of knowledge of the catches from Pacific Island coastal fisheries is especially troublesome, in view of the concept of “what gets measured gets managed” (and its converse). The lack of data is also a factor in the underappreciation for these fisheries in many countries. Poor data on coastal fisheries production create considerable difficulty in accurately portraying fishery benefits, especially in the areas of gross domestic product

contribution, employment and nutrition. The protection of village food fish supplies is arguably the most important objective of the management of coastal fisheries in the Pacific Islands, but to know if such management efforts are effective overall, some idea of the gross coastal fisheries production and its trends are required. In terms of government priorities, it seems that a lack of production information tends to lead to a lack of attention. Because coastal fisheries have great direct effect on the lives of Pacific Islanders, coastal fisheries data collection deserves more attention.

The above should not be taken as an argument for the establishment of systems of ongoing and extensive data collection from the coastal fisheries of the Pacific Islands (i.e. detailed information for stock assessment purposes). Such systems are expensive to the point of rarely surviving the withdrawal of donor support. What is required in most countries are cost-effective mechanisms for periodically learning about major trends in coastal fisheries.

### Economic analysis: The need for economic reality in coastal fisheries

In coastal fisheries there is a generally recognized need for greater economic scrutiny of development proposals and the evaluation of economic implications of management options. Seventeen years ago Tiller (1997)



Collecting artisanal catch data in Nauru (image: B. Yeeting).

noted, “For more than 20 years, flawed activities have undermined donor and recipient confidence in fisheries developments and consumed vast quantities of scarce development capital. Even the most tenacious donor is now nervous about fisheries development proposals.” That statement is quite applicable today and is especially relevant to coastal fisheries. In the 1980s the assistance provided to Pacific Island countries by the Pacific Islands Forum Fisheries Agency (FFA) included support for the analysis of the economics of small-scale and coastal fisheries. In the early 1990s, when FFA changed its focus to concentrate almost entirely on tuna fisheries, the organization virtually ceased its involvement in the analysis of small-scale coastal fisheries. For nearly two decades, any expertise in fisheries economics was largely consumed by offshore fisheries, both at the national and regional levels.

The task of coastal resource economic analysis was not taken up by SPC or any other regional organization until recently when SPC created the position of “Fisheries Development Officer (Economics)”. Although some very good work has come from that economist, he is a “one-man band” and cannot possibly service all of the needs of countries in the region that have no economic expertise available for coastal fisheries. Few fisheries staff at the national level have formal economics training, so the concepts are always new and difficult to grasp in short workshops and courses that SPC is now able to provide.

There is a great need to get basic economic analysis into the decision-making process for coastal fisheries (i.e. countries need to develop a capacity to evaluate, in economic terms, the benefits offered by the various development and management scenarios). It is likely that sustainability, investment decisions and project viability could be significantly improved even with simple economic analysis. An example of this is the situation of rural fisheries centres, which have suffered in most countries from a lack of attention from economists.

### NGO involvement in coastal fisheries management: Their appropriate role

From a fisheries perspective, NGOs appear to have played a major role in coastal fisheries management. In the Pacific Islands region they spearheaded the change in focus from fisheries development to fisheries management and had a major role in emphasizing community participation in the fisheries management process. In the region, a very large number of coastal communities have received assistance from NGOs leading to positive improvements in their interaction with their fisheries resources. Those organizations popularized the use of MPAs. Many Pacific Island government fisheries agencies have either directly or indirectly changed for the better through exposure to the work of NGOs.

The work of NGOs is not spread evenly across the region, nor are all NGOs equally effective. It can, therefore, be difficult to make generalizations but nevertheless, some value can come from doing so.

In some respects, NGO success is ironically creating a major difficulty. In several cases energetic, flexible, hard-working, well-funded and well-intentioned NGOs have become involved in coastal fisheries and they often have performed better than the public servants of the government fisheries agency. This has typically been done in a sensitive manner and has resulted in considerable “cooperation” with fisheries officials. This cooperation has, however, on occasion evolved to include taking on regular tasks of a fisheries department — often to the delight of fisheries officials, both in the field and at senior levels as they can use staff and/or funding for other purposes or, worse, be shielded from criticism for inactivity of those staff in coastal fisheries. Fisheries governance is a major problem in Pacific Island countries. NGOs should contribute to improvements rather than usurping the legitimate role of a government fisheries agency — and making the long-term situation worse. The funding that NGOs use does not go on in perpetuity and, even if it is long term in nature, the focus may change with respect to both geographic areas and subject matter.

NGOs need to put more effort into encouraging fisheries agencies to carry out their mandated duties in coastal fisheries, rather than carrying out that work themselves. A final point on this issue is that when an improper role is assumed by an NGO, this may be more apparent to an observer outside the NGO community as is the case of the present study.

### Offshore fisheries improvements at the expense of coastal fisheries

Over the previous two decades there have been significant improvements in the management of offshore fisheries, but at least some of that has occurred by drawing human and financial resources away from the management of coastal fisheries. The importance of tuna resources, their benefits to the region, and the value of regional organizations that deal with tuna are unquestionable. The reality is, however, highly experienced and competent staff of the national fisheries agencies of the region tend to gravitate toward tuna fisheries. Because of limited staff, this attention to tuna by senior staff is often at the expense of coastal fisheries. According to a recent FFA Annual Report, 71 tuna-related regional and international meetings and workshops of relevance to the region were held in that year. Attendance at the growing number of meetings on tuna detracts from the attention that can be given by senior staff to the management of coastal fisheries. Routine tasks related to

coastal fisheries can often continue in the absence of the “movers and shakers” of a fisheries department, but bold decisions, decisive action, and high-level attention to emerging issues (what is sorely lacking in coastal fisheries management in many countries) is often delayed or downgraded during the absence of senior staff.

This contention is supported by Clark (2006) who stated: “The few people with fishery and corporate management skills are heavily involved in regional fishery meetings and other activities that diminish their capacity to govern national fishery activities”.

### Coastal MPAs: Over-reliance

In the Pacific Islands there has been a large increase in the number of coastal MPAs established over the last two decades. These have mostly been established by communities with the assistance of NGOs, but government fisheries agencies have also supported the creation of these no-take zones. Govan (2009) indicates that more than 500 MPAs of various types have been established in South Pacific countries.

Benefits of MPAs include habitat and biodiversity conservation, food security, a recruitment source for important marine organisms, and the creation of awareness of the need for conservation. MPAs have also had a role in revitalizing management by communities of their adjacent marine resources. Typically, an MPA is not prohibitively expensive for communities to establish and maintain.

MPAs also have their problems. Many fisheries specialists in the region feel there is currently an over-reliance on MPAs as a management tool (especially by some NGOs); they feel that an MPA should be considered one of a number of mechanisms that can be used to safeguard fish stocks and for other purposes. For example, trochus management using MPAs exclusively is unlikely to be very effective, whereas a combination of a no-take zone, minimum size, and a quota could be very successful. Exclusive reliance on MPAs can be especially detrimental in situations where the protected area is occasionally open to fishing (i.e. an absence of any controls on fishing) or when the MPA has been badly established, such as the area being too small or not encompassing suitable habitat.

### Rural fisheries centers: White elephants or useful rural development tools?

Fisheries centers have often been used over the years to promote the commercialization of fisheries in rural areas and outer islands of Pacific Island countries. These facilities go by a variety of names in the region, including community fishing centres (Tuvalu), coastal



*Many fisheries specialists in the region feel there is currently an over-reliance on marine protected areas as a management tool (image: O. Carrasso).*

fisheries stations (PNG), fish bases (Marshall Islands), and rural fisheries service centres (Fiji). Fisheries centers have assumed a very important role in Pacific Island countries, and most countries in the region have many of them. In many countries, the centers are often the largest government expenditure in the fisheries sector and/or consume a substantial portion of overseas aid. In addition, much rural fisheries development in the region is predicated on the centers, and many are planned for the future.

About 150 fisheries centers have been established in Pacific Island countries in the past few decades. One of the most remarkable features of fisheries centers is that few, if any, have been commercially viable. The lack of economic viability does not imply that centers have been a waste. On the contrary, many centers have

provided valuable services to the communities in which they were established (e.g. increasing cash income, generally improving standards of living) and to the wider society (e.g. helping to stem rural-urban migration, increasing domestic fish supplies). These social objectives are far less amenable to quantification than financial performance and are likely to be less appreciated by non-villagers.

Handing fisheries centers over to island councils or provincial governments is often the solution when national governments feel burdened by the ongoing expenses of the centers. In many cases it is really dumping the centers on communities that cannot afford to provide the required subsidy.

Reflecting on the overall situation, the outer islands typically have business conditions that are very difficult, the logistics are horrendous, and the people or agencies that operate the fisheries centers rarely have much business experience. On the other hand, the various options for a government to improve the welfare of residents in the outer islands through any sector are quite limited, and promoting the fisheries trade through fisheries centers in many cases may be the best opportunity (Gillett 2010).

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