



AQD Chief, Dan Baliao is eyeing to revive the multi-million dollar tiger shrimp industry under the initiative "Oplan Balik Sugpo."

aqdmatters

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

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Baliao is new SEAFDEC/AQD Chief

Dan D. Baliao has been appointed to head the Aquaculture Department (AQD) of the Southeast Asian Fisheries Development Center (SEAFDEC) based in Tigbauan, Iloilo effective 7 September 2017 to serve a two-year term.

A former researcher and aquaculture specialist at AQD, Baliao was endorsed by the Philippine Department of Agriculture and was nominated by President Rodrigo Duterte to the SEAFDEC Council. His nomination was then approved by majority of the Council Directors consisting of representatives from SEAFDEC member countries.

Baliao, has previously headed AQD's Technology Verification & Commercialization Division, Administrative & Finance Division, Dumangas Brackishwater Station, and the former Leganes Research Station. He has published papers in peer-reviewed

scientific journals and authored numerous aquaculture extension manuals covering commodities such as milkfish, black tiger shrimp, white shrimp, freshwater prawn, grouper, mud crab, and tilapia.

He has also previously served as International Consultant of the Food and Agriculture Organization of the United Nations and served in assignments in Myanmar, Palau, Timor Leste, Kiribati, Marshall Islands, and the Philippines.

Baliao obtained his MSc in Fisheries (major in Aquaculture) from the University of the Philippines (UP) in 1978 and his BSc in Biological Sciences from UP Iloilo in 1974.



SEAFDEC is a regional treaty organization established in 1967 to promote fisheries development in Southeast Asia. Member countries include Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam. AQD, one of SEAFDEC's five departments, is dedicated to aquaculture research and development. 

- RD DIANALA



Tracking of citations underlined in information staff meeting

SINGAPORE – Stephen Alayon, acting head of the AQD Library, urged SEAFDEC researchers to create Google Scholar profiles using their official email addresses to properly link and credit their authored articles to SEAFDEC thereby getting a better picture of the organization’s research impact.

Alayon, speaking during the Eighteenth Meeting of the SEAFDEC Information Staff Program (ISP) held here 10-12 October, demonstrated on the use of online tools currently being used by AQD to monitor the citations of published articles by its researchers.

The Meeting resolved that proper monitoring of citations will provide a gauge for the utility of SEAFDEC

publications to the public and allow researchers to respond to such needs.

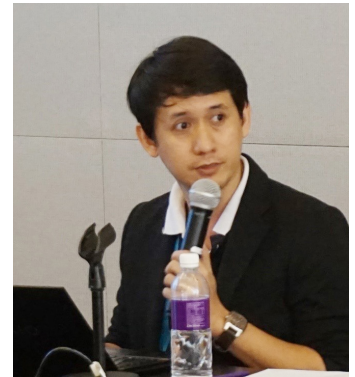
Alayon also shared on the AQD experience of providing incentives to researchers who publish in international peer-reviewed journals. Other SEAFDEC departments were encouraged to come up with similar systems to motivate staff to publish more technical material.

Meanwhile, improvements on the AQD website (www.seafdec.org.ph) and usage statistics were reported by Rex Delsar Dianala and Joesyl Marie dela Cruz, acting head and information assistant, respectively of AQD’s Development Communication Section.

For this year, the AQD website was improved to integrate an automated translation tool, an events widget linked to the AQD Facebook page, and an improved menu structure. On the backend, the website’s accessibility was reported to have improved to 99.9%.

Other matters reported during the meeting include the progress on the implementation of information strategies for 2017, preparations for the SEAFDEC annual report, calendar, and new year card for 2018.

The ISP meeting is held annually to facilitate the monitoring of the progress and achievements in the implementation of information



Acting Head of the AQD Library, Stephen Alayon, shares methods on monitoring the number of citations of SEAFDEC/AQD publications

activities and to discuss future initiatives to enhance the visibility of SEAFDEC. Participants include information staff from the SEAFDEC Secretariat and the five departments. **a**

- RD DIANALA



Participants of the Eighteenth Meeting of the SEAFDEC Information Staff Program from the Secretariat and different departments



The meeting in session at the Mercure Singapore Bugis

Steps in creating a Google Scholar profile

Step 1: Create your basic profile

Log on to scholar.google.com and click the “My Citations” link at the top of the page to get your account setup started.

Step 2: Add publications

Google Scholar will provide a list of publications it thinks belongs to you. Select which ones you want to add to your profile.

Step 3: Make your profile public

Your profile is private if you have just created it. Change your profile visibility by clicking “Edit” next to “My profile is private” and then select “My profile is public” in the drop-down box.

Oyster research presented in Int'l Oyster Symposium

WALES, United Kingdom – To support the goal of achieving the sustainable expansion of global oyster production, SEAFDEC/AQD scientists Dr. Ma. Junemie Hazel Lebata-Ramos and Dr. Rolando Pakingking, Jr. presented their studies at the 7th International Oyster Symposium (IOS) last 11 to 14 September 2017.

Dr. Lebata-Ramos received the World Oyster Society Early Stage Investigator Award (2nd place) for her presentation on a new method to produce single, quality oysters with meatier and juicier flesh. The new method her team developed utilizes

wild or hatchery-produced spat which are reared in pouches and hung from floating rafts.

Compared to the traditional methods (stake, hanging, long-line, and lattice) that produce clustered oysters of varying shapes and sizes, the new method produced single oysters in almost uniform shapes and sizes.

Meanwhile, Dr. Pakingking talked about relaying of oysters in clean sites upon finding high levels of microbial loads in oysters produced in coastal communities of Panay Island. His study includes assessment

and selection of relaying locations and development of relaying protocols, recommendation of adopting environment-friendly culture methods and establishment of a government program for shellfish sanitation.

The studies by both scientists were done with funding from the Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development of the Department of Science and Technology.

The symposium, attended by participants from over 18 countries, was organized by



Dr. MJH Lebata-Ramos presents her award-winning study on single oyster grow-out culture. PHOTO BY J BROWN

the World Oyster Society and was held in Pontio Centre for Innovation and Arts of Bangor University. [a](#)

- JM DELA CRUZ

SEAFDEC/AQD scientist, advisory panel member for FAO meeting on agricultural biotechnologies

KUALA LUMPUR, Malaysia - Maria Rowena Romana-Eguia, a scientist at SEAFDEC/AQD, was invited to be a member of the advisory panel of a “Regional Meeting on Agricultural Biotechnologies in Sustainable Food Systems and Nutrition in Asia-Pacific” of the Food and Agriculture Organization (FAO) of the United Nations on 11-13 September 2017 in Kuala Lumpur Malaysia.

Eguia also presented her paper on “DNA Marker applications in the management of farmed aquatic genetic resources in the Philippines” and chaired a session on “Social and Economic Impact of Agricultural Biotechnologies for Communities.”

The meeting was convened by FAO to address needs and concerns regarding



MRR Eguia presenting her paper in the session on “Conservation, characterization and sustainable use of genetic resources for food and agriculture”

biotechnologies at the regional level. It is the first of four regional meetings on agricultural biotechnologies scheduled in 2017 and 2018. Succeeding meetings will be held in Sub-Saharan Africa, Latin America and North Africa. [a](#)

- RH LEDESMA

SEAFDEC/AQD joins BFAR Workshop

SEAFDEC/AQD chief Dan Baliao, executive officer Mr. David Villaluz and associate scientist Dr. Nerissa Salayo participated in the first of the three series of BFAR’s Comprehensive Postharvest, Marketing and Ancillary Industry Plan (CPHMAIP) Workshop held in Tanza, Cavite on 27-29 September 2017.

The first workshop conducted benchmarking and direction setting to develop framework and strategies for the establishment of fisheries postharvest operations and ancillary industries.

On the other hand, SEAFDEC/AQD scientist Dr. Ma. Lourdes Aralar participated in the second workshop conducted on 24-26 October 2017. The workshop focused on the identification of gaps and SWOT Analysis.

The last workshop will be held on 14-15 November 2017. [a](#)

- ND SALAYO



Algal paste a boon for emerging sea cucumber hatcheries

The use of algal paste will make it easier for hatcheries to operate without the need to maintain a laboratory facility and an array of expensive algal culture tanks to produce plankton as feed for aquaculture species.

“It is very expensive to put up your very own phycology laboratory and it is equally difficult to find a laboratory that produces enough food for our hatcheries,” said Glycinea De Peralta, a professor of Cagayan State University in Aparri, currently participating in a special training course on the “Preparation and use of commercially available algae concentrates for hatchery production of sea cucumbers (sandfish)” at the Southeast Asian Fisheries Development Center (SEAFDEC) Aquaculture Department (AQD).

Concentrated algae in paste form is an alternative for live algal food for many aquatic animals during their early development phase in the hatchery. Some commercial variants have been successfully tested for use in sandfish larval culture by Dr. Nguyen Dinh Quang Duy, an aquaculture practitioner and researcher from the Research Institute of Aquaculture 3 (RIA 3) in Nha Trang, Viet Nam. Dr. Duy is the invited lead resource person for this training course.

The paste is commercially-available, cost-effective, handy and free from contaminants. Even small-scale hatchery

operators can potentially engage in sandfish production and eventually save money, time and effort. Algae pastes can be easily stored in an ordinary refrigerator and can last up to six months.

“Through this training, it would be easier for us to just purchase the algae paste and use it to feed our [larval] commodities,” said De Peralta who is among the 14 participants from the government, academe, and research institutions in the Philippines attending the training course at SEAFDEC/AQD’s Tigbauan Main Station in Iloilo.

Jon Altamirano, Associate Scientist at SEAFDEC Aquaculture Department, revealed that the same concentrated algal paste is yet to be locally available in the Philippines but the Department is already looking forward to studying and assessing this technology for local adoption. “It is hard [for local operators] to source this imported product but SEAFDEC/AQD is looking into formulating and producing our very own algae paste and to make it available locally,” Altamirano said.

The special training course running from October 23 to 30 is part of SEAFDEC/AQD’s ongoing collaborative project on sea cucumber production with support from the Australian Centre for International Agricultural Research. **a**

- JM DELA CRUZ

SEAFDEC/AQD scientists talk at the National Science and Technology Week celebration in MIMAROPA

Dr. Ma. Lourdes Aralar and Dr. Nerissa Salayo, scientists at SEAFDEC/AQD, were invited by DOST-MIMAROPA (Region IV-B) to be resource speakers for the “Forum on the Effects of Climate Change on Fisheries and Aquaculture” held last 16 August 2017 at the Virginia Centurione Bracelli School in Odiongan, Romblon.

Dr. Aralar talked about Climate Change Impacts and Mitigation for Fisheries and Aquaculture. She discussed the major climatic changes that can potentially affect fisheries and aquaculture such as ocean acidification, warming, extreme weather, and sea level rise. The vulnerabilities of different aquatic environments were presented vis-à-vis the small-scale and artisanal, large scale marine, and inland fisheries sectors. Mitigation measures are suggested such as diversification of culture species, selective breeding, nutritional studies as well as alternative farming systems.

The presentation concludes with climate change adaptation goals.

Meanwhile, in view of the climate change impacts discussed, the outcomes of Community-Based Resource Enhancement (CBRE) projects in Sagay Marine Reserve in Negros Occidental and New Washington Tributaries in Aklan which survived super typhoon Yolanda in 2013 are presented as a potentially climate-resilient fisheries production strategy and sustainable income source for vulnerable coastal communities. These CBRE projects released juveniles produced through aquaculture to rehabilitate degraded abalone (*Haliotis asinina*), sandfish (*Holothuria scabra*) and tiger shrimp (*Penaeus monodon*) fisheries.

Dr. Aralar and Dr. Salayo also participated in the science fairs and site visit of successful DOST-SETUP projects. **a**

- ND SALAYO



Dr. Vernoni Dulalia taking down notes during a practical activity on pond water quality monitoring at SEAFDEC/AQD's Dumangas Brackishwater Station in Dumangas, Iloilo
PHOTO BY EV ANTOLINO

Physician turns to aquaculture biz, gets training

Prompted by the gains of her milkfish farm, Dr. Vernoni Dulalia, a medical doctor based in Manila, is now taking the aquaculture business more seriously and signed up for training at SEAFDEC/AQD.

Dr. Dulalia's first venture was not good when she only harvested 3 tons of small-sized bangus from stocking 30,000 fry. After getting some technical advice, her second run earned her P550,000 in profits.

Realizing the importance of proper pond management, Dr. Dulalia signed up to attend a training program on "Milkfish culture in brackishwater ponds" at SEAFDEC/AQD. The 20-day training course that includes lectures and practical activities provides the participants with technical knowledge and skills on nursery and grow-out operations of bangus.

Dulalia was impressed with the vast knowledge of SEAFDEC/AQD resource persons on bangus culture. She

also expressed appreciation for the practical solutions on problems that may be encountered during farm operations, which were shared by the resource persons to them..

Armed with new knowledge, she claimed that she can now confidently manage the operations of her fish pond. Dulalia is confident that she can apply skills learned from the training right there in her 31-hectare fishpond in Dumangas, Iloilo where she already installed new facilities such as an acclimation area. "I love my training experience at SEAFDEC/AQD. I will recommend it to other people who would be interested in bangus culture," said Dulalia.

SEAFDEC/AQD conducts regular training yearly with funding support from the Government of Japan (GOJ) in the form of Fellowship Grants. Specialized training is also conducted to cater to the needs of the requesting group or individual. **a**

- RH LEDESMA/MET ALDON

Fish farmers in Northern Iloilo learn grouper culture

To help fish farmers from Northern Iloilo develop the technical skills on grow-out culture of grouper, the Adventist Development and Relief Agency (ADRA) in collaboration with SEAFDEC/AQD, conducted two training courses on grouper on 29-30 August 2017 in Concepcion and 31 August-1 September in Ajuy.

Dr. Evelyn Grace de Jesus-Ayson, a marine fish expert at SEAFDEC/AQD, talked about the biology and physiology, broodstock management, seed production, nursery production, and grow-out culture of grouper.

In addition, Ms. Gregoria Pagador, a researcher at the Fish Health Section of SEAFDEC/AQD, discussed the common diseases/parasites and health management of grouper. Practical sessions on parasite detection and tissue sampling methods were also conducted.

ADRA is a humanitarian agency in the Philippines operated by the Seventh-day Adventist Church for the purpose of providing individual and community development and disaster relief. **a**

- RH LEDESMA



Dr. Evelyn Grace de Jesus-Ayson gives a lecture on overview of marine fish culture.
PHOTO BY EV ANTOLINO



Ms. Gregoria Pagador demonstrates to the participants the procedure on how to dissect a grouper for parasitic analysis. PHOTO BY EV ANTOLINO

RESEARCH SEMINARS

Genetic assessment of Milkfish (*Chanos chanos*) stocks based on novel microsatellites for marker-aided broodstock management

Dr. Maria Rowena Romana-Eguia, a scientist at SEAFDEC/AQD, talked about this study on 3 October 2017 in a seminar held at Tigbauan Main Station.

Dr. Romana-Eguia discussed that milkfish hatchery broodstock are either from on-grown wild-caught or hatchery-produced fry/juveniles. She and her team investigated if a marker-assisted management scheme can be formulated to improve milkfish hatchery production.

The milkfish stocks were genetically characterized using nine novel microsatellite or short tandem repeat markers. The milkfish stocks assessed were eight wild-bred stocks from the Philippines, five local hatchery-bred stocks, two farm stocks of known mixed lineages, and one Indonesian hatchery-bred stock.

Dr. Romana-Eguia explained that hatchery-bred stock from Indonesia was included since milkfish fingerlings coming from this stock reared in Philippine farms, can be developed into future broodstock.

The results of the study showed that the Indonesian stock was similar to local wild-bred stocks based on genetic variability indices. Therefore, it is possible that local stocks' fitness traits could be comparable with imported milkfish stocks that are perceived to be better. [a](#) - RH LEDESMA



Evidences for Advancing Aquaculture-Based and Community-Based Enhancement of Abalone *Haliotis asinina* in Coastal Areas in the Philippines

Most enhancements are likely to succeed only in no-entry no-take reserves but according to SEAFDEC/AQD's associate scientist Dr. Nerissa Salayo, fisherfolks can still access stocks in Sagay Marine Reserve in a monitored and regulated manner through aquaculture-based enhancements.

Dr. Salayo's study, "Evidences for Advancing Aquaculture-Based and Community-Based Enhancement of Abalone *Haliotis asinina* in Coastal Areas in the Philippines," which she presented in a research seminar last 11 October 2017 at AQD's Tigbauan Main Station, show that releasing of abalone stocks in a multi-use area, like in Molocaboc reef, can be a viable fisheries management intervention to both replenish stocks and revive fisheries.

As a result, the Community-Based Resource Enhancement (CBRE) site enabled rebuilding the depleting stocks based on the data from 2011 to 2016. Dr. Salayo's team monitored the catch per unit effort, shell length, body weight and body mass index of abalone found in the CBRE site which include the released hatchery-bred stocks, wild abalone and possibly recruits from wild and released stocks. The methodology can be easily replicated in other coastal communities in the Philippines.

CBRE is under the program on Stock Enhancement of Threatened Species funded by the Government of Japan – Trust Fund. [a](#) - JM DELA CRUZ

Farming model changes and their rationale after seven years of farming of *Holothuria scabra* in Southwest Madagascar sea pens

Mr. Timothy Mark Klückow of Blue Ventures Conservation presented his experience on sea cucumber (*Holothuria scabra*) farming in Madagascar in a research seminar held at AQD's Tigbauan Main Station last 11 October 2017.

Community-based farming of sea cucumbers in sea pens was shown to have considerable economic potential for communities along Madagascar's sheltered southwest coastline. Specifically, in Tapolove where Mr. Klückow and his team successfully run a 7-year-old farm that ultimately became the main source of income of the community members. However, due to the outbreak of the Ulceration Syndrome, stocking of juvenile sea cucumbers was suspended.

Blue Ventures took advantage of the latency period to review the farming model and techniques like the need for protective nurseries for juvenile, the effect of biomass density, stress handling, and non-fallowing of sediments on the growth and survival of sea cucumbers, and investigate the potential for broodstock selection strategies to increase farm productivity.

Trials and monitoring of animals were conducted for six months in 2016 at Tapolove - an area where sea cucumbers have been continuously farmed for seven years. The results were as follows: (1) protective nurseries did not significantly improve survival of stocked juveniles; (2) using stocking strategies that increased the biomass density to a maximum stunted the growth of sea cucumbers; (3) handling stress did not show any significant effect in the growth of sea cucumbers; (4) using fallow periods is not necessary to maintain high levels of growth; and (5) selection of shooters for broodstock shows high potential to increase productivity.

The results of these experimental trials and farming strategy improvements will be used in the development of an improved sea cucumber farming model for communities in Southwest Madagascar. [a](#) - JM DELA CRUZ



Updates on Handling of Chemicals, Laboratory Accreditation Guidelines on the Use of LFAAT

Engr. Margarita Arnaiz, SEAFDEC/AQD's laboratory manager, apprised the research staff of AQD about the updates on handling of chemicals, laboratory accreditation, and the guidelines on the use of the Laboratory Facilities for Advanced Aquaculture Technologies (LFAAT) on 19 October 2017 at Tigbauan Main Station.

Engr. Arnaiz informed the AQD research staff that a globally harmonized system (GHS) of classification and labeling was developed that is spearheaded by the United Nations' various related organizations. She also said that the hazard symbols used in the labels at LFAAT were already changed in compliance with GHS.

She also explained that laboratory accreditation is a process by which a testing or calibration of a laboratory's competence is being recognized by an authoritative body. According to Engr. Arnaiz, ISO/IEC 17025 specifies the requirements of a testing or calibration of a laboratory for accreditation. LFAAT's journey towards ISO accreditation was also presented.

An orientation on the general guidelines in using laboratory facilities was also made for LFAAT users. [a](#) - RH LEDESMA

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SEAFDEC/AQD displays new tech, programs at Agrilink 2017

PASAY, Manila – Four new aquaculture technologies on various commodities and a program on reviving the giant tiger shrimp industry were presented at the 24th Agrilink last 5-7 October 2017 at the World Trade Center.

SEAFDEC/AQD highlighted a ‘cloning’ technique that improves the growth of seaweeds. Aside from ensuring fast growth of seaweeds, this technique makes it more resistant to diseases.

The new method of using pouches in rearing oysters was also presented. This method, compared to the traditional ones (stake, hanging, longline and lattice), produced single oysters in almost uniform sizes with meatier flesh.

The farming of soft-shell crab using ‘individual crab culture system’ is another interesting display at the exhibition. The new culture system, adopted from projects in Thailand and Myanmar, prevents cannibalism among crabs during molting. Soft-shell farming is one of the most in-demand and profitable business since this technique lessens food waste since all parts of the crab can be eaten when cooked.

Another commodity featured at SEAFDEC/AQD’s booth is abalone. It is a high-



SEAFDEC/AQD Chief Dan Baliao and scientist Dr. Maria Rowena Eguia talk with Deputy Head of Mission for Embassy of South Africa Ms. Tshire Kau and Department of Agriculture, Forestry and Fisheries of South Africa in Japan representative Mr. Sitembele Kelembé. PHOTO BY RD DIANALA

value commodity being a gourmet seafood export of the Philippines. But it is slowly losing stock in the wild due to high fishing pressure. Thus, at the Agrilink exhibit, SEAFDEC/AQD introduced its Community-Based Resource Enhancement (CBRE) project, with funding support from the Government of Japan-Trust Fund (GOJ-TF). The project involves releasing of hatchery-bred abalone juveniles in suitable protected sites that can rebuild depleted resources, supplement livelihoods and can improve the supply of abalone in local and export markets.

SEAFDEC/AQD’s plans on reviving the giant tiger shrimp industry was also highlighted. The Department will be committed to

creating new and efficient culture technologies, finding effective and practical disease prevention and control strategies and providing technical assistance through training and information dissemination.

Agrilink 2017, organized by the Foundation of Resource Linkage and Development, Inc., garnered over 25,000 visitors during the three-day expo. **a**

- JM DELA CRUZ



Visitors show interest in the new culture system for soft-shell crab farming. PHOTO BY IT TENDECIA

SEAFDEC/AQD seminars at Agrilink



Over a hundred attendees packed the Hidalgo Room of the World Trade Center in Pasay City as SEAFDEC/AQD conducted free aquaculture seminars last 7 October 2017 during the Agrilink exhibition.

Scientists Ms. Maria Rovilla Luhan, Dr. Emilia Quintio, and Dr. Ma Junemie Hazel Ramos shared SEAFDEC technologies on clonal propagation and culture of *Kappaphycus*, soft-shell crab farming and culture of single oysters, respectively. Meanwhile, Dr. Rolando Pakinging spoke on emerging disease threats in Philippine shrimp farming. **a**

- RD DIANALA

Tilapia Congress participants check out SEAFDEC/AQD publications

More than 150 participants of the 5th Tilapia Congress visited SEAFDEC/AQD’s booth to check the various publications of the Department on aquaculture. The event was held on 12-13 October 2017 at San Fernando, Pampanga. **a**



PHOTOS BY N DELA CRUZ