

# SEAFDEC AQD Matters

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

## Guimaras fisherfolk complete milkfish cage culture training

**B**efore the tragic oil spill almost two years ago, they hunted for fish in the sea. Now, they know how to grow the fish themselves.

After completing a *Season-long training course on milkfish cage culture* that ran from October 8 last year, thirty participants from Barangays Igang, Magamay, San Antonio, and Santo Domingo, of Nueva Valencia, Guimaras finally received their certificate of training last May 26 during a closing ceremony.

The participants come from two fisherfolk organizations whose livelihood was affected when an oil tanker sank off the coast of Guimaras last August 2006 spilling hundreds of thousands of liters of bunker fuel to the sea.



Guimaras fisherfolk-trainees gather with Petron and AQD staff for a group picture during the closing ceremony of the Season-long training course on milkfish cage culture

The training course is a collaborative pilot project between AQD, Petron Foundation, Citigroup, and the Province of Guimaras that aims to provide livelihood opportunities in aquaculture and related activities to those affected by the oil spill.

The closing program was attended by Ms. Marilou Erni,

Executive Director of Petron Foundation, who expressed her hopes to see the four barangays have their own mariculture parks within the next few years.

Also present was AQD Chief Dr. Joebert Toledo who stressed the tremendous advantage in production

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## ICD-SA reaches out to Aurora and Mindoro Oriental

**T**he provinces of Mindoro Oriental and Aurora are now officially part of the *Institutional capacity development for sustainable aquaculture (ICD-SA)* program of AQD. This was after the completion of initial assessments and the laying-out of future plans in the respective project sites.

**Left:** Existing ponds near an airport in Aurora recommended for nursery development.



### Aurora

In order to review an existing project to establish a mariculture zone in Casiguran, Aurora, AQD conducted an initial site and socioeconomic assessment last April 17-20 in the municipalities of Casiguran and Baler.

Findings revealed that the development of the Casiguran Mariculture Park (CMP) for the municipalities of Casiguran and Baler will bring "enormous benefits" to stakeholders within and beyond the province of Aurora.

However, in order to realize this, AQD enumerated recommendations to ensure the sustainability and profitability of the project.

One such recommendation is the transfer of the proposed 320-ha site to Brgy. Cozo in order to avoid use-conflicts that may arise from tourism-related activities. Meanwhile, the development of an already existing 1-ha mooring system may be pursued for techno-demonstration purposes.

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**Top:** Trainees posing in front of the milkfish cages.  
**Above:** Trainees, Petron representatives, and other guests observe a harvest.

## Guimaras fisherfolk...

potential that the cages have compared to fishponds.

Indeed, for one cage alone and in a matter of 6 months, the trainees were able to harvest over 9 metric tons of milkfish with an average body weight of 420 grams. The season-long training had the participants handle three cages, each stocked with about 24 thousand fingerlings.

### Future Plans

During his speech, Training and Information Division Head Mr. Renato Agbayani explained that the closing ceremony was just the beginning. One 10m x 10m fish cage unit is planned for construction in Brgy. San Antonio, being the beneficiary barangay farthest from the Igang Marine Station. This will be done after proper site assessment

and community surveys.

Meanwhile, the fisherfolk from the three other barangays can still use the three existing cages from their training.

Mr. Agbayani added that the fisherfolk organizations should lobby with their local government for territorial use rights in order to provide security for their future mariculture parks.

The Philippine Business for Social Progress (PBSP) will also be extending help to the training course graduates through community organizing and enterprise management, Mr. Agbayani revealed.

Thanking AQD and Petron, Mr. Oliver Chavez, Municipal Agriculturist of Nueva Valencia remarked that "Because of their support, we hope that what we have envisioned for Nueva Valencia [to be the] mariculture area for the province of Guimaras will be a fulfillment someday."

## ICD-SA reaches out...

Other recommendations include the construction of fish hatcheries and nurseries along with the rehabilitation of existing facilities, the tapping of local raw agricultural produce for feed development, and skills enhancement trainings.

AQD also recommended the extension of the project plan for 2 to 3 years to ensure the project attains a sustainable status.

The Casiguran Mariculture Park (CMP) was proposed and established beginning 2006 with planned completion in 2010.

AQD's collaborators in the project include BFAR-3; the Provincial Government of Aurora; Office of the Mayor

of Casiguran; Aurora State College of Technology; DENR; Barangays Esteves, Dibet, Dibacong, and Cozo; and the Office of Senator Edgardo Angara.

### Mindoro Oriental

To overcome their problems on diseases, lack of technological know-how, and marketing, SANAMSIM, an organization of fish pond operators in Calapan, Mindoro Occidental sought the help of AQD experts and invited them for a consultation with members in Calapan November last year.

As a result of initial agreements, sampling activities and rapid resources assessment were conducted by the AQD team last March 25 to 28 in coordination with SANAMSIM and the City Aquaculturist of the Calapan City Fisheries

Management Office.

This first step aims to determine the factors causing the observed decrease in production, and give recommendations that will help improve their present farming techniques.

Findings reveal that pond operators lack technological know-how while pond productivity and profitability can be increased through the use of good management practices and more aggressive marketing strategies.

AQD recommended an intensive training course on pond culture for the SANAMSIM operators and technicians, and the conduct of an on-site technological demonstration of aquaculture production systems.



**Above:** One of the ponds owned by a SANAMSIM member in Mindoro Oriental where soil samples were taken.



# 6<sup>th</sup> Philippine Shrimp Congress goes for white

MT CASTAÑOS

**T**hirty-eight grow-out farms and seven accredited hatcheries might not seem a lot, but their very existence signals the Philippines' entry into white shrimp *Litopenaeus vannamei* aquaculture.

Foreign and local experts speaking during the 6<sup>th</sup> Philippine Shrimp Congress held 28-30 May 2008 in Bacolod City have agreed on how to ensure success in white shrimp culture.

This involves the use of specific-pathogen free (SPF) or specific-pathogen resistant (SPR) broodstock and "high-health" fry; the use of best management practices (BMPs) in grow-out farms; the marketing of the right size of shrimp demanded by consumers; and compliance by producers, processors & exporters to regulations on food safety (e.g. HACCP), traceability, environmental and social components (e.g. fair trade).

The road to white shrimp in the Philippines has been long and paved with controversies. Prior to January 2007, the

government banned the importation of *L. vannamei* (it is not native to the country) amidst fears of exotic disease agents that would ride on the white shrimp.

White shrimp culture in other countries is not problem-free. It has been hit by viruses -- i.e., white spot syndrome virus (WSSV), taura syndrome virus, yellowhead virus, gill-associated virus, infectious hypodermal & hematopoietic necrosis virus, and infectious myonecrosis virus -- and bacteria (necrotizing hepatopancreatitis).

But the private sector, through the Fisheries and

Aquaculture Board, lobbied for the lifting of the ban because shrimp farmers found tiger shrimp (*Penaeus monodon*) culture extremely difficult, as they have been forced to live with WSSV among other diseases. Some losses have been devastating.

The Shrimp Congress was organized by PHILSHRIMP Inc. with the support of DA-BFAR, DOST Region VI, AQD, Negros Prawn Producers & Marketing Cooperative Inc, and the World Aquaculture Society.



**Top:** The session hall of the 6th Philippine Shrimp Congress in Bacolod City. About 500 people participated in the event.

**Above:** Guests to the AQD booth leaf through aquaculture books. Over PhP40,000 worth of publications were sold by AQD during the three-day event.



**Left and right:** AQD's Eleanor Tendencia and Dr. Celia Pitogo deliver their lectures on *Environmental factors affecting WSSV infection* and *Status of monitoring and surveillance of pathogens affecting Penaeus monodon, P. vannamei, and other shrimp species* respectively.

## Angara calls for intensified R&D

MT CASTAÑOS

**S**peaking at the Shrimp Congress, Philippine Senator Edgardo J. Angara called for an intensified research and development (R&D) effort to help boost the country's shrimp industry.

"Following the collapse of shrimp farming in the last decade due to the unsustainable practices and diseases, we realize now more than ever the need to beef up efforts at developing technologies and practices that will ensure the sustainability of the industry. I believe that potential problems in the shrimp industry can be prevented and by strengthening our R&D efforts," said Angara, who also chairs Senate Committee on Agriculture and Food.

He added, "Traditional farming methods no longer



suffice. An export-oriented industry such as this requires more technology-intensive practices. Therefore, we must provide massive training and skills development for local shrimp growers and fishers, as well as their children. We will improve farming productivity if we are able to adopt modern technology and produce competent technical manpower."

"If we strengthen research and development in the country, shrimp industry's output and productivity will definitely improve as investment in R&D has the highest economic return of all economic activities," he said.

## FishWorld joins LUMIWAN 2008

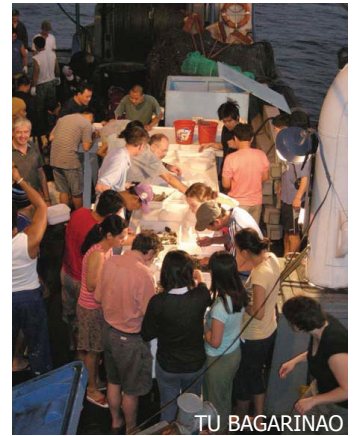
Onboard the research vessel MV DA-BFAR, FishWorld curator Dr. Doris Bagarinao joined other museum scientists from around the world in an expedition to collect deep-sea benthic fauna off Lubang, Mindoro and northern Palawan.

LUMIWAN 2008 left Manila Harbor March 22 and made collections at sea for ten days. The ship occupied 68 sampling stations ranging in depth from 105 m to 2,249 m. Samples were collected by beam trawls, Warren dredges,

and otter trawls.

Dr. Bagarinao was able to collect “lots of specimens of the abundant taxa, a large number of photographs, the good will of the LUMIWAN taxonomists, and the promise of sharing of information on the Philippine collections.”

The collected specimens will become part of the reference collection of FishWorld and will also be used to illustrate a book Dr. Bagarinao will write about the Albatross expedition to the Philippines.



Sorting of the catch onboard MV DA-BFAR sometimes started at dawn or lasted after dark

TU BAGARINAO

## Adolescents learn marine science at FishWorld

TU BAGARINAO

Many of today’s adolescents lead technology-driven lives and often lose sight of nature and society. Thus it is a challenge to offer these young people a different educational fare, and very gratifying when they respond positively.

From 14 April to 9 May 2008, SEAFDEC FishWorld conducted its annual R&D Internship for 14-16 year old students -- 12 incoming juniors from the Philippine Science High School, nine incoming seniors from the University of the Philippines High School, and three from Tigbauan National High School.

The FishWorld internship raises awareness among young Filipinos of the

country’s tremendous marine biodiversity, and of the extensive use we make of it, particularly through fisheries and aquaculture.

The students went on field trips to fishing villages in Santo Niño Sur, Arevalo, Iloilo City and Parara Norte, Tigbauan. They observed fishing operations, especially of the filter nets tangab, and talked to the fishers. They collected, examined, and classified numerous fishes, crustaceans, and mollusks and used dichotomous taxonomic keys and authoritative books to find scientific names for the different species. They also visited the Iloilo Fishing Port, the mangroves in Anhawan and Baguingin, and several

sections of the Sibalom River between Leon and Tigbauan. For one week, they learned about aquaculture of fishes and abalone-- about seed production, natural food and formulated diets, water quality, and fish health management.

In addition to the field and lab work, the interns attended three seminars by AQD scientists and celebrated Earth Day by viewing and discussing An Inconvenient Truth by Al Gore.

They learned to ask questions, five a day each, about the activities and the learnings of the day. They learned about the methods of scientific research: from questioning, critical thinking, library search, proposal-writing, observing, measuring, to reporting and publication in peer-reviewed journals. To finish the internship, they filled out their individual booklets, and the four teams prepared and submitted reviewed research proposals and digital photo essays.

It was a tough 20 days of hands-on training in marine science and 24 high-tech adolescents appreciated the experience. Now, let’s see if any of that sticks with them.

Sunrise finds the students at Atabay fishing village



TU BAGARINAO



## German conducts thesis at BFS

MLC ARALAR

**M**s. Karin Isabela Kühn, conducted her thesis for the degree of Master's in Agricultural Biology at the Binangonan Freshwater Station from February to April 2008.

Ms. Kühn is a student at Hohenheim University, Stuttgart, Germany.

She compared the growth performance and survival of the giant freshwater prawn in cages relying solely on natural food and those fed with commercially formulated feeds.

She also conducted digestibility studies of commercial feeds in prawns

using titanium dioxide as digestibility marker. Her work at BFS was supervised by Dr. Malou Aralar.

Karin took an interest on prawns after Dr. Aralar gave a lecture in their graduate class on the biology and culture of the giant freshwater prawn late last year at the Institute for Animal Production in the Tropics and Subtropics at Hohenheim University.



Karin's supervisor in Germany is Prof. Dr. Klaus Becker and Dr. Ulfert Focken.

Aside from her research, Karin was also able to enjoy the various tourist attractions in the country.

## OJTs and Interns

**F**or the months of May to June, the different stations of AQD was host to 170 students coming from different universities, colleges, and high schools in the Philippines for the on-the-job-training-program.

While most of the trainees were taking up BS Fisheries, there was a mix of other students with majors in chemistry, veterinary science, computer science, information technology, library science, biology, and electrical engineering.

A total of 20 tertiary and 4 secondary institutions were represented by the trainees who spent time in the laboratories, hatcheries, FishWorld, engineering, and library.

Alongside the on-the-job-trainees, 24 individuals participated in the AQD internship program during the months of May to June.

The interns worked hands-on in the different AQD facilities to gain experience and to hone their skills.

The interns came from the provinces of Iloilo, Bohol, Camarines Norte, Misamis Oriental, and Zamboanga.

**Counter-clockwise from below:** Some of the on-the-job-trainees in the library, abalone hatchery, and in their send-off *OJT Night '08*.



C. GENZOLA



# Training Courses this May and June

## Mangrove training - a first in SEAFDEC



In cooperation with Resilience of Coastal Populations and Aquatic Resources (RESCOPAR, Wageningen University), AQD conducted its first *Training course on mangrove ecology, taxonomy and community structure* last April 30 to May 4.

Twenty-five participants from the Philippines, Indonesia, and Vietnam attended the training. Lectures on mangrove biology and ecology, taxonomy, and community structure were conducted in the Tigbauan Main Station while the corresponding field works were conducted in the rich mangrove forest located at Naisud and

Bugtong-bato, Ibajay, Aklan.

Trainees earned firsthand experience in identifying, surveying, and computing for the community structure of the diverse mangrove species found in the Ibajay forest.

Given the significance of mangrove conservation, resource persons Dr. Jurgenne Primavera and Dr. Junemie Lebata-Ramos expressed hopes that a similar training course can be conducted in the near future.

A representative from the Gesellschaft für Technische Zusammenarbeit (GTZ) who was present in the closing program likewise expressed interest



to support the training of staff from different LGUs in the Philippines through future mangrove training courses.

## Seaweed training



Six participants from the Philippines and France attended the *Training course on seaweeds (Kappaphycus) farming* which was conducted from May 5 to 9.

Lecture topics included the status of the seaweed industry; taxonomy and identification; cultivation, disease, crop management, and post-harvest; and business planning & management.

On top of a field trip to the Igang Marine Station and Panobolon seaweed farm in Guimaras, practicals were also conducted

on seaweed identification and carageenan extraction & characterization.

Resource persons included Dr. Anicia Hurtado, Ma. Rovilla Luhan, Hananiah Sollesta, Dianne Yunque, Kenneth Tibubos, Renato Agbayani, and Richelle Bautista.





## Abalone hatchery training



This year's *International training course on abalone hatchery seed production and grow-out* held from May 7 to 27 was attended by nine participants and four observers from the Philippines, Indonesia, Malaysia, Myanmar, and Oman.



Lectures and practicals were conducted in the TMS hatcheries and laboratories while field trips were also made to IMS, a seaweed farm, private abalone hatcheries, and grow-out cages in Concepcion, Iloilo.

The extensive lecture topics covered abalone biology, seed production, grow-out, diatom culture, seaweed culture, economics, and stock enhancement. These were coupled with meticulous practicals from the preparation of hatchery materials, broodstock selection, egg collection, fabrication of rearing cages, transport, feeding, and much more - enough for the trainees to start their very own abalone business.



## Marine fish hatchery training

From May 20 to June 25, AQD conducted the yearly *International training course on marine fish hatchery* which was attended by nine participants from the Philippines, France, Myanmar, Lao PDR, Saudi Arabia, and Vietnam.



The training course covered in detail the hatchery technologies for rabbitfish, milkfish, seabass, and grouper. Of course this also required them to master the art of culturing natural food, feed processing, health management, and even value-addition, economics, marketing

The trainees also travelled to the UPV Miagao and Jamandre hatcheries, the DBS and Hautea integrated farm, and the IMS for enriching field trips.





## Training courses...

### Crab seed training



The *International training course on crab seed production* which ran from June 10 to July 1 was attended by four participants from Myanmar, the Philippines, and United States.

The training covered topics on the mud crab industry, broodstock management, ablation and tagging, hatchery design

and construction, larval rearing, production of natural food, health management, mangrove pen culture, pond preparation, feeding, transport, nursery and grow-out culture, economics,

The participants also had the chance to visit the IMS and DBS.



### BFS conducts special trainings

From April 8 to 25, the Binangonan Freshwater Station conducted a special *Training Course on Freshwater Aquaculture Operations &*



*Management* for a participant who is interested in starting an aquaculture business in his home province of Quezon.

The training provided the participant with experience in propagation of Nile tilapia (*Oreochromis niloticus*), bighead carp (*Aristichthys nobilis*), Asian catfish (*Clarias macrocephalus*) and giant freshwater prawn (*Macrobrachium rosenbergii*).

A second special training

course on *Breeding and culture of selected freshwater aquaculture fishes* was held from April 14 to 25 for a Liberian and an Indian participant.

Topics covered were on hatchery and grow-out of tilapia and catfish, broodstock development and management, hatchery and nursery operations, natural food and artificial feed production, and water quality management.

-from a report by MRR EGUIA

### Training seminar for Rizal inmates



In the hope that backyard aquaculture will help them become self-sufficient, improve their standard of living, and help them veer away from a life of crime to support their

family, the jail administrators of the Rizal Provincial Jail in Taytay, Rizal requested the BFS to conduct a seminar for their inmates.

Thus, a training-seminar entitled *Pagsasanay sa pag-aalaga ng ulang at mga isdang tabang* was conducted last April 2 at the Rizal Provincial Jail. It was attended by 43 inmates.

Freshwater prawn and

catfish farming were tackled in lectures conducted by Mr. Manuel A. Laron, Mr. Ruel V. Eguia presented a lecture on tilapia farming, and Engr. Aralar discussed about integrated fish farming.

The jail plans to set up backyard facilities in their compound where they hope to rear either catfish, tilapia or ornamental freshwater fishes as an in-house livelihood project.



## Help for Frank victims

**A**fter the onslaught of typhoon Frank (international name: Fengshen) last June 21 in Western Visayas, AQD pitched into relief efforts for affected nearby communities.

Through the generosity of employees and the coordination of the Journal Club, AQD was immediately able to come up with boxes of clothing, noodles, canned goods, candles, matches, sugar, and enough cash to buy three sacks of rice.

Last June 25, these goods were turned over to the local government units of Tigbauan and Guimbal for distribution.

**Right:** AQD Chief Dr. Joebert Toledo leads the turn-over of donated goods to the Guimbal LGU

Tigbauan received forty packs of rice and assorted groceries while Guimbal received thirty-four packs. Boxes of donated clothing were also turned over to the two towns.

Some of the donated clothing were also directly given to affected AQD employees and some typhoon victims in Brgy. 2 of Tigbauan.



## Dental services resume

**E**xpect brighter smiles at AQD with the reactivation of the dental clinic at the Tigbauan Main Station.



Regular and fixed-term employees from the Tigbauan, Dumangas, and Igang stations may now avail of dental services free of charge at the dental clinic while similar privileges will be granted to Binangonan and Manila Office employees through arrangements with an accredited dental practitioner.

Among the free dental services offered are an annual check-up examination, dental consultations, emergency dental treatments, oral prophylaxis, permanent

filling (light cure composite resin), temporary filling, tooth extraction, and gum and periodontal treatment

Qualified dependents of employees will also enjoy a dental benefit equivalent to a 50% discount on the prevailing rates based on the Philippine Dental Association Minimum Standard Fees in the City and Province of Iloilo.

For an even brighter smile, visit Dr. Therese Hilomen-Sombito at the dental clinic between 8AM and 12PM, Mondays through Fridays.

## Contributions from AQD employees are always welcome!

Please send text separately from your photos. Devcom also uses these materials to update the AQD website and as SEAFDEC Newsletter articles. Having the original text and photos would give us more flexibility

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# ***Penaeus* and *Chanos* compete in Palaro 2008**

**T**his 2008, the *Chanos* and *Penaeus* teams faced it off in a 2-month-long competition to determine the worthy champion of Palaro 2008.

This year's theme is *Nurturing a healthy lifestyle among AQD staff through exercise and sports.*

Games were held every Friday afternoon from May 16 up to the closing date on July 11.

Clad in their yellow and blue team colors, the *Penaeus* and *Chanos* teams respectively, began the events with a fun walk from the Tigbauan Plaza to the Tigbauan Main Station and an opening program last May 13.

The first sports event was an invitational basketball game on the same date where selected AQD staff competed with the Tigbauan LGU team led by Mayor James Excelsior Torres.

A Family Day was also held on May 31 at the Iloilo Sports Complex. Together with their families, AQD staff

participated in a walkathon around the sports oval and had fun in parlor games. Sports events conducted during family day include track & field events, swimming, and water basketball.

Bowling and billiard games were held at the St. Elizabeth Bowling Alleys in Iloilo City while the rest of the games were held in Tigbauan.

From the looks of it, the *Chanos* team is closing in on the trophy after winning all basketball and volleyball games and most of the events in track & field and swimming. However, the *Penaeus* team is not too far behind having won

all football events and indoor games.

The Palaro 2008 champion will be announced in a culminating activity on July 11. Stay tuned!



**Left:** AQD Chief Dr. Joebert Toledo lights the torch during the Palaro 2008 opening program. **Middle:** The walkathon from Tigbauan Plaza to TMS. **Right:** Employees do calisthenics in a wellness program activity.





Photos by IT TENDENCIA unless indicated otherwise

## ***Penaeus* conquers BFS-MO joint Palaro '08**

**T**eam *Penaeus* is the overall winner in the joint BFS-MO Palaro 2008 scoring 115-110 against team *Chanos*.

AQD employees based in the Manila Office and Binangonan Freshwater Station huddled together to compete for their yearly joint sportsfest.

Basketball, darts, table tennis, dama, and chess were

held at the Binangonan station while the Sta. Lucia East Grand Mall was host to the bowling games. The teams also went on an outing last June 20 to Loreland Resort Farm in Antipolo, Rizal where they had the volleyball games.

The *Chanos* team dominated the basketball and dama games but the *Penaeus* group earned a five point overall advantage by reigning

in bowling, table tennis, and chess. The teams were head-to-head in the rest of the games.

Awarding of prizes will be on July 31 during the celebration of the BFS Anniversary.





## Familiarization tour for AQD employees

**B**raving the stormy weather and towering waves at sea, administrative staff and other Tigbauan-based employees of AQD embarked on a 1-day journey outside the comforts of their offices to gain deeper awareness and understanding of what it is like to be in the other stations.

Organized by the Journal Club, the familiarization tour for AQD employees was held last May 9. The staff were toured around the Dumangas Brackishwater Station and the Igang Marine Station where they observed the different field activities undertaken by their colleagues.

The staff enjoyed and are thankful for the tour since some claim their last visit was already many years ago while others have never even been to the two stations before.

However, some could not stop themselves from asking, “When are we going to Binangonan?”



JE SALAMIDA



## Rizal Provincial Trade Fair

**I**n consonance with the 107th founding anniversary of the Province of Rizal, AQD took part in the Rizal Provincial Trade Fair held in the exhibit hall of SM Taytay from June 12 to 15.

The trade fair was the first of its kind in Rizal that featured the each municipality’s products

(under the OTOP or One-Town-One-Product program), tourism events, LGU-led activities and advocacies, and services provided by local private institutions.

For its part, the BFS showcased the fish production technologies and programs of AQD especially the ABOT AquaNegosyo and the ICD-SA. Other exhibitors from Binangonan promoted fresh &

processed fish products, and bamboo & stonecrafts.

Booth visitors inquired about training programs, investment opportunities in aquaculture, and purchased extension manuals. The Rizal Provincial Office of the Department of Trade and Industry also expressed interest to invite AQD resource persons for their livelihood-training activities in the future.

-from a report by MRR EGUIA



## Research seminars (May & June)

**May 8:** The Centennial of the USS Albatross Expedition to the Philippines, 1907-1910

Speaker: Teodora Bagarinao, SEAFDEC/AQD

**May 14:** Ongoing biotechnology research activities at Universiti Industri Selangor, Malaysia

Speaker: Fatimah Corazon Abdullah, Universiti Industri Selangor, Malaysia

**May 14:** Evaluation of the performance of veterinary services

Speaker: Dr. John Weaver, Food and Agriculture Organization

**May 15:** Prevalence of important viral diseases in wild shrimp, *Penaeus monodon* in the Philippines

Speaker: Dr. Leobert dela Peña, SEAFDEC/AQD

**May 22:** Exposure to multiple stressors increases risk of WSSV outbreak in *Penaeus monodon*

Speaker: Ms. Eleonor Tendencia, SEAFDEC/AQD

**May 27:** Empowered & effective teams: harmony & strength from diversity

Speaker: Mr. Salvador G. Garbanzos, Management Consultant

**June 6:** IGF-II mRNA expression during embryogenesis in grouper *Epinephelus fuscoguttatus*

Speaker: Ms. Josette B. Gonzaga, SEAFDEC/AQD

**June 19:** Integrating fisher interview, log book, and available life history data to reconstruct an IUCN-listed seahorse fishery in the Philippines: a first step toward recovery targets

Speaker: Mr. Kerrie O’Donnell, University of British Columbia Fisheries Centre