

# Newport Aquarium Uses YSI Instruments to Support Project Piaba



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YSI Field Work  
Application Note A543-02

Aquatic ecosystems and resources of the Amazon basin are the predominant basis of sustainability for the rainforest. Fishes are frequently overlooked in more publicized conservation or development projects in the Amazon despite the enormous diversity of fishes (over 3,000 species) and the socioeconomic importance of the fisheries. Food fishes comprise the principal component of the Amazonian diet. The ornamental fish trade is also of economic importance to local fishermen and in the worldwide market.

More than 40 million live fishes are exported from the region annually for the Amazonas State economy and in excess of \$100 million in worldwide retail value. The mid-Rio Negro basin is the primary fishing grounds and the municipality of Barcelos is the principal trading post where trade in ornamental fishes now contribute over 60% of the local revenue.

A single species, the cardinal tetra (*Paracheirodon axelrodi*) constitutes over 80% of the total export from the Rio Negro basin. Natural fluctuations in fish populations, fish mortality rate during capture and transport, and market demand are the main constraints on the fishermen's subsistence. As adaptation to the extreme fluctuations in Amazon ecology, many ornamental fishes have a short life cycle (1-2 years) and high fecundity that allow their populations to sustain the ornamental fishery business long-term.

## Project Piaba

Dr. Chao, an Ichthyology Professor at the University of Amazonas, Brazil, is the founder of Project Piaba. Piaba is a Portuguese word for small ornamental fish, like tetras, discus and angel fish. Project Piaba is a community-based program to safeguard and improve a sustainable ornamental fishery in the Negro basin. The fishery provides a livelihood for 10,000 rural folks (caboclos) and urban laborers. The purpose of the research is to establish sustainable fisheries of piabas for aquariums around the world. By practicing techniques learned through Project Piaba's research, the local fishermen are able to make a living without over-fishing the area. If the fisheries are lost, the people are forced to make a living by other ecologically destructive activities, such as slash-and-burn farming and ranching, poaching and logging.



The Rio Negro

## Water Quality

Since 2001, the WAVE Foundation has supported Project Piaba. Funding and active research includes a yearly excursion for 1-2 biologists to travel to the Rio Negro basin to assist with research and population surveys of the local fisheries. A majority of this funding is derived from the annual fundraiser "Party for Piaba". As Newport Aquarium biologist's prepare for their yearly trek to the Amazon, they typically equip themselves with the YSI Models Pro2030, pH10A, ORP15A, and occasionally a multiparameter sonde as time permits. During the 18-day voyage along the Amazon and Rio Negro rivers, the use of these instruments allows the biologists to get a good cross-section of a variety of target habitats.

The water chemistries are measured and fish population density and diversity are recorded at each stopping location. This recorded information assists the Newport Aquarium staff in understanding the preferences and tolerances of their collection of Amazonian species to recreate the most authentic habitat.

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The Amazon Basin and Rio Negro river is home to the popular aquarium fish 'Paracheirodon axelrodi' (Cardinal Tetra).

Data on the river's health is shared with the local fishermen which helps guide their activities for fish collections and identify areas for Brazilian researchers and engineers to search for sources of pollutants that may affect the ornamental fish trade. While most aquarium fish activities now focus on captive breeding, Project Piaba is unique as it strives for wild population management of sustainable ornamental fisheries while maintaining the livelihoods of the local villagers - and it may just save a rainforest from far more destructive livelihoods.

To learn more about Project Piaba, the WAVE Foundation, or the Newport Aquarium please visit [www.newportaquarium.com](http://www.newportaquarium.com).

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