

SEAFDEC AQD Matters

Newsletter of the SEAFDEC Aquaculture Department (AQD), Tigbauan, Iloilo, Philippines

SEAFDEC holds 44th Council Meeting

AQD was commended on its efforts in disseminating its technologies to the ASEAN Member countries; this was expressed by the Council during the SEAFDEC Council meeting held 2-6 April in Nay Pyi Taw, Myanmar.

Among the participants were the Council Directors from the 11 SEAFDEC member countries and officials of the SEAFDEC Secretariat and Departments and international and regional organizations.

The meeting was convened to review the progress and plans of SEAFDEC programs in order to ensure effective implementation of the *2011 Resolution and plan of action*. One important matter tackled was the successful conduct of the *ASEAN-SEAFDEC Conference on sustainable fisheries* held last June 2011 in Bangkok, Thailand. In addition, there was also a discussion on the collaborative activities between SEAFDEC and other regional/international organizations as well as with the non-member governments.

The Council suggested that the following be considered in AQD's future work:

- Continue providing technical assistance to Myanmar on rural aquaculture development; in particular assist the country's activities on broodstock management of Indian carp, rohu, and in the development of mud crab hatchery.
- Increase efforts in fish health management by (1) conducting a study on parasites (e.g. liver flukes) and early mortality syndrome (EMS) of shrimps; (2) intensifying activities on mitigation of shrimp and fish diseases; and (3) monitoring and surveillance of fish diseases among countries in the region.

The next Council meeting will be held in the Philippines sometime in 2013. - **B Acosta**

Deputy Chief appointed as AQD Acting Chief



Although this assignment is temporary, rest assured that I will perform to the best of my ability during this transition period", said Deputy Chief Dr. Teruo Azuma when he received his appointment as the Acting

Chief of AQD on 8 April.

When the term of Dr. Joebert Toledo as AQD Chief ended on 7 April, the SEAFDEC Secretary General Dr. Chumnarn Pongsri designated Dr. Azuma as Acting Chief to ensure that AQD's operation will continue. "(Your) appointment will be effective until the nomination for Chief will be completed and sent to the Council Directors for consideration and approval," Dr. Chumnarn noted.



The participants of the 44th SEAFDEC Council Meeting. Dr. Joebert Toledo, Dr. Teruo Azuma, and Ms. Belen Acosta represent AQD.

AQD welcomes scientists and DA-FPA regulators

AQD and the Outstanding Young Scientist Inc. (OYSI) conducted the 4th OYSI regional symposium and workshop at AQD's main station in Tigbauan, Iloilo from 13 to 14 April. The two-day scientific meeting was an avenue for local stakeholders to exchange information and be updated with the current situation of our coastal resources.



AQD Scientist Dr. Rolando Pakingking shows the DA-FPA regulators the procedure of in vitro cell culture; OYSI participants discussed their plans and programs during the workshop; and AQD Scientist Emerita Dr. Jurgenne Primavera and Scientist Dr. Ma. Junemie Hazel Leбата-Ramos receive their certificate of appreciation as plenary speakers at the 4th OYSI symposium

The workshop was attended by 124 participants composed of various stakeholders from local government units, non-governmental organizations, researchers and students.

During the workshop the participants discussed issues concerning coastal resources such as habitat destruction of coral reefs, mangrove forest, and seagrass and seaweed beds; stock enhancement of over-exploited marine species; low income of coastal communities; impacts of climate change; illegal fishing and coastal erosion, etc. They also suggested solutions to these issues which include establishment of additional marine protected areas; introduction of alternative livelihood for the fisherfolk; and promotion of eco-tourism.

Moreover, AQD hosted the training *Biotechnology 101* for regulators of the Philippine Department of

Agriculture-Fertilizer and Pesticide Authority (DA-FPA). The training was held at AQD's main station in Tigbauan, Iloilo from 30 April to 2 May.

The training was organized to increase the knowledge of FPA regulators in Visayas and Mindanao on agricultural biotechnology including the regulations and R&D initiatives in the Philippines.

The topics discussed were global developments and scenarios in crop biotechnology; program initiatives of DA-Biotech Program Office; food and environmental safety of genetically modified crops; principles and applications of biotechnology tools; and strategies in detecting genetic modification in crops.

AQD scientist Dr. Evelyn Grace Ayson was the official local organizer for OYSI and facilitated the Biotech 101.

Sandfish training concluded

Seven participants from Malaysia (5), England (1), and the Philippines (1) completed AQD's 15-day training on *Sandfish seed production, nursery, and management* on 25 April at AQD's Tigbauan Main Station in Iloilo.

Among the topics covered were biology and ecology of sea cucumbers, in particular the sandfish *Holothuria scabra*; spawning induction & egg collection; larval rearing, nursery systems & grow-out culture of sandfish; water quality; principles on sustainable aquaculture; and impact of climate



Trainees observe the spawning of sandfish (left) and prepare settlement plate for sandfish larvae (right)



change on aquaculture production. The trainees were also given practical sessions on broodstock selection; setting-up of tanks; identification and preparation of larval food; larval rearing; identification of larval stages; broodstock transport preparation; and stocking of broodstock in sea pens.

In behalf of the participants, Ms. Swee Yeap from Malaysia thanked the AQD experts for helping them achieve their objectives to learn the concept of sandfish aquaculture. She also said that this training has broadened her perspective in adapting the techniques she gained.

"Attending this training is a rewarding experience for me. During the course I have the chance to learn from the best researchers of sandfish aquaculture in the Philippines. I would like to thank AQD and hope that AQD will continue to lead the research of sandfish aquaculture."

Mr. Wee Keat Ng
Business Development Executive of Century Marine Products
Malaysia

AQD conducts biodiversity training

AQD, in collaboration with the Department of Environment & Natural Resources (DENR) organized the training on *Biodiversity conservation projects for locally managed protected areas and principles of stock enhancement and habitat rehabilitation*. The 7-day training which started 19 April and was held at AQD's main station in Tigbauan Iloilo. A total of 30 participants from

Clockwise: Trainees make a sampling quadrant, identify the mangrove species and prepare a transect line for measuring the coral reef area



DENR, Bureau of Fisheries & Aquatic Resources, and local government units attended the training.

The training included lectures and demonstration on ecological coastal management; biodiversity conservation & resource enhancement; mangrove & coral reef ecosystems; genetics; and socio-bio economic strategies for resource enhancement. The trainees had their practical on sampling methods for mangrove reforestation; seagrass reforestation & rehabilitation; and coral reef rehabilitation &

transplantation at Nogas Island, Anini-y Antique.

Integrated Coastal Resource Management Specialist Dr. Benjamin Gonzales, in his message during the closing ceremony, said that the course was conducted to enhance the capabilities of the resource managers in implementing Integrated Coastal Resource Management Project (ICRMP) in their region. "I hope that through this training you would be able to effectively implement ICRMP in your respective areas," he added.

"I am so privileged to be a part of this batch. I am happy to share this experience with my superiors at the DENR. I would like to thank the resource speakers for sharing to us their expertise and to AQD management for accommodating us."

Ms. Myrna Erlinda Arbiol
Chief, Coastal Marine Management Division
DENR Region XI, Davao City

PRC inspects AQD library

To ensure that AQD's library services, collections and personnel observe the best practices of a special library, representatives from the Board for Librarians and Professional Regulation Commission (PRC) conducted an ocular inspection on 25 April.

The library staff oriented Ms. Arabella

Ananoria and Ms. Maria Lira Gallego about the library facilities and the institutional repository.

The Board for Librarians and PRC representatives interviewed the staff about the library policies, user statistics, information systems used, future plans, problems encountered, among others.



The library staff orients the representatives of the Board for Librarians and PRC about the library facilities and services

At the end of their visit, they noted that they were impressed with the

services and the networking activities being conducted by the library staff.

Familiarization tour for AQD employees

Enjoying the scorching heat of summer, AQD's fixed term and regular employees hired from 2009 embarked on a 1-day trip on 12 April for a familiarization tour organized by AQD's Human Resource Management Section.

The 20 staff were toured around the Dumangas Brackishwater Station and the Igang Marine Station where they observed the different facilities and activities undertaken by their colleagues.

Most of the staff enjoyed and are thankful for the tour since some of them have never been to the two stations before.



AQD staff take a pose at DBS (top), listen to the orientation by Mr. Eliseo Coniza (above), and visit IMS (left)

Research seminars



Mr. Jomel Baobao of the University of the Philippines Visayas presented on 27 April his study on "Effects of triiodothyronine (T_3) and diet on the growth, survival, metamorphosis

and digestive enzyme activity of snubnose pompano *Trachinotus blochii* larvae".

The results of his experiment showed that T_3 treated larvae fed with three diet types completed its metamorphosis on 25, 27 and 30 days after hatching. Moreover, T_3 treated larvae fed with *Artemia* and combination of *Artemia* and artificial diet had significantly higher survival at 85% compared to groups fed with artificial diet alone with only 35% survival.

He also found out that digestive enzyme activities is higher in T_3 treated larvae fed with diet alone and untreated larvae fed with different diet types.

He concluded that T_3 is appropriate for acceleration of metamorphosis, enhancement of growth and survival in snubnose pompano larvae fed with *Artemia*. On the other hand, the activity pattern of digestive enzymes were related to either effect of hormone treatment and diet types or interactive effect of both factors.



Ms. Yasmin Primavera-Tirol of Aklan State University talked about the "Ultrastructure of the anterior intestinal epithelia of the orange-spotted grouper *Epinephelus coioides*

early development under different feeding regimes" on 27 April.

Her study showed that artificial feed supplementation did not improve the nutritional condition of the 3 days post hatch (dph) larvae. She further explained that there were large lipid droplet sizes in 6 dph larvae both those fed with natural food alone and co-fed with artificial diet, which may indicate a deficiency in dietary phospholipid in early larval stages. She found that lipid droplets were nearly absent in the enterocytes of the 19 dph larvae. While at 33 dph, lipid droplets were abundant in the enterocytes of the larvae, significantly higher in the co-fed treatment.

She also discussed that the accumulation of lipid droplets in the enterocytes of early larvae may aggravate water surface tension-related deaths during swimbladder inflation. She added that bioenergetic demands and nutritional requirements of grouper larvae may intensify at the onset of metamorphosis.

Congrats to the...

new born



JB Jasmin Jusa, second child of Financial Assistant II Mary Jean Jusa and Mr. Robert Jusa, was born on 31 March at Iloilo Doctor's Hospital, Iloilo City

graduates



Mabel and Elizabeth Toledo, daughters of AQD Executive Adviser Dr. Joebert Toledo, graduated respectively with degree in BS Business Management (Marketing), *Cum Laude* at UP Visayas and *Salutatorian* from Santa Maria Catholic School Ateneo de Iloilo High School

newlyweds

Ms. Laila Gabawa,
Financial Assistant II
assigned at Budget and
Cashiering Section, married
Mr. Ernie Galaura on 24
March in Iloilo City



Mr. Norwell Bautista,
Microscopist at Biotech
Laboratory tied the knot
with Ms. Mialo Lacaden on
30 April in Tigbauan, Iloilo

Farewell, Arthur and Recky

The AQD family was in grief over the sudden demise of Mr. Arthur Quidato, Technical Assistant assigned at the Breeding and seed production section, who passed away 6 April due to cardiac arrest. Arthur has been with AQD since 1977 when he joined AQD's Batan sub-station as Fisheries aide.

AQD also extends its deepest sympathy to the family of Mr. Recky Lego, Driver assigned at the Office of the Chief, who died 26 April when he was gunned down by unknown perpetrators. Recky served the former AQD Chief Dr. Joebert Toledo for six years as his driver.



Recky for me was a good and sincere friend. He was a very good companion, thoughtful and a cheerful person. He was always there to help and had open hands to the needy. He was a good father to his children and a dedicated husband to his wife. He was a responsible and hard working provider for his family. He was very committed to his work. His living memories and good doings will remain and reign forever in our hearts.

-Eufredo Dumaran
Dispatcher/Mechanic, Motorpool



Twenty nine years ago in our SEAFDEC Batan sub-station, you were the "muscle man" in the hatchery. I will never forget how you made things easier for me in the preparation of big concrete tanks for our natural food production. When we relocated here in TMS you shared many things with us. Thank you for all your kindness (the errands made, food and knowledge shared). We will miss your company. May your soul rest in peace with the Almighty.

-Milagros dela Pena
Researcher, Larval food laboratory



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Dr. JD Toledo thanks the AQD family



I would like to take this opportunity to express my sincere appreciation to all AQD staff who have contributed in any way to promote the interest of the Department during my three terms as Chief of AQD.

We have regained the trust and confidence of the Government of the Philippines as reflected in the increase of its annual contribution from P100 million in 2005 to P170 million in 2012. With your active participation, our other sources of funds from internal generated income and external grants also more than tripled to about 48 million at the end of 2011. We likewise increased by more than double the number of researchers and the corresponding technical staff by recruiting former AQD scientists and researchers, together with our young and talented new doctorates and technical assistants.

With the restoration of the publications incentive allowance and the implementation of publication requirement for researchers, our publications in ISI-CC covered journals stabilized to more than 20 papers a year. Publications of our extension manuals, flyers and other information materials consequently increased. We have seen consistent improvements in our AQD website, fishworld/museum, and library services (particularly with the launching of SAIR). Aside from the regular training courses funded by GOJ-TF, we continuously attracted paying participants to our special training courses not only from SEAFDEC member countries but from other parts of the world.

AQD researchers are becoming mentors for research studies of high school students who consistently won national awards. We have extended our science-based technologies to various communities such as in Misamis Occidental, Tawi-tawi, Aurora, Dumarao in Capiz, some coastal barangays in Guimaras, among others thru our

Institutional Capacity Development on Sustainable Aquaculture (ICDSA) program. Our experts were deployed to start up aquaculture projects thru our Agree-Build-Operate-Transfer (ABOT) program not only in the Philippines but as far as Timor Leste and Maldives.

We have several external collaborations in the pipeline such as the implementation of Research Institute for Humanity and Nature (RIHN) and Australian Centre for International Agricultural Research (ACIAR) funded projects on stock enhancement. We are also looking forward into the formulation of a collaborative project with RIA 1 in Vietnam and a research institution in Australia for breeding studies on giant grouper with funding support from ACIAR. AQD is continuously supporting Bureau of Fisheries and Aquatic Resources (BFAR) on sustainable aquaculture development particularly on providing technical support in the design, construction and start operations of several DA-BFAR multi-species marine fish hatcheries all over the Philippines. We are also currently implementing a 3-year multi-million projects with University of the Philippines Visayas funded by Department of Science and Technology with the ultimate goal of improving the national production of tiger shrimp and milkfish.

Recognizing the need to adjust the wages of our staff to cope up with the rising cost of living expenses, we implemented twice a 10 percent increase in basic salary over the past 3 years. I have expressed publicly to examine the feasibility of another wage adjustment next year once our request for an increase for 2013 budget will be approved by the Philippine Government. We have kept up with the maintenance and improvement of our ageing infrastructure, vehicles (a new bus), and laboratory equipment. AQD deserves these improvements because of your achievements.

To those who have crossed my path during my personal races and battles, friends or foes alike, thank you very much.



Dr. Joebert Toledo served as the AQD Chief for three consecutive terms. Currently, he is the Executive Adviser of the Acting Chief Dr. Teruo Azuma. (above) Dr. Toledo with his family during the awarding ceremonies for PRC's Most Outstanding Fisheries Professional in 2009



Dr. JD Toledo instituted two extension programs - (1) the Agree-build-operate-transfer (ABOT) for entrepreneurs and (2) the Institutional capacity development for sustainable aquaculture (ICDSA) for communities. (Top, left) Dr. Toledo signs the closure agreement with ABOT clients Ms. Betty Lua and Mr. Fortunato Sanchez and (Top, right) Dr. Toledo with former President Gloria Macapagal Arroyo and Petron Foundation officials who supported AQD's ICDSA project in Guimaras



New facilities built during Dr. Toledo's term included: (1) the sandfish hatchery inaugurated on 28 April 2010 (far left), and (2) the expanded pilot feed mill inaugurated on 22 June 2011.

The sandfish hatchery can now produce as many as 47, 248 sandfish juveniles in a 45 day cycle. With the new extrusion machine and the old pelletizer, the capacity of AQD to mill floating and sinking feeds has been doubled