

MPA Perspective Managing the "Nemo Effect" of Globalization in the Reef Fish Community

Editor's note: Juan Carlos Huitron Baca is subdirector of Isla Mujeres-Cancún National Park in Mexico.

By Juan Carlos Huitron Baca

Isla Mujeres and Cancún, on the Yucatan Peninsula of Mexico, are popular destinations for tourists from all around the world. Development of the area began in the 1970s with a project to create the infrastructure for a massive tourism resort. In 1996 a national marine park - Isla Mujeres-Cancún National Park - was decreed for the protection of the coral reefs used by visitors. The main threats to these reefs were sewage, fishing, and uncontrolled underwater activities.

After 12 years, this National Park has systematic surveillance, mooring buoys, monitoring programs (including water quality, biological and sociological data), an environmental education program, alternative sites with artificial reefs for inexperienced divers, and a restoration program for boat groundings and hurricane impacts.

On several occasions, rangers of the Park have received reports of "rare" fishes at some of the diving sites - fish that were unlike native Caribbean species. The reports were not confirmed until 14 June 2008, when Park staff sighted an angelfish from the Indo-Pacific region on a reef zoned for non-use. A photograph of the fish was taken and it appears to be an individual of *Pomacanthus semicirculatus*. We believe this fish was liberated by an aquarist (aquarium owner) with the good intention of giving it a new home. We call this the "Nemo Effect". Since that sighting, a three spot damselfish from Australia has also been sighted and confirmed in the Park.

Aquariums around the world demand fishes of different sizes, colors and prices. Modern transportation facilities and commercial trade allow aquarists to obtain almost any kind of fish. Fishes from the Indo-Pacific oceans are in high demand at aquariums in the Americas, and aquarium shops are multiplying in the fast-growing city of Cancún. There are, however, several ecological threats posed by introducing exotic species in any ecosystem: resource competition, predation and, in some cases, hybridization. Angelfish, for example, are known to be able to hybridize between some species.

To address these threats, the strategy that Isla Mujeres-Cancún Park will follow is twofold, consisting of a monitoring program to detect and remove exotic fishes in the protected reefs and an educational program to prevent aquarists from liberating the fish they do not want anymore.

For the monitoring program, the Park is providing underwater cameras to its personnel in case they see a fish they cannot identify. The Park rangers are trained to identify coral reef fish from the Caribbean and, as such, are able to notice a "strange" fish. The more challenging aspect is removal, especially in Isla Mujeres Bay where we have several patch reefs and fishes can move a lot in search for food.

The educational program has not yet started, but the objective is to inform aquarists about the ecological problems if they release non-native fishes to our reefs. We plan to put this information in every pet shop and veterinary facility in the area. Another part of the program is to collaborate with dive shops in a volunteer program to report any strange fish on the reef. This will require some training for divemasters and scuba instructors. We want to combine this volunteer program with a bleach-watch program we are going to start in 2009.

The management plan for the Park strictly prohibits the introduction of any exotic animal or plant, with a penalty. However, to apply this penalty we need to catch the person in the act, and this is difficult considering all the possible sites along the coastline. So far there is no rule or law in place outside the park to require aquarists to consult an environmental authority before relocating their pets. I am suggesting that such a law be instituted, and the educational program will provide a procedure for such consultation.

For more information

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