



**TOP TO BOTTOM:**

- 1 At the seminar-workshop, participants made resource maps to identify the resources in their locality
- 2 The aquasilviculture project in old growth mangroves will be stocked with mudcrab, shrimps, and milkfish and planted to seaweed.
- 3 Governor Florencio Miraflores of Aklan, Panay Island believes in networking for effective delivery of public services

## Mangrove-friendly aquaculture: a community research project

By MB Surtida

In 1953, the pioneering Filipino fishery scientist Dr. Domiciano Villaluz wrote "...it is apparent that Philippine coastal fishing banks have yielded their maximum production and their productive capacities are diminishing ... aside from this, the effects rendered on the fishing banks are disastrous in that the fishes are not given a chance for natural productivity." But it was not until the 1970s when conservation and management of coastal resources were given due attention. By this time, unmistakable signs of degradation of coastal environments and depletion of fishery stocks could not be ignored.

### Seminar-workshop on mangrove-friendly aquaculture and coastal resource management

AQD established in Malalison Island, Antique, a community-based fishery resource management research project to learn from the collaboration of a community organization, biologists, and social scientists in applying fishery resource management techniques. From such experience, other project sites would be established.

Thus, the seminar-workshop on mangrove-friendly aquaculture and coastal resource management was conducted on 19-21 August 1998 at the Department of Environment and Natural Resources Training Center in Jawili, Tangalan, Aklan. Nearby is the site of AQD's research study on mudcrab and shrimp in mangroves and grouper culture in net cages in a cove. The study is a demonstration of mangrove-friendly fish farm.

The participants of the seminar-workshop are composed of officials of the local government units (LGUs) and peoples's

organizations (POs) of seven barangays of the towns of Ibajay and Tangalan.

In the long term, the POs will manage the mangroves and other coastal resources made productive through the implementation of mangrove-friendly aquaculture and coastal resource management strategies. Through the training, the participants' awareness of fishery laws would also allow them to formulate policies related to coastal resource management. The legal basis for such activity is in the Local Government Code of 1991 and the Fisheries Code of 1998.

### The key players

*The LGUs and POs.* The LGUs and POs are supported by the provincial governor, Gov. Florencio Miraflores, Mayors Pedro Garcia of Ibajay, and Jed Tirol of Tangalan. In an interview, Gov. Miraflores outlined his plans and activities through networking with various government and non-government institutions. Admitting that the fisheries sector is a neglected sector as compared with agriculture, he organized a fishfarmers' cooperative in 1985 (the Bugtong Bato Fishermen's Association) as part of the government's project with the (now defunct) Ministry of Human Settlements. The cooperative, still active to the present day with 92 members, operates an otoshi-ami, a stationary net set at the sea bottom to catch market-sized fish. Proceeds from the catch is used for net maintenance, daily pay for two divers and a bookkeeper, and hospitalization and educational loans for members. The successful operation of the association was recognized in a national award given by the Department of Environment and Natural Resources.



## mangrove-friendly aqua ... from p 2

The same cooperative, the governor said, is ready to take on the responsibilities of the SEAFDEC AQD mangrove-friendly aquaculture project, as are the other POs of the two towns. Saying that there is so much to be done, the project is in line with government thrust to alleviate poverty and conserve coastal resources. But he warns that these projects have to be sustainable and that in his experience, organizations are better kept small; when they increase membership, they usually fall apart. His province has projects by the Local Government Support Program, the Canadian International Development Agency, and lately, SEAFDEC AQD. He further said that the mangrove-friendly aquaculture project will benefit from the already organized cooperative as this component is crucial in the operation of the community-based coastal management project.

**SEAFDEC AQD.** SEAFDEC AQD initially provides information on the concepts and principles of sustainability and possible projects applicable in the area. Correct information that influence policy making will also be made available such as stock assessment, appropriate culture systems, density of stocking, etc.

In the mangrove area at Ibajay, Aklan, conservation and management will be the prime consideration. The operations will be managed by the Bugtong Bato Fishermen's Association. Four aquaculture technologies in mangrove areas will be verified and demonstrated. Although only the aquasilviculture projects will be conducted in Ibajay, other projects such as *Gracilaria* and shrimp production in pens are being assessed for their feasibility.

The economic profitability of the technologies being verified will be evaluated,

while the socioeconomic characteristics of resource uses and property rights arrangements on resource use in mangrove communities will be described.

In Ibajay, the aquasilviculture component will stock crab and plant seaweed (1,400 m<sup>2</sup>), stock shrimp (400 and 700 m<sup>2</sup>) and milkfish (700m<sup>2</sup>) in old growth mangrove. Crab culture in pens will also be done in the river that runs along the mangrove areas. Seedlings of *Rhizophora*, *Nypa* and other suitable mangrove species will be planted or maintained as part of the greenbelt area.

### Summing up

Fishery cooperatives can co-manage coastal fishery resources, help improve the living conditions of small-scale fishers, and slow the rapid depletion of these resources. These are the findings of a 1998 AQD study by Ms. D. Baticados published in *Fisheries Research* 34 (2): 137-149 of ten fisherfolk cooperatives in Capiz, Central Philippines when it investigated the willingness of cooperatives to co-manage fishery resources. The study further found that most cooperative members (74%) were willing to assume responsibility in managing fishery resources. Apathy and lack of lobbying skills prevent the members from acquiring control and use rights over fishery resources. Further, 52% were aware of the 1991 Local Government Code and the provision on the participation of people's organizations in governance.

The results show that sustainable aquaculture has a bright future, contrary to statements that sustainability is hopeless in the midst of poverty. Further, it validates the research direction that AQD took in the last ten years. The seminar-workshop also confirmed the results of the study as shown by the participants' interest in the activities to find solutions to identified problems.

## trouble on the reef ... from p 8

"People dumped this garbage bag from a boat," Cray said. People have come to your reef."

"So, what you told us was all true," Sher answered.

"What are we going to do? We have to stop the people," Cray said.

"But how? We are so small," Sher said.

"Come on. We've got to warn everybody," Dino said.

That night, "Help! Help! Please help me! I'm hurt," shouted a wounded shark. Everybody got out of their holes on the reef. They saw blood.

"The people are going to kill us. We must leave," the shark warned them. But it was too dark. The friends went back to their holes.

In the morning they heard a noise. They saw many fish floating, all dead. Another 'kaboom' was heard and another group of fish was killed.

"My friends, we must leave. We'll all die if we stay," a swordfish said.

"But I love this reef," a goatfish said.

The reef fishes were so worried, but they did not know what to do. Many of them left but some stayed.

Later, people came to the reef with cyanide, which they squirted into holes occupied by small colorful fish. People sold the captured butterflyfish and clownfish to aquarium shops.

The people kept coming back for more fish from the reef. Soon all the beautiful fish were gone, then even the not so colorful fish. Soon, only the seaweeds were left. And finally, there was nothing left on the reef for people to eat.

Many children got sick, then the old people, then even the fishermen who used to come to the reef. The reef fishes stayed away for a long time.