

SEAFDEC AQD Matters

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

AQD welcomes new SEAFDEC Secretary General



AQD Chief Dr. JD Toledo (rightmost) tours SEAFDEC Sec-Gen Dr. Chumnarn Pongsri (2nd from right and inset) and SEAFDEC Admin & Finance Coordinator Mr. Somnuk Pornpatimakorn (leftmost)

The new SEAFDEC Secretary-General Dr. Chumnarn Pongsri visited TMS and DBS last October 16-17 to familiarize himself with the programs, facilities, and personnel of the Aquaculture Department.

Dr. Pongsri replaced Dr. Siri Ekmaraj who completed his four-year term as SEAFDEC Secretary General last September 30. Prior to his nomination, Dr. Pongsri served as an Expert in Ecology at the Department of Fisheries (Thailand).

Travelling with Dr. Pongsri was Mr. Somnuk Pornpatimakorn, Administration and Finance coordinator of SEAFDEC.

AQD Chief Dr. JD Toledo toured Dr. Pongsri and Mr. Pornpatimakorn around the facilities of DBS and TMS and introduced them to the study leaders and heads of various offices.

In a speech to AQD staff, Dr. Pongsri shared his views on the sustainable development of aquaculture in the Southeast Asian region and his appreciation for what AQD has achieved during its “very, very long history.”

Dr. Pongsri also stressed that the value and potential of AQD does not lie only in its facilities but more importantly on its human resources.

“The value of the facility itself is high already, but

the value of the human resources here is even higher. With your ability, with your expertise, AQD can have a very strong progress in the future in targetting many new challenges, many new species, a lot of activities, a lot of achievements.”

In closing, Dr. Toledo added that he and Dr. Pongsri “have plenty of work to do,” but they

are also faced with a shortage in funds.

“We will be discussing on how to attract funds by working together, making concept papers, and helping each other in reaching out to various donors,” Dr. Toledo added.

(More details on Dr. Pongsri in the July-September 2009 issue of the SEAFDEC newsletter.)

2009 AFMA Best R&D Paper

A paper by AQD Researcher Ms. MRJ Luhan and Technical Assistant Ms. H Sollesta were awarded by the Bureau of Agricultural Research (BAR) as the AFMA Best Paper (basic research category) during the 21st National Research Symposium last October 9 at the Bureau of Soils and Water Management Building in

Diliman, Quezon City.

Their paper was entitled “Growing the reproductive cells (carpospores) of the seaweed, *Kappaphycus striatum*, in the laboratory until outplanting in the field and maturation to tetrasporophyte”.

Present to award the winners were Mr. Nicomedes Eleazar, BAR Director; Dr. William Padolina, chair of the Agriculture and Food Panel Congressional Commission on Science and Technology and Engineering (COMSTE) and deputy director general for Operations and Support Services of the International

Rice Research Institute (IRRI); and Department of Agriculture (DA) Assistant Secretary for Policy and Planning Mr. Preceles H. Manzo.

In the same event AQD Associate Scientist Dr ND Salayo who co-authored the paper of Dr. Yolanda Garcia (UP Los Baños) won the AFMA Best R&D Paper (socioeconomics category) with their study entitled “The role of infrastructure developments on market price formation of major aquaculture species in the Philippines”.



AA Constantino/RT dela Cruz

Ms. MRJ Luhan receives the award from (L-R) BAR Director Nicomedes Eleazar, IRRRI Operations and Support Services Deputy Director General Dr. William Padolina; and DA Assistant Secretary Preceles Manzo

PTAC held in Manila

B Acosta

The Management Committee of AQD and senior representatives of relevant Philippine Government institutions (Bureau of Fisheries and Aquatic Resources/Department of Agriculture, University

of the Philippines Visayas, Department of Budget and Management, Department of Foreign Affairs, and the Bureau of Agricultural Research) gathered together last October 15 at the Philippine Social Science Center (PSSC) Building, Diliman, Quezon City for the 19th Meeting of the Philippine Technical Administrative Committee (PTAC).

PTAC comprises the high level representatives of relevant Philippine Government agencies and is tasked to provide close coordination between the host government and SEAFDEC with regard to the operation of AQD.

This year's PTAC meeting was convened with the following objectives:

(i) to review the status of accomplishments of AQD in 2009 (R&D programs and administration and finance) and plans for 2010, for endorsement to the SEAFDEC Program Committee; and (ii) to discuss the pressing issues and matters that concern the present and future operations of AQD and its relations with the Philippine Government.

PTAC noted the progress of AQD's R&D activities in 2009 and endorsed its 2010 planned activities, including AQD's proposed budget for 2010-2012. The Committee also noted and approved the Operation and Management Guidelines prepared by AQD for the use of the Laboratory Facilities for Advanced Aquaculture Technologies.



AQD Chief Dr JD Toledo (right) with Dr. Jonathan Dickson (left), Head of BFAR's Capture Fisheries Division, and Dr. Carlos Baylon (middle), Dean of the College of Fisheries and Ocean Sciences, University of the Philippines Visayas, during the PTAC meeting

10th ISEP meets in Thailand

The 10th meeting of the SEAFDEC Information Staff Exchange Program (ISEP) met in Ayutthaya Province, Thailand last October 12 to 14.

AQD's Devcom Section Head Ms. MT Castaños and Information Assistant Mr. RP Guarin represented AQD in the meeting which was also attended by the SEAFDEC Secretary-General, Deputy

Secretary-General, Senior Officials of the SEAFDEC Secretariat and TD, as well as information officers and staff from the other SEAFDEC departments.

Among the items discussed during the meeting is the opportunity for AQD researchers to publish their journal articles in the *Fish for the People* magazine after rewriting them in layman's

language. This is hoped to address the demand for an external newsletter by AQD.

Additionally, the AQD website's home page will be available in the languages of member countries next year with the help of information officers from the other SEAFDEC departments.

Guidelines on the fair-use of SEAFDEC information materials by member and non-member countries will also be drafted to address the concern raised by AQD regarding the unauthorized translation and publication of one of its manuals.

A better system for AQD's online and distance learning courses is also hoped once the Secretariat finds the funding. The new system will have an improved interface and better content, complete with short teaching videos.

The 11th ISEP will be hosted by AQD next year in close coordination with the SEAFDEC secretariat.



Left: Participants in the 10th SEAFDEC Information Staff Exchange Program (ISEP) held in Ayutthaya Province, Thailand. Right: A visit to the School of Communication Arts of the University of Assumption Suvarnabhumi Campus

Salayo presents UNITAR project results in Japan

AQD Associate Scientist Dr. ND Salayo presented the results of the UNITAR-Bannai Small Grants project at the *Training workshop series on sea and human security: "Towards a comprehensive security for seas and oceans: The Hiroshima initiative"* organized by United Nations Institute for Training and Research (UNITAR) and held last Sept 27 to Oct 2 in Hiroshima, Japan.

Dir. Felix Mendoza of the Philippine Department of Environment and Natural Resources (DENR) Region V was with Dr. Salayo to present the results of two UNITAR-funded workshops held earlier this year in Masbate City and Culasi, Antique.

The two workshops aimed to identify environmental, socioeconomic and sociopolitical problems relevant to seas and human security in their locality.

The UNITAR panel commended the practical application of the project activities and its linkage to the integrated coastal management being promoted by the UNITAR.

After presenting the project results, Dr. Salayo and Dir. Mendoza discussed the next steps with UNITAR staff and participated as well in work group discussions, lectures, and study visits.



Participants and lecturers at the sixth session on *Governance Towards a Comprehensive Security for Seas and the Ocean: The Hiroshima Initiative* at Hiroshima last Sept 27 to Oct 02

Visitors from Universiti Teknologi Malaysia

Eleven visitors from Universiti Teknologi Malaysia (UTM) dropped by AQD last October 19-21 to tour the different facilities and explore possible fields for research collaboration.

The group was composed of 2 professors and 9 graduate and undergraduate students from the Faculty of Biosciences and Engineering of UTM led by Assoc. Prof. Dr. Fahrul Zaman Huyop.

On their first day, the visitors were toured by AQD's Dr. RV Pakingking around the different facilities in TMS. They also met with AQD Chief Dr. JD Toledo and RD Head Dr. EG Ayson in the afternoon to discuss possible future research collaborations and the possibility of coming up with an agreement between AQD and UTM.

Upon the invitation of Dr. Ayson, the group held an

informal poster exhibit at the RD lobby the next day which allowed the UTM students to interact with AQD staff.

On their last day of their academic tour, the group visited DBS in the morning and presented three research papers in the afternoon (see page 8).

Dr. Toledo will be giving UTM a return visit on November 3-5 at their campus in Johor, Malaysia.



Left: Visitors from Universiti Teknologi Malaysia with RD Head Dr. EG Ayson, Chief Dr. JD Toledo, and Dr. RV Pakingking. Right: Visitors explain their research work to AQD staff in an informal poster exhibit

HRD training course in Indonesia

AQD Scientist MLC Aralar and Associate Researcher AD Evangelista provided technical support and observed the conduct of the HRD training on catfish culture held in Boyolali Regency, Central Java, Indonesia last October 20-24.

The training is part of the *Human resource development (HRD) on-site training course on rural aquaculture* organized by the Indonesian Department Kelautan dan Perikanan (Ministry of Marine Affairs and Fisheries) under the *HRD on poverty alleviation and food security by fisheries intervention in the ASEAN Region*.

Fifteen trainees attended two HRD

courses which were conducted at that time: *Inland fisheries development* and *Rural aquaculture*. These courses focused on the seed production and grow-out of the Dumbo catfish respectively.

The site for the *Inland fisheries development* training course is the Kampung Benih Lele (Catfish Seed Village), a few kilometers from the Kampung Lele (Catfish Village) where Dr. Aralar and Ms. Evangelista were assigned.

According to Dr. Aralar and Ms. Evangelista, Catfish Village is already well-versed in catfish culture but they still need training on nutrition, feed formulation, and disease management.

The farmers in Catfish Village harvest 8 to 11 tons of catfish daily within an aggregate pond area of 21 hectares. Individual ponds are small (ranging in size from 20 to 60 m²) and achieve an FCR of 0.8 to 1 using commercial feeds with a stocking density of 300 to 500 pcs/m².

On the last day, Ms. Evangelista was requested to deliver a lecture on natural food which was given in plenary with both groups of trainees in attendance. Ms Evangelista's lecture was given in English but translation to Bahasa Indonesia was provided.



Counter-clockwise from left: Participants of the on-site HRD training courses on *Inland fisheries development* and *Rural aquaculture*. Ms. AD Evangelista gives a special lecture on natural food while Mr. Ceno Harimurti translates the lecture to Bahasa Indonesia. Sorting of catfish harvest at Kampung Lele (Catfish Village). Catfish grow-out ponds in the Catfish Village



Negros LGUs train on abalone

Four LGU staff from the Southern Negros Coastal Development Management Council (SNCDMC)

underwent a 12-day *Special training course on abalone hatchery and grow-out* from October 5-16.

While the trainees attended comprehensive lectures on

biology, aquaculture, feeding, and economics, the bulk of the training focused on actual hatchery and grow-out operations both in TMS and IMS. The group also visited a private abalone hatchery in Oton which was established using AQD technology.

SNCDMC is an alliance of three LGUs namely Sipalay City, and the Municipalities of Cauayan and Hinoba-an in Negros Occidental.

The training course is part of SNCDMC's *Livelihood*

diversification program for Southern Negros which involves the establishment of abalone farms in Sipalay City and Hinoba-an as well as seaweed farming and pen culture of mud crabs in mangroves in Cauayan.

More training courses for SNCDMC is in the pipeline with an on-site training course on seaweeds farming slated next month and more in 2010.



Four trainees from Southern Negros LGUs prepare settlement plates for the abalone larvae

Last training modules for Guimaras fisherfolk

Fisherfolk from Brgy. San Antonio in Nueva Valencia, Guimaras attended their last training module on *Fish health management, business planning, financial analysis, and cooperatives development and management* last October 8 to 9 at Roma Beach Resort in the said Barangay.

The module is part of the 2nd phase of the *Season-long training course on milkfish cage culture* which started April this year.

On the first day, a lecture on business planning and management was given by Mr. RF Agbayani while Dr. EC Amar gave a talk and a demonstration on disease diagnosis, prevention, and control.

On the second day, Mr. AG Gaitan lectured on cage operation and maintenance, Ms. DH Tormon on financial analysis, and lastly, Ms. DB Baticados lectured on the development and management of cooperatives.

Brgys. Igang, Magamay, and Sto. Domingo

Meanwhile, the last training module, *Post-harvest and marketing of milkfish*, for Brgys. Igang, Magamay, and Sto. Domingo was held last October 26-27 at the Nueva Valencia National High School.



Clockwise from top-left: A crowd observes a demonstration on milkfish deboning. A participant drains newly-deboned milkfish. Soaking the milkfish in marinade solutions. Trainees from Brgy. Igang proudly pose while drying their products

Eighty-eight participants from the three barangays were treated with lectures which were given by Ms. Rose Mueda, a researcher from the University of the Philippines Visayas (UPV) Institute of Fish Processing Technology (IFPT).

Ms. Mueda also facilitated the practicals with the help of Ms. Rosana Alama and Ms. Nida Momblan, who were laboratory assistants also from IFPT.

Among the topics covered were product development, value added products from aquaculture, product formulation, proper handling and icing, and market potential and marketing strategies. During practical sessions, trainees eagerly observed demonstrations

on milkfish deboning before trying it out themselves.

They also prepared three marinade solutions (*hamonado, lamayo, and adobo*) where they soaked their deboned fish. Their finished products were served for lunch on the second day.

Before closing the training session, the materials used in preparing the marinades were also turned-over to the different fisherfolk organizations from the three barangays in order to jumpstart their fish processing venture.

The training course is part of a collaborative pilot project on *Mariculture livelihood program for Guimaras fisherfolks* between Citi Foundation, Petron Foundation, and AQD which will culminate this year.

Left: Dr. EC Amar demonstrates on the disease diagnosis. Right: Fisherfolk take turns glancing into a microscope



AQD in Agrilink 2009

Taking part in the “most influential trade fair on agriculture, food and aquaculture,” AQD set up its booth to showcase its expertise, technologies, and information materials during the Agrilink/Foodlink/Aqualink 2009 which was held at the World Trade Center Metro Manila in Pasay City last October 8-10.

BFS and MO staff took turns in manning the booth, providing free consultation, and distributing AQD publications to the numerous exhibit guests.

The centerpiece of the Foodlink/Agrilink/Aqualink exhibit were aquaria containing freshwater and marine aquatic species provided by AQD and private aquaculture farms. The

AQD booth on the other hand, had an aquarium containing freshwater prawns and flasks with freshwater algae. A large LCD monitor was used to play various AQD institutional and instructional videos.

With the large number of guests, AQD earned more than 45 thousand pesos in book sales with the manuals on tilapia and abalone hatchery topping the list as bestsellers. Free flyers and institutional reports were also given.

A growing demand was also noted for information materials on milkfish grow-out, grouper, siganids, marine fish hatchery, and feeds & feeding.

Upon the request of Agrilink organizers, Mr. RV Eguia gave a seminar on the business prospects of koi

breeding and farming while Dr. MLC Aralar gave two lectures on freshwater prawn farming and white shrimp farming. Ms.

GH Garcia also served as technical resource person for the Aqualink Special Setting. This year’s Agrilink, Foodlink, and Aqualink revolve around the theme *Sustainable food production: focus on the Filipino market* and was organized by the Foundation for Resource Linkage and Development, Inc.

2nd Pinoy Aquatic Fair

In another fair, AQD was given an award certificate for having the best aquatic technology (private sector) during the 2nd Pinoy Aquatic Fair held last September 18-20 at the AANI Herbal Garden and Livelihood Center in Quezon City.

The fair was a project of the Agri Aqua Network International, Inc. (AANI) in collaboration with DA-BFAR, the private fishing industry, Aquaria Manila, REEF Philippines, Philippine Game Fishing Foundation, Quezon City LGU, and the Quezon Memorial Circle administration.

Left: Centerpiece of the trade fair featuring aquaria with freshwater and marine species provided by AQD and private aquaculture farms. Right: Dr. MLC Arlar giving consultations to guests at the AQD booth



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47th PAEDA Convention

The 47th Biennial Convention of the Philippine Agricultural Economics and Development Association (PAEDA) was held last October 22-23 at the Bureau of Soils and Water Management Convention Hall, in Quezon City.

AQD’s Mr. RF Agbayani, Mr. VC Encena II, and Dr. ND Salayo presented papers in the fisheries and aquaculture sessions.

Mr. Agbayani presented a paper on the “Institutionalization of public-private partnership on dissemination of information in aquaculture: SEAFDEC experience.”

Mr. Encena’s paper was entitled “R&D success and challenges in high-value fish food production to sustain food and livelihoods in the Philippines and SEA region: the case of abalone.”

Lastly, the paper of Dr. Salayo was “Markets, stakeholder paradigm shift and development issues in

small-scale fisheries in the Philippines.”

The theme of this year’s PAEDA convention is “Reshaping Institutions and Accelerating Economic Reforms for a More Competitive Philippine Agriculture in the 21st Century.”

The PAEDA Board of Directors are looking forward to the involvement of AQD in the 48th convention which they hope to hold in the Visayas next year.



Mr. RF Agbayani presenting his paper during the 47th Biennial Convention of the Philippine Agricultural Economics & Development Association

AQD employees pitch in for typhoon victims

Responding to the plight of victims displaced by floods caused by typhoons Ondoy and Pepeng in Luzon, the AQD community immediately pitched in by donating cash and clothes.

In TMS, the Journal Club was able to gather 4 large boxes and 3 sacks of clothing which were turned over to the GMA Foundation last October 6 along with P10,550 in cash.

Residents of Brgy. Pipindan, Binangonan, the host barangay of BFS were also very thankful for two sacks of goods turned over by the station to the Pipindan Parish Mini Pastoral Council which supervised its distribution. BFS has also previously turned over relief goods to Brgy. Captain Hoseas Montevilla.

Other AQD employees based in Luzon also personally

extended help to the typhoon victims which included some of their colleagues.

Back to back typhoons Ondoy and Pepeng, which ravaged the provinces in Luzon late September and early October, caused widespread flooding that displaced more than 6 million people in the Philippines.

Right: BFS Admin Asst. Ms Vivian Jatulan turns-over two sacks of goods to the representatives of the Pipindan Parish Mini Pastoral Council for distribution in their barangay. Far-right: AQD employees sort out donations before turning them over to GMA Foundation



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Microcystis-busting algae found



Khrista Maria Evangelista, a 3rd year high school student of Rizal National Science High School in Binangonan and daughter of BFS Associate Researcher Ms. AD Evangelista, found an algal species that can inhibit the proliferation of *Microcystis* by 50-83%.

Microcystis is an algae that secretes the microcystin toxin which is fatal to fish. It blooms seasonally on certain months in Laguna de Bay.

For this, Khrista garnered first place (Life Science Individual Cluster II) with her research report "The biological control of the bloom-forming cyanobacterium *Microcystis aeruginosa* using *Ankistrodesmus falcatus*: a preliminary study" during the 2009 Division Science Quiz, Fair (Region IV-A, Division of Rizal) last September 18.

Khrista thanks AQD Scientist Dr. GL Po "who's brilliant ideas and suggestions" led to the conceptualization of her study.

Research seminars for October



Dr. Fiona L. Pedroso, Ehime University (Japan)

“Molecular cloning, tissue distribution, and hormonal regulation of IGFBP- 1, -2, -3 and 5 in yellowtail, *Seriola quinqueradiata*”

This study reports the full-length cDNA sequences of yellowtail IGFBP-1, -2, -3 and -5 as well as their tissue distribution and hormonal regulation. Based on their primary sequences, they show a high degree of structural similarity. Their tissue distributions were examined by real-time quantitative RT-PCR. The results revealed that IGFBP-1, -2, -3, and -5 were widely distributed in yellowtail tissues. The role of growth hormone (GH) in regulating hepatic mRNA expression of insulin-like growth factor-I (IGF-I) and IGF binding proteins (IGFBPs) was also determined using in vivo and in vitro assays.



Mr. Azzmer Azzar Abdul Hamid, Universiti Teknologi Malaysia

“Identification of *Pseudomonas* sp. strain S3 using polymerase chain reaction”

The amplified 16S rRNA gene sequence of *Pseudomonas* S3 was compared to nine other selected gene sequences from the same group of *Pseudomonas* species and/or dehalogenase producing bacteria using ‘in silico’ method. Their phylogenetic relationships were then determined. *Pseudomonas* sp. S3 16S rRNA gene was closely related to the *Pseudomonas chlororhaphis* with genetic distance 0.197 base substitution per site. S3 gene was also compared among known dehalogenase producing bacteria 16S rRNA genes. Results suggested that S3 was closely related to the *Pseudomonas* sp. R1 with a genetic distance 0.041 base substitutions per site. The study illustrated evolutionary relationships in a phylogram, showing which microorganisms are most closely related.



Mr. Salehuddin Hamdan, Universiti Teknologi Malaysia

“Effect of Effective Microorganisms on Catfish Aquaculture”

This study was conducted to determine the effect of effective microorganisms (EM) in reducing the earthy taste in catfish (*Ictalurus punctatus*) and aquaculture water quality. Sensory evaluation was carried out to determine the effectiveness of EM in treating the off-flavor in catfish. Result showed that the earthy taste in EM treated catfish decreased after 20 days treated with EM. The average earthy taste score in EM treated fish samples changed from the first to the fifth session from 2.7 to 3.3. Moreover, the acceptability toward the fish also increased due to the reduction of earthy taste in fish tissues from 2.6 (bad) to 3.1 (fair). Application of EM has also decreased the concentration of total ammonia nitrogen (10.5%), unionized ammonia (10.5%) and nitrite (32.5%) respectively.



Dr. Fahrul Huyop, Universiti Teknologi Malaysia

“Use of 3-chloropropionic acid dehalogenase gene as selection marker for *Escherichia coli*”

3-chloropropionic acid (3CP) is a synthetic compound in herbicide whose biodegradability is not well documented. The 3CP dehalogenase gene (deh) isolated from *Rhodococcus* sp. HJ1 could be used as a selection marker gene for vector in *E.coli*. Halogenated compounds, especially 3CP inhibits the growth of some microorganisms. In the study, a 4kb EcoRI fragment of genomic DNA from *Rhodococcus* sp. HJ1 was cloned into pUC18 plasmid and transformed into an *E.coli* JM109 conferred 3CP resistance on them. Therefore, *E.coli* transformed with vector marked with deh could be easily selected on plates containing 3CP. The *E.coli* JM109 transformed with pTY096 (deh+) weakly expressed the deh gene as shown from its slow growth with cells doubling time of 22 hours with minimal amount of chloride ion released in the growth medium.



Ms. Jocelyn A. Madrones-Ladja, SEAFDEC/AQD

“Nursery culture of the Asian seabass *Lates calcarifer* in cages in pond: evaluation of diets for growth, survival, protein efficiency and feed conversion ratios”

This work evaluated two formulated feeds of different crude protein levels (46.2% and 40.4 %) for rearing sea bass from early juveniles to pond grow-out size (~40g). After 45 days of culture, seabass given formulated feeds grew bigger than those fed fish-by-catch. Meanwhile, seabass given the feed with 46.2% crude protein attained the highest average body weight, survival rate, and specific growth rate when compared to those fed fish-by-catch. Both formulated diets showed no difference in protein efficiency ratio, and resulted to low FCR (0.80-1.1). Growth of fish was slow using fish-by-catch resulting to a very high FCR of > 10.