

SEAFDEC AQD Matters

In-house newsletter of the SEAFDEC Aquaculture Department, Tigbauan, Iloilo

RTC-A in Bangkok: Where is AQD heading?

Our recommendation for R&D in 2011-2020 would be a back-to-basics approach by shifting more focus to integrated polyculture systems and rural aquaculture, to small-holder food production systems,” summed up AQD Chief Dr. Joebert Toledo during the *Regional technical consultation for sustainable aquaculture (RTC-A) development of Southeast Asia towards 2020*. “This is in response to the needs of the SEAFDEC member-countries.”

RTC-A was part of a series of consultations done by SEAFDEC as a center-wide activity and was held in Bangkok, Thailand from 17-19 March. AQD’s three other sister departments will also hold theirs to input into the direction-setting *2011 ASEAN-SEAFDEC millennium conference*.

RTC-A first assessed the progress of SEAFDEC member-countries and AQD in six thematic areas, to wit: good quality seeds, environment-friendly aquaculture, getting out of the fish meal trap, healthy and wholesome aquaculture, biotechnology and rural aquaculture. These were the thematic areas first identified nine years ago, during the *2001 ASEAN-SEAFDEC millennium conference*.

“I am very much impressed by the work of AQD in the past nine years,” noted SEAFDEC Secretary-General Dr. Chumnarn Pongsri who

chaired the country assessment session. He rated the progress of the member-countries in the thematic areas as 2-3 (out of five), while accepting AQD’s self-assessment or scorecard of 3-4.

After the country presentations which included Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, Singapore, Thailand and Vietnam, RTC-A discussed the progress and plans of action along four thematic areas (compressed from the original six). For theme 1 (on meeting social and economic challenges), the RTC-A assessment was that



AQD Chief Dr. JD Toledo and SEAFDEC Secretary-General Dr. Chumnarn Pongsri (above); the hall in session (right); and the RTC-A participants (below)
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Dr. Atsushi Ishimatsu of Nagasaki University and AQD Deputy Chief Dr. Teruo Azuma; Dr. Sena de Silva of NACA who chaired the session on social and economic challenges



Dr. Mike Rimmer of James Cook University; Dr. Clarissa Marte of the Philippines who chaired the session on good quality seeds; Dr. Felix Ayson of FAO



Dr. Peter Edwards and Dr. Wenresti Gallardo of the Asian Institute of Technology; Dr. Miao Weimin of FAO/RAP who chaired the healthy and wholesome aquaculture session



AQD's TID head Mr. RF Agbayani; TVDD in charge Dr. MRR Eguia who presented the thematic area on good quality seeds; and RD Head Dr. EG de Jesus-Ayson



Dr. Tim Flegel of Mahidol University; Dr. Celia Pitogo of AQD who presented the thematic area on wholesome and healthy aquaculture; and Dr. Mali Boonyaratpalin of Thailand's Department of Fisheries

the issues are very complex and unique to each country. But overall, aquaculture still plays an important part in national government plans for food security and poverty alleviation, rural development being a strong focus of all the countries. For this area, RTC-A recommended (1) a careful assessment of the contribution and impact of aquaculture in addressing poverty, food security and livelihood; and (2) multi-agency collaboration between and among SEAFDEC and its member-countries, and other regional organizations such as NACA, FAO-RAP, MRC, the WorldFish Centre (all sent representatives to RTC-A) and other interested stakeholders.

For theme 2 (on better seeds for sustainable aquatic food production), RTC-A noted that seedstock availability is still a problem and that there are now socioeconomic and legal issues associated with genetic improvement. In general, the recommendation was better public/private sector partnerships so that small-scale farmers can seek assistance for capacity building in broodstock and hatchery management.

For theme 3 (wholesome and healthy aquaculture), RTC-A was concerned about the emergence of zoonotic diseases, lack of fish health professionals, current disease diagnostic procedures favoring the intensive and large-scale operators, non-production of fish meal substitutes in commercial scale despite experimental successes, and overdevelopment of aquaculture areas that has led to fish kills. The recommendations included promotion of organic farming, certification and quarantine, cost-effective training,

government investment in domestication to produce SPF stock, better enforcement of zoning policies, and promoting on-farm feed production.

For theme 4 (on protecting the environment and climate change), RTC-A took note that, among others, there is still excessive use of antibiotics, chemicals, feeds and fertilizers which has led to eutrophication. The recommendation was basically good management practices, and new research on integrated and multi-trophic aquaculture. For climate change, the meeting discussed some impacts to aquaculture like temperature, acidification, drought/flooding (which would necessitate finding new species for culture that are adaptable to changes or developing entirely new culture systems), sea level rise (investment in habitat protection), and greenhouse gas emission (new research on seaweed/algae as biofuel). There was also a recommendation to draw new maps of sites that are not suitable for aquaculture as these are highly vulnerable to climate change.

“The impact of climate change on aquatic animals is pretty serious because any ‘malfunction’ happening within them is proceeding without showing clear symptoms to us, probably until the sudden corruption of animal life and/or ecosystem; just like a boxer suffering from body blows,” AQD Deputy Chief Dr. Teruo Azuma said in his closing remarks. He also commended the 55 participants for having an earnest and fruitful discussion.

The RTC-A organizing committee is jointly chaired by Ms. Belen Acosta and Dr. Relicardo Coloso.

GOJ-TF has new set of projects

With 2009 being the final year for GOJ-Trust Fund IV, a new set of projects will be implemented for 2010-2014 under the ASEAN-SEAFDEC Strategic Partnership (ASSP) and Fisheries Consultative Group (FCG) programs funded by GOJ Trust Fund.

AQD Deputy Chief and GOJ-TF manager Dr. Teruo Azuma noted that the four new projects are (1) resource enhancement of internationally threatened and overexploited species in Southeast Asia through

stock release; (2) accelerating information dissemination and capacity building in fish health management in Southeast Asia; (3) promotion of sustainable and region-oriented aquaculture practices; and (4) food safety of aquaculture products in Southeast Asia.

For resource enhancement, the focus will be on improving hatchery and nursery technologies for internationally threatened and overexploited species so that there will be quality seedstock to release in selected areas.

For fish health, the focus will be rural communities or small-scale farms so on-farm health management will be developed.

For sustainable aquaculture, studies will focus more on selective breeding as this is a key factor in producing commodities with faster growth, better reproductive performance and higher disease resistance.

For food safety, AQD will work with its sister department in Singapore, the MFRD, to conduct studies on antibiotics and chemicals to ensure safe aquaculture products.

New mariculture park locator

Mr. Zaldy Nava of Brgy. Igang in Nueva Valencia, Guimaras is the newest locator in AQD's mariculture park in Igang. While the existing locators are into grow-out culture,

Mr. Nava will be the first to build and operate a fish hatchery.

In the two-year agreement, signed on February 10 at AQD's Tigbauan Main Station, AQD will provide an area of about 1,000 sq m; give Mr. Nava priority access in the purchase of fish larvae

for his hatchery's stocking requirement; and provide full technical assistance on good husbandry practices. The hatchery will also demonstrate AQD's marine fish seed production technology.

Mr. Nava, on the other hand, will pay AQD a monthly rent of Php 4,000; provide his own inputs and staff to feed and monitor his stock; and maintain the rented area in good condition.



(Seated L-R) Acting TVDD head Dr. Ma. Rowena Eguia, Ms. Ruth Eliza Nava, Mr. Nava, and AQD Chief Dr. JD Toledo. Standing is IMS head Mr. Albert Gaitan

Partnerships discussed

AQD's Training & Information Division Head Mr. Renato Agbayani hosted two meetings to explore partnerships in aquaculture.

On February 4, Mr. Rey Ambao of Taytay sa Kauswagan Inc. (TSKI) presented to Petron Foundation and AQD staff a proposal on community and enterprise development program for Guimaras fisherfolk involved in the milkfish cage project. This would include (1) institutional strengthening, (2) market research through value

chain analysis, (3) enterprise development and management, and (4) marketing support.

Ms. Marilou Erni, executive director of Petron Foundation, and Mr. Agbayani agreed that this should be a tripartite partnership among Petron, AQD and TSKI, the details of the agreement to be worked out in the near future.

On February 9, a delegation from Surigao del Norte expressed their need for technical assistance which Mr. Agbayani then offered under the umbrella

of ICD-SA, AQD's banner project on *Institutional capacity development for sustainable aquaculture* for LGU stakeholders. Present at the meeting were Mr. Jaime Puracan, research director of Surigao State College of Technology; Mr. Nilo Gomez, Mr. Antonio Peral, and Mr. Joseph of LGU Surigao.

Mr. Agbayani noted that a site assessment needs to be done first to determine the aquaculture intervention, after which a partnership agreement will be drafted.

Six trainees complete pond/cage culture course

I am really happy,” says Mr. Pelson Moses of the Federated States of Micronesia upon completing the March 8-25 training course on *Cage/pond culture of selected aquaculture species*. He was happy because of the knowledge imparted by the AQD mentors and the skills gained by him and his five co-trainees from the Philippines, China, and the Kingdom of Saudi Arabia.

The course included extensive lectures and practical sessions on biology and ecology of marine fish and crustaceans, feed processing, health management, value-addition business planning, pond preparation, cage design and construction. Aside from

the lectures, the trainees visited Igang Marine Station and UP Visayas. They stayed most of the time at the Dumangas Brackishwater Station.

On the other hand, Mr. Nasruddin Ali Alameen, the trainee from Saudi Arabia, noted that the “Philippines should be called the ‘father of shrimp aquaculture’ in my

country”. In his company alone, 75% of the hundreds of employees are Filipinos, of which 90% passed through or were trained by AQD. He intends to send more people from his company to be trained here.

AQD Chief Dr. JD Toledo and TVDD in-charge Dr. MR Eguia were present at the closing ceremony on March 25 at the TID Conference Room.



The ASU veterinary students with their AQD fish health mentors (above, right)

AQD welcomes student vets and interns

Twelve 6th year students from the School of Veterinary Medicine of Aklan State University (ASU) underwent a *Hands-on training in fish diseases* last February 8-19.

The clinical internship was conducted by AQD’s Fish Health Section headed by Dr. Celia Pitogo. Training topics included bacterial, viral, parasitic and fungal diseases. There were hands-on and demonstrations on sterilization and autoclaving, PCR methods, slide preparation, larval monitoring, fungal isolation and bacterial media preparation; and video showing on fish vaccination methods and animal welfare.

The students were able to discuss disease prevention and observe different laboratory procedures in disease diagnosis.

The vet students were evaluated based on their performance as clinical experience is part of their requirements to obtain the degree of Doctor of Veterinary Medicine.

Two more trainees on fish health

Ms. Fong Yin Shan and Mr. Pun Sin Fat attended a specialized training course on *Detection of viral diseases of fish and crustaceans* last February 22-26. Both are from Hong Kong SAR, working as fisheries technical officer and laboratory technician, respectively.

Intern on socioeconomics

Mr. Antoine Fry is a 23-year old French national learning about socioeconomics and the role of aquaculture in communities. He arrived February 22

Hong Kong SAR’s Ms. Fong and Mr. Pun



Mr. Fry of France

and will be at AQD until August. He is here as part of his political science thesis at the Institute of Political Science of Grenoble (St. Martin d’Heres, southern France).

Papua New Guinea guests

Even the scorching heat of the sun and humid weather did not dampen the enthusiasm of visitors who came to AQD's Tigbauan Main Station on February 26.

The seven guests were members of the board of directors of Papua New Guinea's National Fisheries Authority, and included Mr. Tau Vali (chair), Mr. Bede

Tomorita, Mr. Michael Wau, Mr. Paul Nivori, Mr. Kawoi Songoro, Mr. Paul Martin and Mr. Jerome Tioti. They were accompanied by Mr. Dale Sacay of Frabelle Fishing Corporation (Manila).

They first met with AQD Chief Dr. JD Toledo with whom they discussed possible collaborative



activities involving tilapia, catfish, sandfish and abalone. Afterwards, they toured AQD's hatcheries and laboratories.

Bountiful harvests from science-based technologies

AQD employees were able to partake of bountiful harvests from its two stations.

On February 10, Igang Marine Station harvested more than two tons of milkfish from the 10 x 10 x 6 m floating cages under the care of the Petron / Citi-funded mariculture livelihood project for oil spill affected

communities. About 925 kg were sold to AQD staff and 1.9 tons were traded at the Iloilo fishing port.

Another harvest was made on February 18 with AQD employees paying for 200 kg of milkfish while the remaining 800 kg were traded. Present at this harvest were TID head Mr. RF Agbayani and senior technical assistant Ms. Dianne Hope Tormon;

Mr. Alan Victorino of Petron Foundation; and Ms. Iris Gulanes and Mr. Rey Ambao of Taytay sa Kauswagan Inc.

On February 17, AQD's Dumangas Brackishwater Station was the one which harvested 63 kg of siganid from a 0.83 ha pond and sold the fish at Php 150 per kg. Mr. Eliseo Coniza, siganid project leader, hopes that there will be mass production of siganids in the coming years.



Siganid harvest at AQD's Dumangas Brackishwater Station

AQD co-sponsors shrimp congress

Addressing the issue of diseases was the main focus of the 7th Philippine shrimp congress held March 17-19 at the Planta Hotel, Bacolod City. The congress was organized by PHILSHRIMP in cooperation with AQD, DA-BFAR and DOST. Senator Edgardo Angara graced the event.

Foreign and local experts who spoke during the congress have agreed that, to improve the quality of indigenous shrimp species, breeding programs must be supported to come up with highly disease-resistant seedstock. Upgrading of laboratory facilities used in screening emerging viruses and microbes can also help prevent the spread of diseases



because of early detection. For growers, it would help if organic farming methods are developed.

AQD Scientist Dr. Emilia Quintio discussed updates of AQD's research on crustaceans. Also present were Dr. Gilda Lio-Po, Dr. Mae Catacutan, Dr. Leobert dela

Peña, Mr. Gerry Jamerlan and Mr. Hanani Torilla. Moreover, some of AQD staff served on the congress secretariat.

AQD put up a booth where publications were sold (a total of P 44,000) and posters highlighting AQD researches and activities were displayed.

Gatherings and expert meetings

(1) world aquaculture

Six AQD researchers participated in the *World aquaculture conference 2010* held March 1-5 in San Diego, California. The said conference was organized by the World Aquaculture Society, among others.

The papers presented by AQD include:

- “Review of shellfish R&D at SEAFDEC/AQD” by AQD Chief Dr. JD Toledo
- “Influence of net mesh size on the performance of the giant freshwater

- prawn *Macrobrachium rosenbergii* cultured in lake-based cages” by scientist Dr. Ma. Lourdes Aralar
- “Effect of different feeding management schemes on the aquaculture production of Nile tilapia *Oreochromis niloticus* in Lake Bato, Camarines Sur, Philippines” also by Dr. Aralar
- “Protective immunity against viral nervous necrosis in brown-marbled grouper *Epinephelus fuscoguttatus* following vaccination with an inactivated betanodavirus” by Dr. Rolando Pakingking

Also present in the conference were RD Head Dr. Evelyn Grace de Jesus-Ayson, scientist Dr. Relicardo Coloso, and BFS Head Engr. Emiliano Aralar.

Prior to attending WAS, Dr. Coloso presented a paper on “Soy diet research for milkfish” during the *Global soy in aquaculture planning meeting* that was organized by the U.S. Soybean Export Council and the American Soybean Association International Marketing. The meeting was held February 27-28 at the same WAS venue. His trip was funded by the United Soybean Board.

(2) aquafeeds

Dr. Mae Catacutan, AQD’s Nutrition and Feed Development Section head, attended the *9th Practical course on aquaculture feed extrusion, nutrition and feed formulation* that was held January 25-26 at Ho Chi Minh City, Vietnam.

Almost 100 participants came, mostly from Thailand. They listened to 30 topics that focused on feed ingredients, feed formulation, feed manufacturing technology, aquatic feed extrusion, plant design and quality assurance.

Dr. Catacutan said that the extrusion process and using

the lowest amount of fish meal in the formulation are the common trends in aquafeeds. She also noted that one of the speakers from Europe had cited two papers by AQD, and that the meeting gave her an assessment on how far AQD has gone in its aquafeed formulation and manufacture for research.

Also brought up in the meeting were modern equipment designs that could grind ingredients into fine particles (micro aquatic feed) and a computer program for feed formulation.



(3) climate change

Dr. Maria Rowena Eguia took part in the *Consultative meeting on the feasibility of establishing the Asia Regional Centre (ARC) for excellence on climate change and development*. The meeting was held in Makati City on January 26.

Dr. Eguia presented the on-going initiatives by AQD to address the climate change issue as it affects fisheries and aquaculture.

She emphasized that despite the absence of a definite program, some AQD researchers are already

conducting studies on how environmental parameters such as extreme temperature and salinity changes affect the aquatic behavior, growth and reproduction of some economically important commodities.

Most of the participants were specifically interested in how AQD or SEAFDEC in general pursue their regional mandates.

Part of the meeting is to determine the agencies that can be involved when the ARC is established. SEAFDEC might have a fair chance of inclusion into the ARC as it has well-established links with its 11 member countries.

This feasibility assessment meeting is part of a meeting series to be held in other Asian countries.

Meanwhile, AQD's visiting scientist Mr. Nelson Golez was invited as one of the resource speakers for the *National conference on El Niño and climate change* held at the Central Philippine

University, Iloilo City last February 22-23.

Mr. Golez talked about adaptable mitigation measures for efficient water utilization in the fisheries sector when challenged by El Niño and climate change phenomenon. Other speakers presented alternative mitigation measures. The output of the conference was a plan of action.

(4) coral triangle

AQD Chief Dr. Joebert Toledo attended the *Business summit* of the Coral Triangle Initiative (CTI) held January 19-20 in Makati City.

This was organized by the World Wildlife Fund in collaboration with DA and DENR with the aim of stimulating investment by public and private partnerships

and securing sustainability and profitability of key sectors dependent on healthy marine resources in the coral triangle.

Gracing the event were President Gloria Macapagal-Arroyo, DENR Secretary Eleazar Quinto and CTI Chair Mr. Vincent Perez.

The first day was spent on plenary and panel sessions

which focused on the issues and risks that the Coral Triangle faces and sustainable business solutions that could help conserve the Coral Triangle region.

On the second day, discussion groups were convened for participants to agree on programs they can jointly take on.

(5) research evaluation

Dr. MR Eguia represented AQD to the DOST-organized *Workshop on research performance evaluation and support* held in Pasay City on January 25.

The workshop started with the lecture of Dr. Jaime Montoya, president of NRCP-DOST, as he described the current state of Philippine science. He compared the poor performance of Philippine scientists with other Asian scientists based on the number of scientific journal publications.

This was followed by a presentation of Dr. Gil Jacinto about the use of impact factors

and H-index for performance evaluation. He explained that by using H-index, performance of researchers can be assessed through the number of well-cited publications in relation to the total number of publications he or she has.

Other presenters were Dr. Eljun Senaha and Dr. Simon Ellis who talked about the alternative university appraisal system and UNESCO's higher education statistics that concentrates on outcome measurement.

On the other hand, Dr. Peter Haddawy erroneously divided the publication output of AQD into two in his

presentation, as he assumed that SEAFDEC Philippines is different from an agency referred to in *Scopus* (a commercial science citation database) as SEAFDEC/AQD. In his presentation, IRRI was ranked as the institute with the most number of publications followed by two UP units, then SEAFDEC Philippines and SEAFDEC/AQD.

Dr. Eguia suggested that the AQD management must come out with guidelines or memo on standardizing the affiliation address of staff especially when it is used in scientific publications.

(6) anniversary of PCAMRD

AQD was invited to the 22nd founding anniversary of PCAMRD on January 29 in Los Baños, Laguna and to PCAMRD’s joint Governing Council and the Technical Review Assessment Committee (GC/TRAC) meeting. The latter was presided over by DOST Secretary Estrella Alabastro and included the evaluation of on-going and new project proposals for DOST-PCAMRD funding.

During the evaluation of her proposal, Dr. MR Eguia requested for an endorsement from Sec. Alabastro after it was noted that AQD is a regional agency which does not qualify for DOST funding. To date, after outranking proposals submitted by other Filipino researchers (and their counterpart Japanese scientists) to the Japan Society for the Promotion of Science (JSPS), the AQD proposal on marker-assisted stock enhancement has been approved under a JSPS Joint Research Program grant, with AQD instead of DOST providing counterpart funds. For this three-year collaboration, Dr. Eguia, Dr. JH Ramos and Dr. ET Quintio shall be working with Drs. Ikeda and Kanno and Prof. Kijima of the Tohoku University.



Dr. MLC Aralar receives her certificate of appreciation from (L-R) Mr. Angelito dela Cruz, head of Asian Fisheries Academy; Dr. Westly Rosario, chief of BFAR-NIFTDC; Mr. Angelo Palmones of DZMM/ABS-CBN who is also known as FSA’s “ekspertong guro”; and Atty. Leo Duritan, administrative manager of Santeh Tateh Aqua Feeds

AQD was also tapped by PCAMRD in its Fisheries School on-the-Air (FSA) project. Scientist Dr. ML Aralar served as one of the on-air resource persons to FSA’s two radio programs entitled *Halina kumita sa pag-aalaga ng ulang* and *Ang pag-aalaga ng tilapiang alat o tabsing sa pagbabago ng panahon*. The closing ceremony of the radio programs was held February 5 at Bonoan, Pangasinan.

The objective of FSA is to elevate the knowledge of listeners/enrollees on various aquaculture technologies; promote adoption of the featured technology; and encourage graduate listeners to apply the technology they learned.

Research seminars

February and March were busy months for research seminars at AQD’s Tigbauan Main Station with the following speakers and topics:

Ms. Dianne Hope Tormon of AQD’s Socioeconomics Section and **Mr. Joseph Biñas** of Farming Systems and Ecology Section were the first to give back-to-back seminars on February 4, “echoing” their experiences, respectively, in the training on *Fisheries data collection and analysis* in the Netherlands and during the *10th National symposium of PAMS (Philippine Association of Marine Science)* in Davao City.

Ms. Tormon said the fisheries data course was held November 2-20, 2009 in Wageningen and included topics on (1) ecosystems approach to fisheries management and co-management where

socioeconomic information played a very important role; (2) collection and analysis of catch and effort data sets to support fisheries management; and (3) the role of communication of information between various stakeholders towards effective fisheries measures. The interconnectedness of biological and socioeconomic models in forming decisions is useful in any fisheries management in the world; thus, the lack of any one of these explains why some areas are better off than others.

Mr. Biñas, on the other hand, said that the PAMS biennial scientific gathering was held 22-24 October 2009 and highlighted advances and issues related to the marine ecosystem. He presented there a paper on *Mangrove community structure: a comparison of natural and reverted forests in Batangas*.



Dr. Shinsuke Morioka of JIRCAS presented on February 9 the *Importance of flood-plane small fishes: A case study on fundamental biology of two short-lived species, Brachyogobius mekongensis and Parambassis siamensis*.

L-R: Dr. Morioka, AQD Chief Dr. JD Toledo, Dr. Hanamura and Dr. Satoshi Watanabe

After analyzing growth and maturation patterns and determining life spans, Dr. Morioka reported, among other results, that there is faster growth and maturation during the wet season compared to the dry season.

Dr. Yukio Hanamura tackled on February 9 the *Biological and ecological characteristics of hyperbenthic crustaceans in mangrove estuaries: perspective from studies in Malaysia*. His study involved the *Mesopodopsis*

orientalis and was conducted in the Merbok mangrove estuary, Northwestern Peninsular Malaysia. He noted a close similarity of the life history pattern of *M. orientalis*, an estuarine population, to its coastal population.



Dr. Ma. Lourdes Aralar of AQD's Binangonan Freshwater Station spoke on the *Influence of net mesh size on the performance of the giant freshwater prawn Macrobrachium rosenbergii cultured in lake-based cages* on February 15.

She compared the performance of prawn raised in B-net or hapa-net cages in

Laguna de Bay. Prawn in the latter set-up showed higher weight increase and survival rate probably because the finer mesh size served as substrate for microalgae / natural food.

She also presented another study entitled *Effect of different feeding management schemes on the aquaculture production of Nile tilapia Oreochromis*

niloticus in Lake Bato, Camarines Sur, Philippines. The results obtained suggest that farmers would find the combination of low feeding rates (5% of body weight for the first two months and 2.5% for the remainder of culture) and skip-feeding schedules (every other day, twice a day) as the most profitable.



Dr. Rolando Pakingking Jr. of AQD's Fish Health Section presented on February 25 his study on *Protective immunity against viral nervous necrosis (VNN) in brown-marbled grouper Epinephelus fuscoguttatus following vaccination with an inactivated betanodavirus* last February 25.

He noted that betanodaviruses have been recently implicated in serious mortalities of grouper grow-out culture. In his study, he was able to demonstrate that a single intraperitoneal vaccination of *E. fuscoguttatus* juveniles with a formalin-inactivated Philippine strain of betanodavirus induces strong immune

response and substantial protective immunity. When the vaccinated fish were challenged with betanodavirus at days 15,30 and 75 post vaccination, significantly higher survival rates were obtained in the vaccinated fishes compared to their corresponding controls. The results suggest that small fry need to be vaccinated.



Dr. Celia Pitogo, head of AQD's Fish Health Section, gave two seminars, on February 18 and 23.

In the first seminar, she gave information about the OIE or the Office International des Epizooties, now known as the World Organization for Animal Health. The OIE has a reporting system for notifiable transboundary diseases and is the organization recognized by the WTO to settle trade disputes on fish health issues. She also emphasized that licensed veterinarians are the experts recognized by the OIE though not many of them work on aquatic animal diseases. To complement that need, AQD began offering in 2006 a two-

week course enhancement for vet med students (mainly from Aklan State University) on fish health. In addition, AQD's expertise was recognized through membership in the OIE ad hoc committee on antimicrobial resistance in aquatic animals. For more information on the OIE, visit their website at www.oie.int.

On February 23, she spoke about infectious myonecrosis virus (IMNV), an emerging shrimp disease in Southeast Asia, and PvNV, a newly described nodavirus from white shrimp *Penaeus vannamei*.

Shrimp farmers were invited to the seminar which explained the possible causes of muscle necrosis that they

have observed in pond-grown stocks. Dr. Pitogo said that although juveniles and subadults of *P. vannamei* and other native white shrimps have shown such signs, none of them have tested positive for the viruses. The appearance of muscle necrosis in shrimp is also associated with abrupt changes in temperature and stress. The principal target tissue of IMNV is the striated muscles, and mortalities due to the infection can range 40-70%. She also mentioned some husbandry practices that can be done to prevent IMNV infection such as implementation of biosecurity measures and stocking specific pathogen-free shrimp.



Guests from the private sector listening to seminar presenter Dr. CL Pitogo on February 23 include Hoc Po company and private sector representatives



Dr. Kodama holds up the certificate of appreciation given to him by AQD Deputy Chief Dr. Teruo Azuma

Dr. Masashi Kodama of the National Research Institute of Fisheries Science (Japan) presented on March 9 his study on *Production and decomposition characteristics of particulate organic matter (POM) and its implications for hypoxia in the eutrophicated*

enclosed estuary, a case study of Ariake Bay, Japan.

He showed that the contribution of oxygen consumption of POM, which originated from marine phytoplankton, plays an important role in the formation of hypoxia in Ariake Bay.



Ms. Shelah Mae Buen-Ursua of AQD's Breeding & Seed Production Section presented on March 25 her study on *Temperature and size range for transport of juvenile donkey's ear abalone Haliotis asinina Linne.*

Simulated, out-of-water transport was done for two size ranges of abalone (15-20 mm / 0.5-1.3g and 30-35 mm / 5.3-8.5 g) with temperature brought down by using 5,10

or 20 g of ice per liter of air space. Time of transport tested was from 8 to 10 hours. Results showed that survival is at 100% when 10 g ice is used in both abalone size groups.

New flyers



Seed production of tilapia – contains information on the hatchery and nursery of Nile tilapia (*Oreochromis niloticus*) in netcages

Grow-out production of tilapia - information on the technology profile and grow-out culture of Nile tilapia (*Oreochromis niloticus*) in ponds

Seed production of the Asian catfish – information on technology profile, catfish spawning and larval rearing of the Asian catfish (*Clarias macrocephalus*)

Grow-out production of Asian catfish – contains technology profile, site selection and grow-out culture in ponds of the Asian catfish (*Clarias macrocephalus*)

Hardcopies may be requested from the AQD Bookstore.
E-copies may be downloaded from the AQD website www.seafdec.org.ph/publications.

Brain trust

AQD welcomes its Consultant/Visiting Scientists for the year who are all under the Office of the Research Division Head:

- Prof. **Vicente Balinas** of UP Visayas is AQD's statistical consultant
- Dr. **Gilda Lio-Po** and Dr. **Perla Eusebio** (newly retired from AQD) continue their fish health and fish nutrition studies, respectively
- Ms. **Frances Nieva**les of UPV, and Dr. **Satoshi Watanabe** and Dr. **Jacques Zarate** are working on the biology and culture of sandfish; Ms. Nieva on a GOJ-TF study and the latter two on a JIRCAS project

New staff



Ms. **Dieyna Caber** is a BS Biology graduate from the University of Eastern Philippines in Northern Samar. She assists in the JIRCAS sandfish project. Ms. **Roselle Cabatia**, on the other hand, is a BS Commerce (Management Accounting) graduate from the University of San Agustin, Iloilo City and is assigned as clerk at DBS.

Newlyweds, new mother

Here are AQD's young couples who have decided to settle down and start their own families. Congratulations!



Ms. **Aubrey Labating**, Technical Assistant assigned at Biotech, married Mr. Michael Ray Burlas in a civil ceremony on January 13 in Pototan, Iloilo.



Ms. **Kimberly Caumban**, Administrative Assistant at the Office of the Chief, and Mr. Jeff Bogart Abrogueña said their "I do's" in civil rites on January 29 in Iloilo City.



Mr. **Charlemagne Recente**, Information Assistant assigned at the Seahorse Hatchery, tied the knot with Ms. Joan Monteros last January 19 in Iloilo City.



Ms. **Rossea Hosillos-Ledesma**, Information Assistant at Devcom Section, gave birth to **Bea Angela** last January 31 in Iloilo City.

Great (secret) ages

Mr. **Ruby Salde** and Ms. **Ruby Bombeo** of Training Section and Dr. **Jacques Zarate** of RD (at right L-R) jointly held their birthday brunch on March 16 at the TID Conference Room. Happy birthday!

The oldest of the three celebrants, Mr. Ruby describes himself as "happy and alone, but definitely not lonely." He first joined AQD in the late '70s, and his advice to the young staff is to keep the boss happy by being efficient and hard-working.



Honor roll

Congrats, kids and AQD parents! We have four honor pupils:

Juliana Rose Pagador got the first honor in Grade 5 and her sister **Mary Rose** is third honor in Grade 2 at the Guimbal Central Elementary School's special science classes. Both are children of Sonny and Bhebot Pagador of TID and RD, respectively.

Diether Ticar got the second honor in Grade 3 at the Filipino-American School in Jaro, Iloilo City. He is the son of Romulo Ticar of RD.

Andrea Franco belonged to the Top Ten Scholastic Awardees at Colegio de las Hijas de Jesus' Grade 2 class. She is the daughter of Annie Franco, also of RD.

Entering high school this June is **Athenes Joy Gayares** who graduated from Buyu-an Elementary School. She is the daughter of Jaime Gayares of the janitorial agency.

Entering college are **Mary Dianne Grace Arnaldo** who graduated valedictorian from the Miagao National High School; **Regina Marielle Arnaiz** and **Nadine Opiña**, both from the Philippine Science High School – Western Visayas; and **Tereso Talaman III**, Parara National High School. Respectively, they are the children of Gemma Arnaldo of Nutrition and Feed Development Section, Marget Arnaiz of Feed Tech Biolab, Noel Opiña of TVDD, and Tereso Talaman of Biotech.

The new registered nurses are **Nyssa Acdol**, **Johanna Marie Mallo**, and **Ma. Cristina Pineda**, daughters of Nancy Acdol of TVDD, Rose Mallo of AFD and Edison Pineda of Manila Office, respectively. - MA Tresvalles

Katunggan It Ibajay Mangrove eco-park in Aklan

No need to get muddy or wet as you can now take a stroll on the 800-meter footwalk, or go rafting upstream when the tide is high and picnic among the wildlife. This is what *Katunggan It Ibajay* (KII) Eco-Park offers to its visitors in Aklan. KII in English is “Mangroves of Ibajay”.

This eco-park is managed by two organizations, the Bugtong Bato Fisherfolk Association and the Naisud Mangrove and Aquatic Organization.

The KII eco-park has 27 true mangrove species, where one can find magnificent centuries-old mangrove trees scientifically known as *Avicennia rumphiana* locally known as “apiapi” or “bungalon”. One can also find here the captivating “piag-ao” whose leaves turn into brilliant yellow, orange and red that fall



in late January. The forest is full of birds and other wildlife. Among the latter is the mud lobster, also known as the “engineer of the mangroves”.

Dr. Jurgenne Primavera, AQD’s scientist emerita, initiated a research on mangroves since the discovery of this patch by AQD researchers in 1996.

In 2008, a breakthrough was given to Bugtong Bato mangroves when the construction of the footwalk was funded by the Pew fellowship grant of Dr. Primavera. The following year, a municipal order was passed proclaiming the 44 hectares of mangroves as an eco-park.

Finally on January 19, KII eco-park was inaugurated by Ibajay Mayor Ms. Lourdes Miraflores. During the launching, Dr. Primavera said that this park is only one of the livelihood options that will be given to their partner people’s organizations (PO). There is also a food processing project in collaboration with Aklan State University.

She also expressed that her fondest hope is to see Filipinos, both adults and children, going to the forest and appreciating it. “Finally, on behalf of ZSL and AQD, our deepest thanks to our PO partners and LGU officials.”



PHOTOS BY SRM NOVILLA



Mangrove tidal calendar



This is a 14-page tidal calendar that showcases different mangrove species in the Philippines.

This calendar is conceptualized by Dr. JH Primavera, AQD’s scientist emerita, and AM Torrechilla to increase the awareness of the local communities on the conservation of mangrove and to promote sustainable management of the forest. It is published by the Zoological Society of London.

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