



50 years. Southeast Asian Fisheries Development Center celebrates 50 years of promoting sustainable development of fisheries in the region [PHOTO BY DEVCOM SECTION / JM DELA CRUZ]

aqd matters

July-August 2017

Newsletter of the SEAFDEC Aquaculture Department, Tigbauan, Iloilo, Philippines

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Piñol: Let's tap SEAFDEC expertise

Philippine Department of Agriculture Secretary Emmanuel “Manny” Piñol expressed support to SEAFDEC/AQD and advised officials of the Bureau of Fisheries and Aquatic Resources (BFAR) to visit the research institution and more closely coordinate with its experts.

Piñol, accompanied by Iloilo Gov. Arthur Defensor and BFAR VI Regional Dir. Remia Aparri, visited SEAFDEC/AQD in Tigbauan last 9 August 2017.

During a meeting with the SEAFDEC/AQD Management Committee, Piñol directed BFAR to make use of SEAFDEC expertise in fisheries and establish “closer coordination.”

“There is a disconnect between research and actual implementation. *Kapag hindi mo na-link yan, useless ang research.* (If you don't link both, the research will be useless),” the agriculture chief said.



PHOTO BY RD DIANALA

(From left) Iloilo Gov. Arthur Defensor, DA Secretary Manny Piñol, SEAFDEC/AQD Acting Chief Dr. Chihaya Nakayasu, and Research Division Head Dr. Evelyn Grace Ayson discuss the previous accomplishments and current activities of SEAFDEC/AQD

Aparri, having been a former trainee of SEAFDEC/AQD, suggested to Piñol that the government make use of SEAFDEC/AQD's regularly-conducted training courses on a range of aquaculture commodities.

“Before I was a trainee here, and *talagang* (indeed) if you were trained in SEAFDEC, after that you are confident *na maka-negosyo ka na* (that you will be able to do the business). You learn really about the business,” Aparri said.

Piñol further affirmed his support of SEAFDEC's research thrusts, expressing his belief

in research and development in the field of aquaculture. He likewise encouraged the SEAFDEC/AQD Management to coordinate with his office for funding needs.

“The name of the game now is fish farming because our fishing grounds are no longer absolutely fresh. Whatever support [SEAFDEC] may need or may require, you coordinate with us. We might have a few million hidden under the pillow somewhere. I believe in research. I'm a firm believer of research and development,” he said. **a**

- RD DIANALA



SEAFDEC/AQD, BFAR highlight alliance in aquaculture dev't

The partnership between SEAFDEC/AQD and the Philippine Bureau of Fisheries and Aquatic Resources (BFAR) was highlighted during the 44th Anniversary Program of SEAFDEC/AQD held last 7 July 2017 at its Multi-Purpose Hall in Tigbauan, Iloilo, Philippines.

“SEAFDEC/AQD is our most important ally in developing the aquaculture industry further,” remarked BFAR national director Eduardo Gongona in his keynote message delivered by BFAR 6 regional director Remia Aparri.

Gongona acknowledged the work done by SEAFDEC/AQD for the past 44 years in terms of research, technology generation, and trainings which benefitted their common stakeholders.

“You have become our ever-ready partner in updating the technical skills and knowledge of our aquaculturists, who in turn helped in empowering our fish farmers,” Gongona said.

“You have done the government so much favor whenever you contribute ideas for the formulation of new policy guidelines for fisheries,” Gongona added, referring to SEAFDEC’s contributions to the Food and Agriculture Code of Conduct for Responsible Fisheries and the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from Illegal, Unreported, and Unregulated Fishing Activities into the Supply Chain.

“Now that the aquaculture industry is expanding, we anticipate greater partnership with SEAFDEC/AQD specifically on combating emerging diseases, adapting to climate change, and making the aquaculture industry more resilient,” Gongona concluded.

SEAFDEC/AQD acting chief Dr. Chihaya Nakayasu echoed Gongona in his message. “SEAFDEC/AQD has always been a proud partner of BFAR in advancing aquaculture development in the Philippines. I believe much more can be done to develop aquaculture, especially in empowering rural fisherfolk who consistently rank as the poorest of the poor in the Philippines,” he said.

Nakayasu enumerated new technologies developed by SEAFDEC/AQD such as the production of Class A single oysters that are bigger and meatier, as well as a seaweed strain currently being tested that grows faster and is more resistant to diseases.

“We have also stepped up our efforts to promote and disseminate our developed technologies,” Nakayasu said, referring to the efforts of AQD

in training, extension, and publications.

Nakayasu also said that AQD continuously caters to institutions and individuals who wish to learn AQD’s science-based technologies and in the span of 44 years, AQD already produced more than 11,000 training alumni. In the past 30 years alone, over 429 trainees were BFAR personnel and extension workers which illustrate the significance of SEAFDEC/AQD’s partnership with the bureau.

Other partnerships made by the Department were also mentioned by Nakayasu, including the mud crab and soft-shell crab technologies which were recently adopted by both private and public sectors.

He also commended the Department’s efforts in being responsive to the technological needs of Southeast Asian aquaculture. He mentioned the number of aquaculture workshops including the recent international consultative meeting that addressed the need for alternative protein sources for aquafeeds.

“As we strengthen our ties with our partners and strive to be more responsive



Dr. Nakayasu gives his State-of-AQD address and Dir. Aparri delivers the keynote address of Dir. Gongona

to the industry, we will continue to make discoveries and innovations for truly competitive and sustainable aquaculture,” Nakayasu ended.

The anniversary program was also graced by SEAFDEC deputy secretary general Dr. Kaoru Ishii who expressed his wish for AQD to continue addressing the issue of food security in the region.

The program also honored retirees and staff who served AQD for many years as well as research staff who were given awards in various external symposia. [a](#)

- JM DE LA CRUZ / RD DIANALA



SEAFDEC/AQD staff attend the 44th Anniversary Program at SEAFDEC/AQD’s Multi-Purpose Hall

PHOTOS ON THIS PAGE ARE BY DEVCOM SECTION

Use of recirculation system for tilapia hatchery

Former SEAFDEC/AQD Chief, Dr. Rolando Platon, returned to SEAFDEC/AQD as the 25th Dean Domiciano K. Villaluz (DKV) Memorial Lecture speaker as he shared his experience in tilapia hatchery operation using a recirculation system.

Dr. Platon presented his techniques in producing sex-reversed tilapia fingerlings in tanks using a recirculation system. This system operates by pumping water from spawning and rearing modules to dedicated tanks for sedimentation and biofiltration to maintain water quality.

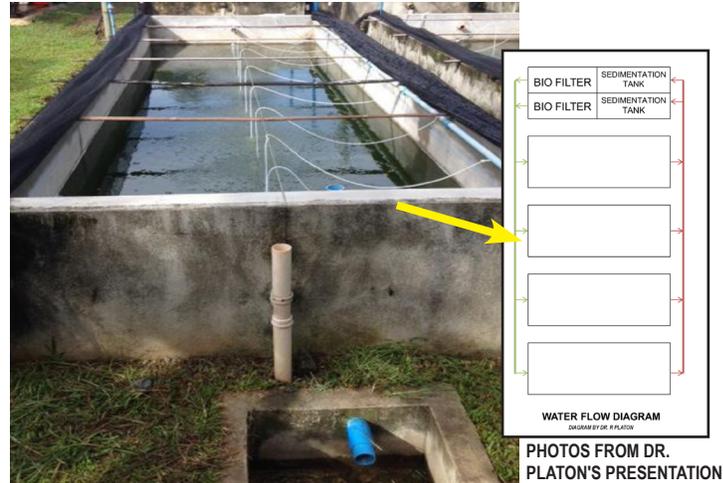
The design used one module of four tanks for spawning and two modules of four tanks each for fry rearing. Each module has two sedimentation tanks and two biofilters. The water movement (see diagram) throughout the whole circulation system is entirely powered by airlift pumps.

The cost and returns analysis of the technique showed a profit margin of 55% at the end of one year production. This figure was attained given an assumption of 70% survival from swim-up to fingerlings (size 22) and selling price of Php 1 per fingerling.

The hatchery, located in Kidapawan City, now supplies seed to fish farms surrounding the municipalities in southern Mindanao. However, according to Dr. Platon, the inland freshwater aquaculture in the area still needs intervention to further develop. Dr. Platon further mentioned the need for assistance in resource assessment, regulations, and technology transfer mechanisms (e.g. information dissemination, seminars, demo farms and extension services).

The event was held last 7 July 2017 at SEAFDEC/AQD's Multi-Purpose Hall in Tigbauan, Iloilo, Philippines. **a**

- JM DE LA CRUZ



A diagram of the water flow system in one module of Dr. Platon's tilapia hatchery which uses a recirculation system

Confab for fish farmers, a success



Mr. Demy Catedral, senior technical assistant of SEAFDEC/AQD, demonstrates to participants the proper preparation of samples for disease diagnosis

More than 100 fish farmers and other stakeholders from the academe and local government units participated in the Farmers Forum held at the SEAFDEC/AQD Multi-Purpose Hall in Tigbauan, Iloilo, Philippines on 6 July 2017.

The topics discussed were fishpond culture and management, growing single oysters, nursery of mangrove and blue swimming crabs, and biosecurity in hatcheries and in grow-out culture. The lectures were delivered by Everglory Agri-Aqua Farm technical manager and former SEAFDEC/AQD researcher Mr. Eliseo Coniza, SEAFDEC/AQD experts Ms. Jocelyn Ladja, Dr. Fe Dolores Estepa and Dr. Leobert dela Peña, respectively.

Aside from the lectures, a demonstration on the collection, preparation, and transport of samples for disease diagnosis was also conducted by SEAFDEC/AQD senior technical assistant Mr. Demy Catedral.

The participants also had a chance to seek advice from SEAFDEC/AQD experts during the open forum and exchange ideas with co-participants. The event capped off with a tour of SEAFDEC/AQD facilities in Tigbauan.

Continued in Page 4



Dr. Platon (2nd from right) receives a plaque of appreciation from Acting Chief Dr. Chihaya Nakayasu (left); Mr. Antonio Villaluz, son of the late Dr. DK Villaluz (2nd from left); and SEAFDEC Deputy Secretary General Dr. Kaoru Ishii (right)

About the lecturer

Dr. Platon joined SEAFDEC/AQD in 1975 as Researcher and eventually became Chief in 1996 until 2006. During his time as Chief, he institutionalized a new thrust through a reorganization of AQD, creating a separate division named Technology Verification and Commercialization Division (TVCD) – now Technology Verification and Demonstration Division (TVDD).

PHOTOS BY RH LEDESMA



Continued from Page 3

The Farmers Forum was organized as part of SEAFDEC/AQD's 44th anniversary celebration in pursuit of its mandate to disseminate and promote the exchange of information on aquaculture. **a**

- RH LEDESMA



Resource persons during the Farmers Forum were (LEFT TO RIGHT) Mr. Eliseo Coniza of Everglory Agri-Aqua Farm and SEAFDEC/AQD former researcher; SEAFDEC/AQD experts Dr. Fe Dolores Estepa, Ms. Jocelyn Ladja, and Dr. Leobert dela Peña

Stakeholders receive new SEAFDEC/AQD publications

New publications, including two Regional Technical Consultation Proceedings, an extension manual and seven brochures were launched and distributed to stakeholder representatives on 7 July 2017 as part of the 44th SEAFDEC/AQD anniversary activities.

Representatives from the academe, NGOs, government, and the fisheries industry received a complete set of publications during the Book Launching held at the SEAFDEC/AQD Multi-Purpose Hall in Tigbauan, Iloilo, Philippines.

Publications include “Addressing AHPND

and other transboundary diseases for improved aquatic animal health in Southeast Asia,” introduced by lead editor, Dr. Rolando Pakinging, Jr. The publication presents the outputs of the ASEAN Regional Technical Consultation on EMS/AHPND and other Transboundary Diseases held in February 2016.

Another publication, “Philippines: In the forefront of the mud crab industry development,” was presented by lead editor, Dr. Emilia Quintino. The book is the proceedings of the 1st National Mud Crab Congress held in November 2015.

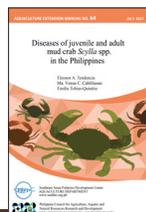
An aquaculture extension manual, “Diseases of juvenile and adult mud crab *Scylla* spp. in the Philippines,” was also launched by lead author Dr. Eleonor Tendencia. The manual was produced in collaboration with the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology.

Brochures on the culture of abalone, catfish, tilapia, seaweeds, mangrove crab, and larval food were also presented along with a brochure on

SEAFDEC/AQD's Community-Based Resource Enhancement project in Molocaboc Island.

During the event, publications which can now be freely downloaded from the SEAFDEC/AQD Institutional Repository (repository.seafdec.org.ph) were also presented. These include, “Giant clam hatchery, ocean nursery and stock enhancement,” “Pag-aalaga ng tilapia,” “Pagpapakanak ng tilapia,” and “Recent developments in the genetic improvement of the giant freshwater prawn.” **a**

- RH LEDESMA

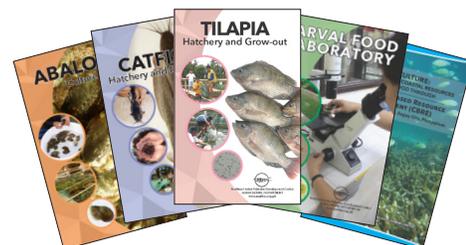


PRESENTATION OF NEWLY-RELEASED PUBLICATIONS. Dr. Rolando Pakinging Jr., lead editor of “Addressing AHPND and other transboundary diseases for improved aquatic animal health in Southeast Asia” [left], Dr. Emilia Quintino, lead editor of “Philippines: In the forefront of the mud crab industry development” [center], and Dr. Eleonor Tendencia, lead author of “Diseases of juvenile and adult mud crab *Scylla* spp. in the Philippines” [right], talk about the content of their publications



[LEFT] Mr. Rex Delsar Dianala, OIC of the SEAFDEC/AQD Development Communication Section, introduces brochures on abalone, catfish, tilapia, seaweeds, mangrove crab, larval food laboratory, and community-based resource enhancement and [RIGHT] Mr. Stephen Alayon, acting head of the SEAFDEC/AQD Library, presents publications that can be downloaded for free

PHOTOS BY RH LEDESMA



Blood drive and medical mission mark SEAFDEC/AQD anniversary

To promote health awareness among staff and extend medical support to nearby communities, SEAFDEC/AQD organized its annual bloodletting and medical mission on 4 July 2017 at its Tigbauan Main Station in Iloilo as part of its 44th anniversary activities.

The bloodletting activity, which yielded 14 bags of blood from 35 SEAFDEC/AQD donors, was in collaboration with Philippine Red Cross –

Iloilo Chapter. It is hoped that the activity would promote voluntary blood donation and contribute to the local supply of blood.

Also, free medical consultation and medicines were given to 78 residents (37 children and 41 adults) of the villages of Buyu-an and Nanga. Consultations were courtesy of Dr. Joy Saquibal-Demetria, Dr. Eeza Traya, and Dr. Jeffrey Rivas. **a**

- GK FAIGANI



PHOTOS BY DEVCOM SECTION

More fun activities...

As part of the 44th anniversary celebration of SEAFDEC/AQD, a series of activities were conducted from 3-7 July 2017 at its Tigbauan Main Station (TMS) in Iloilo.

The anniversary week kicked-off with a flag-raising ceremony, ceremonial switching on of the SEAFDEC 50th anniversary icon, inauguration of the new Multi-Purpose Hall, and opening of the anniversary exhibit.

During the week, an open house was also organized for its stakeholders. Other engaging activities during the Anniversary week included a food fair, zumba session, parlor games and bingo.

On 30 June 2017, a coastal clean-up activity was held at the beach fronting TMS. **a**

- GK FAIGANI



AQD volunteers donating blood and beneficiaries avail of free medical consultation



PHOTOS BY GK FAIGANI / JM DELA CRUZ



Health-related activities for SEAFDEC/AQD staff

Taking some time-off from their respective duties, SEAFDEC/AQD staff enjoyed the “Information Drive, Wellness, and Pampering Day” on 5 July 2017.

SEAFDEC/AQD’s Human Resource Management Section organized a series of activities to alleviate stress of the employees and to impart information about health.

Employees availed of free massages, manicure and pedicure sessions offered by Technical Education and Skills Development Authority

(TESDA) students of St. Nicholas Training Institute Inc.

Simultaneously, Dr. Florianne Bedonia, ob-gynecologist from West Visayas State University Medical Center, gave a lecture on cervical cancer. Dr. Bedonia explained that cervical cancer is caused by certain types of human papilloma virus (HPV) which is a common sexually transmitted viral infection. Some of the symptoms that she mentioned include unusual vaginal discharge, pain in the pelvic area, excessive

tiredness, swollen or painful legs and lower back pain. This disease can be prevented through screening and early detection which is why she recommended that women between ages 20 to 70 should undergo smear testing. She also introduced the available vaccines that can prevent certain HPV infections to SEAFDEC/AQD staff

Following this, Commodore Gert Heyns of the Philippine Coastguard Auxilliary as he gave a lecture on "Cardiopulmonary

resuscitation (CPR) and first aid techniques." Commodore Heyns said that in every household it is important to have at least one member of the family who knows how to do CPR as he demonstrated the CPR steps to SEAFDEC/AQD employees.

The day before, on 4 July 2017, Ideal Vision Optical gave free eye exams and discounts on eyeglasses and contact lenses which were availed by 75 staff.

These were all part of SEAFDEC/AQD’s 44th anniversary celebration. 

- GK FAIGANI



SEAFDEC/AQD staff avail of free manicure and pedicure



SEAFDEC/AQD employees during the free eye examination



Dr. Florianne Bedonia receives token and certificate of appreciation from the OIC Administration and Finance Division Head Ms. Jiji Rillo and Human Resource Management Section OIC Ms. Kimberly Dianne Abroguena



PHOTOS BY DEVCOM SECTION

Commodore Gert Heyns explains the steps on how to do the CPR

New SEAFDEC/AQD auditorium inaugurated



The facade of the Multi-Purpose Hall

The new Multi-Purpose Hall of SEAFDEC/AQD was inaugurated during the opening program of its 44th anniversary celebration on 3 July 2017.

Former SEAFDEC/AQD chief Dr. Felix Ayson, under

whose term the building broke ground, and current Acting Chief Dr. Chihaya Nakayasu led the cutting of the ribbon to finally open the Php 37-million facility.

Located near FishWorld, the new auditorium has

state-of-the-art audio-visual facilities and can comfortably seat 500 in a banquet setup or 700 in a theater arrangement. The auditorium may also be divided into 3 smaller function rooms to host simultaneous events.

Primarily intended as a venue for SEAFDEC/AQD functions, the building will also be opened for rent to the public.

The Multi-Purpose Hall is equipped with a modern digital audio mixer, three units of mobile public address system, one set of stage lighting, 25 units of conference-type microphone, six units of line array speakers, and six units of wireless microphones.

In addition, it has a large-venue retractable projector with a display resolution of 1920 x 1200 pixels and a 4K enhancement technology display.

Other features of the Multi-Purpose Hall include Wi-Fi access with a speed of up to 1200 Mbps and security cameras. 📷

- RH LEDESMA

PHOTOS BY JM DELA CRUZ / IT TENDENCIA / RD DIANALA



[LEFT] Former SEAFDEC/AQD Chief Dr. Felix Ayson (middle right), under whose term the building broke ground, Acting Chief Dr. Chihaya Nakayasu (middle left), and the other members of the Management Group led the cutting of the ribbon to officially open the Multi-Purpose Hall. Rev. Bunny Ambao officiates the blessing of the Multi-Purpose Hall

A glimpse at the interior of the Multi-Purpose Hall



SEAFDEC/AQD 44th Anniversary



BFS staff celebrating its 41st anniversary

PHOTOS COURTESY OF MJ SAYCO

Freshwater Aquaculture Research: Now on its 41st Year



Food tasting by BFS staff



Students from Bataan Peninsula State University presenting their winning dish, the 'Carp in cream sauce' during the "Big head carp cooking contest"



Contenders chugging the yolkie veggie drink during the amazing race challenge

Binangonan Freshwater Station (BFS) celebrated the years of many accomplishments in the field of aquaculture research and technology during its 41st founding anniversary last 27-28 July 2017.

“Through the years, Binangonan Freshwater Station has significantly contributed not only to the Aquaculture Department, but to the whole SEAFDEC organization, as we help our neighbouring ASEAN countries. We have been going around, helping in the different

aspects of aquaculture in all the member ASEAN states.” This was the statement of Dr. Maria Lourdes Cuvin-Aralar, a scientist and current officer-in-charge of BFS during the ceremony.

“The Bighead Carp”, a cooking contest that was held to promote (endorse) freshwater delicacies, created an energetic atmosphere for everyone in this year’s celebration. On-the-job-trainees from Bataan Peninsula State University and Central

Luzon State University joined in the event. The fun continued as the staff participated in the team games such as amazing race, dance contest and bingo socials.

Looking forward, Dr. Aralar emphasized that BFS will continue to accept student trainees. This endeavour is in partnership with fisheries schools that aims to build up the manpower of fisheries and aquaculture in the country. [a](#)

- MJ SAYCO



**50th
SEAFDEC
YEAR**

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Students complete BFS' first high school internship program



[ABOVE] PSHS intern, Maijan Isabel Taguba drawing egg samples using a glass pipette to monitor the fertilization rate of ayungin eggs. [TOP-RIGHT] Interns from Philippine Science High School with their adviser in their internship completion ceremony in SEAFDEC/AQD's Binangonan Freshwater Station



PHOTOS COURTESY OF MJ SAYCO

Philippine Science High School Diliman Campus (PSHSD) students participated in the first ever SEAFDEC/AQD Binangonan Freshwater Station (BFS) internship program for junior and senior high school students last 26 June to 7 July 2017.

The two-week internship program gave an opportunity for five junior and two senior high school students to experience actual aquaculture

practices with the different laboratories of BFS, such as Ecology, Genetics, Feed Development and Natural Food Laboratory.

The students were captivated with their exposure with freshwater aquaculture at SEAFDEC's BFS as Gabrielle Ballesteros, student intern, said, "I was the one who suggested SEAFDEC [BFS] to the school [PSHSD] because I really enjoyed and learned a lot the last time I was here,

back in 2015, for my research. I am glad that we chose this place for our immersion. It was one great experience working hands-on in the field."

Currently, BFS' research and technology thrusts are in the culture of freshwater tilapia, giant freshwater prawn, bighead carp, catfish and silver perch. The station welcomes application for on-the-job training from students as well as internship for individuals. [a](#)

- MJ SAYCO

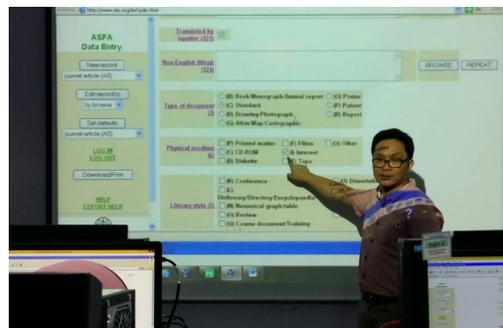
AQD library staff heads input methodology training in Malaysia

TERENGGANU, Malaysia – SEAFDEC/AQD Senior Information Assistant Mr. Daryl Superio carried out a Training Course on Aquatic Sciences and Fisheries Abstracts (ASFA) inputting methodology last 2-6 July 2017 at The Universiti Malaysia Terengganu (UMT).

Mr. Superio was invited on behalf of FAO (Food and Agriculture Organization) ASFA Secretariat to train 10 UMT library staff on ASFA rules on bibliographic description, data entry, database installation and record importation and exportation

SEAFDEC/AQD is an active ASFA collaborating partner since 2013. [a](#)

- JM DE LA CRUZ



Mr. Superio discusses the steps of ASFA data entry



UMT Library staff learns about importation and exportation of ASFA records with Mr. Superio



Mr. Superio takes a photo at the UMT Library lobby with the participants

PHOTOS BY UMT LIBRARY

AQD joins regional workshop on oceanographic data and information management



Mr. Stephen Alayon, acting head of SEAFDEC/AQD Library, at the launching of the ODIN (ocean data and information networks) Westpac Website



The participants had their photo taken at the venue of the workshop

Stephen Alayon, acting head of SEAFDEC/AQD Library, participated in the “Regional Workshop on the contribution of oceanographic data and information management and exchange to Ocean and Coastal Sustainability [and SGD-14]” held at Tianjin, China from 16 to 18 May 2017.

During the workshop, Alayon talked about SEAFDEC/AQD’s experience on the dissemination of aquatic and marine information and networking with libraries.

The workshop was organized to review the status of ocean data and information (D&I) management technologies, techniques, procedures and/or practices. It will also help in demonstrating the advantages, cost/benefit and products that can be

derived from national, regional and global practices in D&I management, oceanographic data management facilities as well as how Intergovernmental Oceanographic Commission/ International Oceanographic Data and Information Exchange (IOC/IODE) can assist countries in the WESTPAC region in establishing such centers. Lastly, it can aid in identifying collaborative opportunities for D&I management in the Western Pacific.

The event was hosted by the International Oceanographic Data and Information Exchange and was organized by the National Marine Data and Information Service (NMDIS), State Oceanic Administration (SOA), China. **a**

- RH LEDESMA

Seven trainees complete international marine fish hatchery course

Seven participants completed the 37-day training on marine fish hatchery operations from 20 June to 26 July 2017 at SEAFDEC/AQD’s Tigbauan Main Station. Trainees came from the government and private sectors based in Viet Nam (1), Myanmar (1), Malaysia (1) and the Philippines (4).

The month-long course covered marine fishes such as milkfish, seabass, grouper, snapper, rabbitfish and pompano and discussed their biology, broodstock management, larval rearing and hatchery operations, production of natural food, feed development, health management and marketing strategies. The participants also had hands-on experience on the rearing of the said commodities.

Trainees went on field trips to private hatcheries and fish farms in Oton and Dumangas in Iloilo and Roxas City, Capiz where they witnessed actual marine fish hatchery operations. Likewise, they visited SEAFDEC/AQD’s Igang Marine Station and Dumangas Brackishwater Station.

For 32 years, SEAFDEC/AQD has been providing technical knowledge and skills to hatchery owners, technicians, extension workers, aquaculturists and other stakeholders through its training courses.

A total of 420 trainees were trained on marine fish hatchery since 1985 when the course was first implemented. In 1987, the Government of Japan-Trust Fund started to provide fellowship grants for SEAFDEC member countries. **a**

- GK FAIGANI



Trainees during grouper broodstock sampling



Participants installing aeration lines in larval-rearing tanks

PHOTOS BY TRAINING SECTION

Research Seminars



Ms. Maria Rovilla Luhan, an associate scientist at SEAFDEC/AQD, presented her study on the new protocol for *Kappaphycus alvarezii* culture that could significantly reduce time of culture and cost of production of plantlets last 17 August 2017 at AQD's Tigbauan Main Station.

Micropropagation technique has proven to be a reliable method to mass produce certain crops and using this information, Ms. Luhan applied this method in macroalgae to produce clones for seaweed farming.

Although clonal production was successful, the long duration of culture in-vitro limits the production process making the growing

of *Kappaphycus* in-vitro an expensive technique. This study, however, developed a more efficient protocol for the production of clones by cutting small sections of *Kappaphycus* which were then grown in suspension for one month under same temperature, light and salinity.

Using media with inorganic nitrogen and shorter explants (3 - 5 mm as opposed to 10 mm) result in the highest growth and survival rate. As for the stocking density, growth rates of *Kappaphycus* in various densities (0.5, 0.75, 1.0, 1.25 individual/s per 10 ml) are not significantly different.

According to Ms. Luhan, using plantlets from tissue culture for grow-out increased the six-month production of *Kappaphycus* from eight kilos to 19 tons. She also concluded that using nursery reared plantlets or propagules for farming would be affordable to the stakeholders for sustainability of seaweed production. **a**

- JM DE LA CRUZ



Ms. Rema Sibonga, senior technical assistant of SEAFDEC/AQD, presented the effect of mixed microalgae in the larval growth, development and survival of sandfish (*Holothuria scabra*) last 10 August 2017 at Research Division's AVR in AQD's Tigbauan Main Station.

Ms. Sibonga used three combinations of microalgae (*C. calcitrans* & *Rhodomonas*

sp., *C. calcitrans* & *T. tetrahele*, and *Rhodomonas* sp. & *T. tetrahele*) containing 10,000 cells ml⁻¹ each. Once the larvae were hatched these were then distributed to rectangular plastic containers filled with 16 L filtered UV-sterilized seawater and provided with continuous gentle aeration. Each treatment had four replicates with initial stocking at 200 larvae L⁻¹. The feeding of the larvae started at 2 days post fertilization.

Results showed that the larvae fed with mixed *C. calcitrans* and *Rhodomonas* sp. displayed the fastest development and highest survival among treatments. **a**

- JM DE LA CRUZ



Despite the contributions of introduced aquatic species in aquaculture production, the adverse impacts such as negative effects on biodiversity, possible introduction of new pathogens and diseases are still present which leads to the question whether introduced aquatic species are boon or bane?

SEAFDEC/AQD scientist Dr. Maria Lourdes Aralar presented her study "Introduced Aquatic Species

for Inland Aquaculture: Boon or Bane?" last 24 August 2017 at AQD's Tigbauan Main Station. The primary driver of introducing species to inland water bodies is its ability to boost fisheries and aquaculture production from 19% to almost 99%.

Dr. Aralar presented that measures to address these adverse impacts of species introductions in inland waters should be undertaken through: (1) implementation of regulations on species introductions; (2) science-based risk assessment; (3) shifting focus on culture of native species; and (4) balancing ecological risk and economic gains through valuation of ecosystem goods and services of inland water bodies. **a**

- JM DE LA CRUZ

DDGS, utilized as protein source in milkfish diets



PHOTO COURTESY OF RE MAMAUAG

KUALA LUMPUR, Malaysia – Dr. Roger Edward Mamaug, a scientist at SEAFDEC/AQD, presented his study on distiller's dried grain with solubles (DDGS) as replacement to soybean meal in milkfish diets at the Asia Pacific Aquaculture Conference held from 24 to 27 July 2017.

One of the thrusts of SEAFDEC/AQD is to identify alternative protein sources for aquaculture feed. **a**

- RH LEDESMA

Calatagan folks learn mud crab farming, mangrove protection

PHOTOS COURTESY OF ET QUINTIO



Dr. Fe Estepa discusses the morphology of mud crab

Participants pose with JCI-MPUI members and AQD resource speakers, Dr. Fe Estepa and Dr. Emilia Quintio

To create livelihood for the local people's organization (PO) through mud crab farming and to increase awareness on the importance of mangroves, Junior Chamber International – Makati Princess Urduja Incorporated (JCI-MPUI) invited SEAFDEC/AQD to conduct a training course on mud crab culture last 29 July 2017 in Calatagan, Batangas.

The local PO was in-charge of maintaining a mangrove sanctuary called Pulo in an islet in Calatagan which inspired JCI-MPUI to create a marine

ecosystem project that will benefit the community and its members.

SEAFDEC/AQD scientists Dr. Emilia Quintio and Dr. Fe Estepa gave lectures on mud crab biology, nursery, and grow-out techniques for ponds, cages, and pens. SEAFDEC/AQD will also provide technical assistance in setting-up cages and pens for mud crab culture in mangrove areas.

The activity was spearheaded by JCI-MPUI that has been promoting

active citizenship by empowering young individuals, especially women in the community, for business development, responsible leadership and heroic values, and international goodwill for 37 years. The activity was also in partnership with the Bayan ng Calatagan, Enrique Zobel Foundation, Climate Change Commission – Philippines, and the Southeast Asian Regional Center for Graduate Study and Research in Agriculture. [a](#)

- JM DE LA CRUZ

Typhoon Haiyan-affected fish farmers learn seaweed and abalone culture

As part of their community rehabilitation project, Cooperative for Assistance & Relief Everywhere (CARE) together with Taytay Sa Kauswagan, Incorporated (TSKI) invited SEAFDEC/AQD to provide knowledge and skills on seaweed and abalone culture to fish farmers who were affected by Typhoon Haiyan in 2013 in San Dionisio, Iloilo last 26-28 July 2017. [a](#)

- JM DE LA CRUZ



[ABOVE] SEAFDEC/AQD staff Mr. Patrick Alicante demonstrates the proper way of acclimatizing abalone and [RIGHT] San Dionisio fish farmers participate in seaweed culture practical exercises



PHOTOS BY EV ANTOLINO