Small-Scale Tuna Fishing

Although a fair amount of information on the industrial-scale tuna fisheries of the Pacific Islands is available, data on the small-scale tuna fisheries and the benefits they produce are much less easy to obtain. The usual thinking has been that the offshore tuna resources are the domain of the industrial fleets, with little participation by small-scale fishermen. For example, World Bank (1995) states:

> Exploitation of offshore resources—mainly tuna—is a modern phenomenon introduced into the region by foreign countries aiming to supply international markets. This is a technology and capital-intensive activity, employing modern methods and equipment in which few PMCs [Pacific member countries of the World Bank], with their scarce resources, are able to participate directly.

It is, however, important to note that tuna forms a substantial component of the catch of both the subsistence and artisanal fisheries in the Pacific Islands.

Dalzell et al. (1996) reviewed the catch composition of small-scale troll fisheries in 13 Pacific Islands countries. They showed that tuna and other scombrids make up a large portion of the catch (Table 8).

Table 8: Proportion of Tuna and Tuna-like Fish in Small-Scale Fishing in the Pacific Islands

Country	%
Fiji	29.7
PNG	84.6
American Samoa	86.0
Tokelau	100.0
Tuvalu	79.4
Nauru	88.5
Palau	45.9
Niue	85.9
Wallis/Futuna	52.9
Kiribati	77.8
Tonga	98.4
Vanuatu	92.9
Cook Islands	97.6

A study on the importance of small-scale tuna fishing (Gillett and Toloa 1987) gives the relative amounts of tuna in the artisanal catch of several Pacific Islands countries. Some results of that study are given in Table 9.

With regard to subsistence fisheries in the region, SPC (1994) states that of their annual fish catch of 80,000 MT about 30 percent is composed of pelagic species. Various tunas make up the vast majority of these pelagic species.

Table 9: Artisanal Catch of Tuna in the Pacific Islands

Country	Information
Cook Islands	A field survey showed that skipjack and other ocean fishes contributed the following amounts to the artisanal fishery in 1978: Rarotonga 7%, Aitutaki 0%, Mangaia 13%, Atiu 40%, Mauke 51% (Cook Islands Ministry of Agriculture and Fisheries 1979).
Kiribati	Household surveys determined the percentage of tuna in the predominantly subsistence fishery in the following islands: Abemama 5%, Aranuku 21%, Arorae 30%, Kuria 34%, North Tarawa 3%, Temana 62% (Mees, undated). Skipjack and yellowfin made up 81% of the total artisanal fish catch of 941 MT on South Tarawa in 1977–1978 (Crossland and Grandperrin 1979). Indigenous fishermen caught 12,304 kg of skipjack in the South Tarawa region in 1981 (Kiribati Ministry of Commerce and industry, undated).
Marshall Islands	Fish co-op data show that tuna composed about 23% of the 459 MT caught by small-scale fishermen on Majuro Atoll (R. Carpenter, personal communication, 1986).
New Caledonia	Skipjack and other tuna catches by the artisanal fleet in 1977 totaled 186 MT (Crossland and Grandperrin 1979).
Niue	About 35 MT of tuna and tuna-like species were caught in the 12-month period from Nov. 1985 to Oct. 1986 (B. Punu, personal communication, 1986).
Samoa	Skipjack and other tuna, mackerel, and barracuda made up 17.5% of the total annual fish catch of 1,089 MT in 1978 (Western Samoa Department of Statistics 1979). Tuna catches of the artisanal fleet increased from 413 MT in 1972 to 1,440 MT in 1982 (SPC 1984).
Solomon Islands	Tuna accounted for 12% of the total artisanal fish catches in 1977 (Crossland and Grandperrin 1979). Skipjack and yellowfin accounted for about 10% of the 6,000 MT to 10,000 MT caught by small-scale fishermen in 1986 (M. Batty, personal communication, 1986).
Tokelau	Tuna and tuna-like fish made up 19% of all fish, turtles, birds, and domestic animals taken for domestic consumption in a three-month period in 1986 (Gillett and Toloa 1987).
Tuvalu	Skipjack and yellowfin composed 50% of the total fish catch in 1978 (Crossland and Grandperrin 1979). Of the subsistence catch on Nanumea Atoll, 8.9% was made up of tuna and other pelagic species (Zann 1980).
Wallis/Futuna	Occasional fishing for tuna by only a few residents produced a catch of less than 2 MT per year (SPC 1984).

The above information on small-scale tuna fishing is somewhat dated, but there does not appear to be any more current compilation. The following more recent information is necessarily fragmented but serves to convey the significance of small-scale fishing for tuna in the region.

- In Kiribati, 14 islands were surveyed for fish catches in the period 1998 to 2000 (Tinga 2000). Weekly tuna landings averaged 8 MT per island. Tuna catches in South Tarawa, where fishing by 200 to 300 motorized skiffs takes place six days a week, amounted to about 33.8 MT in 1998 and 37.2 MT in 1999.
- In Samoa, most of the commercial catch of tuna (about 6,000 MT per year) is hauled in by longline vessels that could easily be considered "small scale." In addition, small-scale trolling for tuna in the past years has produced about 100 MT of tuna yearly (Passfield, personal communication). This amount is likely to have increased recently with the deployment of two fish-aggregating devices (FADs) in 1999.
- In Nauru, Rodwell (1999) describes two of the most common fishing techniques: trolling around the ship mooring buoys (with an average tuna catch estimated at 20 kg per boat per day) and dropstone fishing (average tuna catch of 115 kg per boat per day).
- In FSM, 30 percent of the estimated subsistence fish catch of 6,243 MT is thought to be tuna. The small-scale commercial tuna catch is about 57 MT (Appendix A).

For the subsistence and artisanal fisheries of the Pacific Islands, the above information suggests that tunas and related species appear to have a considerably underappreciated role. Not only are these fish important, in terms of volume, tuna are the *most* important family of fish, as information on small-scale fisheries in the region suggests.

The tonnage data on the subsistence and artisanal fisheries given above do not reveal the human aspect of what may seem like meager quantities of fish. Gillett (1987) describes how some Pacific Islanders feel about the tuna from their small-scale fishery:

> There is a strong heritage of tuna fishing at Satawal (central Caroline Islands). Although its soil is more fertile than that of most coral islands, the number of plants which can be cultivated is extremely limited. Taro and breadfruit make up most of the

> diet. Fish produces a welcome change of food; however due to the lack of a lagoon, the reef resources are extremely small. It would indeed be a clever writer who could adequately express the jubilation caused by a sailing canoe arriving at Satawal fully laden with over a tonne [metric ton] of tuna. The crew of the canoe pound their paddles with joy while waiting offshore, old women dance and sing on the beach, and the entire population is in a state of delightful anticipation of bone-free protein. Tuna is very important to Satawal.

A beneficial aspect of small-scale tuna fishing was brought out by a recent study (World Bank 1999). At one sample site in Samoa (Manase, Savaii) alia tuna fishing was shown to be actually assisting in the management of small-scale inshore fisheries as the by-catch was sold in the village, reducing the need to fish in inshore fisheries.

A positive effect of tuna development on small-scale fisheries is becoming increasingly obvious in several Pacific Islands countries. Small-scale fisheries are able to "piggyback" on the infrastructure and economies of scale provided by industrial-scale tuna operations.

- In FSM, the existence of ice plants that serve the tuna industry allows small-scale fishermen to better preserve their catch and take advantage of export opportunities for reef or demersal fish and other marine products. Because these ice plants are usually operated, maintained, and serviced on a commercial basis, they tend to be more reliable than refrigeration or ice facilities built specifically for small-scale fishing, which rely on Government or other noncommercial means of operation.
- In PNG, commercial tuna longline fishery has been dispersed from Port Moresby to provincial bases on the New Guinea Islands region, and elsewhere. Related infrastructure developments and the establishment of marketing links at such centers are likely to provide new opportunities for small-scale fishermen to better handle and market their tuna catch. The economic opportunities created by the development of the domestic longline fleet are also thought likely to increase small-scale tuna fishing (ADB 1995b; Preston 1996; and Tutumarem Marine Consultancy Services 1999). At least one infrastructure development project—the construction of a longline vessel wharf at Kavieng in New Ireland—has taken this possibility into account in its design.