



**Many people around the world love to watch colourful fish swimming in a glass tank. The fish that are most popular are those from tropical coral reefs and many come from Pacific islands. Kiribati has an aquarium fish industry based in Kiritimati Island where pet fish are caught and exported to Honolulu, the US mainland and Asian markets.**



*Centropyge loricus* @Brian Gratwicke



Colette Wabnitz © SPC

An aquarium is a tank, usually made of glass, in which people keep aquatic species.\* A freshwater aquarium is easier to stock and maintain but a marine aquarium is usually much more spectacular, particularly if it contains colourful tropical species.



#### Are rocks alive?

The rock itself is not alive but made up of the calcium carbonate skeletons of long dead corals. However, over time, this rock has been bored into by worms, sponges and bacteria\* and other marine species. It is considered useful in that it is porous and has a large surface area for bacteria to colonise. The bacteria improve water quality by using nitrogen waste.

#### Where and what species?

The export of coral reef fish, hard and soft corals, giant clams, live rock and a number of reef invertebrates (such as sea stars, crabs, and shrimp) from Pacific Island countries and territories started in the 1970s. It has since expanded to become an important source of income and employment for a number of communities in the region.

The trade currently operates out many countries including Fiji, Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia, French Polynesia, Marshall Islands, Tonga, Cook Islands, Federated States of Micronesia and Palau as well as Kiribati.

In Kiritimati Island, the flame angelfish (*Centropyge loricus*) is one of the most popular species caught and exported. According to data collected by SPC, the six most commonly exported species Pacific-wide include the following:

- southseas devil (*Chrysiptera taupou*);
- whitetail dascyllus (*Dascyllus aruanus*);
- anemone clownfish (*Amphiprion percula*);
- bicouleur angelfish (*Centropyge bicolor*);
- twospined angelfish (*Centropyge bispinosus*);
- sapphire devil (*Chrysiptera cyanea*).

In most countries the collection of marine species for export is a relatively small operation. However the trade provides employment, mostly in rural communities, and contributes to the earning of foreign exchange.

In Kiritimati Island, aquarium fish are caught by divers using hand nets before being stored in 500 ml plastic bottles drilled with holes to allow the flow of water. These are then placed in nets hanging from buoy lines in the open ocean. In preparation for export, the fish are transferred to packing houses where the bottles are placed in aerated seawater tanks. On the night before an international flight, the fish are placed, individually, in a small volume of water in a double-layered plastic bag. The air in the plastic bag is replaced with oxygen and the bag is closed with a rubber band and placed in cardboard box (around 30 bags per box, depending on the size of the fish). On Tuesday nights the fish are taken to the airport, where they are counted by compliance officers. The fish are then loaded onto the early-morning, once-weekly flight to Honolulu, where the fish are collected by the buyers.

*Chrysiptera taupou @Jeff Dubosc**Dascyllus aruanus @Scott Mills**Amphiprion percula @Silvain de Munck**Centropyge bicolor @Aquarista Marinho**Centropyge bispinosus @LemonTYK**Chrysiptera cyanea @Brian Gratwicke*

## Management

Many Pacific Island countries have or are in the process of developing management plans to effectively develop, monitor and regulate the aquarium fish trade.

The industry is a non-damaging one as only a few selected species are harvested for export. And the most desirable species are small, brightly coloured fishes that are generally not sought after for food by local fishers.

The aquarium keepers who buy the fish are often concerned about the possible impacts of taking large number of fish from coral reefs and may selectively source aquarium fish from well-managed operations and from countries with management plans. Some buyers are looking to stock their aquarium with fish that have been grown in aquaculture facilities.

At the moment SPC is working with industry to develop standard best practices that can be effectively and efficiently applied at the local scale by all. The standards are to achieve the following goals:

- the promotion of sustainable fishery practices,
- the fostering of good fishing and handling practices prior to export.

In Kiribati, the fishery is managed primarily by issuing licences to exporters. There are about nine active licences and each licence holder is limited to catching 1,500 flame angel fish per month. There is also a limit of 800 fish per month for all other species and licence holders are required to provide records of all fish exported. Restrictions on the amount of cargo that can be carried effectively limit the total amount of marine aquarium fish that can be exported.