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diving beneath Antarctic ice

SIR EDMUND P. HILLARY

he came for the mountain and stayed for its people

GRAHAM S. HAWKES

engineering a return to Challenger Deep

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AQUARIUM ROAD

by GAELIN ROSENWAKS

Walking down the streets of Hong Kong, I stumble upon bustling sidewalks lined with walls of plastic bags filled with colorful fish swimming like jewels in a clear plastic world and shops with a multitude of colorful tanks. These fish are part of the large market for marine and freshwater ornamental species sold in the aquarium trade. The displays filled with reef fish conjure images of coral reefs and the healthy schools of fish that I recently saw while diving in Indonesia and the Philippines. These fish, however, are destined for artificial habitats, not the ever-changing environment of the reef where they once lived.

As a marine conservation scientist, I find the trade in marine ornamental species provocative because it is pervasive throughout the world. Nearly all of the marine ornamental fish sold in the aquarium trade are harvested directly from coral reefs and surrounding habitats, whereas 90 percent of freshwater ornamental species are farm-raised. The Philippines and Indonesia supply more than half of the global marine ornamental fish trade. The United States, the United Kingdom, the Europe Union, and Hong Kong are among the largest consumers of these species. A recent report by the United Nations Environmental Programme estimated

that the marine trade is composed of 20 to 24 million individual ornamental fish, 11 to 12 million pieces of coral, and 9 to 10 million invertebrates from 1,471 different species. Valued between \$200 and \$300 million annually, the industry creates the highest added-value product that comes from the reef. In the Maldives, for example, one kilogram of fish collected for the aquarium trade can fetch up to \$500, whereas fish caught for food fetches only \$6 per kilogram. In the future, this added value may provide an incentive to protect reefs and create a sustainable harvest for marine ornamentals.

Many of the fish are harvested by fishermen working individually or in small groups in remote areas of developing countries where the trade provides them with a steady income. Fishermen use various methods for collection, some sustainable and others damaging. Fishing lines, cast nets, and hand nets are effective methods for targeting specific species with little damage to the surrounding habitat and the collected species. However, destructive methods such as sodium cyanide and other poisons are widely used to collect fish. The poison stuns the fish, allowing for easy collection but in the process, other species, including corals, are often damaged



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TANKS OF FISH

The small tanks teem with fish selectively harvested from the coral reefs of Southeast Asia. The numbers and variety of fish are striking as juvenile yellow tangs, surgeonfish, damselfish, cleaner wrasse, and other species await sale. More than half of the fish harvested in Southeast Asia are reported to die shortly after arrival at retailers due to damaging harvest methods, improper shipping, or an inability to acclimatize to aquarium conditions.

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or killed. In addition, the collected species have high mortality rates due to their weakened state during transport; up to 75 percent of these fish perish before reaching retailers and more die once sold to aquarium owners. This leads to more fish being harvested in order to compensate for the high mortality. Once collected, the specimens are put into plastic bags or containers, quarantined for a few hours to a few months, packaged in styrofoam, and shipped around the world.

“Aquarium Road” in Hong Kong is one step in the journey of these animals destined for tanks with bubbling treasure chests found in stores, doctors’ offices and homes, where we capture a glimpse of some of the beauty of the marine world. What many do not realize when gazing into the tanks is that these fish, shrimps, and corals are harvested from the wild, and bought and sold in a market not dissimilar to the trade of fish for food. The collection of marine ornamentals is a fishery that must be managed with a focus on sustainability for the future. 🇳🇵

BIOGRAPHY

Having earned a master’s degree in coastal environmental management from Duke University, Gaelin Rosenwaks, MR’06, has conducted fieldwork in Antarctica and the Atlantic and Pacific oceans. She is currently working as a conservation photographer and journalist committed to sharing the beauty and power of the ocean through images, writing, and other media. For more information on her work and the Aquarium Road project, visit www.gaelinrosenwaks.com.

CORALS FOR SALE

Invertebrates like corals, anemones, and giant clams, while difficult to maintain in aquariums, are widely collected. Some concerns have been raised with regard to the harvest of anemones in the Philippines due to the potential negative impact on the anemone’s obligate symbionts such as the anemonefish as a result of a reduction in their necessary habitats.