



The live reef fish trade in the Pacific: A look at recent trends and developments¹

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Introduction

The Regional Live Reef Fish Trade Initiative of the Secretariat of the Pacific Community (SPC) is in its ninth year of operation. The Initiative addresses issues and concerns of SPC's Pacific Island member countries and territories regarding their live reef fish trade (LRFT). This article provides a short account of what the LRFT Initiative has done to date with regards to trends and development in the trade.

The LRFT includes two totally different types of commercial fisheries: the live reef food fish trade (with Hong Kong and China as the main markets) and the marine aquarium fish trade (with the USA, Europe and Japan as the main markets). The LRFT continues to exhibit great potential as an income earning opportunity for coastal fishing communities, especially small Pacific Island countries with limited agricultural and mineral resources. This, together with the sustained high demand from international markets for products from these fisheries, has maintained interests for active operations, including new interests by investors (both local and foreign), especially in Pacific Island countries where operations did not exist in the past.

A quick look at the past

Of the two live reef fish trades, the marine aquarium trade was the first to begin in the Pacific, with the first operations occurring in Fiji and Kiribati in the early 1970s (Fig. 1). The marine aquarium trade further expanded to other Pacific islands, with the Federated States of Micronesia, French Polynesia, and New Caledonia being the latest additions to this trade in the early 1990s. To date, 13 Pacific Island countries participate in the marine aquarium trade. Throughout the years of operation, there has been very little concern about the trade, especially from local communities.

This is probably due to the fact that the marine aquarium trade was not competing with food fish

fisheries — an important part of the subsistence livelihood of most Pacific Island communities. Also, the marine aquarium trade was seen as making use of a resource that would otherwise be left unutilized. The collection of marine aquarium species and the establishment and operation of land-based marine aquarium facilities requires considerable technical knowledge, as well as substantial capital investment. For these reasons, most operations have been foreign-owned.

The live reef food fish trade (LRFFT) took hold in the Pacific much later, in 1984, with the first operations in Palau (Fig. 1). This was not surprising given Palau's proximity to the demand centre for live reef food fish: Hong Kong.

Because the trade was new to the Pacific, there was generally a lack of understanding of the trade and its dynamics. The target species for this trade, groupers and humphead wrasse — which had not been previously commercially harvested in most Pacific Island countries — were present in abundance. The income from this trade to local fishers was instant and quite attractive, compared with the traditional "fresh dead" fishery, especially in remote islands where ice plants are not available for preserving catches. Along with the desperate need of fishing communities to find income earning opportunities, the LRFT trade quickly developed its reputation as an attractive fishery for local fishers in remote island areas.

This resulted in a big boom and expansion of the LRFFT trade into the insular Pacific in the 1990s, and by the late 1990s, 10 Pacific Island countries were involved in the trade. The spread of the LRFFT in the Pacific was so fast that most government fisheries departments did not have time to consider or establish any management controls on the fishery.

Typically, foreign operators come in as foreign investors on a joint venture business with a local partner. The foreign partner (usually with nearly total

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Figure 1. The distribution and starting dates of live reef fish trade operations in Pacific Island countries and territories.

ownership of the operation) runs the entire operation, with the local partner playing a role only in negotiating with local communities to gain access to fishing grounds.

Once the agreement has been sealed, the foreign operator works directly with local fishing communities, and provides all the necessary cage facilities to hold and keep fish alive, as well as boats, engines, fuel and fishing gear (lines and hooks) to fishers. This is usually done in the form of a loan to fishers.

This loan is repaid back to the company through fish catches. For the foreign operator, this ensures that fishers fish only for them. Some loans, however, have been too much for fishers to pay back, and even after several shipments to Hong Kong, most fishers with a loan still owe the company. Foreign companies often require a 15 tonne minimum of fish per shipment from the Pacific to Hong Kong in order for it to be economical. The minimum requirement, however, is a problem for most fishing communities to meet and, as operations stay longer in one fishing area, the harder it becomes for fishers to supply the required catch.

Spawning aggregations have been hit hard and as catches drop, operations are forced to move to new

locations. In such cases, facilities are abandoned and unpaid loans are written off. This makes no business sense unless of course, the companies have made profits great enough to have already paid off their investment in facilities.

Unlike the marine aquarium trade, soon after the start of LRFFT operations in the Pacific, problems and conflicts between communities and operators — and even within communities — began developing. With the perceived potential of the LRFFT to provide value-adding fisheries and good income earning opportunities for rural fishing communities, Pacific Island countries requested that SPC take a look at the trade in order to address issues and concerns, and to set up sustainable LRFFT operations in the region.

In 2001, SPC's member countries and territories endorsed SPC in developing the capacity to address these concerns. Following this, the SPC Regional Live Reef Fisheries Trade Initiative was developed.

Recent trends and developments

Both the marine aquarium trade and the live reef food fish trade have experienced changes over the last 20 years (Figs. 1 and 2).



Figure 2. The current status of live reef fish trade operations in the Pacific.

The number of countries participating in the marine aquarium trade has remained nearly constant. Eleven countries are actively involved; two countries that had previously imposed bans were now considering reopening the trade; and new interests are being expressed by three countries that have never had operations.

One of the main changes has been the opening of new markets in Europe and Asia (Hong Kong, Singapore and mainland China) in addition to traditional markets in the USA and Japan. The species being traded have not changed, except that there has been an increasing interest in the trade of live rock, with some operators totally switching their operations to live rock from marine aquarium fish (e.g. in Fiji and Tonga). Market demand has nevertheless been increasing steadily with the new markets. This is expected to increase rapidly with China's economic growth. Fish prices have generally increased slightly except for some species such as *Centropyge loriculus*, which at one time were collected excessively from Christmas Island. The resulting flooded market meant a drastic drop in price given to Christmas Island exporters, from 20 US dollars (USD) a piece to USD 1 a piece. (The value has improved subsequently over the last few years and is now about USD 5–10 a piece.)

One of the main issues now is the number of increasing conflicts between tour and dive operators and marine aquarium operators. This has occurred in several Pacific Island countries, indicating an urgent need to establish management guidelines that include the allocation and mapping of resources for different users.

Because live corals are listed under CITES, their export is limited and only allowed with a CITES permit. Coral farming, which allows only second-generation corals to be exported, gets around this restriction.

Although the definition of "second generation" corals is spelled out by CITES, there are disagreements about the interpretation. It is therefore important that such definitions are clearly described and clarified in order to avoid misunderstandings and future conflicts. The supply of cultured giant clams from hatcheries has remained quite successful and seems to be stable.

Also, there is now a growing interest in the rearing of post-larval reef fish for the marine aquarium trade, with successful commercial trials in French Polynesia and the Philippines.

The LRFFT in comparison has shown considerable changes. Of the eight countries participating in the trade at the end of 1990s, only three remain with an interest, and only one of these (Papua New Guinea) is actively exporting fish. The decrease in the number of interested countries is due to improved awareness by the public and fisheries departments on the implications and consequences of the trade, especially in attempting to meet the minimum shipping tonnage. For fish transported by sea, exporting companies are now requesting 20–30 tonnes of fish per shipment (compared with 10–15 tonnes 10 years ago).

As a result, several Pacific Island countries are pushing their exporting companies to consider air freighting, which is highly recommended over sea freighting as smaller amounts of fish are required (500 kg of fish per fish bin) and less pressure is placed on resources.

Hong Kong remains the major market, but the mainland China market is expanding very quickly, and as it improves its trade links internationally, suppliers will be able to deal directly with mainland China buyers, rather than going through Hong Kong as is currently the case. There is a small market on the US west coast that a Fijian company exported to for awhile. The USA provides a good market option for most Pacific Island countries, given that it is closer than Hong Kong and the Hong Kong market is already dominated by Asian suppliers (Indonesia and Philippines) that Pacific Island suppliers cannot compete with.

The species composition of exports from the Pacific has remained the same but with a slight increased acceptance of low-value species by operators and exporters. The humphead wrasse is still in great demand, but supply is likely to become limited in the near future with the recent “red listing” of the species under CITES Appendix II, and with Hong Kong’s strong intentions to enforce its CITES obligations (Fig. 3).

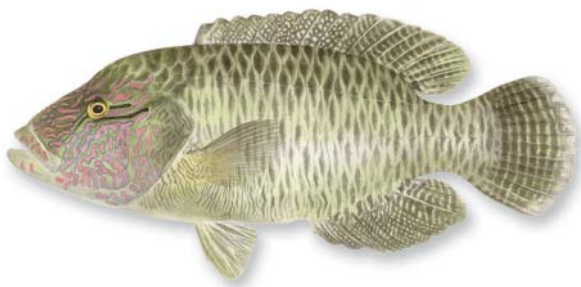


Figure 3. Humphead wrasse, *Cheilinus undulatus*, a species often targeted for the live reef food fish trade, now under CITES Appendix II listing (artwork: Les Hata, ©SPC).

The mariculture of groupers has had success with full-cycle commercial rearing of two important species, *Cromileptes altivelis* and *Epinephelus fuscoguttatus*, for a number of years now (Fig. 4). It was expected, therefore, that these two species would flood the market, causing significant drops in the prices of even wild-caught supplies. But this has not happened, and there is still quite a high demand for these species from the wild.



Figure 4. Two important LRFFT species that have had success in full-cycle mariculture: *Cromileptes altivelis* (top) and *Epinephelus fuscoguttatus* (bottom) (artwork: Les Hata, ©SPC).

The SPC Live Reef Fish Trade Initiative

The LRFT Initiative was established to develop a common framework among SPC members for licensing live reef fish enterprises and for monitoring and regulating these fisheries. The long-term goal of the Initiative is to have locally supported and administered effective management and monitoring arrangements for the LRFT in Pacific Island countries. Several areas of focus for assistance to Pacific Island countries were identified, including:

- Collecting baseline information about the resource, information about the existing fishery, or relevant information required to measure the potential of the fisheries (for new interests).
- Building the capacity of fisheries officers and other personnel to monitor (conduct resource surveys, analyze and interpret data) and manage the fisheries effectively.
- Developing management plans and regulations and monitoring programmes.

- Developing the supporting framework for management (management committee, management funds) and for monitoring (regional database to support monitoring and data collection).
- Assistance in implementing management plans and monitoring programmes.

To make the most of the limited funds available for the Initiative, it was decided to focus on capacity building, but at the same time to use the capacity building process to address the specific needs of particular countries.

In a typical project, the SPC Live Reef Fisheries Specialist makes a trip to a country that has LRFT concerns, and conducts field training for local fisheries staff (a team of four surveyors, at a minimum) on survey methods. The first week of training includes in-water sessions using underwater visual census (UVC) methods, fish species and habitat identification, and size estimation. Once the fisheries officers have mastered the survey method, they, together with the LRF Specialist, conduct a full survey in one of the areas of interest for live reef fish operations.

The data collected from the survey are taken to SPC and one of the fisheries officers is invited to take up a one to two-month attachment training there. At SPC, the attachment officer learns how to validate and enter the data on the database, how to make queries, and conduct analyses and interpretation of the data. Together with the LRF Specialist, the attachment officer then drafts the survey results into a technical report that provides information to support management decisions.

Also during the attachment, for those countries with existing live fish operations, the fisheries officer, with the LRF Specialist, develops, using the survey report as much as possible, a LRFT management plan with regulations as required. A monitoring programme is also developed for the trainee's country as well as an implementation plan. At the end of the attachment, the trainee is expected to go back to his country with:

- a survey report that interprets survey results and findings,
- a draft LRFT management plan and regulations (as needed),
- a draft monitoring programme (including regular UVC surveys), and
- an implementation plan (action plan).

(Note: The latter three documents only apply to those countries that have existing live fish operations or that have decided, based on survey results and findings, to start up operations.)

The proposed management plan and regulations and monitoring programme are distributed for review by relevant stakeholders before being finalized and submitted for endorsement by the government. This approach has been taken in several countries with great success. More importantly, it provides a way of addressing countries' needs with limited resources.

Some of the achievements of the Initiative are listed below.

- Production of a LRFFT public awareness information package.
- Surveys in Kiribati (LRFFT and marine aquarium trade), Vanuatu (LRFFT and marine aquarium trade), Fiji (LRFFT in two areas), Tonga (marine aquarium trade) and Tuvalu (marine aquarium trade).
- Training in UVC methods for Kiribati (five officers), Fiji (four officers), Vanuatu (four officers), Tonga (five officers), Marshall Islands (two officers, two locals) and Tuvalu (four officers).
- Attachment training at SPC: Kiribati (one officer), Marshall Islands (one officer), Vanuatu (one officer), Fiji (one officer) and Tonga (two officers).
- Draft management plans and monitoring programmes developed for Kiribati (Abaiang LRFFT), Fiji (Bua), Vanuatu (marine aquarium trade), Marshall Islands (marine aquarium trade) and Tonga (marine aquarium trade).

Initiative activities planned for the future include:

- Attachment training for Tuvalu.
- Implementation follow-up for Vanuatu, Tonga and Kiribati.
- UVC training and resource surveys for Nauru (marine aquarium trade), Federated States of Micronesia (FSM) (marine aquarium trade) and Samoa (marine aquarium trade).
- Attachment training for Nauru, FSM and Samoa.
- Development of a regional database and a regional workshop on its use.
- Development of an awareness information package for the marine aquarium trade.
- Integration of an ecosystem approach to fisheries management into the management of the two sectors of the LRFT.

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