



# AQD Matters

Newsletter of the SEAFDEC Aquaculture Department

Volume 3, Number 5, 31 May 2006

## The Ambassador of Japan visits SEAFDEC/AQD

His Excellency Ryuichiro Yamazaki, the Ambassador of Japan to the Philippines, was recently at a meeting of prominent Filipinos at the Ateneo de Manila University when former AQD Chief Dr. Efren Flores mentioned to him the SEAFDEC Aquaculture Department in Tigbauan, Iloilo. Japan of course is the main donor country in the SEAFDEC organization and has been quite generous to AQD, contributing research equipment, vehicles, and fellowship funds over the past 32 years. The AQD-based Laboratory Facilities for Advanced Aquaculture Technologies is a P400 Million grant-aid from the Government of Japan to the Government of the Philippines. A large number of Japanese professionals have worked at AQD, including the AQD Deputy Chiefs, the JICA Experts, the GOJ-Trust Fund Program Managers, the JIRCAS scientists, and the JOCV. A similarly large number of AQD researchers have gotten their MSc, PhD, or Dr Agr degrees from Japanese universities.

Thus, when Ambassador Yamazaki came to Guimaras to inaugurate six barangay health stations on 18 May 2006, he made sure to include AQD Tigbauan in his itinerary. The Ambassador came with Dr. Araki Norito, Health Attache of the Embassy of Japan. They turned over the health stations (some renovated, others newly constructed) to Mayor Felipe Nava, Dr. Cathrel Nava, and the people of Hoskyn and San Miguel, Guimaras. Then they had lunch with Iloilo City Mayor Jerry Trenas. They arrived at AQD at 3 PM, exactly as scheduled! It was a short stay since they had to be at the University of the Philippines-Visayas in Miagao at 4 PM to meet Chancellor Glenn Aguilar and Mayor Gerardo Flores. The hectic day ended with dinner with Iloilo Governor Niel Tupas. Whew!

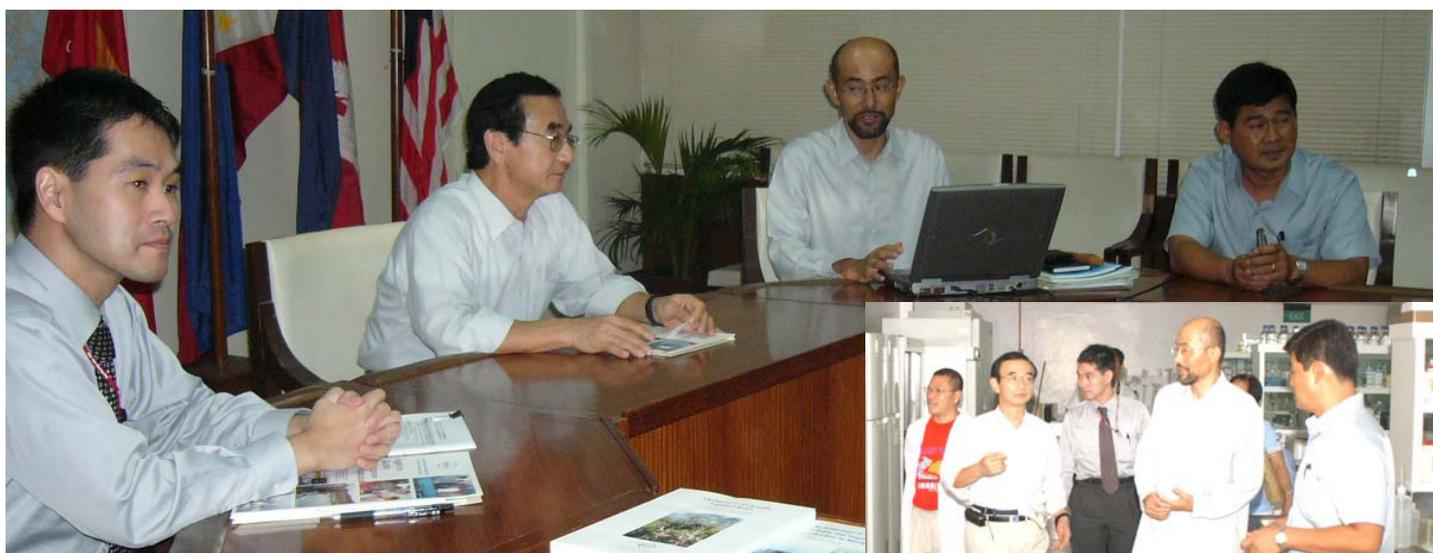
The next day, the Ambassador inspected the construction of the Iloilo International Airport in Santa Barbara before flying back to Manila.

During his visit to AQD, Ambassador Yamazaki and Dr. Araki met Deputy Chief Koichi Okuzawa, Chief Joebert Toledo, Research Head Evelyn Grace de Jesus Ayson, and TVCD Head Neila Sumagaysay Chavoso. Dr. Okuzawa gave a 10-minute briefing about AQD in Nihongo. The Ambassador spoke excellent English and asked whether AQD sets time frames for its programs and projects— from research to technology transfer. Dr. Toledo explained that at the proposal stage, AQD researchers already specify how long each study will take.

The Ambassador turned out to be a good personal friend of Speaker Jose de Venecia Jr. and noted the latter's visit to AQD in July 2005 (and his many pictures with the AQD staff).

Dr. Toledo, Dr. Okuzawa, and Dr. Ayson took the Ambassador on a tour of AQD facilities, especially the Laboratory Facilities for Advanced Aquaculture Technologies.

*T Bagarinao*





AQD's sea horse hatchery now has *Hippocampus comes*

### Ronald Maliao revives the sea horse hatchery

Ronald J. Maliao returned to AQD in September 2005 after a few years away to earn his MSc in Aquaculture and Aquatic Resources Management from the Asian Institute of Technology in Bangkok and later to work at the Central Visayas State College of Agriculture, Forestry, and Technology in Bohol. Ronald was rehired to help implement the GOJ-Trust Fund Program, *R&D on Stock Enhancement for Threatened Species of International Concern*. He is a certified SCUBA diver fully comfortable working at sea. He also has plenty of experience working with local officials and communities trying to manage their fisheries and coastal resources.

One of Ronald's research studies at AQD focuses on the population dynamics, breeding, and seed production of sea horses (*Hippocampus comes*, *H. kuda*, *H. barbouri*). The study aims to conserve sea horses through aquaculture-based stock enhancement. Sea horses are threatened by overfishing and loss of habitat due to destruction of coral reefs and seagrass beds. The Philippines and Vietnam are the major exporters of sea horses. One adult sea horse sells for 25 pesos locally. Overexploitation of sea horses for traditional Chinese medicine and for the aquarium trade has reduced the population of sea horses. According to Project Seahorse based in Bohol, sea horse abundance around Bohol decreased by 70% from 1980.

For the new sea horse hatchery at AQD, Ronald acquired the tiger-tailed sea horse *Hippocampus comes* (68 females and 63 males, 9.4-16.4 cm in stretched length) from Manlot Island, Carles in Nov-Dec 2005. About 80% of the males were pregnant and released juveniles within 20 days after arrival at the hatchery. The males produced from 38 to 715 juveniles each and the total was 6,948 juveniles. The average survival of juveniles after two months was 3%. The sea horses were fed SELCO-enriched *Artemia*, mysids, and frozen *Acetes* shrimps. The biomass decreased after two months due to insufficient food. Eight adults died due to pouch emphysema, internal gas bubble disease, and flesh erosion disease; two others died due to wounds at the tail suffered during collection.

Ronald also conducts research projects on abalone and giant clams. He leaves AQD once again in August to start a PhD program at the Florida Institute of Technology under a Fulbright-Hayes fellowship.

MN Edaniel, JMP Panase

### Dr. Mary Jane Amar makes groupers stronger

Dr. Mary Jane Amar has the same specialization as her husband Dr. Edgar Amar at AQD's Fish Health Section. The couple both finished their PhDs at Tokyo University of Fisheries, Japan. Dr. Mary Jane is a University Research Associate at the Institute of Aquaculture, University of the Philippines Visayas in Miagao and she is one of three Visiting University Researchers at AQD. Her research evaluated some nutritional factors and microbial derivatives as immunostimulants in the tiger grouper *Epinephelus fuscoguttatus*.

Use of immunostimulants is an effective means of increasing resistance to stress and disease. Research-based information about fish immunostimulants is accumulating and many agents are currently in use in aquaculture to maintain good health and ensure larger harvests.

Farming of groupers is an important industry in the Philippines and in other countries in southeast Asia. Groupers are fast-growing fish with high economic value. They are grown in ponds or net cages usually at high stocking densities. Overcrowding reduces the water quality, worsens the physiological environment, and increases susceptibility of groupers to infections. Indeed, groupers are prone to stress and a variety of diseases, including viral nervous necrosis. Mass kills of groupers have occurred a few times at SEAFDEC/AQD. Immunostimulants can help groupers withstand stress and disease in farms.

Dr. Amar tested onion, ginger, Vitamin C, and beta-glucan as immunostimulants in tiger grouper. The first three are well known effective immunostimulants in humans, and they are likely to work also in groupers. The immunostimulatory effects of several types of glucans have been well studied in fish.

Five groups of 40 tiger grouper *Epinephelus fuscoguttatus* (44 g) were stocked in five 250-liter tanks and fed either a control diet or diets with added onion, ginger,  $\beta$ -glucan, and vitamin C. Weight gain and specific growth rates were significantly higher in groupers fed diets with  $\beta$ -glucan and onion. Feed conversion ratio was significantly higher in groupers fed the onion, ginger, and vitamin C. Among the immunity indices, total immunoglobulin (total Ig) was significantly higher in all treatment groups than the control. Hematocrit, hemoglobin, lysozyme, and nitroblue tetrazolium reduction also increased slightly over the control. The fish fed the immunostimulants will be experimentally challenged with pathogenic bacteria *Vibrio anguillarum* to see if fish survival rates correlate with the physiological responses seen *in vitro*.

MN Edaniel, JMP Panase



Ronald Maliao



Dr. Mary Jane Apines-Amar



Although green-looking, *Kappaphycus* is a red seaweed and a carrageenophyte

### Dr. Ronelie Salvador improves carrageenophytes

Dr. Ronelie C. Salvador is Assistant Professor and Chair of the Fisheries Department, College of Agriculture, University of Eastern Philippines in Catarman, Northern Samar. She holds a PhD in Fisheries (Aquaculture) from the University of the Philippines Visayas. In 2005, she was invited by the AQD Chief to conduct some of her research at AQD's Laboratory Facilities for Advanced Aquaculture Technologies. Her study is on strain improvement of farmed carrageenan-producing seaweeds (or carrageenophytes).

Carrageenan is a hard- and soft-gelling colloid which has multiple applications in the food and pharmaceutical industries. The carrageenan-producing red seaweeds *Kappaphycus* and *Eucheuma* have been farmed in the Philippines for decades. The seaweed farming industry in the Philippines supplies a large export market and provides livelihood to over 180,000 families in Western Mindanao, Central Visayas, and Southern Luzon. In the Philippines and most parts of the world, the only method of farming carrageenan-producing seaweeds is through repeated cutting, planting, growing, and cutting, planting, ...

Use of cuttings from best growing plants as seedstock for the subsequent croppings without selection or varietal improvement has been associated with loss of genetic diversity and a general decline in seaweed productivity and carrageenan quality. There is urgent need to improve Philippine carrageenophytes to ensure continued competitiveness in the world market. Biotechnological procedures can be used to produce good-quality seedstocks that are fast-growing, disease-resistant and of good carrageenan quality. The improved strains can then be made available to farmers anytime.

Dr. Salvador's research includes four components: carrageenan characterization and screening for disease resistance, molecular approaches of assessing genetic diversity and disease resistance, genetic manipulation approaches of strain improvement, and field growth studies of laboratory produced seedstocks. At present, 24 morphotypes or ecotypes of *Kappaphycus* and three of *Eucheuma* have been collected from 11 sampling areas (23 seaweed farms and seed banks) around the country.

JMP Panase, MN Edaniel

### Dr. Jose Oclarit goes after the PUFAs

In 2004, Professor Dr. Jose M. Oclarit of the Mindanao State University—Iligan Institute of Technology attended the consultation meetings related to the AQD streamlining and the cost-effective use of its research facilities. He was later invited by the AQD Chief to conduct biotechnology research at AQD's Laboratory Facilities for Advanced Aquaculture Technologies. In October 2005, he started his research at AQD on polyunsaturated fatty acids (PUFAs) for use in aquaculture and human nutrition.

PUFAs are essential fatty acids that serve as components of cell and organelle membranes. Omega-3, omega-6 are familiar layman terms for PUFAs important in human nutrition. PUFAs ensure proper development of the nervous system, help strengthen the immune system, and counter the adverse effects of cholesterol. High PUFA levels are good for the heart. It is sound advice for people to consume foods such as marine fishes that are rich in PUFAs.

PUFAs are similarly important to fish and have been added to fish diets in a variety of ways to strengthen the immune system and improve survival.

Only microorganisms such as bacteria, thraustochytrids, fungi, and microalgae can synthesize PUFAs from short-chain fatty acids. PUFAs can not be made by animals and must be provided through the diet, hence they are called 'essential'. Fishes in the wild get their PUFAs from their natural food, but fishes grown in ponds and pens must be fed diets with PUFA.

Dr. Oclarit's research seeks to find microorganisms that are rich sources of PUFA, propagate these *en masse*, and develop uses for them as food supplements for people and as additives in diets for farmed fish. Microscopic thraustochytrids were isolated from fallen mangrove leaves from many localities around the Philippines. PUFA-rich microbial symbionts of intertidal sponges were also isolated. These microorganisms were analyzed for total lipids and fatty acid profiles. The thraustochytrids have high PUFA content, 35-54% of total fatty acids, mainly docosahexaenoic acid (DHA) at 24-41%.

Dr. Oclarit holds a PhD in Applied Biochemistry and Molecular Biology from Hiroshima University, Japan. He has discovered an anticancer agent and an antibiotic against Gram-positive bacteria. In 1996, he was chosen *Outstanding Young Scientist in Applied Biochemistry* by the National Academy of Science and Technology of the Philippines.

JMP Panase, MN Edaniel



Dr. Ronelie C. Salvador



Dr. Jose M. Oclarit

## They're back!!!



**Dr. Evelyn Grace T. de Jesus-Ayson**  
Head, Research Division



**Mr. Renato F. Agbayani**  
Head, Training and Information Division



**Dr. Neila S. Sumagaysay-Chavoso**  
Head, Technology Verification and  
Commercialization Division  
Head, Dumangas Brackishwater Station



**Ms. Kaylin G. Corre**  
Head, Training Section



**Dr. Nerissa D. Salayo**  
Head, Manila Office

**Mr. Albert G. Gaitan**  
Head, Igang Marine Station

**Ms Milagros T. Castanos**  
Head  
Development Communications Unit

**Mr. Armando C. Fermin**  
Leader, Abalone Production Program



*Management Committee Meeting, 26 May 2006*

## Chief Toledo meets with Congressman Javier...

AQD Chief Dr. Joebert Toledo met with Congressman Exequiel Javier of Antique on 17 May 2006. He was accompanied by Dr. Neila Sumagaysay-Chavoso, Ms. Kaylin Corre, and Dr. Edgar Amar. During the meeting, Congressman Javier promised to give P500,000 from his Countryside Development Fund in exchange for a verification study on grouper farming in cages and seabass farming in ponds in Antique. Congressman Javier wants to help fish farmers in the coastal villages of Antique generate more income. Dr. Sumagaysay-Chavoso, Ms Corre, and Mr. Rene Agbayani are now preparing a project proposal to be submitted to Congressman Javier for approval by June 2006. The project includes technology demonstrations and a special training course for the fish farmers of Antique.

*NS Sumagaysay-Chavoso*



*Mud crabs are of great interest to aquafarmers now*

## ... and with Senator Angara

Senator Edgardo Angara was in Iloilo recently *en route* to attend the May Flower Festival in Tapaz, Capiz. AQD Chief JD Toledo and Research Division Head EG de Jesus-Ayson had a breakfast meeting with him on Sunday, 28 May at the Sarabia Manor Hotel in Iloilo City to discuss plans for aquaculture projects in the province of Aurora. On 8 May, the Chief joined the signing of the Memorandum of Agreement among Senator Angara, BFAR Director Malcolm Sarmiento, Congressman Juan Edgardo Angara, and the local government officials during the launching of the mariculture parks in Baler and Casiguran, Aurora. The Chief and the Division Heads then prepared and submitted a requested concept paper, *Sustainable Aquaculture and Stock Enhancement in the Municipality of Casiguran, Aurora Province*.

*EG de Jesus-Ayson*

## Congratulations, Dr. Gilda Po!!

AQD Scientist Dr. Gilda Lio-Po was declared a Diplomate in Microbiology during the Council Meeting of the Philippine Academy of Microbiology on 31 March 2006. The conferment ceremony for new Diplomates was held during the Annual Convention of the Philippine Society for Microbiology at the Bohol Tropics Resort on 10 May 2006.

Congratulations, Dr. Po, for another feather on your cap!!

Diplomates in Microbiology must have MSc or PhD in microbiology or related specialization and must fulfill minimum requirements for published research, years of work experience in microbiology, and awards. Diplomates may become Fellows after satisfying even more stringent requirements. Diplomates and Fellows are nominated and evaluated by the PAM Accreditation Board. Diplomates and Fellows in turn administer an examination to accredit Registered Microbiologists.

*RV Ledesma*

## AQD joins Fisheries School-on-the-Air

The Philippine Council for Aquatic and Marine Research and Development in collaboration with Tateh Aqua Feeds will launch a Fisheries School-on-the-Air program this coming July that will be aired over radio station DZMM of ABS-CBN. The program will deliver the fisheries and aquaculture lessons in Tagalog.

Fisheries School-on-the-Air will feature, among other topics, *Tayo nang kumita sa pag-aalaga ng alimango*. The program aims to educate aquafarmers about livelihood opportunities in mud crab farming and provide crab growers additional knowledge to ensure the sustainability of the industry.

PCMARD invited AQD Aquaculturist Dan Baliao, former Head of the Technology Verification and Commercialization Division to an interview on three topics:

- *Pagpili ng pag-aalagaan ng alimango sa palaisdaan at kulungang-lambat*
- *Pag-aalaga ng alimango sa palaisdaan*
- *Polyculture ng alimango*

AQD Aquaculturist Nilo Franco met with the PCMARD staff on 9 May 2006 for the taped interview. The lessons focused on the farming techniques for the *alimango*, the large mud crab or the king crab *Scylla serrata*, in brackishwater ponds and in mangrove pens. Mr. Franco discussed feeds and feeding management, disease prevention and control, harvest and transport, the economics of production, and marketing and export. He pointed out the many factors that contribute to successful *alimango* farming, including the materials and equipment needed, stocking rates, water quality, and frequent monitoring. *Alimango* are selectively harvested depending on market demand. Crab prices are higher in the export than in the local markets and vary by weight and sex. Mature females are more expensive than males and immature females.

*Alimango* can be grown in polyculture with fishes like *bangus* or tilapia because they do not compete for food and space. These fishes feed on algae and stay at the middle and surface layer of the pond, whereas *alimango* are fed 'trash' fish or other animal protein and stay at the pond bottom.

AQD hopes that Fisheries School-on-the-Air will succeed in reaching the rural areas and turn more fishers into *alimango* growers.

*RV Ledesma*

## OJTs rule the AQD summer



*OJTs at their day jobs*

## ... and the night...



*AQD's on-the-job trainees gather for food and fun, TID Conf Rm, 6 May 2006*

Schools sending OJTs to AQD	Students	Course, Year	Duration	Required service	Assignments	
STI College Iloilo	1	Computer Science 3	Jan – Feb	300 h	Data Bank	
University of the Philippines Visayas	1	Psychology 3	Jan – Apr	1 month	Human Resource Management Section	
Aklan State University, Banga	11	Veterinary Medicine 6	Jan – Feb	2 weeks	Fish Health Section	
Camarines Sur Institute of Fisheries & Marine Science	11	Fisheries 3	19 Jan—15 Mar		Binangonan Freshwater Station, ABCDEFI Jalajala	
Don Mariano Marcos Memorial State University	9	Fisheries 3	5 Apr— 19 May	1 month	Binangonan Freshwater Station, ABCDEFI Jalajala	
Leyte State University	1	Fisheries 3	18 Apr— 19 May	1 month	Binangonan Freshwater Station, ABCDEFI Jalajala	
Mindanao State University Naawan	3	Fisheries 3	Apr – May	320 h	2 Crab hatchery, 1 F Estepa	
Mindanao State University Maguindanao	1	Fisheries 3	March	320 h	Crab hatchery (160 h) / Natural food (160 h)	
Davao del Norte State College	5	Fisheries 3	Apr – May	240 h	1 Crab hatchery 1 Abalone hatchery	1 J Gonzaga 1 CL Pitogo 1 J Oclarit
Mindanao Polytechnic State College	2	Aqua Resources Mgt 3	Apr – May	320 h	1 CL Pitogo 1 J Gonzaga	
Carlos Hilado Memorial State College	6	Education 3, Biology 3, Aquaculture 3	Mar – May	240 h	4 Crab hatchery (100 h) / Shrimp hatchery (100 h) 2 Shrimp hatchery (100 h) / Crab hatchery (100 h)	
Mindanao State University Marawi	15 2	Fisheries 3 Chemistry	Apr – May	240 h 320 h	1 CL Pitogo 4 Abalone hatchery 5 C Ganancial	3 Natural food (M dela Pena) 2 Shrimp hatchery (F Estepa) 2 Central Analytical Laboratory
Zamboanga State College of Marine Science and Technology	3	Aquaculture 3	Apr – May	240 h	2 G Lio-Po 1 J Oclarit	
Central Mindanao University, Musuan	3	Veterinary Medicine 3	May	200 h	Fish Health Section	
University of the Philippines in the Visayas	3	Chemistry 3	Apr – May	200 h	Central Analytical Laboratory	
Southern Philippines Agribusiness and Marine and Aquatic School of Technology	5	Marine Biology 3	Apr – May	240 h	2 Crab hatchery 1 R Maliao	2 Natural food (M dela Pena)
University of the Philippines High School in Iloilo	7	High School 3	24 Apr – 19 May	1 month	Fish World	
Northern Mindanao School of Fisheries	3	Aquaculture 4	10 Apr – 6 Oct	1,040 h (26 wks)	1 EA Tendencia 1 Algal production	1 Crab hatchery
Northern Iloilo Polytechnic State College	9	Fisheries 3	Apr – May	260 h	5 Abalone hatchery (130 h) / Fish hatchery (130 h) 4 Fish hatchery (130 h) / Abalone hatchery (130 h)	
West Visayas State University	2	Mass Communication 3	Apr – May	200 h	TID Dev Com	
Central Philippine University	1	Engineering 4	Mar – May	1 month	Engineering Section	
Iloilo State College of Fisheries	3	Fisheries 3	April – May	320 h	1 EC Amar, 1 R Maliao, 1 Endocrinology	
Pangasinan State University, Binmaley	1	Fisheries 3	April – May	450 h	1 R Maliao	
Southern Iloilo Polytechnic College, Miag-ao	8	Electrical Technology 3	April – May	180 h	Engineering Section	
Institute of Development and Strategic Studies	8	Development Studies 1	April – July	3 months	6 Integrated broodstock hatchery 2 Natural food (M dela Pena)	
Philippine Science High School Western Visayas	10	High School 2	24 Apr – 19 May	1 month	FishWorld	
Capiz State University Dayao	3	Fisheries 3	April – May	240 h	Mud crab hatchery	

## The rivers of our lives

Most of us AQD employees live between Leganes and Miagao, Iloilo, and during the daily commute, we cross several rivers—without noticing them at all. What river is nearest you? Have you looked at it lately?

On Friday, 12 May, the FishWorld interns did a river tour, the purpose being to really look hard and learn about rivers. They learned a lot more than they expected. Typhoon Caloy chose to hit Iloilo that day and the rivers swelled with water, silt, wood debris, and the ugly ubiquitous plastic garbage. From FishWorld, we visited **Jar-ao River** traversing Tubungan and Guimbal, **Naulid R** from Igaras, **Tumagbok R** in Miagao, **Sibalom R** traversing Leon and Tigbauan, **Baguingin R**, **Barroc R**, **Anhawan R**, **Batiano R** from Oton to Villa Arevalo, **Iloilo R** from Mohon to Molo to Diversion Road to Gaisano, and downstream **Aganan R** in Bolilao, Jaro.

*T Bagarinao*



*Jar-ao River, Camangahan, Guimbal*



*Sibalom River, Leon*



*Tumagbok River, Miagao*

## In the wake of Caloy

*Dear All,*

*We examined some grouper juveniles from Dr. Jane Amar's stock today (about 2 inches) and found severe damage in the gills like sloughing off of epithelial cells, clubbing, hyperplasia, etc. in weak fish. There was also heavy mucus production around the gill area and the body. The gill lamellae were heavily obstructed with mucus strings. No parasites were found. These signs are characteristic of fish that have been exposed to toxic elements in the water and may result to respiratory distress, secondary infection with bacteria, and mortality. According to Joseph Faisan of Fish Health, the rearing water that came from the flow-through system at Biotech's Infection Building last weekend (bagyo period) was brownish in color.*

*In order to avoid a similar incident in your fish (and crustacean) stocks, kindly coordinate with Engr. Rex Tillo Sr. and the Water Services group (and other support services groups) so that preventive cleaning and inspection of filters, pipes and distribution channels in your facility can be done ASAP.*

*Also, in cases where poor water quality is suspected, please SUBMIT water samples to CAL for analysis. During the monsoon season, may I request the CAL to regularly monitor our seawater supply system in order to detect any form of contamination and provide early warning to all users, and to give advise about remedial measures.*

*For the info and appropriate action of all concerned.*

**Celia Lavilla-Pitogo**  
Head, Fish Health Section



*Naulid River, Miagao*



*The new front entrance to the TID Conference Room—for all future meetings and photo ops*

**Welcome to TID!!!**  
*the new face of AQD*



*The lounge in the conference room for breaks and waits*



*Formerly the video production room, now Lecture Rm 2*



*The specially furnished Conference Room for special meetings and ceremonies*



*Fully furnished Lecture Rm 1 and internet room*

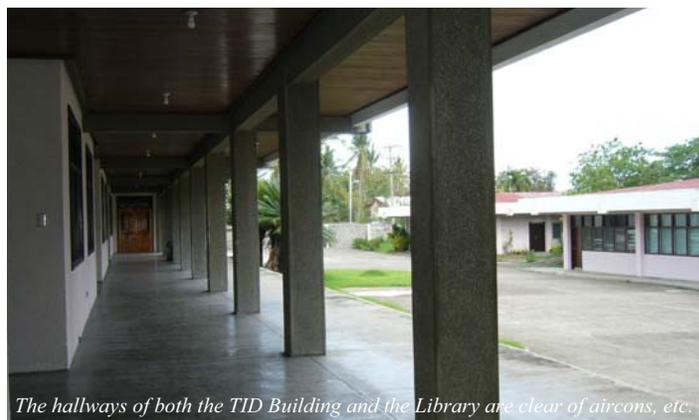
In 2003, AQD may have had the sparkling sophisticated Laboratory Facilities for Advanced Aquaculture Technologies, but 30 years of half-hearted maintenance had elsewhere taken a heavy toll. Roof leaks were a perennial problem. Walls needed repainting. Hatcheries had all kinds of makeshift structures. Debris was everywhere. At TID, offices were ‘lived in’ and closed-doors, work areas were sticky and heavily scratched, stockrooms were cockroach-infested and forgotten, aircons stuck out into hallways, walls had holes of all kinds and spatters of floor detergent and wax, cables and wires ran everywhere, and there was just the big conference room for lectures big and small. It was not lack of funds, but more like lack of responsibility for an undefined job.



*The front lobby is public-friendly*

In 2004, TID’s role was redefined: TID is the face of AQD—the face that the public sees first, the face that had to look good. It was not only beautification but ‘functionification’ that was needed. TID personnel scrambled to put best foot forward and to be available to stakeholders in different ways. They all carried out expanded responsibilities and maintained the workplace efficient and presentable to the public. The TID Head in particular struggled over the next two years to standardize operating procedures and to fix up the place with limited funds. In 2006, funds (P200,000) were allocated for major repairs and a new canopy entrance to the TID Conference Room. These improvements you can now see and enjoy at TID.

*T Bagarinao*



*The hallways of both the TID Building and the Library are clear of aircons, etc.*



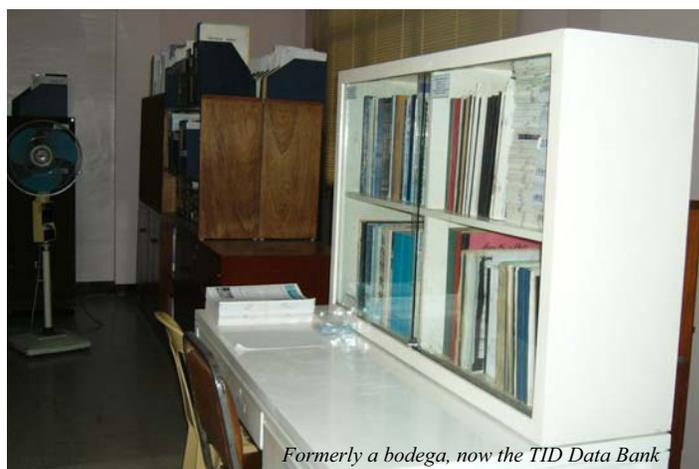
*The AQD Bookstore by the front lobby*



*The AQD Bookstore stockroom now in good order*



*Formerly the AV Print work area, now the snack room for trainees and trainers*



*Formerly a bodega, now the TID Data Bank*

## AQD implements new FCG program: *Promotion of Sustainable Aquaculture in the ASEAN Region*

VT Sulit

The ASEAN-SEAFDEC Special Five-Year Program on the Contribution of Sustainable Fisheries to Food Security started with the ASEAN-SEAFDEC Millennium Conference in 2001 and ended in 2005. AQD implemented two projects as the Aquaculture Component of the Special Five-Year Program, otherwise known as the Integrated Regional Aquaculture Program or IRAP.

AQD held a progress and evaluation meeting for IRAP in Bangkok, Thailand in February 2005 where the Member Countries identified four R&D areas for the second phase of IRAP:

- aquaculture of indigenous freshwater species
- integrated agriculture-aquaculture systems
- coastal aquaculture and mariculture
- development of captive broodstock

AQD later convened the Planning Workshop for IRAP Phase 2 (2006-2010) in Bangkok from 30 Nov to 2 Dec 2005. The representatives from the ASEAN-SEAFDEC Member Countries recommended 14 priority projects in the four R&D areas and identified the countries to be involved in specific activities. They then developed the detailed plan of action, including research, verification, training, information dissemination, study visits, and farm demonstration. Countries that have developed farming technologies for particular commodities were identified as Core Countries that can provide technical assistance to 'recipient' countries. Technology packages that are well developed in one country and known to be economically viable and environment-friendly will be considered for verification in another country. Countries with common interests in specific commodities were urged to collaborate in R&D.

The recommendations of the Planning Workshop were adopted as the proposed program of activities for IRAP 2006-2010, comprising two parts: Development of Technologies for Sustainable Aquaculture and Capacity-Building for Sustainable Aquaculture. The proposed program was submitted to the SEAFDEC Program Committee during its 28<sup>th</sup> Meeting in Bangkok, Thailand from 7 to 9 Dec 2005. The SEAFDEC Program Committee decided to endorse IRAP 2006-2010 as a new regional program under the ASEAN-SEAFDEC Fisheries Consultative Group (FCG) mechanism, under the official title *Promotion of Sustainable Aquaculture in the ASEAN Region*.

The 8<sup>th</sup> Meeting of the ASEAN-SEAFDEC Fisheries Consultative Group and the 38<sup>th</sup> Meeting of the SEAFDEC Council, both held in Brunei Darussalam in April 2006, approved for implementation by AQD in 2006 the FCG program *Promotion of Sustainable Aquaculture in the ASEAN Region* with funding from the Government of Japan Trust Fund. Thus, in 2006, AQD will implement three FCG programs in all — the other two begun last year are *Development of Fish Diseases Surveillance System* and *R&D on Stock Enhancement for Threatened Species of International Concern*.

Under the new FCG program, ten projects will be implemented from May to December 2006:

- Genetic improvement of *Macrobrachium rosenbergii* (ongoing collaborative project of Thailand, Indonesia, and the Philippines)
- Genetic characterization of *M. rosenbergii* in the other ASEAN countries
- Translation of AQD's Aquaculture Extension Manual 36: *Tilapia Farming in Cages and Ponds* into Bahasa Indonesia, Burmese, and Filipino
- Economic analysis of grouper seed production in Indonesia
- Translation of Vietnamese manual on Mud Crab Culture into English (to be translated later into the major languages in the region)
- Training at AQD on seed production and grow-out of abalone for representatives from ASEAN countries
- Training at AQD on hatchery and nursery of marine fishes for representatives from ASEAN countries (ongoing)
- Technical assistance for rabbitfish hatchery in Vietnam and Myanmar
- Genetic characterization of *Penaeus monodon* broodstock
- Information exchange on the status of *Penaeus monodon* broodstock development in the region and on the impacts of the introduction of *P. vannamei* in the region

The GOJ-Trust Fund Program Co-Manager for AQD, Dr. Koichi Okuzawa, is the approving authority for all transactions related to the FCG programs at AQD.



Training course in marine fish hatchery and nursery, 3 May –15 June 2006