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FIGHTING BACK WITH FISH FARMS

by Stuart Davies

DOMINICAN REPUBLIC, IDRC -- In 1979, Hurricane David struck the Caribbean island of Hispaniola. The Dominican Republic, which occupies the western two-thirds of the island, was harder hit than neighbouring Haiti. The damage was devastating, and nowhere more than in the coastal fishing villages.

The people of the Republic rely on fish for much of their protein. The virtual destruction of the fishing industry, coupled with growing food shortages, meant huge increases in food imports, further weakening an already struggling economy. But the islanders are fighting back - with fish farms.

The Dominican Republic has many rivers, canals, and reservoirs. Fish farming, or aquaculture, has been practiced since the early 1950s, but now the Department of Agriculture decided was the time to expand the country's aquaculture production. With the support of Canada's International Development Research Centre (IDRC), a project was begun to grow fish in cages in the country's inland waterways. It is the first such project in the Caribbean.

The project aims to improve the diets and incomes of people in poorer rural communities, and at the same time demonstrate the practicality of aquaculture. In 1980, less than a year after the hurricane struck, researchers from the Centre for Investigation and Improvement of Animal Production (CIMPA), under the direction of Emilio Olivo, began working with the people at Tavera, site of a large hydro-electric reservoir.

To determine the best cage designs, 36 small cages were built, using bamboo, rope, and nylon netting. Wherever possible local materials were used to ensure that the people will always have ready access to the resources needed to carry on once the project is over. The cages were stocked with tilapia - after the common carp, probably the most popular cultured fish in the world - and the researchers began gathering data.

With the first set of experiments in progress, similar experiments were begun in two other areas in order to compare results. The data collected from these first experiments showed that cage culture was economically feasible, so 20 commercial-size cages of 100 cubic metres capacity were built at a cost of about US\$300 each. Each cage is expected to yield about 700 kilos of fish annually., and in two to three years the total fish production in this area is expected to increase tenfold.

Stocked at a density of up to 125 per cage, the tilapia grew to a marketable size in six months. Various supplemental feeds were tried, such as coffee pulp and chicken manure to boost growth, but it was found that the fish grew most economically on just the natural planktons found in the reservoir.

The researchers are also testing bottom-resting cages for carp, which are bottom feeders, in efforts to make the maximum use of the bodies of water by using the different feeding levels.

In order to increase the income of the poorer rural people, another type of cage culture experiment is underway, producing large mouth bass, fed on live tilapia harvested from sewage lagoons. The fast-breeding tilapia (they reproduce every three weeks under the right conditions, and thrive on nutrient-rich waters such as those found in the sewage lagoons) are available at virtually no cost, as the people will not eat fish harvested from wastewater. And unlike the carp and tilapia, which are cheap fish, the bass command an extremely high price. So the experiment, in addition to providing more money for the fish farmers, may also yield important information that could be applied to other fish culture and wastewater treatment programs in the tropics.

One year of experiment is not sufficient time to obtain a complete understanding of the water bodies and to determine ideal fish stocking densities and other factors. But the research team recognized the danger of jeopardizing the enthusiasm of the local people as a result of delays incurred in attempting to arrive at ideal results that may never be realized. They moved quickly - and in only 16 months the first stages of the project were completed.

In fact the involvement of the local people was one of the primary reasons why the project developed so rapidly. At the Tavera reservoir, the people recognized the project's potential and provided free labour for constructing and guarding the cages. In return they were given the fish produced from all experimental cages. Such palatable benefits have kept interest high in the project - since the first harvest the people have seen the quantity of fish that can be produced in a short time with relatively little effort.

The 10,000 inhabitants of the area are grouped into 41 cooperatives, which ~~are now soliciting funds and materials to launch further commercial projects in~~ various zones of the reservoir.

The project team has thus demonstrated two important points. The first is the ease with which a non-traditional production system can be integrated into existing agricultural production. The second is that a small, grassroots project can yield positive results in a short time when approached in the right way.

In the course of the project, the team's two technicians received intensive training, and in addition, 48 technicians from all part of the country have been trained in cage culture techniques, thus creating a pool of skilled personnel for this and future aquaculture projects in the country.

The success of the project paves the way for cage culture's establishment as a practical and profitable industry in the Dominican Republic, and may well be the first step towards the beginning of a national program.

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