

INTERVIEW WITH THE MANGROVE ACTION PROJECT'S ALFREDO QUARTO

Mangroves and aquaculture development

By **NJ Dagoon**

Mr. Alfredo Quarto is the Executive Director of the Mangrove Action Project (MAP), a non-government organization formed in 1992. MAP aims to build grassroots networks worldwide to protect and restore the earth's mangrove forests, and support sustainable coastal societies. He shares his thoughts on mangroves and aquaculture development.

How extensive is MAP?

We have grown from a small organization to a large network of about 900 individual science and non-government organizations from around the world. We have representations in about 58 countries now, including, Africa, Asia, Latin America, Europe and North America.

Originally, I believe there were 32 million hectares of mangrove, but now it is less than 16 million—so less than half the mangroves that once covered the earth still exist. This is a big problem because mangroves, by and large, are important for fisheries. Without the mangroves we are losing a lot of our production for fisheries.

Where are most of the mangroves located?

Most of the mangroves are located in Asia. The largest number of mangrove areas is in Indonesia, about four million hectares. There are also mangroves in Africa, in Latin America. In North America, we have mangroves in Florida in the US. So that is an area that is also endangered by development over the years — population expansion, agricultural expansion, pollution prob-

lems, cutting mangroves for the charcoal industry. But recently in the last 20 years, I would say shrimp farming has been a major contributor to mangrove loss. It could be as much as 20 to 30 percent, depending on who you talk to, but the mangrove loss in modern days is due to shrimp farming. This still happens today. We still see evidence of mangrove loss in Ecuador, for instance, from shrimp farming which is exactly the problem that we have been addressing since 1992 that we still feel is not resolved at this point.

How much of the total mangrove loss may be attributed to aquaculture development?

Well, around 20 to 30 percent...different figures—depending on who you talk too, seem to be attributed to aquaculture development. But it's controversial, some people say it's only about five percent. It depends if you talk to the industry representative or the NGO who is strongly against the industry's expansion to mangrove areas. It also depends on locale. For instance, in Ecuador, over 95% of the mangrove loss is attributable to aquaculture development in shrimp aquaculture. In some areas in Thailand, there is a high percentage of mangrove loss that's been due to shrimp farming. So it depends on the location, it depends on the industry's ability to expand, and regulations and enforcement.

Can you recommend some ways to rehabilitate mangroves?

I think, one of the most important steps in rehabilitating mangroves, is trying to let the system come back on its own—if possible through natural generation which means protecting the land area for one—but also there are replanting programs which we

feel need to be expanded to include other species aside from *Rhizophora*. There has been some kind of plantation approach to replanting mangrove forests. We feel this is not going to work in the long run. We need to basically allow the system to regenerate as a complex system not as a simple one species system. For one thing, we need to also conserve the mangrove forests that still exist—that's one of the problems in our equation for mangrove conservation. There has to be a strong protection of existing mangrove forests and protection of the area where they exist so that they can replant themselves basically.

Do you think aquaculture projects can co-exist with mangrove forests?

I think smaller level, smaller scale aquaculture can exist with mangrove forest. In Africa now is a plan for a large mega project -- 10,000 ha shrimp farm in Tanzania which we personally feel is not a good idea for the surrounding mangrove area which is about 53,000 ha, the largest mangrove area in East Africa. We feel this kind of expansion of a large scale production of shrimp has been and will be a problem for mangrove forests in the future. So we are encouraging aquaculture systems to be less intensive, more friendly to the local population and the local mangrove systems.

What kind of aquaculture projects do you think would be mangrove friendly?

I think low intensity or mangrove-friendly aquaculture projects which are basically extensive systems that are



In general, Cambodia does not have mangrove management / conservation activities such as inventory and reforestation. But there are already many efforts and attempts by non-government organizations and international organizations to collaborate with the government to improve environmental protection.

Myanmar

U Tin Win

Department of Fisheries

Myanmar has extensive mangrove forests, 382,032 ha, distributed in Ayeyarwady (46.4%), Tanintharyi (36.7%) and Rakhine (16.9%). But there has been substantial reduction of forest cover in all areas over the years mainly attributed to the demand for fuelwood / charcoal production.

Neither intensive nor semi-intensive shrimp farming has developed, and Myanmar is fortunate to have learned from the mistakes of shrimp producing countries like Thailand and the Philippines. But there are plans to develop 40,000 ha of ponds for semi-intensive shrimp culture because the government considers shrimp a potentially large generator of foreign exchange (US\$400-500 million).

As yet, shrimp farmers still practice the traditional, extensive method. About 12,000 ha are operated in Rakhine state, near the border of Bangladesh. The yields are very low, about 100 kg per ha per year. Fish culture of seabass, grouper, milkfish and mullet is still in pilot-scale.

At present, there is no well-developed arrangement for managing the country's coastal and marine zone. Much of Myanmar's coastline is sparsely populated and features natural ecosystems which have suffered relatively little exploitation except in Ayeyarwady Delta.

In the future, integrated coastal zone management approaches will be considered in establishing the policy, planning and regulatory framework to ensure that the coastal zone is managed sustainably.

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logue were: Hon. Jed Tirol, Tangalan mayor; Hon. Pedro Garcia, Ibajay mayor; Norberto Soliva, Bugtong Bato barangay captain; Cesar Ureta, Aklan BFAR provincial director; Levi Lahaylahay, provincial planning and development officer and the Aklan governor's representative.

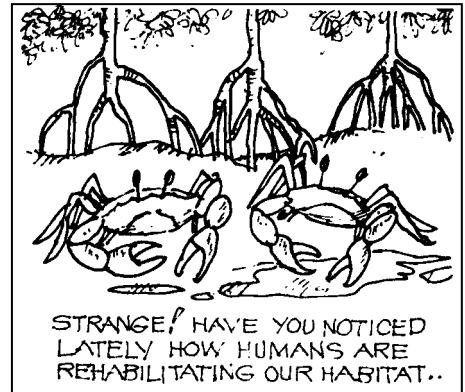
Local and national media based in Aklan were also present. ###

Quarto / MAP... from p 11

small scale, that aren't using lots of inputs, for instance, chemical inputs and antibiotics, pesticides and don't require the clearing of mangroves to exist and silvofisheries. These have proven themselves in different countries, for instance, Indonesia, Malaysia. The local people can afford to actually implement these systems in their areas. These are what we're looking for. The kind of solution to help the local communities, basically not replace their livelihood.

Any final, encouraging note on mangroves?

I do think if we replant mangroves and conserve our mangrove forests, we'll find enough fish in our oceans to feed the increasing populations. If we properly manage our fishing techniques, and help preserve and get back the ocean's health, the ocean will be the best place to raise fish for the future. And aquaculture will be used as a supplement, not as a replacement for ocean production of fish products for the future. ###



Grouper R&D ... from p 21

Israeli Journal of Aquaculture - Bamidgeh 49: 77-83

Tan-Fermin JD. 1992. Withdrawal of exogenous 17 α methyltestosterone causes reversal of sex-inversed male grouper *Epinephelus suillus* (Valenciennes). Philippine Scientist 29: 33-39

Tan-Fermin JD, Garcia LMB and AR Castillo Jr. 1994. Induction of sex inversion in juvenile grouper *Epinephelus suillus* (Valenciennes) by injection of 17 α methyltestosterone. Jap. J. Ichthyol. 40: 413-420

Toledo JD, A Nagai and D Javellana. 1993. Successive spawning of grouper, *Epinephelus suillus* (Valenciennes), in tank and a floating net cage. Aquaculture 115: 365-367

Toledo JD, SN Golez, M Doi and A Ohno. 1997. Food selection of early grouper, *Epinephelus coioides*, larvae reared by the semi-intensive method. Suisanzoshoku 3: 327-337

Toledo JD, SN Golez, M Doi, RS Bravo and S Hara. 1996. Preliminary studies on the rearing of the red-spotted grouper, *Epinephelus coioides* larvae using copepod nauplii as initial food. UPV J. Nat. Sci. 1: 119-129

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