

SEAFDEC/AQD's dedicated employees have been the foundation of its success for half a century in its quest to promote innovation, sustainability, and excellence in aquaculture throughout Southeast Asia.



aqdmatters

July-August 2023

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

In line with its 50th anniversary,

SEAFDEC/AQD's new facilities to boost milkfish, shrimp production

SEAFDEC/AQD inaugurated two new facilities, the Black Tiger Shrimp Broodstock Facility and the Milkfish Larval Rearing Facility, on 3 July 2023 as part of its 50th anniversary celebration.

The shrimp and milkfish industries face challenges such as the lack of hatchery facilities and the shortage of aquaculture seeds. Shrimp farming has particularly been affected by disease outbreaks, resulting in significant losses for farmers.

The new facilities at SEAFDEC/AQD aim to address these challenges by providing disease-free shrimp breeders and high quality milkfish seeds, thereby supporting the sustainable growth of the industries.

“These new facilities will be instrumental in fulfilling SEAFDEC/AQD’s mandate of primarily developing aquaculture technologies through relevant research and development,” said



Ribbon-cutting ceremony was led by Research Division Head Dr. Leobert de la Peña (fifth from right), Iloilo Governor Arthur Defensor Jr., Chief Dan Baliao and BFAR-6 Director Remia Aparri. Photo by NG Armada

Chief Dan Baliao in a message.

In his welcome remarks, Research Division Head Dr. Leobert de la Peña stated that the facilities could provide high-quality aquaculture seeds to fish farmers and help solve the shortage of aquaculture seeds in the Philippines.

“This aims to supply hatcheries with disease-free shrimp breeders (*Penaeus*

monodon) and contribute to the *Oplan Balik Sugpo* program to reinvigorate the tiger shrimp industry in the country,” de la Peña said.

The Black Tiger Shrimp Broodstock Facility is estimated to produce 80 million postlarvae annually. It boasts four 120-ton broodstock tanks with a total holding capacity of

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Six aquaculture manuals unveiled in SEAFDEC/AQD'S 30th Book Launching



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1,440 breeders, ideally 960 females and 480 males.

The facility was also established to address the problem of virus-infected shrimp spawners.

The Milkfish Larval Rearing Facility, on the other hand, is composed of 12 larval rearing and 12 natural food tanks that are estimated to produce an additional 10.8 million to 18 million fry. In 2022 before the tanks were completed, SEAFDEC/AQD produced 6.6 million milkfish fry.

The facility is expected to expand the research institution's fry production and capacity to supply farms.

As part of his Movement for a Robust, Progressive, Globally Competitive, and Resilient Province of Iloilo (MoRProGRes Iloilo) agenda, Governor Arthur Defensor Jr. noted in his keynote address that the launch of the two new facilities was timely to his vision of increased food security in the province.

Defensor also announced his plan to launch a localized research and development program in partnership with the state universities and colleges (SUCs), private schools, and SEAFDEC. 📍

— NG ARMADA

Chief Baliao graces bilateral talk between PH, Papua New Guinea

RECOGNIZING the importance of SEAFDEC/AQD in the development of aquaculture and fisheries in the Philippines and Southeast Asia, the research institution was invited by the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) to participate in a bilateral meeting between the Republic of the Philippines and the Independent State of Papua New Guinea (PNG) through its National Fisheries

Authority.

One of the agenda of the meeting, discussed last 20 July 2023 at the RDEC Agricultural Training Institute in Quezon City, was the possible partnership of PNG with SEAFDEC/AQD – a move that would strengthen the ties between the two countries in terms of aquaculture collaboration. SEAFDEC/AQD was represented by Chief Dan Baliao.

“We have a detailed discussion about the plan. Overall, it was a positive and

productive one. I hope this collaboration will serve as an accelerator that would propel the aquaculture industry between the two countries to overcome challenges and achieve sustainable growth in the aquaculture sector,” said Chief Baliao.

“I am confident that this collaboration would pave the way for future partnerships and contribute to the overall economic development of both nations,” he added. 📍

— NG ARMADA



Executive Committee members engage in dialogue at global aquaculture conference



SEAFDEC/AQD's Executive Committee members take a pose with their fellow delegates.

CHIEF Dan Baliao and division heads Dr. Leobert de la Peña (Research Division), Dr. Roger Edward Mamaug (Technology Verification and Extension Division),

and Dr. Edgar Amar (Training and Information Division) participated in The Aquaculture Roundtable Series (TARS 2023) last 16 to 17 August 2023.

The event in Bali, Indonesia, gathered global aquaculture experts, including 253 attendees from 24 countries, creating a platform for meaningful discussions about key challenges facing the shrimp aquaculture industry.

During the two-day conference, speakers gave informative talks focusing on the revitalization of Asia's shrimp aquaculture industry. It also featured insightful presentations, industry dialogues, and interactive roundtable sessions that explored topics like developing traceability along the supply chain. 📍

— NG ARMADA

Strengthening bonds and cultivating skills: The SEAFDEC/AQD OJT Program

IN a short time, SEAFDEC/AQD has once again become a hub for cultivating skills and fostering deep friendships among a diverse group of on-the-job trainees (OJTs) from various schools and universities across the Philippines.

A recent OJT night, held on 26 July 2023, gathered 138 students from 20 educational institutions nationwide enrolled in the SEAFDEC/AQD OJT Program.

These students were enrolled in the research institution's OJT Program, a testament to the Department's reputation for providing practical aquaculture knowledge and hands-on skills. The Program supplements the students' theoretical orientation in school by giving them opportunities to assist in the ongoing research and verification studies, allowing them to apply what they've learned in the classroom to real-world scenarios.

The OJT night, a vibrant event packed with engaging games and contests, gave trainees a respite from their daily routines and served as a bridge for forging connections and friendships amidst the rich tapestry of diversity present in the group.

Pahsalia Mansungayan, a student from Maguindanao State University, Marawi, succinctly captured the essence of the evening, stating, "During the OJT Night, OJTs and interns united to build connections and relationships despite the diversity of culture and beliefs." Indeed, blending ideas, knowledge sharing, and joyful laughter crossed cultural and social boundaries, forming long-lasting bonds.

Caryl Vincent Genzola, the officer-in-charge of the Training Section that organized the event, expressed hope that the bonds formed would endure through time.

SEAFDEC/AQD, located in Tigbauan, Iloilo, offers an OJT program where students are assigned to various hatcheries and laboratories, working under the supervision of experts and engaging in hands-on activities. This intensive

experience attracts hundreds of students every year.

Students like Saguirah Mlah from MSU-Maguindanao and Theanny Kaye Alonzo from the University of Antique-Tarao Lim Memorial Campus have spoken highly of the OJT Program.

"SEAFDEC/AQD, as one of the leading research and aquaculture institutions, pushed me to choose it despite its distance from my hometown. As my former instructor said, 'Invest in your education,' always hit me whenever I have a good opportunity to learn. Without any doubt, I chose SEAFDEC/AQD because, for me, this is the best investment ever. The technical and practical learnings from this institution are priceless. Indeed, they are transforming students' knowledge from zero tidal datum to highest high tide," Mlah said.

"I've had a great chance to develop my technical knowledge, communication skills, and negotiation abilities, thanks to the OJT program," Alonzo seconded.

Harold Jay Dalayagon from Davao del Norte State College underlined the Program's significance in honing skills and knowledge.

"The research institution is not just an area for aquaculture but also for cultivation studies, which helps the scientific community gain more information about a species to help them to be introduced in the market and provide the marketable species to have more quality, which also helps the society and its citizens," he added.

The OJT program at SEAFDEC/AQD is more than just an academic activity; it is a life-changing experience that teaches students practical skills and builds long-lasting friendships. **a**



SEAFDEC/AQD, as one of the leading research and aquaculture institutions, pushed me to choose it despite its distance from my hometown. As my former instructor said, 'Invest in your education,' always hit me whenever I have a good opportunity to learn. Without any doubt, I chose SEAFDEC/AQD because, for me, this is the best investment ever. The technical and practical learnings from this institution are priceless. Indeed, they are transforming students' knowledge from zero tidal datum to highest high tide."

-Saguirah Mlah



aqd matters

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Week-long 50th Anniversary Celebration

FOR half a century, SEAFDEC Aquaculture Department has been at the frontlines of advancing aquaculture development in Southeast Asia through research, developing culture technologies, and equipping its stakeholders with practical skills and relevant information. As it marks its golden anniversary, SEAFDEC/AQD reaffirms its commitment to champion science-based technologies that will empower the people, contribute to prosperity, and build food security in the region.

From the 30th of June to the 7th of July, the research center commemorated its 50-year milestone with a week-long series of activities – from a clean-up drive of its surrounding coastal communities to sharing aquaculture updates with fish farmers. **a**

— JMD ARANAS



Dr. Edgar Amar, a 2022 retiree, was honored with the Certificate of Recognition by Chief Dan Baliao. Dr. Amar gave a heartfelt speech on behalf of the retirees.



An aquaculture research talk was held on 6 July 2023, drawing hundreds of students and faculty members from various high schools and institutions in Panay and Mindanao. Photo by NG Armada

Iloilo Gov. Arthur Defensor Jr. is the keynote speaker during the inauguration of the Black Tiger Shrimp Broodstock Facility and the Milkfish Larval Rearing Facility on 3 July 2023. According to him, the launch of the two new facilities was timely to his vision of increased food security in the province. Photo by NG Armada





SEAFDEC/AQD's 50th Anniversary logo



Chief Dan Baliao tours Iloilo Gov. Arthur Defensor Jr. at the Milkfish Larval Rearing Facility. Photo by NG Armada



Ms. Malinee Smithrithee, SEAFDEC Secretary-General, gives a message during the Chief's night on 07 July 2023.



Former SEAFDEC/AQD Deputy Chief Dr. Chihaya Nakayasu (left) and SEAFDEC Deputy Secretary-General Dr. Tomoko Nakazato lead the ceremonial toast during the Chief's Night on 07 July 2023.



Dr. Farshad Shishehchian of the Blue Aqua International Pte. Ltd., Singapore, lectures on the topic "Introducing a Novel Approach to Super-Intensive Farming: Mixotrophic System" during the 29th Dean Domiciano K. Villaluz Memorial Lecture on 06 July 2023. Photo by EV Antolino



The Aquaculture Exhibit at the FishWorld Museum was formally opened last 03 July 2023. The exhibit showcases the different commodities studied at SEAFDEC/AQD. Photo by NG Armada

6 aquaculture manuals unveiled in SEAFDEC/AQD's 30th Book Launching

SIX new aquaculture extension manuals penned by SEAFDEC/AQD's scientist, experts, and researchers were introduced and distributed during the institution's 30th Book Launching on 4 July 2023 in Tigbauan, Iloilo.



Attendees of the book launching event receive free aquaculture extension manuals from SEAFDEC/AQD. Photo by NG Armada

The books – covering topics on the cultivation of sea cucumber, rabbitfish, natural larval food, tiger shrimp, and pompano – were distributed to fifty attendees, comprised mostly of fisherfolks and local government fisheries personnel.

The first manual unveiled was the Aquaculture Extension Manual No. 69: Hatchery Production of Sea Cucumbers (Sandfish *Holothuria Scabra*), authored by Dr. Jon Altamirano and Mr. Jesus Rodriguez Jr., which provides for the consolidated methods, practical protocols, and good practices in sea cucumber breeding that were established within the past decade of research and development at the small-scale sea cucumber hatchery of the research institution.

It was followed by the Aquaculture Extension Manual No. 70: Nursery and Grow-out Culture of Rabbitfish *Siganus guttatus* in Brackishwater Ponds by Ms. Pedrita Caballero, Mr. Eliseo Coniza, and Mr. Rheniel Dayrit, which provides an update on the current techniques for nursery and grow-out culture operations of the rabbitfish.

The next one is the Aquaculture

Extension Manual No. 71: Culture of Natural Food for Farmed Freshwater Fish and Prawn Larvae which is available in both English and Filipino. The manual is for local freshwater hatchery operators and their technicians to have a better understanding of how and why there is a need to culture natural food organisms as part of the standard larval rearing protocol and to boost fish and prawn seedstock production.

The manual was authored by Mr. Reylan Gutierrez, Ms. Mildred Rutaquio, Dr. Frolan Aya, and Dr. Maria Rowena Romana-Eguia.

Meanwhile, the Aquaculture Extension Manual No. 72: Black Tiger Shrimp (*Penaeus monodon*) Hatchery Operations Using Enhanced Biosecurity Measures, includes modifications on shrimp hatchery operations done by the Department to provide high-quality postlarvae for shrimp farming as well as the necessary protocols and biosecurity measures.

The manual was authored by Dr. Leobert de la Peña, Chief Dan Baliao, Dr. Roger Edward Mamaug, Ms. Janice Tambirao, Mr. Neil Dosado, Ms. Angelita Tillo, Mr. Renante Gatumbato, Ms. Nikka Failaman, Mr. Jebrham Navarro and Mr. Dayrit.

Aquaculture Extension Manual No. 73: Nursery and Grow-out Culture of Snubnose Pompano (*Trachinotus blochii*, Lacepede) in Marine Cages provides for the culture methods and good practices that are the products of research projects done at SEAFDEC/AQD and also tackles practical techniques useful to fish farmers interested in raising pompano in marine cages.

The manual was written by Dr. Mamaug, Chief Baliao, Dr. de la Peña, Mr. Michael Tesorero, Mr. Mateo Paquito Yap, and Mr. Dayrit.

Lastly, Aquaculture Extension Manual No. 74: Nursery and Grow-out Culture of Snubnose Pompano (*Trachinotus blochii*, Lacepede) in Brackishwater Ponds presents culture techniques and good practices developed through research done at the SEAFDEC/AQD and also tackles a viable technology that can guide fish farmers in raising pompano in brackishwater ponds.

The manual was written by Chief Baliao, Dr. Mamaug, Dr. de la Peña, Mr. Edgar Somblingo, Mr. Kyle Dyer Regatalio, and Mr. Dayrit.

These manuals are seen to guide and provide step-by-step instructions and valuable insights to enhance aquaculture operations, which in turn leads to profit for the fisherfolks and the development of the aquaculture industry. [a](#)

— NG ARMADA

Fish farmers, stakeholders gather for Farmers' Forum

MORE than a hundred fish farmers and industry stakeholders converged at SEAFDEC/AQD's Multi-Purpose Hall in Tigbauan, Iloilo, on 4–5 July 2023 to participate in the Farmers' Forum.

This event was organized as part of SEAFDEC/AQD's golden anniversary celebration, with the primary goal of updating and engaging farmers on the latest advancements in aquaculture technologies developed by the department on various commodities.

During the first day, Dr. Frolan Aya, the head of SEAFDEC/AQD's Binangonan Rizal Station, provided valuable insights into the breeding and culture of silver

therapon (*Leiopotherapon plumbeus*) as well as the groundbreaking technology on induced spawning and hatchery rearing of the species. Silver therapon is considered one of the most valuable edible native freshwater species, and it continues to be in demand in the market.

Dr. Aya, a freshwater aquaculture expert, has dedicated extensive research to hatchery technologies related to this commodity, and his hatchery technique for the species was granted a patent by the Intellectual Property Office of the Philippines.

The forum also delved into the "Prospects for Tropical Sea Cucumber

Aquaculture," with Dr. Jon Altamirano highlighting the significance of tropical sea cucumber species *Holothuria scabra*, commonly called sandfish, as a potential aquaculture commodity.

Dr. Altamirano's aim is to kickstart the sea cucumber industry in the Philippines through aquaculture. He encouraged participants to explore the farming of sandfish, a highly valued marine species typically caught in the wild and known locally as "balat" or "kiskisan."

On the other hand, researcher Marwin dela Cruz took the stage to discuss the production of tilapia and giant freshwater prawn in a biofloc system. His

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Filipinos, Thais train on marine fish hatchery



S EAFDEC/AQD recently concluded an intensive training course on marine fish hatchery operations which was attended by nine participants from the Philippines and Thailand. During their 36-day training, the trainees were equipped with comprehensive technical knowledge and practical skills in the areas of broodstock management,

spawning, and larval rearing of marine fishes. Spanning from the 19th of June to the 24th of July 2023, the training course offered an immersive experience to the learners, which included informative lectures and hands-on practical sessions on broodstock management of marine fishes, marine fish hatchery operations, natural food culture, nutrient requirements of marine

fishes, and feed formulation and preparation. The course, which was partly sponsored by the Government of Japan Trust Fund, also incorporated special subjects on biosecurity measures and protocols for hatcheries, fish health management, and nutritional diseases of marine fishes. [a](#)

— NG ARMADA

Training in marine fish hatchery organized for MAFAR-BARMM

SIX trainees from the Ministry of Agriculture, Fisheries, and Agrarian Reform (MAFAR) of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) recently completed a specialized training course focused on marine fish hatchery operations.

The training, held at the SEAFDEC/AQD's Tigbauan Main Station from 1 to 18 August 2023, aimed to equip participants with fundamental knowledge and skills on marine fish hatchery technologies, with a focus on high-value species, including milkfish, grouper, snapper, rabbitfish, seabass, and pompano.

During the 18-day program, they engaged in lectures and hands-on activities that delved into essential subjects such as the biology of marine fishes, broodstock management, hatchery operations, and nursery culture techniques. By blending theoretical insights with practical activities, the course sought to provide a holistic understanding of the intricate

processes involved in marine fish hatchery operations.

As part of their training, the group visited the Aklan Provincial Freshwater Tilapia Hatchery located at Aklan Agri-Aqua Demonstration Farm and Training Center. Moreover, they observed the milkfish fry harvest at the Aklan Provincial Multi-Species Fish Nursery in Baybay, Makato, Aklan. These visits gave them a chance to witness real-world applications of the knowledge gained during the course.

At the end of the training program, one of the trainees, Ms. Aida Kato, shared her thoughts during the closing ceremony, expressing her gratitude for the learning experience.

"The technology we have gained here is very significant in agri-fishery development in our region. Through the knowledge we have obtained from this training, we can uplift the livelihood of our dear fisherfolk and fish farmers and attain food sufficiency in our region," she shared.



MAFAR is the regional executive department of BARMM, tasked with overseeing agriculture, fishing, and agrarian reform-related matters. One of MAFAR's key responsibilities is to promote sustainable agri-fishery growth and development within the Bangsamoro region.

This specialized training course aligns with MAFAR's objectives, aiming to equip local professionals with the expertise needed to drive the agri-fishery sector forward. [a](#)

— NG ARMADA



A stakeholder consults various specialists regarding his specific concerns in farming and opportunities for investment. Photo by NG Armada

maintain optimal water quality, recycle nutrients, and reduce feed costs. Additionally, it allows aquafarmers to conserve water and feed inputs by using microorganisms to convert wastewater into a protein source.

Moreover, SEAFDEC/AQD's Deputy Chief, Sayaka Ito, shared updates on the ongoing research concerning various commodity species, including round scad (*galunggong*), slipper lobster, tropical eel, and kawa-kawa. On behalf of the research institution, he expressed the commitment to further develop aquaculture

technology for these new species.

"We will continue to develop aquaculture technology for these new species," he said while also encouraging continued support from the government of Japan for SEAFDEC/AQD's research endeavors.

The second day featured practical activities such as tilapia sex reversal, mangrove crab biology and species identification, sending samples for disease diagnosis/detection, natural food production, laboratory-scale feed preparation, and sea cucumber

hatchery and nursery management basics.

This two-day event served as an avenue for participants to acquire knowledge from industry experts, exchange ideas and experiences with fellow farmers, and gain insights into the latest advancements in aquaculture practices. [a](#)

— NG ARMADA

comprehensive presentation covered the development of biofloc system, pond preparation, stocking, feeding, monitoring, harvesting, and economic analysis.

Biofloc technology is an innovative approach in aquaculture designed to support intensive culture,

SEAFDEC/AQD at 37th PH Chemistry Congress in Bacolod

SEAFDEC/AQD showcased its range of analytical and laboratory services during the 37th Philippine Chemistry Congress held from 26 to 28 July 2023 at the SMX Convention Center in Bacolod City.

The featured services, offered by the institution's Laboratory Facilities for Advanced Aquaculture Technologies and Fish Health Section include chemical analyses, microbiological analyses, electron microscopy, bacteriology, histopathology, and PCR-based pathogen detection.

The three-day congress, attended by chemists from the academe, industry, and government, as well as students, also heard SEAFDEC/AQD Technology Verification and Extension Division head Dr. Roger Edward Mamauag who spoke at the plenary session about the challenges in aquaculture.

The scientist discussed the crucial role of SEAFDEC/AQD's formulation of low-cost feeds in the future advancement of aquaculture.

"Feeds account for more than 50 to 60 percent of the total production cost in aquaculture. We came up with

this formulation to lower the prices of feeds so that farmers can have high profits while the consumer could have affordable seafood products," he said.

Moreover, SEAFDEC/AQD brought its bookstore, where the public could access various information materials, including aquaculture manuals written by experts and specialists.

The Philippine Chemistry Congress is the biggest annual conference of chemists, chemistry educators, and chemistry researchers in the Philippines.

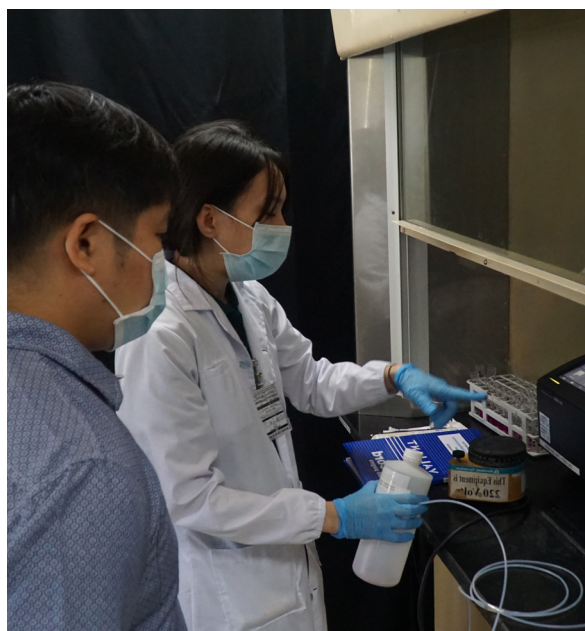
This year's theme, "Chemistry and Agriculture 4.0: Chemistry for Agriculture and Food Security," highlights the importance of chemistry in raising the level of agricultural productivity to attain food security in the country. [a](#)



Upon visiting the booth, exhibit participants receive flyers and free information materials from SEAFDEC/AQD. Photo by JF Aldon

— NG ARMADA

More lab services accredited to meet international standards



A representative of the Philippine Accreditation Bureau (PAB) evaluates the performance of accredited services at SEAFDEC/AQD's Centralized Analytical Laboratory. Photo by JF Aldon

SEAFDEC/AQD's service laboratory has earned accreditation for more of its analytical services after the Philippine Accreditation Bureau (PAB) evaluated their compliance based on PNS ISO/IEC 17025:2017 standards.

In their report released 15 July 2023, PAB expanded their accreditation of SEAFDEC/AQD's analytical services to include chemical analysis of feeds for crude fat and crude fiber.

This was after they conducted a first surveillance visit and special assessment on 20–22 February 2023 through which they also granted continued accreditation to SEAFDEC/AQD's Centralized Analytical Laboratory (CAL) Laboratory Facilities for Advanced Aquaculture Technologies (LFAAT) until 20 October 2026.

CAL-LFAAT first earned its accreditation back in 2021 wherein

other analyses and parameters were also accredited.

For chemical analysis of feeds, the accreditation has also since covered analyses for ash, crude protein, and moisture. For water analysis, determination of ammonia nitrogen, nitrite nitrogen, pH, and phosphate phosphorous continues to be accredited.

For the microbiological analyses, the determination of total coliform count and fecal coliform count also continues to be accredited.

The accreditation means that the laboratory meets internationally accepted standards in its analytical procedures and has an effective quality management system.

CAL-LFAAT mainly serves the internal research projects of SEAFDEC/AQD but also accommodates requests from the public. [a](#)

— NG ARMADA