

One of the first aerial pictures of SEAFDEC/AQD during the early years after its establishment in 1973. 45 years later, the department is still flourishing to deliver quality research, transfer effective technologies and disseminate useful information. **Happy 45th anniversary, AQD!**

aqd matters

July-August 2018

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

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SEAFDEC/AQD thrives at 45 with tiger shrimp as its banner program

"Enduring forty five years means that SEAFDEC/AQD is relevant and I am sure it still is and will be in the next 50 years", said Chief Dan D. Baliao in his message during SEAFDEC/AQD's 45th Anniversary Program on 13 July 2018.

"Shrimp culture was the priority program during its incipient years and still is," he stressed. Chief Baliao believes that improved shrimp culture, aided by the ongoing "Oplan Balik Sugpo" program, will bring the Philippines back on the map as a major shrimp producer.

"Oplan Balik Sugpo" has been keeping the Fish Health Section on their toes. They are now fast tracking the improvement of protocols to immediately detect diseases in shrimp.



Chief Dan Baliao delivering the State of AQD Address

PHOTO BY RH LEDESMA

Chief Baliao also reported that the Dumangas Brackishwater Station has been rehabilitated and reconfigured incorporating biosecurity features. The shrimp broodstock development team is also now into the production of good quality fry and broodstock selection using the refined biosecurity protocols.

"The Nutrition and Feed Development team, on the other hand, is developing low cost diets to reduce production cost and lower the cost by at least 30% compared to the commercial feeds," he added even as he called on researchers to work together in reviving the shrimp industry in the

Continued on next page



Colors carry the SEAFDEC and Philippine flags to honor AQD's 45 years of research and development efforts in the country

Philippines and to make it globally-competitive.

Over the last eight months since Chief Baliao assumed office late last year, technology transfer activities have been intensified in partnership with other agencies and invitations for collaborations and requests for assistance have poured in.

"We cannot ignore these calls for they may come as great opportunities for us. We must grab the windows of opportunities that may only open once," said Chief Baliao.

The establishment of legislated multi-species

hatcheries at different sites in the country is now being undertaken by DA-BFAR and SEAFDEC/AQD. Another project on mangrove crab seedbanks, nurseries and grow-out farms in the Province of Catanduanes is also ongoing.

These collaborations will enable the two institutions to pool resources and technical expertise to revitalize the fishery and aquatic resources in the country. It will also be instrumental in achieving a common goal – increased fish production. **a**

- MET ALDON

Aquaculture, a platform for poverty alleviation



PAFPI president Mr. Joseph Martin Borromeo delivers his keynote speech

"If done right, aquaculture can be the sustainable platform for creating wealth and environmental sustainability in the rural fishing communities," says Joseph Martin Borromeo, president of the Philippine Association of Fish Producers Inc.

However, despite its potential, aquaculture is not even in the radar of traditional development policy makers of the government, remarked Borromeo who served as keynote speaker during SEAFDEC/AQD's 45th Anniversary Program.

"There has to be a change in mindset and there has to be a change in approach to poverty alleviation," he said, while

lamenting that the fisherfolk remained the "poorest of the poor" despite the wealth of aquatic resources available and the government's investments in impoverished sectors,

"Aquaculture is a diverse but significantly strategic food production sector which can provide for many livelihood opportunities especially for many small-scale fishing communities in the country. Aquaculture can greatly contribute to food security, nutrition and poverty alleviation," he added.

Hoping to improve the fisherfolk's income levels beyond the poverty threshold and to improve their access to basic social services, Borromeo

said a sustained multi-dimensional and social action process is needed to help their organizations and communities.

"This can be done by enhancing their productivity through increased knowledge and skills for quality assurance and farm yields, improved farm management, improved post-harvest facilities, improved value-adding activities and adoption of appropriate low-cost farming technologies, and this is where R&D can help," he added.

Among others, Borromeo called for the enhanced role and participation of poor farmers in policy-making and decisions at the local government level. He also said social enterprise

models should be promoted and incentivized.

"These can allow fish farmers to access and manage farms, ponds, cages together by pooling their resources and skills, collaborating with social entrepreneurs and industry under relevant schemes such as corporatives, nucleus farms, centrally-managed consolidated farms. There are already successful and workable social enterprise models which can be shared and replicated."

"Aquaculture, ladies and gentlemen, is and can be and will be the sustainable platform for alleviating poverty in the rural fishing communities," Borromeo reiterated. **a**

- RD DIANALA



AQD chief Dan Baliao and Deputy Chief Dr. Koh-ichiro Mori present a plaque of appreciation to Mr. Borromeo

SEAFDEC/AQD buildings named after prime movers



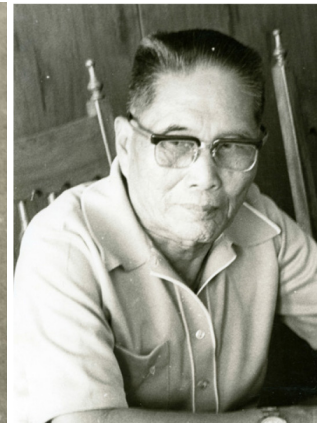
Nutrition and Reproductive Physiology Building (top) is now named as Dean Domiciano K. Villaluz Hall and the Administration Building (above) is named as Dr. Quiterio Miravite Hall



Chief Dan Baliao, together with the families of Dr. Miravite and Dr. Villaluz, unveil the commemorative markers



Dr. QF Miravite



Dean DK Villaluz

The prime movers in the establishment of SEAFDEC/AQD were honored in dedication ceremonies as two buildings at the Tigbauan Main Station were named after them.

The Administration Building is now named as the Dr. Quiterio F. Miravite Hall while the Nutrition and Reproductive Physiology Building is now the Dean Domiciano K. Villaluz Hall, in honor of these men who were instrumental in the establishment of SEAFDEC/AQD in the Philippines in 1973.

Markers dedicating the buildings were unveiled by SEAFDEC/AQD officials and representatives of the families of Dr. Miravite and Dean Villaluz on 13 July 2018 as a highlight of SEAFDEC/AQD's 45th Anniversary Celebration.

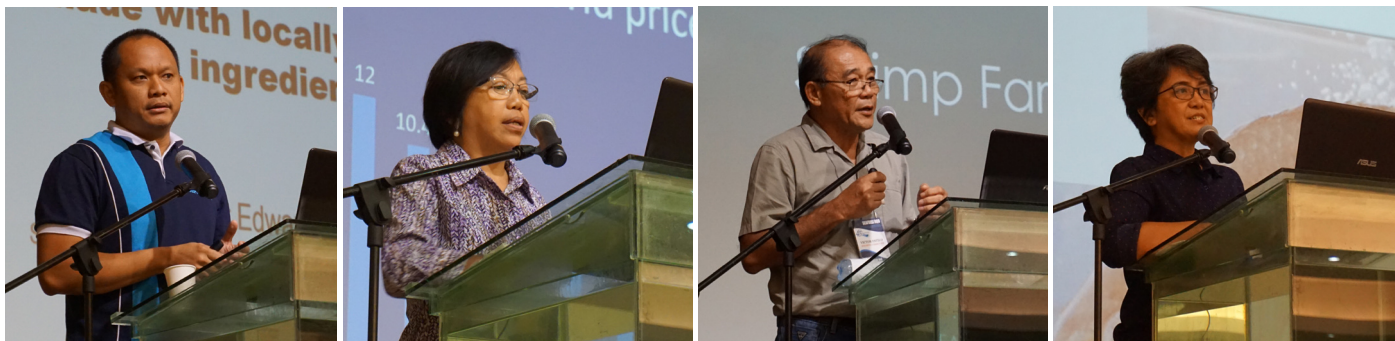
"This is a way to say thank you to them and we lovingly dedicate these markers to the memory of Dr. Miravite and Dean Villaluz realizing that their memories remain in the hearts of the people they have touched," said current SEAFDEC/AQD chief Dan Baliao in a speech.

Dr. Miravite was recognized for his vision and tireless efforts in securing funds for the construction and operation of the research and administrative complexes in Tigbauan, Iloilo; Leganes, Iloilo; Pandan, Antique; Igang, Guimaras; and Binangonan, Rizal.

These facilities were essential to research and development works which made possible, among others, the world's first spawning of captive milkfish and world's first maturation of captive tiger shrimp.

Meanwhile, Dean Villaluz was cited for his pivotal role as the first Department Chief and in setting the research direction of SEAFDEC/AQD and for his guidance to the pioneering staff in undertaking research and development projects for milkfish and tiger shrimp. The research projects, which resulted in the spawning and maturation of captive stocks, led to the rise of the hatchery and seed production industry for both milkfish and tiger shrimp. [a](#)

- RD DIANALA



The resource persons during the Farmer's Forum and Aquaculture Clinic, (from left) Dr. Roger Edward Mamauag, Dr. Maria Lourdes Aralar, Mr. Victor Emmanuel Estilo, and Dr. Maria Rowena Eguia

Forum updates fish farmers on aquaculture technologies

Over a hundred fish farmers and other stakeholders availed of free lectures and consultations on 11 July 2018 at SEAFDEC/AQD'S Multi-Purpose Hall in Tigbauan, Iloilo as part of the annual Farmers' Forum and Aquaculture Clinic.

Aimed at providing the public with aquaculture updates, SEAFDEC/AQD specialists shared developments on aquaculture feeds made from locally available ingredients, giant freshwater prawn farming, shrimp farming, and tilapia breeding and farming.

In the aquaculture clinic that followed the lectures,

stakeholders also had the opportunity to consult various SEAFDEC/AQD specialists regarding their specific concerns including problems in farming and opportunities for investment.

The activities were organized as part of the events commemorating SEAFDEC/AQD's 45th founding anniversary.

Cost-effective aquaculture feeds made from locally available ingredients

To promote the use of cost-effective aquaculture feeds, SEAFDEC/AQD feed nutrition

scientist Dr. Roger Edward Mamauag shared different alternative protein sources for fish feeds. Protein is usually sourced from fish meal but feeding captured fish to farmed fish is considered an unsustainable practice.

Dr. Mamauag revealed that processed meal from knife fish can replace the common fishmeal ingredient up to a 43% inclusion level in juvenile tilapia diets. Knife fish is considered as a pest in Laguna de Bay, the largest lake in the Philippines.

Protein-enhanced copra meal was also found to be able to replace fishmeal by up to 40% as ingredient in shrimp diets. In milkfish diets, the fermented copra meal can be added up to 25% inclusion level, partially replacing soybean meal. Copra meal is a byproduct in the production of coconut oil.

The use of some plant-protein sources, including agricultural wastes, in tilapia diets was reported to also contribute to improved production traits.

One such agricultural waste is mango peel silage which contains 39.72-42.38% crude protein and is heavily concentrated with carotenoids which are important for fish reproduction.

Soybean curd was also tested to successfully replace up to 45% of fish meal in aquafeeds. Citrus peel and citrus pulp on the other hand,

can be added for up to 50% and 10%, respectively.

Aside from reducing the use of fish oil and fish meal, Dr. Mamauag stressed the importance of ensuring the efficient conversion of nutrient inputs and the use of technologies that are environmentally sensible and sustainable.

Giant freshwater prawn farming

Giant freshwater prawn, *Macrobrachium rosenbergii*, is gaining popularity as an aquaculture species as reflected in the increase in worldwide production from about 30,000 tons in 1990 to about 200,000 tons in 2010.

In her presentation, SEAFDEC/AQD scientist Dr. Maria Lourdes Aralar narrated the culture protocols in the culture of the prawn from broodstock management, hatchery design, requirements for larval rearing, water management, feeding schedule, nursery system, and the different grow-out systems.

One of the tips mentioned by Dr. Aralar in grow-out culture is to size-grade the postlarvae before stocking. Size grading results in more uniform growth and reduces percentage of small-sized prawns at harvest.

In feeding, Dr. Aralar suggested to use feeding trays to monitor feed consumption and to reduce feeding rate



Participants consult with SEAFDEC/AQD experts on shrimp and marine fish during the Aquaculture Clinic

by 50% if oxygen falls below 3.5 ppm in the early morning and temperature falls to 20-24 degrees Celsius during the day.

Dr. Aralar also presented sample growth parameters in lake-based culture using batch system with a stocking density of 10-15 pieces per square meter. With a culture duration of five months, daily growth rate is 0.17-0.22 gram per day leading to an average weight at harvest of 25-35 grams and a feed conversion ratio of 1.8-2.2.

Shrimp farming

With SEAFDEC/AQD's current thrust on reviving the tiger shrimp industry or "Oplan Balik Sugpo," shrimp pond culture expert Mr. Victor Emmanuel Estilo presented different strategies to avoid disease occurrences.

Mr. Estilo listed the basic facilities required to ensure biosecurity in shrimp farms such as hand wash/foot bath stations, tire baths stations, bird scare devices, water filters and crab fences.

Other proactive strategies to avoid diseases include the use of high health, specific-pathogen-free postlarvae, probiotics, minimum to zero water exchange systems, and the conduct of regular disease surveillance and monitoring.

Also recommended were the use of reservoirs or underground water sources, HDPE-lined ponds, automatic feeders, sludge removal facilities and smaller pond compartments.

Farmers should focus on "animal comfort," said Mr. Estilo, and time culture periods with seasons of higher average temperatures and less rain, to keep shrimp robust and minimize the occurrence of diseases.

Tilapia breeding and farming

Dr. Maria Rowena Eguia, a scientist at SEAFDEC/AQD, revealed that four out of the top ten tilapia-producing countries in the world are from Southeast Asia, namely Indonesia, Philippines, Viet Nam and Thailand where it is a popular aquaculture species since it breeds easily, grows fast and adapts to a wide range of environmental conditions.

Dr. Eguia added that tilapia involves a simple hatchery and nursery technology, enjoys wide consumer acceptance, and is used as a bio-control agent for luminous bacteria in shrimp ponds in the Philippines.

After sharing the basics of tilapia culture, Dr. Eguia also mentioned the use of netting materials called "Aquashade" which can reduce pond heat by 40% and double the spawning rate and seed production of a tilapia farm during extremely warm summer months.

Dr. Eguia also outlined the research work being done by SEAFDEC/AQD for tilapia such as the genetic improvement of performance traits, DNA marker assessment of improved strains, and marker-aided broodstock management. [a](#)

- RH LEDESMA

Thai shrimp expert encourages tiger shrimp production in PH



Former SEAFDEC Secretary-General Dr. Siri Ekmaharaj talks about the current tiger shrimp production techniques during his DKV lecture

High export demand for tiger shrimp prompted a Thai shrimp expert to encourage Southeast Asian countries, including the Philippines, to revive and improve the production of the prime commodity.

"The demand for big-sized tiger shrimp have been expressed by different countries including China and Japan," said Dr. Siri Ekmaharaj, former Secretary General of SEAFDEC, as he explained what encouraged Thai shrimp farmers to improve the production of tiger shrimp.

Tiger shrimp production in Thailand increased up to 10,000 metric tons per year in 2016 and 2017.

"Now is the good time to [bring back] the culture of tiger shrimp which is the local species of the region," Dr. Ekmaharaj said during his lecture entitled "Aquaculture of Black Tiger Shrimp (*Penaeus monodon*): Perspective and Future Direction," wherein he presented the experiences and current success of the tiger shrimp industry in Thailand despite the threat of emerging

diseases.

He also shared culture techniques in Thailand which he believes can prevent diseases and lead to successful production runs.

These include using disease-free broodstock, proper preparation of pond bottom, enough seawater to supply clean water to culture ponds, availability of auto-feeding machines to minimize nutrient wastes, and application of biosecurity measures. For stocking of shrimp fry, the stocking density commonly observed for PL 15-20 was 25-30 pieces per square meter.

Dr. Ekmaharaj was the lecturer during the 26th Dean Domiciano K. Villaluz Memorial Lecture which was part of SEAFDEC/AQD's 45th Anniversary Celebration last 12 July 2018.

SEAFDEC/AQD is currently working on a program "Oplan Balik Sugpo" which aims to increase the production and strengthen the tiger shrimp industry in the Philippines. [a](#)

- JM DELA CRUZ



SEAFDEC/AQD's Fish Health team discuss biosecurity issues with the farmers during the Aquaculture Clinic

Aquatic news index launched for public access



Mr. Stephen Alayon, acting head of SEAFDEC/AQD Library and Data Banking Services, launches the Aquatic News Index during SEAFDEC/AQD's 27th Book Launching

An online database indexing aquatic science-related news articles appearing in various Philippine newspapers has been launched for public access during the 27th Book Launching on 12 July 2018 at SEAFDEC/AQD's headquarters in Tigbauan, Iloilo as part of the research center's 45th Anniversary Celebrations.

The Aquatic News Index, nicknamed ANI as an allusion to the Filipino word for harvest, is an initiative of the SEAFDEC/AQD Library to improve the accessibility of current and historical news articles on aquatic science and to preserve them in digital form.

"We will try how to save our newspaper before it ends up as a wrapper for dried fish. We will try to index our newspaper and establish an online index for ease of retrieval and citation," said Stephen Alayon, Acting Head of SEAFDEC/AQD's Library and Data Banking Services.

The aquaculture news index may now be accessed through the link

ani.seafdec.org.ph

If you are reading in PDF, the link above is clickable. Try it!

The SEAFDEC/AQD Library has already started indexing beginning with their collection of aquaculture and aquatic news clippings which they have accumulated since 1974.

"Since we respect the copyright, we only have the extract, not the full text of [the article]. So there is no file associated that they can download the article. But if the newspaper later on will grant us the permission to upload, much better," said Alayon.

Entries will be grouped according to newspaper source and, to ensure accuracy and consistency of the index entries, subject descriptors were assigned using the Aquatic Sciences and Fisheries Abstracts thesaurus. Geographic names on the other hand, were assigned using the Getty Thesaurus of Geographic Names. [a](#)

- RH LEDESMA

Digital libraries donated to fisheries schools

Digital fisheries library devices, each containing over 26,000 aquatic and marine science publications, were donated to 14 state colleges and universities from around the Philippines.

The libraries, hosted in a flash drive and Wi-Fi router powered by the Library Box software, are composed of the collection of the International Association of Aquatic and Marine Science Libraries and Information Centres (IAMSLIC) of which SEAFDEC/AQD Library is a contributing member.

Stephen Alayon, acting head of SEAFDEC/AQD's Library and Databanking Section said the device will give students access to the IAMSLIC collection even in places where there is intermittent or no internet connection.

"The library of fisheries schools will just switch on the gadget and the students can download the materials to their mobile phones as long as it's a smart phone," Alayon added.

With only half of its 128-gigabyte storage capacity used, he also said they intend to add more publications in the future as they continue to digitize SEAFDEC publications.

The devices, funded by SEAFDEC/AQD, were turned over to representatives of the colleges and universities during its Book Launching Ceremony on 12 July 2018 in commemoration of its 45th Anniversary.

The recipient schools included the Aklan State

University, New Washington; Capiz State University, Dayao; Northern Iloilo Polytechnic State College, Concepcion; University of Antique-Tarao Lim Memorial Campus, Tibiao; University of the Philippines Visayas, Miagao; Bicol University, Tabaco; Mindanao State University, Naawan; Western Philippine University, Puerto Princesa; Bohol Island State University, Candijay; Samar State University, Mercedes; University of Southern Mindanao, Kabacan; Iloilo State College of Fisheries Main Campus; Central Luzon State University; and Mariano Marcos State University, Currimao.

Alayon further revealed that the Philippines is the first country in Asia to use the device with the first five units distributed in 2016 to libraries devastated by Typhoon Haiyan (Yolanda) including Visayas State University in Tolosa, Leyte; Northern Iloilo Polytechnic State College, (NIPSC) in Estancia and Cebu Technological University in Daanbantayan, Cebu.

Other units were given to libraries marred by fire. These were the Cavite State University in Naic, Cavite and Mindanao State University in Marawi. [a](#)

- RD DIANALA



Mr. Alayon with Training and Information Division head Dr. Edgar Amar and Chief Dan Baliao together with representatives of the recipient schools. (Inset) The IAMSLIC Digital Fisheries Library box

Mangrove crab manual launched



Dr. Fe Dolores Estepa, one of the authors, officially presents the third edition of AEM 34 (inset shows the manual's new cover) during SEAFDEC/AQD's 27th Book Launching



The long-awaited refresh of the manual “Biology and Hatchery of Mangrove Crabs *Scylla* spp.” has been launched during SEAFDEC/AQD’s 27th Book Launching last 12 July 2018 at the SEAFDEC/AQD Multi-Purpose Hall.

The manual, authored by Dr. Emilia Quintilio, Dr. Fe Dolores Estepa and Joana Joy Huervana, is a third edition that builds upon the second edition

published in 2008. The first edition was published in 2003.

In his foreword, SEAFDEC/AQD chief Dan Baliao revealed that updated information in the manual were based on the results of several projects funded by the Government of Japan from 2007 to 2012 and by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the

Department of Science and Technology from 2012 to 2017.

“The updated information found here is a product of SEAFDEC/AQD’s thrust to continually improve mangrove crab culture through science-based technologies. We hope this publication will be of benefit to existing and prospective hatchery, nursery, and grow-out investors, operators, as well as technicians,

instructors, and students,” said Baliao in his foreword.

The manual was ceremonially distributed to over 30 representatives from state universities and colleges, the private sector, as well as local and foreign government agencies. From thereon, it will be available for sale at the SEAFDEC/AQD bookstore at the Tigbauan Main Station or through www.seafdec.org.ph/bookstore.

Also launched during the event was the SEAFDEC/AQD Highlights 2017 and the commodity brochures, Sea Bass Culture and Mangrove Red Snapper Nursery and Grow-out. Brochures of the Laboratory Facilities for Advanced Aquaculture Technologies and SEAFDEC/AQD Analytical Services were also released along with an updated Tigbauan Main Station brochure. 

- RD DIANALA

Database of feed ingredients now online

The Regional Database of Alternative Feed Ingredients in Aquaculture has been launched for public access as part of SEAFDEC/AQD’s thrust to bring down the cost of feeds in aquaculture.

With feeds being the largest single cost item in aquaculture accounting for 50-60% of production cost, the database is intended to serve as a reference on the different feed ingredients that, depending on cost and availability, may be used to produce cheaper feed.

“Applying local ingredient alternatives for the formulation of an aquaculture feed is a way forward for the industry to remain profitable,” said Dr. Roger Edward Mamauag, a scientist at SEAFDEC/AQD and head of the Nutrition and Feed Development Section.

The database currently lists 70 different feed ingredients along with their nutritional composition and optimal inclusion levels. The data have been culled from different scientific papers on fish nutrient substitutes which were found effective for commercial applications.

More alternative feed ingredients will soon be added to the database as representatives from SEAFDEC member countries have also been tasked to contribute information regarding their respective local ingredients, revealed Joseph Biñas, associate researcher and part of the team behind the database.

Biñas added that, in the future, the public will also be invited to submit their inputs to



Alternative feed ingredient database proponents Mr. Joseph Biñas, Ms. Mary Ann Mandario and Dr. Roger Edward Mamauag present the database to the audience

further expand the breadth of the database.

The database is a collaborative effort between SEAFDEC/AQD and SEAFDEC member countries through their representatives with funding support from the Government of Japan-Trust Fund.

Dr. Mamauag and Biñas launched the database during the Book Launching ceremonies as part of SEAFDEC/AQD’s 45th anniversary celebration on 13 July 2018.

The database may be accessed at

afid.seafdec.org.ph

If you are reading in PDF, the link above is clickable. Try it!



Volunteers of the coastal cleanup pose in front of the camera

PHOTO BY JM DE LA CRUZ

Community-driven activities at 45th anniversary celeb, a success

Coastal cleanup

To help nearby communities in maintaining cleanliness of their coast, SEAFDEC/AQD initiated a coastal cleanup activity to kick off its 45th anniversary celebration, involving volunteers from nearby barangays, Buyu-an, Tigbauan and Nanga, Guimbal on 6 July 2018.

Aside from the two barangays, organizations such as the eSTRAWnghero, DevCom Society of West Visayas State University, American Corner, and LGU Tigbauan as well as SEAFDEC/AQD staff and on-the-job trainees joined the coastal cleanup drive.

"We are very grateful to the 292 volunteers who supported this activity," said Mr. Edgar Vincent Antolino, chair of the Coastal Cleanup subcommittee.

The volunteers were able to collect about 200 sacks of garbage at the coast of barangay Buyu-an.

"With the coastal cleanup activity, we hope to raise environmental awareness to the volunteers," added Mr. Antolino.

First aid awareness seminar for the community

Another activity in celebration of SEAFDEC/AQD's 45th anniversary is the first aid awareness seminar for the residents of Buyu-an and Nanga held at SEAFDEC/AQD's Multi-Purpose Hall in Tigbauan, Iloilo on 10 July 2018.

Fifty residents of these barangays attended the seminar, which was conducted by the Philippine Red Cross-Iloilo Chapter.

It was explained to the participants that "first aid is immediate help provided to a sick or injured person until professional medical help arrives or becomes available."

There were also lectures on the different soft tissue injuries

and other bone, joint and muscle injuries as well as their proper first aid management.

Aside from lectures, the participants were also taught and made to try different types of bandaging for different kinds of injuries and cardiopulmonary resuscitation.

SEAFDEC/AQD also gave the participants medicines and first aid kits that they can use during emergency situations.

Blood donation drive

Bloodletting is one of the annual activities of SEAFDEC/AQD during its anniversary celebration in collaboration with the Philippine Red Cross (PRC)-Iloilo Chapter.

For this year, the activity was held at SEAFDEC/AQD's Multi-Purpose Hall in Tigbauan, Iloilo on 10 July 2018 where 40 prospective donors



Volunteers collect non-biodegradable garbage at the Brgy. Buyu-an coast

were examined by a PRC physician-in-charge for blood collection.

"Out of the 40 prospective donors, 28 were successful in donating blood which yielded 12 bags of blood," based on the data from Mr. Al Edward Omar Limoso, SEAFDEC/AQD nurse. [a](#)

- RH LEDESMA



Participants of the First Aid seminar learn bandaging (right) and cardiopulmonary resuscitation (above)



PHOTOS BY RH LEDESMA



SEAFDEC/AQD employees donating blood

45TH ANNIVERSARY CELEBRATION *Highlights*



OLDEN BUT GOLDEN. SEAFDEC/AQD annually gives recognition to the men and women who offered the best years of their lives working for the department. This year, seven staff were given recognition for their services. [L-R] AFD head Ms. Amelita Subosa, Chief Dan Baliao with 2018 Retirees Mr. Oscar Gulmatico, Mr. Jerry Babiera, Ms. Merlinda Junio, Engr. Emiliano Aralar, Mr. Isidro Tendencia, (not in photo are Mr. Alessandro Babol and Ms. Cresencia Taghoy) and TID head Dr. Edgar Amar and RD head Dr. Leobert de la Peña.



TITO SID. Senior AV Technician Mr. Isidro Tendencia gave a speech in behalf of this year's retirees. Mr. Tendencia, who served the department for 36 years, recalled his experiences at AQD in wonder and with humor. His tales, from his initial salary of Php 520 in 1981 to office anecdotes, led the audience quaking in laughter. In the end, Mr. Tendencia's speech was filled with lessons on welcoming changes, embracing differences, and surviving adversities that he wished the succeeding AQD staff would remember.



WORDS OF SUPPORT. SEAFDEC deputy secretary general Mr. Akito Sato and Bureau of Fisheries and Aquatic Resource Region VI director Ms. Remia Aparri gave special messages during the anniversary program. They assured support and assistance in the activities of SEAFDEC/AQD in the years to come.



AQD chief Dan Baliao presents Dr. Frolan Aya's official appointment as Scientist.

SPECIAL AWARDEES.

Special awards are given to recognize SEAFDEC/AQD staff for their accomplishments.

Dr. Relicardo Coloso (leftmost), former scientist, was given the award for being recognized by the Professional Regulation Commission as the Outstanding Chemist of 2018.



ANNIVERSARY PHOTOS BY DEVCOM SECTION

Dr. Joseph Leopoldo Laranja, former researcher, received the Dr. Elvira O. Tan Memorial Award for Outstanding Published Paper in Aquatic Science category for his paper entitled "A Probiotic *Bacillus* Strain Containing Amorphous Poly-beta Hydroxybutyrate (PHB) Stimulates the Innate Immune Response of *Penaeus monodon* Postlarvae." His wife, Mrs. Rovelyn Laranja, received the recognition on his behalf. The award was also shared with Dr. Laranja's co-authors Dr. Edgar Amar, scientist, and Ms. Mary Joy Geaga, technical assistant.

Dr. Junemie Hazel Lebata-Ramos (not in photo), scientist, was recognized for earning the World Oyster Society Early State Investigator Award (second place) during the 2017 Oyster Symposium in Bangor University in Wales.

MEMOIRS.

Memories of past employees of SEAFDEC/AQD were capsulized in a photo exhibit. The photos were given to the retired and past employees who graced the anniversary celebration.



SERVICE AWARDEES. SEAFDEC/AQD grants service awards to (L-R) Mr. Julius Perando, electrician, for his 20 years in service, Mr. Nestor Bayona, senior technical assistant, for his 25 years in service, and Dr. Edgar Amar, scientist, for his 35 years in service.

SCI-ART AQUAWEK 2018

Organized by



To celebrate the bounty of the oceans through science and art, 11 elementary and 7 secondary schools joined the annual Sci-Art Aquawek last 30 July - 3 August 2018 at SEAFDEC/AQD Tigbauan Main Station in Iloilo. There were a total of 9 competitions that revolved around the theme of ocean biodiversity. The following are the winners:



Souvenir Design Contest: "Endangered Marine Animal"

Prize	Names	School
1st	Gleame Dominique Z. Gealon Coach: Gilbert Cang	SPED-ISEC
2nd	Zxylion Sueiriev Baqueriza Coach: Gilbert Cang	SPED-ISEC
3rd	Heaven Rose Espora Coach: Vherly Ann Espenitra	Hua Siong College of Iloilo – Ledesco

Talentadong Dagat: "Saving the Ocean through Sing and Dance"

Prize	Names	School
1st	AJ Nathaniel B. Cepeda Brent Harvey G. Gabillora Czkha Gyle J. Garrucha Henshie Marie D. Cabico Raeven V. Zapanta Coach: Laden Jane P. Caalem Mae Joy G. Palomo	WVSU – Integrated Laboratory School
	Vyego Tricci Gallinero Guiana May P. Tajo Jhania Gallinero Syhara Gabasa Ricci Imee Gamba Coach: Valerie Mae Belleza	SPED – ISEC
2nd	Paul Hilario Shann Dovi Buendia Cherry Mar Blanca Mico Ian Capanas Gino Figueroa Coach: Rogelio S. Cautivar Cinderela A. Sotaridona	Hibao – an Elementary School
3rd	Olivier A. Veloso Jhenssen Clarisse Posadas Eliza Jane Metcha Kurt Kubain Janolino Khasmire Bulahan Coach: Myla G. Gajo	Pavia Pilot Elementary School



Ocean Literacy Quiz

Prize	Names	School
1st	Hanz Matthew G. Mestidio Coach: Valerie May Belleza	SPED-ISEC
2nd	Crisha Marielle Barlas Coach: Valerie May Belleza	SPED-ISEC
3rd	Reyshiel Anne B. Doromal Coach: Ansel Rose Villa	Hua Siong College of Iloilo – Main Campus

Bring, Show and Tell: "My Favorite Ocean Creature"

Prize	Names	School
1st	Jaimee C. Galan Mary Brelle B. Sabando Alhidrit Madisa Coach: Mary Joy Cañoso	SPED-ISEC
2nd	Nicole Anne V. Canonaso Landsay Marie M. Corpus Aleah M. Camral Coach: Rogelio S. Cautivar Cinderela A. Sotaridona	Hibao-an Elementary School



AQUAWEK PHOTOS BY DEVCOM SECTION



Painting Contest: "Ocean Floor"

Prize	Names	School
1st	Von Wenzel Mifuel Joe Ann Grace Ferfas	San Joaquin School of Fisheries
2nd	John Mar T. Titular Christine Marie R. Flores	Tigbauan National High School
3rd	Janiel Maryani Yorac	Hua Siong College of Iloilo – Main Campus



FishWorld Film FishTival: "Women in Fisheries"

Prize	Names	School
1st	John Ariel Asuncion Sherwin Talento Ranna Nicole Lidres Cynthia Deforma Genevieve Solana Nicy Tenorio Psyche Mamaril Cherlyn Estrella Loryiel Chloe Alaban Coach: Clarito Mana-ay	Ramon Avanceña National High School

Aquaculture Quiz

Prize	Names	School
1st	Tiffany C. Xu Coach: Bernadette Camino	Hua Siong College of Iloilo - Ledesco Campus
	Ping-Ru A. Chen Coach: Bernadette Camino	Hua Siong College of Iloilo - Ledesco Campus
2nd	Addyvel Myles Aldon Coach: Maebelle Manapul	Tigbauan National High School
3rd	Wyland Behrens H. Nares Coach: Daisy G. Borromeo	Pavia National High School
	Christine Mabal Coach: Adela T. Ambao	Parara National High School
	Jewelle Mae Chua Coach: Renelyn Labos	Ramon Avanceña National High School
	Yuan Epilepsia Coach: Faith Agustin	Hua Siong College of Iloilo - Main Campus

Seafood Festival: "Best of SEAFDEC Member Countries"

Prize	Names	School
1st	Aira Jane Abangan Jamila Faith Abrot Reynelle Jor Esmaya Coach: Ma. Aelyn Joy Jaleco	Ramon Avanceña National High School
2nd	Drexyl Yuan C. Cuadra Stephanie M. Crisosto Venie Vivien C. Uy Coach: Aprel Joy Daanton	Hua Siong College of Iloilo - Ledesco Campus
3rd	Jenianne Lyn. P. Lee Ile Gwyn Verde Shaina Bedia Coach: Faye Marie A. Ea	Hua Siong College of Iloilo - Main Campus

Photo-standee making: "Endangered Marine Animals"

Prize	Names	School
1st	Elyn Alexa Casela Coach: Faye Marie A. Ea	Hua Siong College of Iloilo – Main Campus
2nd	Guia Joy Gimoto Coach: Zenly V. Allera	Tigbauan National High School
	Karla Czarina O. Sulit Coach: Joan T. Po	Parara National High School
3rd	June Cymel Navarro Coach: Zenly V. Allera	Tigbauan National High School



AQUAWEEK EXHIBIT. To celebrate FishWorld's Aquaculture Week, SEAFDEC/AQD organized a six-day exhibit at SM City Iloilo to promote aquaculture technologies and opportunities to a mass audience. Over 10,000 people visited the displays.

Catanduanes on its way to become PH 'mangrove crab capital'

PHOTO BY CV GENZOLA



Participant identifies mangrove crab stages during the Mangrove Crab Aquaculture Technologies lecture series conducted by SEAFDEC/AQD

CATANDUANES, Philippines - MANGROVE crab production in the province is expected to rise soon as the local government, the academe, government agencies and other players move for the implementation of RA 10857 to develop the mangrove crab industry in a bid to promote the province as the Philippine's mangrove crab capital.

RA 10857, which establishes mangrove crab seedbanks, nurseries and growout production in the 10 coastal municipalities of Catanduanes, lends more legal teeth to the existing provincial ordinances to steer the industry away from seed-centered trading and realize its potential as the country's principal producer of table-sized crabs.

"Itong RA 10857, unique s'ya kasi kauna-unahang batas na naglalayon na paunlarin ang crab industry particular dito sa Catanduanes (This RA 10857

is unique because it is the first legislation that aims to develop the crab industry particularly here in Catanduanes)," says Roy Ortega, Officer-in-Charge, Fisheries Planning and Economic Division of DA-BFAR, one of the key government agencies involved in the implementation of the Act.

He adds it is just fitting that Catanduanes was pinpointed as the focal province considering that mangrove crab resources, both in terms of seeds and breeders, are present in the area. The legislation likewise safeguards the integrity of the mangrove ecosystem as natural habitat of mangrove crabs, preserve and protect crab resources, at the same time providing crab-based economic opportunities to Catandunganons.

RA 10857 comes just at the right time as the province's production of market size crabs,

known locally as 'kinis', has been perennially low with only 17 metric tons produced in 2017 which pales in comparison to the 706 to 7,513 metric tons output of the country's top five crab-producing provinces, data from the Philippine Statistics Authority (PSA) show.

This seemingly poor performance in terms of crab production was largely blamed to the fact that most players or stakeholders prefer marketing

crab seeds rather than grow them to marketable size, apparently due to the ease of collection and the prospect of immediate income.

"Crablets became the focus of the crab industry, most of which are even shipped out of the province," lamented Jorge Camacho, Provincial Fisheries Officer (PFO) of the Department of Agriculture Bureau of Fisheries and Aquatic Resources Region 5 (DA-BFAR 5).

Training on crab culture

To encourage stakeholders to engage in the sustainable production of table-sized crabs and disassociate from the wild crab seed trade, DA-BFAR Central Office in partnership with DA-BFAR 5 and PFO Catanduanes launched the "Series of Seminars on Mangrove Crab Aquaculture Technologies" on 23-26 July 2018.

The training-seminars were participated by seed gatherers, stockers, fishpond operators, municipal agriculture officers (MAO) as well as representatives from the municipal fisheries resources management councils (MFARMCs) and municipal



Mangrove crab (*Scylla serrata*) for marketing

PHOTO BY JJ HUERVANA



SEAFDEC/AQD experts and staff take a photo together with the participants of the lecture series

PHOTO COURTESY OF CV GENZOLA

local government units (MLGU) from the northeastern municipalities of Viga, Panganiban and Bagamanoc.

A team of experts from the Southeast Asian Fisheries Development Center Aquaculture Department (SEAFDEC/AQD) headed by Ms. Joana Joy Huervana, a crab specialist, shared with the 63 participants the tested technologies on mangrove crab seed production (hatchery and nursery phases), grow-out culture in ponds and mangrove pens, fattening as well as soft-shell crab farming.

The experts also emphasized the importance of preserving the integrity of the mangrove crab habitat as well as the dangers of intense fishing pressure on the wild crab stock.

“Sa ngayon mas napalawak ang aking kaisipan at nang aking mga kasamahan nang dahil po sa inyo (Now, my and my colleague’s knowledge was broadened because of you),” shared Abegail Tumambil, a long-time crab seed gatherer from the town of Viga, citing

the crab farming technologies she learned from the seminar.

She believes the establishment of a mangrove crab hatchery and nursery in their area along with proper technical and financial guidance will result to higher income and better lives for crab seed gatherers like her.

Roadblocks

While the training is seen to address the lack of aquaculture skills among seed gatherers, a major road block identified by authorities, there are still other challenges that need to be addressed towards the development of the island’s crab industry.

The negative perception among the so-called ‘stockers’ (middlemen) of crab seeds towards aquaculture is also a cause of concern as they see it as a threat rather than a complement to their livelihoods.

“Sa totoo nun, nagkakamali sila, kasi nakita natin kahit anong mangyari sa crab resources sa Catanduanes,

dumami o bumaba man yung mga ‘kuto kuto’ o wild crab, kakailanganin talaga ng aquaculture intervention (Actually, they are mistaken, because we already know that whatever happens to the crab resources in Catanduanes, even if the population of ‘kuto kuto’ or wild crab would increase or decrease, there is really a need for aquaculture intervention),” Mr. Ortega stressed.

The unscrupulous collection of crab seeds, while appearing lucrative to many gatherers belonging to the low-income group who consider the trade as their bread and butter, is also seen to negatively impact the wild stock as well as the long-term ecological integrity of their habitat.

According to Camacho, the sale of ‘kuto kuto’ or mung bean size (≤ 0.5 cm across the shell) and ‘langaw langaw’ or fly size (0.6-1.0 cm) outside the province has been prohibited by virtue of a 2008 provincial ordinance which sought to control crab trading through the establishment of

the Catanduanes Crab Center (CCC).

However, some sectors, especially those benefitting from the illicit trade, were unconvinced the wild stock is under threat citing the ‘abundant supply’ of crab seeds even after years of rampant extraction.

Experts warned, though, that the apparent abundance of crab seeds in the area may soon see a decline if the harvesting of seeds beyond the sustainable limits will continue unchecked.

“Mangroves serve as nursery ground and habitat for crabs,” explains Jon Irish Aquino, another crab specialist from SEAFDEC/AQD.

He says the current practice of seining crablets from wild resources in Catanduanes will not only destroy its mangrove habitat but will also affect the population of crabs in the province.

“Taking seeds from the wild is an irresponsible method and cannot guarantee sustainability,” Mr. Aquino adds. ■

- JB BIÑAS

Aquaculture geneticists gather in int'l confab



SEAFDEC/AQD scientist Dr. Maria Rowena Eguia presents her study on abalone during the 13th International Symposium on Genetics in Aquaculture



Genetic experts including SEAFDEC/AQD's scientist, Dr. Maria Rowena Eguia, convened at the 13th International Symposium on Genetics in Aquaculture held in Cairns, Australia from 16 to 19 July 2018.

Dr. Eguia's study on the "Growth and microsatellite marker analysis of Philippine donkey's ear abalone *Haliotis asinina* stocks for use in broodstock development," was among the 86 papers presented during the conference.

"As an aquaculture geneticist, this conference is a must to participate in, either as a poster or an oral presenter," stated Dr. Eguia in her report.

Dr. Eguia also mentioned that the conference, which is held once every three years, is important since it is where the updates or advances in aquaculture genetics research are discussed. Moreover, presenters are also given the opportunity to have their papers published in the Aquaculture journal.

Aside from presenting her study on abalone, Dr. Eguia also showed other initiatives in aquaculture genetics being done at SEAFDEC/AQD which gained the interest of other participants to collaborate with the institution. **a**

- RH LEDESMA

Rescued turtles released during Panaw Pawikan



SEAFDEC/AQD staff and volunteers pose for a photo at Igang Marine Station's floating cages. [Inset] AQD staff properly carry one of three rescued turtles back to the sea

True to the promise of protecting marine turtles in Guimaras, three rescued green turtles were released to their natural habitat after months of rehabilitation last 11 July 2018 at SEAFDEC/AQD Igang Marine Station (IMS).

The second Panaw Pawikan is an activity of releasing rescued turtles back to the wild, just in time for the SEAFDEC/AQD's 45th founding anniversary. The green sea turtles were found stranded in three separate locations: Guimaras Strait, Luzaran Point and Igang Bay in Nueva Valencia.

The activity is an offshoot of the partnership with Department of Environment and Natural Resources – Provincial Environment Resources Office (DENR-PENRO) in Guimaras headed by Director Vicente Sardina which makes IMS as the official rescue center for stranded sea turtles in Guimaras. The partnership had been ongoing since 2016. **a**

- JM DELA CRUZ

Admin assistants enhance potential through summit



(L-R) Ms. Germin Moquera (Office of the Research Division Head), Ms. Sarah Faye Noble (Office of the Administration and Finance Division Head), Ms. Gelyn Faigani (Office of the Chief), and Ms. Janelli Garibay (Office of the Deputy Chief) attends Ariva Academy's two-day summit

PASIG CITY, Philippines

- In order to enhance their competency in the practice of their profession, four administrative assistants from the different offices of SEAFDEC/AQD attended the 10th Secretaries and Administrative Professionals Summit on 29 to 30 May 2018 at Marco Polo Hotel, Ortigas Center.

The highly-enriching learning event was specifically intended for executive secretaries, administrative professionals and personal assistants to help them become better professionals by teaching them how to be more receptive in dealing with inevitable challenges and acquire more dynamic work skills in this constantly-evolving world. The theme of the event was "The Essentials of Management Skills in the Age of Disruption."

"This activity has broadened my understanding of my scope of work and helped me spot the major points of handling office stress and boss and employee management", said Ms. Sarah Faye Noble, administrative assistant of Administration & Finance Division.

Organized by Ariva Academy, the two-day summit has been packed with informative sessions given by nationally-acclaimed speakers, which the participants can use in the delivery of results they need to succeed in their professional career.

"As an administrative assistant, we are expected to do whatever it takes to keep the train moving amidst the uncertainties brought on by the constant changes we're up against. I am thankful that by participating in the said summit, I have been equipped with the essential tools and techniques that will guide me to manage my job with more confidence, respect, professionalism, efficiency, and productivity," according to Ms. Janelli Garibay, administrative assistant at the Office of the Deputy Chief.

Partially funded by the Staff Development Program, the activity served as a venue for the AQD administrative assistants to time out of their daily routine work in order to reenergize and obtain a new outlook on their priorities, goals, and careers. 📌

- JG GARIBAY



aqd matters

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Awareness on respiratory diseases

"Respiratory diseases, particularly upper respiratory tract infection (URTI), are one of the most common reasons for staff to visit our medical clinic," said AQD nurse Mr. Al Edward Omar Limoso during his seminar on Awareness on Respiratory Diseases last 16 August 2018.

Seventy AQD staff attended the seminar wherein Mr. Limoso shared how URTI is self-limited or can be resolved without treatment however it is contagious. The infection can spread from person to person by inhaling respiratory droplets from coughing and sneezing. It can also be transmitted by touching the nose or mouth by hand or other object exposed to the virus.

To prevent the spread of infection, proper handwashing and covering your mouth while coughing and sneezing is what Mr. Limoso advised. He also



shared that avoiding harmful air pollutants especially smoking, exercising regularly, having a balanced diet, and practicing proper hygiene can lead to a healthier respiratory system.

Mr. Limoso also included signs, symptoms and preventive measures for lower respiratory tract infections such as pneumonia, and bronchial asthma. 📌

- JM DE LA CRUZ

Fish experts call for proactive approach to \$6 billion problem



Resource persons, country presenters, consultants and working staff present during the ASEAN RTC on AEPRS

BANGKOK, Thailand – Representatives of ASEAN member states called for proactive approaches to address diseases in farmed aquatic animals that is costing the region almost six billion dollars annually.

“Disease is the number one issue in limiting yield, reducing profit and preventing investment,” said Dr. Melba Reantaso, an aquaculture officer from Food and Agriculture Organization, during a recent consultative workshop held to examine the ASEAN region’s readiness and response system for aquatic diseases.

Fish health experts and industry representatives from around Southeast Asia agreed that setting up biosecurity systems in farms and hatcheries are more cost-effective and better than having to find solutions once diseases hit.

“Emergency preparedness is the ability to respond effectively and in a timely fashion to disease emergencies and early warning is having advance

knowledge of high risk diseases likely to threaten biosecurity,” Dr. Reantaso added.

In the workshop, country representatives and members of the private sector identified workable ways to establish a functional and effective engagement on emergency preparedness and response system in each country.

“Aquatic animal disease outbreaks are likely to continue and there will be more new threats to come,” said Dr. Eduardo Leaña, a coordinator from the Network of Aquaculture Centres in Asia-Pacific (NACA) who reviewed the history and impact of transboundary diseases on ASEAN aquaculture.

According to Dr. Reantaso, emergent diseases in aquaculture are mainly driven by trading of live animals and products, limited stakeholder knowledge on pathogens and their hosts, poor aquatic management and health control, and changes in the ecosystem.

Collaborative approach

Meanwhile, Dr. Leaña suggested to have a collaborative approach between research, government and the industry in coming up with a system on preventing and responding to aquatic diseases.

Lack of collaboration was the main gap identified during the workshop. Lack of funding and resources and poor information sharing and seeking efforts were other identified gaps.

The ASEAN Regional Technical Consultation on Aquatic Emergency Preparedness and Response Systems for Effective Management of Transboundary Disease Outbreaks in Southeast Asia was held last 20-22 August 2018. It was organized by the Aquaculture Department of the Southeast Asian Fisheries Development Center together with NACA and Department of Fisheries-Thailand with funding from the Japan-ASEAN Integration Fund. [a](#)

- JM DE LA CRUZ



COLLABORATION. A group of government officials and representatives from the private sector and research institutes identify gaps in the region’s aquatic emergency preparedness and response systems during the workshop