Aquarium trade in the Pacific

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The Pacific region first became a part of the luxury aquarium trade in the 1970s. Thirty years later, the total annual value of aquarium organism exports from the region is between 40 and 60 million US dollars (USD), accounting for about 10–15% of the global trade. The aquarium trade is becoming an important source of income and employment for local communities in the Pacific. For example, in Fiji alone, the aquarium trade provides employment for 600 people, and fisheries revenue is second only to tuna.

Today, the activity has spread to more than 13 Pacific Island countries and territories (PICTs), finding its source in unique coral reef habitats. It has even come to some of the most remote places, where there are a number of rare or endemic fish species not found in Southeast Asia, the major competitor.

Sustainability concerns

There are concerns that extractive wild-capture practices are causing damage to marine environments. But evidence suggests that coral reef resources are resilient and that the trade could be managed sustainably to provide Pacific Island communities with a continuing livelihood.

There are a number of good practices around the region that demonstrate that the aquarium trade can be sustainable. For example, Tony Nahacky from Aquarium Fish (Fiji) Ltd has been harvesting the same numbers of corals and fish from the same area around Pacific Harbour, Fiji, each year, for 24 years. He feels that stopping the local communities from collecting marine aquarium fish and invertebrates in the wild may "result in much more destructive uses of the reef to replace that income." Diving on the reef every day, aquarium fish divers are the eyes and ears of the reef and can monitor the environment as it fluctuates. Some years there is great recruitment and some years there is not, and most of the time recruitment success is independent from the pressure of aquarium fish collectors. A well trained diver, collecting the right-sized specimens, focusing on species that are known to do well in aquaria, and spreading his efforts around a vast area, will cause only minimum impacts on reef fish populations.

Amphiprion percula, a top seller in the marine aquarium trade (photo by Antoine Teitelbaum).

However, if many divers operate in the same area, targeting the same species, then it is likely they will have an impact on the resource and the habitat. This has been observed in areas such as Christmas Island, Kiribati, where there was a flame angel "boom" several years ago that involved an unregulated number of divers hunting for the valuable *Centropyge loriculus*. The result was a decline in the resource as well as in the market price. In only a few years, flame angels went from an export price of more than USD 15 to less than USD 6. Such collection and handling practices that result in low quality fish can have negative repercussions on some of the long-lasting and quality-renowned operations in the region.

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This shows how important it is that the government work closely with the private sector to draft and establish an aquarium fisheries management plan in order to sustain and equitably share this valuable resource.

Emerging issues and challenges: Culturing marine ornamentals

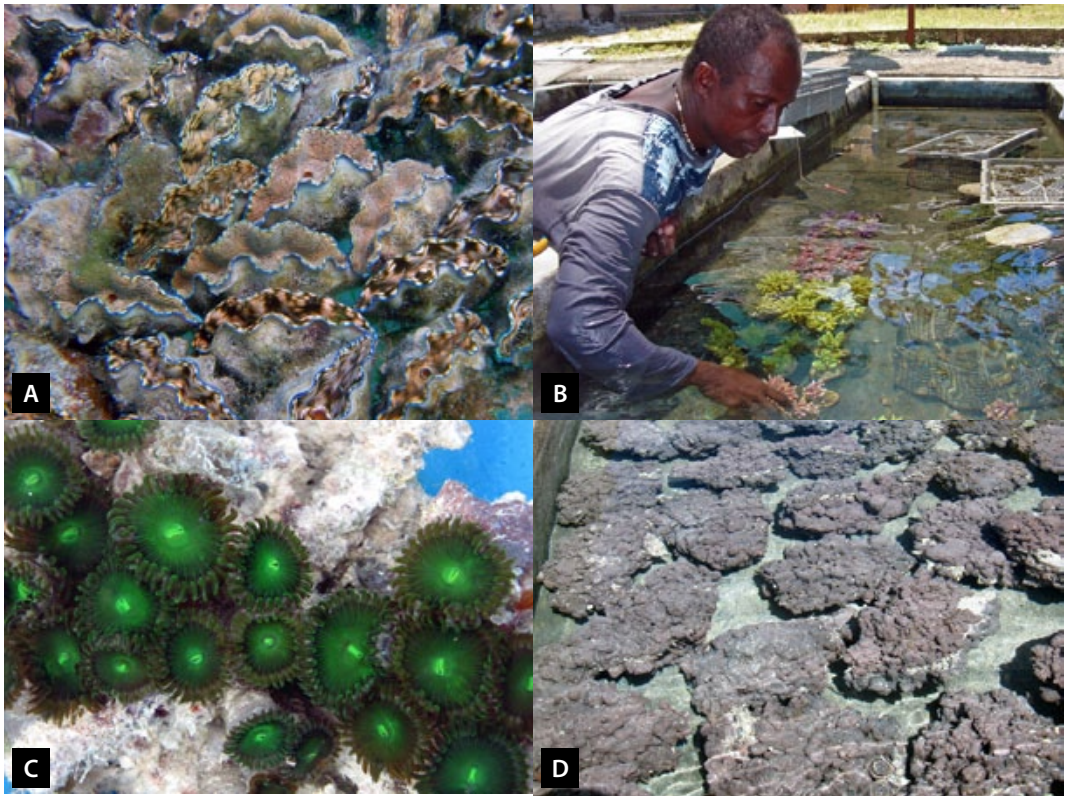
Traditionally, the marine aquarium trade has relied primarily on the capture of wild animals. Aquaculture, however, is providing the market with an increasing variety of cultured products. For example, giant clam farming has increased since the first trials in the 1980s; in 2007, over 75,000 cultured clams were exported from the Pacific.

Cultured corals and live rock are also being successfully marketed to environmentally conscious aquarists. In Fiji, Walt Smith international (WSI) has developed a range of cultured products to broaden its "regular" product line, including corals and artificial live rock made from cement, sand and volcanic pumice. Artificial live rock, once cured, is left in the ocean for 18–24 months. Cultured corals are fragmented from wild corals on site and placed on racks to grow for 6–12 months, depending on the species.

Recently, and as a result of Tonga's ban on the export of wild live rock and its reduction in the coral export quota to 150 pieces per exporter per week, WSI, the Government of Tonga, and the Aquaculture Section of the Secretariat of the Pacific Community (SPC) have started working on an aquaculture project targeting both of these commodities (cultured corals are exempt from the export quota).

Aquaculture will alleviate some of the concerns about wild collection but consumers will always want diversity and rarity in their products. As a result, it is likely that aquaculture products will just expand alongside — rather than replace — the list of existing wild-caught products.

The expansion of marine ornamentals aquaculture in the Pacific will bring alternative employment for people in rural areas. Aquaculture requires a range of new jobs, from hatchery managers to casual labourers. It is likely that aquaculture will continue developing in the region, assisted by worldwide demand as well as technology uptakes from other



A. Cultured *Tridacna derasa* in Aitutaki, Cook Islands, are sold through a Rarotonga-based exporter and shipped to the United States (photo by Antoine Teitelbaum).
B. Regon Warren, from the WorldFish Center in Solomon Islands, selects the best cultured *Acropora* corals prior to shipping from Honiara (photo by Antoine Teitelbaum).
C. *Protopalythoa* spp. collected from Tonga's waters (photo by Chris Turnier).
D. Artificial rocks placed in a raceway at the Tonga Fisheries Department's mariculture station (photo by Chris Turnier).

places where the range of marine ornamental cultured products is ever increasing. For example, in the Marshall Islands, Oceans, Reefs and Aquariums (ORA), a world leader in cultured marine ornamentals, has purchased an aquaculture facility to produce giant clams and corals in order to expand its range of cultured items for sale to the United States and other international markets.

The saga of air transportation

The aquarium trade has a symbiotic relationship with the airline industry. Live fishes and corals surviving on a limited oxygen supply must be shipped quickly to their destination, and the trade therefore depends on airlines to get its products to market.

At the same time, the flow of outgoing marine ornamentals provides a steady stream of business to airlines, helping some international flight routes to stay afloat. In Tonga, for example, the recent ban on live rock harvest caused a drop in airfreight cargo and reputedly contributed to the demise of one of Tonga's international flight connections.

It is difficult for some PICTs to further develop their ornamental fisheries or expand the range of products because of air transportation constraints. For example, in Solomon Islands, only a limited amount of cargo is allowed on each flight, and much of that limit is normally booked by "regular" orders of wild-caught products. As a result, this has limited the commercialization of the cultured marine ornamentals produced in the Western Province by the WorldFish Center, a non-governmental organization. In Vanuatu, the operators of a recently built tuna processing plant have offered airlines to fill the entire available cargo space with fresh tuna products, putting at stake most of the space usually used by exporters of ornamental products. A deal has been worked out to avoid such a situation, at least temporarily, but it demonstrates the importance of airlines and air transportation to this fragile industry. Governments should work with airline companies with the aim of negotiating specific commodity freight rates to ensure the sustainability of the aquarium trade, as well as other export-based sectors of economic development in PICTs.

Good practices in the Pacific: The need for certification

Certification of best practices for the marine aquarium industry has been considered previously as a good way of maximizing benefits and sustainable use of marine resources. The Marine Aquarium Council was established specifically to develop a system for such certification. The system that was designed was not practical for most PICTs, and therefore was never implemented successfully in the region.

During a regional consultation workshop held in Noumea, New Caledonia in December 2008, the issue was again deemed a high priority by both governmental and private sector stakeholders, with the understanding that in addition to enhancing the sustainability of marine resources, eco-labeling can add value to products, or at least help maintain market share. At the same time, however, industry stakeholders stressed the need to avoid past experiences with burdensome over-documentation, and to apply certification only in areas where operators already have strong commercial incentives to do well.

International compliance

The global nature of the market for marine ornamental products makes compliance and reporting increasingly stringent and complex. As aquarium products move from one country to another they must comply with national laws to implement the powerful UN Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES aims to ensure that international trade does not adversely affect global biodiversity, and establishes permitting and monitoring requirements for CITES-listed species.[4]

Lately, the Pacific has been affected by temporary bans on exports of certain species that are important in the aquarium trade and in coastal fisheries in general, including corals, live rock, and sea cucumber. A factor in these bans has been poor coordination between governmental environment departments, which typically issue CITES permits, and fisheries departments, which are responsible for managing marine resources on which the industry relies.

Biosecurity is an issue of increasing importance. Recently, the European Commission (EC) imposed a requirement for all live aquatic imports to be accompanied by a disease certification and for exporting countries to be members of the World Organisation for Animal Health (OIE). The Pacific has become an unintentional victim of this new requirement. Most, if not all, PICTs affected by this ruling lack the institutional and funding capacity to carry out these measures.

Fortunately, there are some conciliatory gestures from the EC indicating that a regional approach coordinated by SPC may provide a temporary respite. However, the EC's measures are probably an indication that increasingly stringent biosecurity measures in the trade are right around the corner.

4. Most hard coral species that are traded, as well as giant clams, are listed under CITES Appendix II, meaning that international trade of the species is allowed but monitored.

A regional consultation

SPC has been assisting the Pacific Islands region to develop resource management and monitoring regimes to ensure the long-term sustainability of the trade while promoting best eco-friendly industry practices to ensure maximum benefits from these resources.

As part of this effort, SPC and the Secretariat of the Pacific Regional Environment Programme (SPREP) hosted a sub-regional workshop on the marine aquarium trade in Noumea, New Caledonia in early December 2008.

The workshop was a technical consultation between private and public stakeholders, and specialists from the industry in the Pacific to examine current and emerging issues in the trade and to identify national and regional initiatives that will ensure the long-term sustainability of this important industry.

The consultation was highly beneficial to all stakeholders and stimulated much-needed dialogue between regional organizations, the private sector and government agencies.

During the workshop, several specific needs were identified, including the following:

- Conducting an analysis to gain a greater understanding of the market. This analysis could include identification of new aquarium products and their potential for sale; examination of factors affecting the commercial viability of ornamental product operations, such as freight costs, freight space and flight connectivity; and analysis of pricing structures. This analysis could assist governments and the private sector in their decision-making about management, profitability and sustainability issues.
- Assisting PICTs with compliance and capacity issues regarding CITES-related requirements and the new EC import regulation.
- Investigating the potential of a "Pacific Eco-Certification" program as an avenue for government and industry to work together to ensure sustainability of the aquarium fishery. It is important that any eco-certification program be based on best practices and not be too onerous. Eco-certification could serve to increase the desirability of some aquarium organisms from the Pacific region and ease some of the compliance issues.
- Assessing the relative virtues of formal stock assessments and risk assessments in regards to the sustainability of aquarium organisms. Risk assessments could in some cases preclude the need for stock assessments if fisheries information was current, and could also identify and prioritize the need for stock assessments when funding became available. Stock assessments, focused on a few key aquarium organisms, on the other hand, could be used to verify risks identified by risk assessments.
- Establishing a Marine Ornamentals Working Group as a Pacific Islands regional focal point for market analysis and international agreement advocacy (particularly on OIE and CITES issues). The group could serve to distil and discuss problems and issues, provide an avenue for promoting Pacific aquarium organisms, and coordinate research activities.

The future

With the worldwide demand for quality ornamental marine products expected to remain steady and growing interest in the aquarium trade from PICTs, the trade is expected to continue to grow in the region.

SPC will continue to coordinate efforts and provide the technical support and assistance required by Pacific Island nations to develop and manage this industry in a sustainable way.

A "Pacific" label that indicates high quality eco-friendly products that promote sustainability is an idea worthy of exploration by Pacific Island nations.

International trade measures have the capacity to either become a barrier for the Pacific marine aquarium trade or assist the trade in keeping a clean image.

Collecting fairy wrasses using a scoop net and circle net (both with a very small mesh size) and a fiberglass stick (photo by Éric Clua).