AQD Matters

Newsletter of the SEAFDEC Aquaculture Department *Volume 2, Number 7, 31 July 2005*

AQD holds RTC on Stock Enhancement

SEAFDEC recently initiated the Program on Stock Enhancement for Threatened Species of International Concern, a five-year program under the auspices of the Government of Japan-Trust Fund. SEAFDEC implements this and many other programs to help the developing countries in the ASEAN achieve food security and reduce poverty. AQD is implementing a component of this Program focused on aquaculture-based stock enhancement.

To prepare for the Stock Enhancement Program, AQD convened the Regional Technical Consultation (RTC) on Stock Enhancement for Threatened Species of International Concern at the Iloilo Business Hotel in Mandurriao, Iloilo City, from 13 to 15 July. The meeting had 55 participants and was opened by AQD Chief Dr. Rolando Platon. SEAFDEC Policy and Program Coordinator Mr. Suriyan Vichitlekarn reviewed the ASEAN-SEAFDEC directives related to species of international concern, and AQD Deputy Chief Koichi Okuzawa reviewed AQD's past and ongoing work in stock enhancement.

Representatives from Cambodia, Lao PDR, Myanmar, Malaysia, Philippines, Thailand, and Vietnam spoke about the threatened species and the stock enhancement initiatives in their countries. Among the species they identified for stock enhancement were freshwater fishes, sea horses, sea cucumbers, and the humphead wrasse. Some countries already have technologies for seed production, but no one has done baseline surveys, tagging, and monitoring.

Invited scientists shared their research results and field experiences. Pew Fellow Dr. Edgardo Gomez described his successes in giant clam restocking and coral transplantation in the Philippines. Pew Fellow Dr. Amanda Vincent of Project Seahorse fame cautioned against restocking of hatchery-bred seahorses. Amazingly, a third Pew Fellow was at the RTC, AQD's own Dr. Jurgenne Primavera, who has ongoing projects in mangrove conservation and mud crab stock enhancement. The Pew Fellows in Marine Conservation are an elite group of marine scientists who work for conservation and sustainable use of species and ecosystems.

Dr. Katsuhiro Kiso talked about the giant clam project in Okinawa, and Dr. Takuma Sugaya about the release strategies used for flatfish in Japan. Dr. Sena de Silva presented a review of stock enhancement for culture–based fisheries in freshwater lakes, reservoirs, and farm impoundments in Asia. Thailand's conservation and breeding program for the Mekong giant catfish *Pangasianodon gigas* was described by Dr. Naruepon Sukumasavin. Prof. Frances Nievales talked about farming of sea urchins and sea cucumbers, and Dr. Benjamin Gonzalez described his community-based stock enhancement project for the top shell *Trochus niloticus.* AQD's Dr. Ma. Rowena Eguia discussed the technologies for tagging and marking, including genetic marking techniques.

A workshop was held to chart the future directions for the Program, and the participants agreed on a Resolution and Plan of Action (overleaf). The participants visited AQD's Tigbauan Main Station and Igang Marine Station. The Closing Ceremony was graced by Speaker Jose de Venecia of the Philippine House of Representatives. The farewell dinner was seafood all around, including the resurgent angelwing *Pholas orientalis*, only recently bewailed as having become 'endangered.'

Country Representatives, resource persons, and AQD officials and scientists during the RTC on Stock Enhancement, Iloilo City, Philippines, 13-15 July 2005

RTC on Stock Enhancement

Stock enhancement is a form of fishery intervention where juveniles (or young) of depleted or threatened species are released in natural waters to become part of the common fishery stocks. These released juveniles feed on natural food, fend off predators, grow, breed, and produce more young, some of which may then be harvested. Stock enhancement done at sea is called sea ranching. Japan is one country with a long history of sea ranching for the benefit of fishing communities.

Although restocking of juveniles appears to be a simple process, the preparation that goes with it is not. First and foremost is a thorough assessment of the resources of a given ecosystem to determine in what way an area can best be enhanced. Selection of the parent stock to be used is also crucial so as not to adversely affect the natural biodiversity of the area. Then there is the matter of how best to mark the juveniles so the releasing agency can assess the survival and the contribution of the released stocks to the fishery. Lastly, it is necessary to assess the costs versus the benefits of such releases.

RTC Resolution

- Stock enhancement should be undertaken as part of an integrated management strategy for sustainable use and conservation of aquatic resources.
- Stock enhancement should be considered only when other interventions, such as reduction of fishing pressure and habitat protection or restoration, have proven inadequate.
- Stock enhancement programs should use indigenous or native species to minimize adverse effects on ecosystems and biodiversity.
- For species that are now used for stock enhancement programs in the Member Countries, technological support should be strengthened to ensure success.
- Seed production technology for a species should be established before it can be considered for stock enhancement, but broodstocks may also be restocked to restore the breeding population.
- As basis for evaluating the risks and benefits of stock enhancement, baseline surveys must be conducted before any release of stocks, to obtain physico-chemical, biological, and socioeconomic information, especially the characteristics of the receiving ecosystem and the stakeholder communities.
- Hatchery-produced juveniles used for stock enhancement should be carefully screened for genetic makeup and health status to ensure that genetic diversity is conserved and only good quality juveniles are released.
- Impacts of the stock enhancement activity should be monitored and evaluated on a regular basis, using the same methods and covering the same area or ecosystem as the baseline survey.

Plan of Action

SEAFDEC/AQD's Program for Stock Enhancement of Threatened Species of International Concern shall consist of three plans of action:

1. Research and development will be conducted on species of international concern based on:
   - List of species identified at the RTC
   - Regional concerns – priority given to common species and problem areas identified by the Member Countries
   - Technology gaps identified by each Member Country
   - Available resources of the Program
   - Mandate from the SEAFDEC Council
2. Appropriate technologies for stock enhancement will be verified:
   - Technologies developed by AQD
   - Technologies developed by Member Countries
3. The capability of the Member Countries for appropriate stock enhancement will be strengthened through training, study tours, publications, and dissemination of information regarding the following technical areas:
   - Planning and management of stock enhancement, including review of existing activities
   - Assessment of sites and resources
   - Seed production (broodstock, hatchery, nursery)
   - Release strategies, including tagging and marking
   - Monitoring and evaluation of impacts
   - Community-based resources management

Closing ceremony with Speaker Jose de Venecia and company

SEAFDEC AQD at 32

Research Division Head WG Yap talks about the research accomplishments of the first AQD Chief, Dean Domiciano K. Villaluz Sr., and gives an overview of the DKV Memorial Lectures, 7 July

AQD stakeholders attended the DK Villaluz Lectures and obtained free AQD manuals and books, 7 July

DK Villaluz Memorial Lectures

Sustainable Shrimp Culture
Mr. Chris Mitchum Ganancial

Mud Crab Seed Production
Dr. Emilia Quinitio

Abalone Culture
Ms. Shelah Mae Buen-Ursua

Grouper Seed production
Mr. Denny Chavez

Guided Tours

Mudcrab Hatchery
E Quinitio / Q Ganon

Abalone Hatchery
S Buen-Ursua / N Bayona

Grouper Hatchery
D Chavez / E Garibay

150 Gifts for AQD Stakeholders

- Pen Culture of Mudcrab in Mangroves
- Modular Method of Milkfish Pond Culture
- Net Cage Culture of Tilapia in Dams
- Farming of the Seaweed *Kappaphycus*
- Pagpapaanak o Pagpaparami ng Tilapya
- Pagpapalaki ng Tilapya
- Induced Breeding and Seed Production of Bighead Carp
- Environment-Friendly Schemes in Intensive Shrimp Farming
- Closed Recirculating Shrimp Farming System
- Biology and Hatchery of Mudcrabs *Scylla* spp.
- Breeding and Seed Production of Cultured Finfishes in Philippines
- Ecology and Farming of Milkfish
- Biology and Culture of Siganids
- Mangrove-Friendly Aquaculture
- Responsible Aquaculture Development in Southeast Asia
- Use of Chemicals in Aquaculture in Asia
- Regional Guidelines for Responsible Fisheries in Southeast Asia – Responsible Aquaculture
- Third Shrimp Congress
- Promotion of Mangrove-Friendly Shrimp Aquaculture in SE Asia
- Report of the Round Table Discussion on the Development of Genetically Improved Strain of *Macrobrachium*

Dean Domiciano K. Villaluz Memorial Lectures, 7 July 2005

SEAFDEC AQD at 32

SEAFDEC AQD 32nd Anniversary Program
Friday, 8 July 2005

Thanksgiving Mass
Pambansang Awit
Welcome Remarks by AQD Chief Rolando R. Platon
Message from DA UnderSecretary Cesar M. Drilon, Jr.
Wesite launching by Dr. Celia Lavilla-Pitogo
Book launching by Dr. Gilda Lio-Po
Closing Remarks by Dr. Koichi Okuzawa

- Transboundary Fish Diseases in Southeast Asia: Occurrence, Surveillance, Research and Training (edited by CR Lavilla-Pitogo and K Nagasawa)
- Disease in Farmed Mud Crabs *Scylla* spp.: Diagnosis, Prevention and Control (by CR Lavilla-Pitogo and LD de la Peña)
- Diseases of Cultured Groupers (edited by K Nagasawa and ER Cruz-Lacierda)
- Laboratory Manual of Standardized Methods for Antimicrobial Sensitivity Tests for Bacteria Isolated from Aquatic Animals and Environment (by L Ruangpan and EA Tendencia)
- Mabisang Pamamaraan sa Papapalaki ng Sugpo na Hindi Makakapinsala sa mga Bakawan (by D Baliao and S Tookwinas)
- Regional Guidelines for Responsible Fisheries in Southeast Asia – Responsible Aquaculture (by TU Bagarinao)
- Report of the Regional Technical Consultation for the Development of the Code of Practice for Responsible Aquaculture in Mangrove Ecosystems (by VT Sulit and others)
- Regional Technical Consultation on the Aquaculture of *Penaeus vannamei* and Other Exotic Shrimps in Southeast Asia (by VT Sulit and others)

AQD Chief Dr. Rolando Platon welcomes all to the AQD Anniversary, 8 July


Dr. Celia Torres launches the website for the Regional Fish Diseases Program


DA UnderSecretary Cesar M. Drilon Jr., AQD Deputy Chief Koichi Okuzawa, and the AQD Chief distribute first copies of the newly launched books


Dr. Gilda Lio-Po launches eight new AQD publications, 8 July 2005

SEAFDEC AQD at 32: Speaker Jose de Venecia visits AQD

AQD breaks ground for the shrimp broodstock facility at TMS and gets a pledge of funds from Speaker Jose De Venecia Jr., 15 July 2005

AQD's shrimp broodstock facility breaks ground

Speaker Jose de Venecia graced the groundbreaking ceremony on 15 July for the shrimp broodstock facility next to the enclosed wet laboratories at Tigbauan Main Station. The new facility will have a net water area of 10,000 m^2 and consist of one growout pond and eight compartments that can hold eight separate shrimp family lines.

AQD has embarked on an R&D program to completely domesticate the sugpo or tiger shrimp *Penaeus monodon* in order to be able to produce healthy postlarvae as needed. Although advanced growout technologies are available for the tiger shrimp, hatcheries still depend on broodstock from the wild. Wild spawners are now harder to find, more expensive, and often harbor diseases that cause heavy or even total mortality of farmed shrimps. AQD hopes to solve this shortage of healthy broodstock.

This new shrimp broodstock program was explained to Speaker Jose De Venecia by AQD Chief Dr. Rolando Platon, Research Division Head Wilfredo Yap, and Program Leader Dr. Emilia Quinitio. Speaker De Venecia pledged P10 Million for the construction of the new shrimp broodstock facility.

Speaker De Venecia, Iloilo First District Representative Janette Garin, and company go on a guided tour of AQD's hatcheries for seaweeds and fishes (above) and for abalone and mudcrabs (below), 15 July

The Speaker was an interested learner who asked many questions. He expressed appreciation for AQD's R&D work and pledged support for new initiatives.

SEAFDEC AQD at 32

On-farm research on abalone grow-out starts

A ceremonial turnover of abalone seedstock from AQD to the private sector took place on 15 July at AQD Tigbauan, witnessed by Speaker Jose De Venecia Jr. and Iloilo First District Representative Janette Garin.

AQD recently forged ties with private cooperators to study the economics of abalone growout in actual farm situations. The cooperators involved are MaBaKAs of Manlot Island, Carles, Iloilo and the Cruz Aquafarm in Tando, Nueva Valencia, Guimaras. MaBaKAs is the Manlot Bantay Katunggan Association, which consists of fisher families in Manlot Island. The group's abalone farm is being assisted financially by the Rotary Club of La Paz.

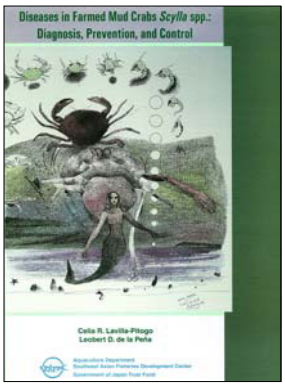
Aside from providing the abalone seedstock, AQD also trained in June 2005 the members of MaBaKAs and the workers of Cruz Aquafarm in abalone farm management and monitoring The trainor was Shelah Mae Buen-Ursua, the Leader of the Integrated Abalone Production Program.

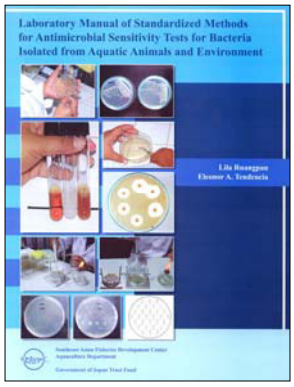
The economics of two phases of abalone farming will be studied. One is the growing of juveniles from shell length of 0.5 cm to 3 cm (about 5 months). The other is growing the 3 cm juveniles to marketable size (about 7-8 months). By segmenting growout into two stages, two groups of farmers can be engaged in separate livelihoods and the turnover rate can be faster for each group. Abalone produced in the hatchery takes a full 12 months to grow to marketable size, and the long wait has discouraged would-be farmers.

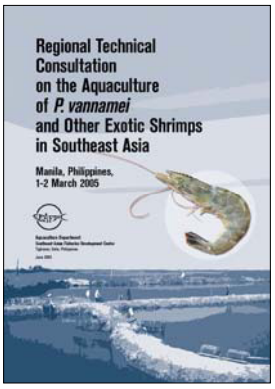
But, abalone is a high-value commodity with good local market and high export potential. It can be sold live at an ex-farm price of P300/kg. Blanched and blast frozen, it can be exported at US$12/kg. Major markets for abalone include Hongkong, China, and Korea. Abalone can be grown in floating cages suspended from buoys or raft), or in pens set at the bottom of shallow bays and coves with clean sea water.

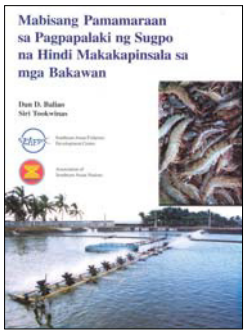
Juvenile abalone packed in oxygenated bags were given to MaBaKAs cooperators by Speaker Jose De Venecia, 15 July

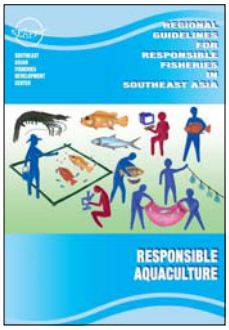
AQD books launched on 8 July

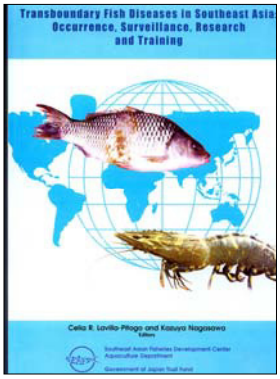


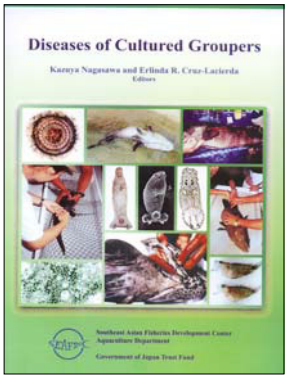


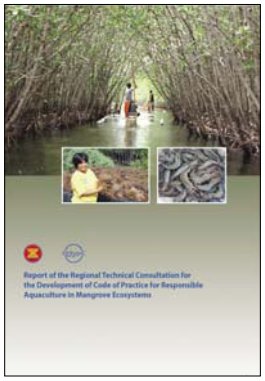












Four books were produced by the Regional Fish Diseases Program, two by the Mangrove-Friendly Aquaculture Program, and two by the Program for the Regionalization of the Code of Conduct for Responsible Fisheries.

New brochure about the Biotech Labs

Tara na, biyahe na!

Ecotourism is becoming a more attractive (environmentally, socially, and politically correct) undertaking and many local governments are putting a lot of effort and funds in various projects that show off mangroves, coral reefs, and other ecosystems.

The Misamis Occidental Aquamarine Park in Tudela town is one worthwhile place to visit in Mindanao. The park is a project of the provincial government under the leadership of Governor Leo Ocampos, the Outstanding Governor in 2004. Dr. Celia Torres recently visited the park and was so impressed. She urged AQD to provide the park a complete set of aquaculture manuals, books, and proceedings. The park has hatcheries for many species and people come to visit and consult. The AQD publications will boost the learning of the hatchery technicians and the park visitors. Dr. Jurgenne Primavera also visited the park in April with friends from Mindanao State University-Naawan. She recommends it and the pictures on this page show why.

Dr. Primavera is organizing a scientific expedition to the Agusan Marsh, 1-4 November. If interested to join the trip, please email jhprima@aqd.seafdec.org.ph. Agusan Marsh is already a priority site under the National Integrated Protected Areas System, but Dr. Primavera is working to have it gazetted as a UNESCO World Heritage Site. *Sana.*

Looking seaward from the marine park, photo by Celia Torres

Inside the Misamis Occidental Marine Park, photo collage by Benjie Lasam

Irrawaddy dolphin in Dumangas?

Friday, 1 July was AQD Do-Day, but I was nowhere near Tigbauan. I was home, glued to the computer, rushing to finish the layout of the booklet *Regional Guidelines for Responsible Fisheries— Responsible Aquaculture* and the brochure Laboratory Facilities for Advanced Aquaculture Technologies. Then Ellen Flor of FishWorld texted me to report that a 'melon-headed whale' was caught in Punta Pulao, Dumangas. Oh, dear, a dilemma. But not for long. I happily left my computer work and took a van to COMPAC (Community Police Action Center), just outside AQD's Dumangas Brackishwater Station.

It was almost noon when I arrived. There it was on a table in the garage, surrounded by small children. I was told that it was to be buried as soon as a plastic bag could be found to contain it (so the bones could later be collected and assembled). It was found by fisherman Ricarte Morera about 5 pm the day before, 30 June, entangled in a gill net off Siete Pecados. It was brought to COMPAC about 8 pm and was reported to Dumangas Mayor Rolando Distura, to BFAR, and to GMA-TV. The fishers wisely removed the internal organs.

That morning, I took photos. The animal on the table was 2 meters long, uniformly gray, and had a small blunt head and a small dorsal fin. It did not match the photo and description of 'melon-headed whale' in *A Field Guide to Whales and Dolphins in the Philippines* (JML Tan, 1995). It did not match any of the 20 species in that book.

Then somebody asked, why doesn't SEAFDEC take it? I thought, why not indeed? So I went to the Dumangas station to arrange for transport of the animal. As luck would have it, Tomas Hautea's truck passed by, and I learned that his men were going to AQD Tigbauan to return several borrowed fiberglass tanks. I asked Nilo Franco to get permission from Mr. Hautea for the truck and his men to deliver the animal to FishWorld. Thus it was arranged, thanks to Mr. Hautea and his brawny men.

The municipal fisheries officers arrived back at COMPAC with big plastic bags. I asked if I could take the animal to FishWorld instead of having it buried. They agreed, but told me to write to the mayor. I promised to. Thus was FishWorld able to acquire the third biggest animal in its collection, after the megamouth shark and the leatherback turtle. Ellen Flor and Jocelyn have become experienced at preserving huge specimens in formalin. Thankfully, many big fiberglass tanks are now available at AQD for FishWorld to use to keep big rare animals.

That night, Amy Arisola texted me to watch Ratsada because the bad news about Kai and Paz Kuhlmann was to be shown. That footage was shocking to watch. Following that bad news was the footage of the 'melon-headed whale' in Dumangas. Oh, well. Things got hectic as we prepared for the AQD anniversary celebration and for the Regional Technical Consultation on Stock Enhancement.

During the RTC, a Country Representative flashed a photo of the endangered Irrawaddy dolphin, *Orcaella brevirostris.* I almost fell off my chair. The 'melon-headed whale' from Dumangas looked like *Orcaella brevirostris* instead. Evidently it is. The Irrawaddy dolphin is named after the Irrawaddy Delta in Myanmar, but has been reported in Indonesia and the Philippines (though not confirmed by Tan in his 1995 book). Now there is a specimen at FishWorld. *T. Bagarinao*

Dr. Jurgenne Primavera and Dr. Resurreccion Sadaba, receive the Outstanding Book Award from the National Academy of Science and Technology, Manila Hotel, 14 July 2005

JHP wins another!

Dr. Jurgenne Primavera and coauthors Dr. Resurreccion Sadaba, Junemie Lebata, and Jon Altamirano won the Outstanding Book Award for *Handbook of Mangroves in the Philippines—Panay*, published by the SEAFDEC Aquaculture Department with funds from the UNESCO Jakarta Office. This book has launched a thousand praises already and continues to do so. Congratulations, Ma'am JHP!

Irrawaddy dolphin caught in the waters of Siete Pecados, 30 June 2005

Community participation and a sense of ownership and stewardship