

**BETTER FEEDS.** The quest for low-cost and eco-friendly aquafeeds receive a boost with the recent US\$30,800 upgrade of the feed mill of the Southeast Asian Fisheries Development Center (SEAFDEC) in Tigbauan, Iloilo. *Photo by JB Biñas*  
**FULL STORY** in page 4.



# aqd matters

March - April 2020

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

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*Good news for crab farmers:*

## Simple techniques double crablet production



Crablets produced in the mangrove crab hatchery of the Southeast Asian Fisheries Development Center Aquaculture Department in Iloilo, Philippines where simple adjustments in feeding and water change doubled crablet production. *PHOTO BY DEVCOM SECTION*

CRAB farmers will be happier, and the environment hopefully better, with recent improvements at the mangrove crab hatchery of the Southeast Asian Fisheries Development Center Aquaculture Department (SEAFDEC/AQD) in Iloilo, Philippines.

Crablets used in the farming of the prized mangrove crabs, *Scylla serrata*, are usually collected from the wild and increasing demand has threatened their natural population with crablets becoming more difficult to find.

“Overfishing has pushed the local government of areas heavily exploited for crablets such as Catanduanes, Surigao, and Samar. They have implemented strict prohibitions in the collection of wild crablets,” said Joana Joy Huervana, associate

*Continued on next page...*



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researcher at SEAFDEC/AQD and leader of the mangrove crab team.

Restrictions on wild collections in the Philippines led to the rise in demand for hatchery-bred crablets. Unfortunately, crab hatcheries suffer from very low survival rates caused by disease and cannibalism.

However, Huervana recently revealed that simple tweaks in protocols at the SEAFDEC/AQD hatchery have led to a significant boost in their crablet production, with survival increasing two-fold.

By feeding the crabs more frequently and providing cleaner water in the tanks, Huervana reported that they were able to increase the average survival rate from zoea (newly-hatched larvae) stage to crablet, from an average of one percent in 2017 to two percent in 2019.

Two percent might seem low to those unfamiliar with the hatchery business, but Huervana says crabs produce an average of 3 million larvae which translates to 60,000 crablets per spawner. She further disclosed that SEAFDEC sells crablets, as a byproduct of research, at Php 5 per piece but wild crablets sold by traders in the Philippines reach as much as

Php 12 to Php 15 per piece.

The simple tweaks helped them achieve the higher survival rate from zoea to crablet, reaching as much as 10 percent sometime last year, which contributed to the hatchery's production of over 650,000 pieces of crablets for 2019.

#### **Increased feeding frequency, cleaner water**

"Feeding frequency was increased from four to six times a day with an interval of four hours," Huervana shared, which is "based on the crabs' biomass at 100 percent feeding rate."

She said the intervention worked because cannibalism among the crabs is more prominent starting in the megalopa stage (intermediate larval phase), therefore increasing the available feeds, together with providing additional shelters in the larval tanks, increased the survival.

"As for the water replacement, the interval was shortened from five to four days. Siphoning of tank bottom to remove dead larvae, microalgae, and feeds is done every three days to further improve water quality. Also, monitoring of water parameters was consistently conducted," Huervana added.




A hatchery staff of the mangrove crab hatchery of the Southeast Asian Fisheries Development Center Aquaculture Department in Iloilo, Philippines counts crablets prior to shipping out. PHOTO BY JD HUERVANA

"These techniques were tested throughout the years and were proven effective. It could also be easily adapted by hatchery owners and other stakeholders," Huervana shared.

She added that further improvements are still being done in the SEAFDEC/AQD hatchery, not only to cope with the industry's demand

for crablets, but also to improve the science behind the technology of mangrove crab hatchery.

"We do our share in alleviating the pressure caused by overfishing in the wild by continuously improving production techniques of our mangrove crab hatchery to share with our stakeholders." 

—JM DE LA CRUZ



### **aqd matters**

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# Turning up the heat to meet milkfish seedstock shortage



One of the milkfish breeders at SEAFDEC/AQD, now 38 years old and still spawning. PHOTO BY J GENILZA

DESPITE being widely regarded as the unofficial national fish of the Philippines, about half of the milkfish on Filipino tables are born in hatcheries in Indonesia and Taiwan. This is the result of a perennial shortage of fry, the baby milkfish in the Philippines, that are seeded into fishponds, netcages and pens where they continue to grow to marketable sizes.

Recently, the Southeast Asian Fisheries Development Center, Aquaculture Department (SEAFDEC/AQD), an international research institution in Iloilo, Philippines alongside the Philippine Department of Agriculture – Bureau of Fisheries and Aquatic Resources (DA-BFAR), has been finding ways to lift the country into milkfish fry sufficiency.

In rough numbers, the goal is to locally produce

an additional 1.2 billion fry annually to complement the 1.1 billion fry that, according to DA-BFAR estimates, are already being produced by existing hatcheries and collected from the wild. Total national requirement stands at 2.5 billion and the expansion of local production is expected to reduce importation by 85 percent.

To do this, SEAFDEC/AQD has been working with DA-BFAR towards establishing dozens of legislated multi-species hatcheries around the Philippines that can each produce 25 million fry every year while another measure is the repair and rehabilitation of abandoned hatcheries around the country.

## ***Environmental manipulation***

While completion of these infrastructure projects understandably take time,

a third measure has already gained some immediate success when SEAFDEC/AQD simply manipulated water temperature to set the mood for milkfish breeders to spawn during colder months.

Data from the SEAFDEC/AQD hatchery in previous years show that the breeders only spawned between March and October when the weather, and consequently the water, is warmer. From November to February, the hatchery was essentially unproductive due to lower water temperature.

To improve the annual production of the hatchery, SEAFDEC/AQD raised the temperature in the water system of a breeding tank to at least 29 degrees Celsius while in another breeding tank, water was left unheated at a colder temperature of 26 degrees Celsius.

Since December 2019 to February 2020, during otherwise zero-production-

months, a total of 23 million good eggs were collected from the heated tank that contained 76 breeders. From these, almost 13 million normal larvae were hatched whereas in the case of the unheated tank, no spawning occurred.

In anticipation of expanded production, SEAFDEC/AQD's milkfish hatchery is currently being expanded to accommodate more tanks for breeders and fry.

Dan Baliao, Chief of SEAFDEC/AQD says that environmental manipulation is necessary to demonstrate the year-round spawning of milkfish breeders in the Philippines.

“What we wanted here to happen for those hatcheries struggling to stay productive during off season or colder months, is for them to strongly consider turning up the heat in their broodstock tanks,” he said. **a**

— RD DIANALA

# SEAFDEC/AQD upgrades feed mill to boost production of low-cost aquaculture feeds



SEAFDEC/AQD's feed mill personnel carry sacks of aquafeeds to a delivery van. Photo by JF Aldon

THE quest for low-cost and eco-friendly aquafeeds received a boost with the recent US\$30,800 upgrade of the feed mill of the Southeast Asian Fisheries Development Center (SEAFDEC) in Tigbauan, Iloilo.

SEAFDEC acquired a 5-layer dryer and an extruder for its feed mill to further increase its capacity by 300 kilograms per hour or 2,400 kilograms per 8-hour

workday. The extruder is used to produce both sinking and floating aquafeeds.

“The recent upgrade boosted the production rate by almost 400 percent. With the additional extruder, production will not be impeded by the periodic downtime for maintenance or unexpected breakdowns,” said Joseph Biñas, head of the Nutrition and Feed Development Section of

SEAFDEC's Aquaculture Department (AQD).

Before the upgrade, the feed mill can only produce 500 kilograms per day due to the limited capacity of the ovens which is the main equipment used for drying feeds.

The feed mill produces diets for abalone, grouper, mangrove crab, milkfish, pompano, sea bass, shrimp, siganid, and tilapia as well

as feed ingredients that are utilized for research projects of SEAFDEC and non-SEAFDEC researchers and graduate students. It also accepts orders from private hatcheries that needs maintenance feeds for marine fish breeders and larvae which are not readily available commercially.

## *Cheaper and more eco-friendly*

With feeds accounting for over 50 percent of the production cost in aquaculture, SEAFDEC is mandated to formulate and test feeds that use cheaper alternative ingredients that depend less on wild-sourced fish.

Conventional feeds rely on fish meal, a fish-based and protein-rich ingredient that is controversial for having been sourced from fish in the oceans to feed the fish in farms.

SEAFDEC's fish nutrition experts have been striving to find more sustainable alternative sources of protein from aquatic and terrestrial plants as well as animal by-products.

“Our fish nutrition experts are currently developing low-cost feeds for various aquaculture species that could greatly benefit the fish farmers in lowering their production cost,” said Dan Baliao, chief of SEAFDEC/AQD.

“With the improvement of the production capacity of our feed mill, we are most likely to achieve our goal,” he added. **a**

—RH LEDESMA



The new 5-layer dryer replaces the ovens previously used to dry feeds. Photo by RH Ledesma



The new extruder at SEAFDEC/AQD's feed mill used to produce aquaculture feeds. Photo by RH Ledesma

# Freshwater prawn, a sustainable alternative to black tiger shrimp

GROWING up to a foot long, three to a kilo, and with a flavor very much likened to lobster and tiger shrimp, one would wonder why not more people in the Philippines are farming freshwater prawns.

Locally known as *ulang* or *pahi*, the giant freshwater prawn (*Macrobrachium rosenbergii*) is the largest of its kind and is naturally found in river systems of the Philippines. Freshwater prawns immediately contrast from shrimps with their long claws that are up to twice their body length.

Dr. Frolan Aya, a scientist at the Southeast Asian Fisheries Development Center (SEAFDEC), said the prawn “is a promising alternative to tiger shrimp due to its high market value, high export potential and low susceptibility to diseases.”

Locally, a kilogram of giant freshwater prawn sells for an attractive P250 to P350 in the market. Although not nearly as valuable as tiger shrimp, freshwater prawns currently do not face the same risks of diseases as their distant crustacean cousin due to lower density culture practices.

Unlike tiger shrimp which require regular screening for diseases and facilities



Mixed sizes of giant freshwater prawn. Photo by IT Tendencia

to keep out viruses and bacteria, freshwater prawns in extensive culture are mostly content with proper nutrition and good water quality. However, prawns are carriers of shrimp viral diseases as well, and thus, farmers should still be careful not to pass on viruses to nearby shrimp farms.

Farmers can use simple ponds, cages, or even rice fields. “Cage culture is suited for marginalized fish farmers who have no land to develop into ponds and requires minimal start-up investment,” shared Dr. Maria Lourdes Aralar, a SEAFDEC retired scientist who largely developed the technology for

lake-based cage culture.

The simplicity of freshwater prawn farming means it is widely farmed across Southeast Asia such as in Viet Nam which produced 547,000 tons in 2014 with Thailand coming a far second at 17,000 tons. However, Philippine farm production in 2014 was only nine tons although 1,700 tons was sourced from the wild.

## Need for more hatcheries

The bottleneck in Philippine production is not in the number of prawn-growing ponds and cages but in the production of postlarvae. These are the tiny young prawns that are hatched and nursed in hatcheries for 28 to 35 days before taking them out to tanks, ponds or lake cages.

“I think the production is very limited for a lack of sufficient quantity of postlarvae for grow-out, but it has the potential to form an aquaculture industry,” said Aya.

Training for those interested in the hatchery and grow-out of giant freshwater

prawn is regularly offered by SEAFDEC at its Binangonan Freshwater Station in Rizal. The station also produces postlarvae as byproducts of its research activities which it makes available to prawn farmers.

Currently, other sources of postlarvae are the Bureau of Fisheries and Aquatic Resources (BFAR) National Freshwater Fisheries Technology Center in Nueva Ecija and National Integrated Fisheries Development Center in Pangasinan.

Dan Baliao, chief of SEAFDEC Aquaculture Department (AQD) also revealed that they recently developed an initial prawn hatchery operation in Tigbauan, Iloilo with currently about 3,000 broodstock.

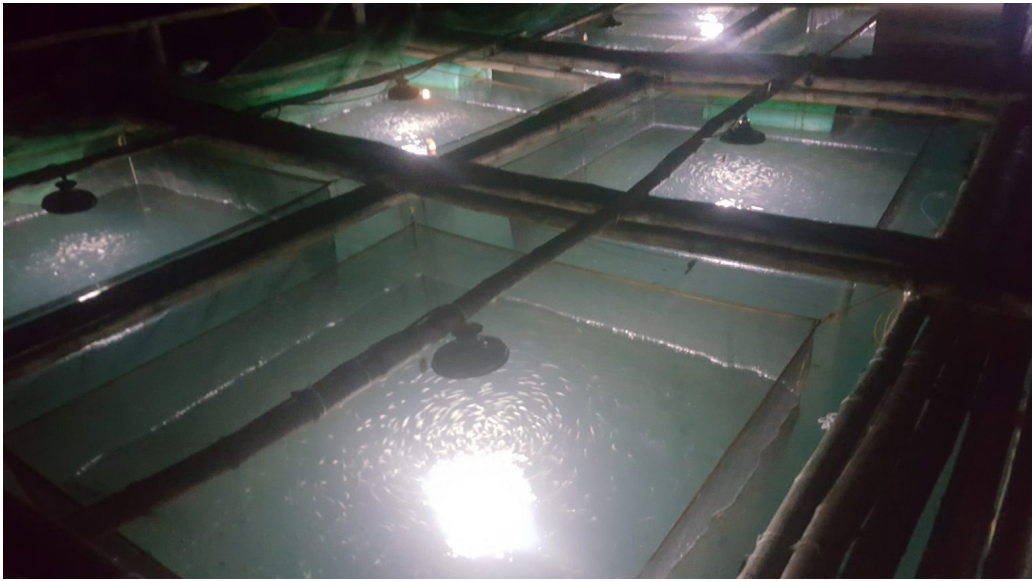
“We are just starting, but once construction of our bigger *Macrobrachium rosenbergii* hatchery is finished, we are really looking at mass producing postlarvae here at Tigbauan to provide farmers with seeds and to again jumpstart the giant freshwater prawn industry,” he said. **a**

— RD DIANALA



A man shows off a cooked giant freshwater prawn caught in Dumarao, Capiz. Photo by RD Dianala

# Study: Young pompano grow faster when nursery cages are lit at night



IT'S LIT. A study finds that artificial lighting at night helps improve the feeding behavior of pompano fry in cages. PHOTO BY MIC LEGASPI

POMPANO, locally known as *apahan* or *dawis lawin*, is a high-value fish which is in demand both in the local and export markets. It is known for its firm and flaky meat with a sweet and mild flavor.

In Asian countries including the Philippines, the culture of pompano has been conducted in open sea cages, brackishwater cages and in ponds.

However, a few challenges, such as the high cost of production, still hamper the widespread farming of pompano. Experts at the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC/AQD) are literally working through the night to find ways to make pompano farming more profitable.

Ma. Irene Legaspi, an associate researcher at SEAFDEC/AQD, is investigating the advantages of lighting up pompano cages at night during the nursery phase. The illumination is supposed to help the young pompano see their natural prey, mostly tiny crustaceans called copepods floating near the surface, allowing the fish

to efficiently feed overnight; thus, improving growth and survival.

Legaspi explained that natural food, as opposed to artificial feeds, is still the most suitable for pompano fry and artificial illumination could benefit the fish in helping them see the copepods at night. "Based on past literature, the presence of light indeed affects the behavior of fish especially in terms of feeding," Legaspi shared.

Previous studies at SEAFDEC/AQD have also shown that illumination not only helps fish see their

prey, but that the copepods themselves are attracted to artificial light, between 180 and 300 lux, and instinctively flock right where the young fish can see them.

So far, better growth of pompano fry was observed during a year-long experiment using artificial lighting as part of the nursery set-up at SEAFDEC/AQD's Igang Marine Station in Guimaras.

"Based on two trial runs, it showed that the provision of artificial lighting at night in nursery cages significantly improved the growth of pompano," she added.

## Lower feed cost

In the series of experiments, pompano that received artificial light achieved higher body weight compared to pompano not provided with lighting. Results also revealed that pompano receiving 25 to 50 percent less artificial feed, but provided with artificial illumination, gained as much weight as fully fed pompano with no illumination.

This means that feed cost can be reduced by as much as 50 percent. Legaspi said that since feeds account for a major expense in the nursery phase, artificial illumination is a promising innovation on pompano culture to cut down on costs.

"We are always happy every time we verify simple techniques such as this one because we feel that our stakeholders, especially marginal and small-scale fish farmers, can easily apply this technology to better their culture while reducing feed cost," Legaspi shared.

Further study will be conducted this year including a third trial run to fully verify the results as well as analysis on the effect of this technique on the economics of pompano nursery culture. [a](#)

— JM DE LA CRUZ



Pompano that received 100 percent feeding rate in lit cages (rightmost) grew the most, even compared to fully fed pompano that did not receive artificial lighting (leftmost). PHOTO BY MIC LEGASPI

# Deaths in farmed crab linked to bad feed, water quality

PONTEVEDRA, Capiz - High mortalities experienced by crab farmers here have been linked to the high turbidity of Panay River and poor quality of trash fish which is fed to the crabs.

An investigation was launched last March by the Southeast Asian Fisheries Development Center (SEAFDEC) in Tigbauan, Iloilo after a farmer in the town reported finding dead crabs since last year with a mortality rate reaching as high as 40 percent.

The farmer said similar observations were noted in nearby farms and even in other municipalities. Mortalities were observed regardless of life stage with dead crabs being described as lightweight and with thin muscles.

When the SEAFDEC diagnostic team dissected the crabs, their gills were found to be black or brown, instead of pale in color, which is characteristic of crabs exposed to poor environmental conditions such as high organic load or heavy siltation.

Fouling organisms or particles clog the gills of the crab and impair water movement which may lead to respiratory stress

or suffocation. During the site visit in March 12, the SEAFDEC team noted that Panay River, which supplies water to the ponds, was remarkably turbid.

According to clinical laboratory results that were recently released by SEAFDEC, sampled crabs that were apparently weak were found to harbor high amounts of bacteria, compared to those that appeared healthy. The prevalence of bacteria was linked to low quality trash fish given as feed which reportedly reeked of foul odor in some instances.

Molecular diagnosis through polymerase chain reaction showed that crabs were negative of seven common pathogens that affect crustaceans.

## Preventable

Dr. Leobert de la Peña, SEAFDEC scientist, said that those problems encountered by the crab farmers were preventable if good aquaculture practices (GAQP) are followed.

The farmers may provide a reservoir or settlement pond where sediments in river water may be allowed to settle first before the water is channeled to culture ponds.



Dissected crab with blackened gills was already showing signs of weakness when collected during a site visit to a fishpond in Pontevedra, Capiz last March 12. PHOTO BY LD DELA PEÑA.

Sourcing of good quality trash fish at reasonable cost is likewise recommended, or even the growing of tilapia within the farm which can be used as fresh feed for crabs.

According to Dr. de la Peña, the Aquaculture Department of SEAFDEC is looking forward to

coordinating with the Bureau of Fisheries and Aquatic Resources (BFAR) VI and private sectors to ensure the sustainable development of aquaculture in Capiz Province so that they can sustain the distinction as the "Seafood Capital of the Philippines." **a**

—RD DIANALA

## AQD takes part in professionalizing fisheries in PH

PASAY CITY, Manila - To help provide support in professionalizing the practice of fisheries in the Philippines, SEAFDEC Aquaculture Department (AQD) participated in a consultative meeting to craft the implementing rules and regulations (IRR) for the Philippine Fisheries Profession Act last 12 March.

"The meeting was very fruitful as many statements

in the IRR were clarified and expanded," said AQD Scientist Dr. Maria Rowena Eguia who represented AQD during the meeting.

Dr. Eguia, together with the rest of the PRC Professional Regulatory Board of Fisheries, discussed that the IRR will now be expanded to cover the fishery industry employees in commercial farms and ancillary industries to be fishery professional license holders.

The title of license holders was also revised from "Fishery Technologists" to "Fishery Professionals."

PRC Professional Regulatory Board of Fisheries Chairperson Dr. Westly Rosario also mentioned that applications of fisheries practitioner, who have obtained their degrees in fisheries and related fields before 1998 are still being accommodated to secure the

license without having to take the exam.

The applicants will have to submit the required documents showing proof of competency such as publications or at least five years of experience. However, applications will only be entertained until December 2020. **a**

—JM DE LA CRUZ

# Production and delivery of milkfish and crab seeds unhampered despite lockdowns

PRODUCTION and delivery of aquaculture seeds remain uninterrupted at the Southeast Asian Fisheries Development Center (SEAFDEC) based in Tigbauan, Iloilo despite the enhanced community quarantine (ECQ) imposed in Iloilo and surrounding provinces.

To date, SEAFDEC continued to deliver milkfish fry to six different fish farms in Iloilo, Guimaras, and Negros Occidental during the ECQ period. Deliveries to Guimaras were received at Parola and Ortiz wharves while a delivery to Negros Occidental was received at the Dumangas port.

Crablets of *alimango* (crabs) were also delivered on two occasions to Capiz which were received at the Iloilo-Capiz border, while another shipment is already scheduled by the end of April.

Delivery and receiving teams observed proper social distancing protocols and other precautionary measures.

SEAFDEC Aquaculture Department Chief Dan

Baliao said that despite the Covid-19 pandemic, the institution is carefully and progressively operating its hatchery facilities to supply seed stocks for sustainable food production in grow-out culture ponds and cages.

As part of its research mandate, SEAFDEC is maintaining operations of a mangrove crab hatchery and a milkfish broodstock and hatchery complex, home to the world's oldest known milkfish breeders at 38 years old.

While the facilities are primarily for research and demonstration, aquaculture seeds are sold to farmers whenever there are enough available.

Aside from milkfish and crabs, the Aquaculture Department of SEAFDEC in Tigbauan is also producing seeds of tiger shrimp, Indian white shrimp, giant freshwater prawn, tilapia, abalone, sandfish, and other marine fish such as pompano, sea bass, grouper, snapper, and rabbitfish. [a](#)

— RD DIANALA



Milkfish fry in tubs prior to packing at the SEAFDEC milkfish hatchery in Tigbauan on 29 March. Photo by SEAFDEC/AQD



AQD staff facilitates delivery of milkfish fry to Guimaras Island. Photo by SEAFDEC/AQD



Crablets with straw shelter prior to packing and shipment to Capiz on 2 April 2020. PHOTO BY C DIONELA



Milkfish fry are received by a buyer from Balasan, Iloilo at the border on 2 April 2020, in compliance with enhanced community quarantine protocols. PHOTO BY SEAFDEC/AQD



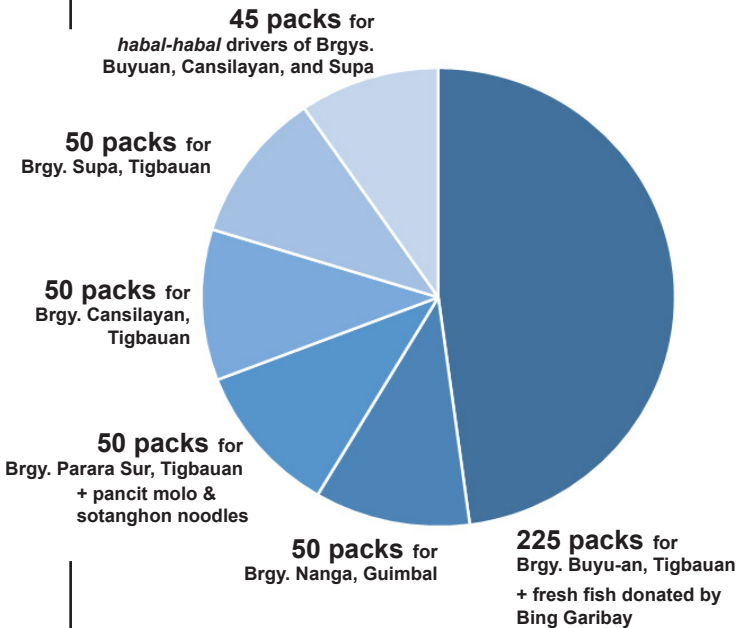
# AQD RELIEF OPERATIONS REPORT


IN THE MIDST of a global pandemic, SEAFDEC/AQD and its staff gave cash and goods, and conducted donation drives to provide relief and assistance to its host communities.



## PHP 51,975

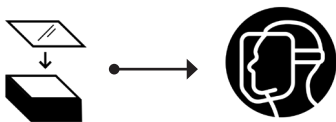
Cash from the donation drive conducted by AQD Journal Club members, former employees, and friends

**470 relief packs** =    
2 kgs 2 cans



**set of snacks** =   
for barangay frontliners (e.g. members of Brgy. Council, barangay health workers, and tanods)

**PHP 3,000** =   to produce Aerosol Tempered Glass Boxes (Intubating Hood)  
to JCI Metro Iloilo Dinagyang Foundation

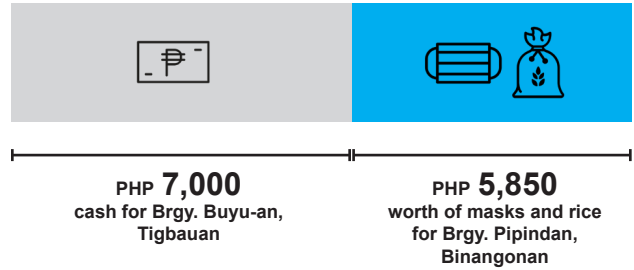


Library and Databanking Services, Training Section, and FishWorld donated PVC laminating films to United Architects of the Philippines - Bahandi Chapter to produce face shields for health workers

*"No one has ever become poor by giving."*  
- Anne Frank

## PHP 12,850

Cash and in-kind assistance from department budget



## AQD lends a hand to sub-national testing laboratory in WVMC



THE DEPARTMENT, through its Fish Health Section, lent a hand to Western Visayas Medical Center (WVMC) by attending to requests (dated 14 and 17 April 2020) of Dr. Stephanie Abello, Chairman of WVMC Pathology Department, and Ms. Cecilia Resol, RMT Head, Sub-National Laboratory of WVMC. As the Province and City government of Iloilo continues to proceed with its mass testing for COVID-19, the Sub-National Laboratory of WVMC, the only DOH accredited testing laboratory for Region 6, requested PCR

consumables like 1000 microliter filtered pipette tips from SEAFDEC/AQD. The research institution lent 5 boxes of 1000 microliter filtered tips (equivalent to 48,000 pcs) for use in COVID-19 testing. In line with the diagnostic services of the Fish Health Section, these consumables are readily available. SEAFDEC/AQD Chief Dan D. Baliao, Research Division Head Dr. Leobert D. de la Peña and the rest of SEAFDEC/AQD family are one with the Province and City of Iloilo to intensify the efforts and initiative in fighting this pandemic.

# SEAFDEC/AQD's COVID-19 story

THE CORONAVIRUS disease (COVID-19) pandemic, caused by the global spread of the SARS-CoV-2, as the novel virus is called, caused unprecedented disruptions in the way people live and work all over the world, including at SEAFDEC/AQD.

When COVID-19 cases were increasing and with cases of local transmission detected, Philippine President Rodrigo Duterte issued Presidential Decree No. 922 “Declaring a State of Public Health Emergency Throughout the Philippines” on 8 March 2020.

Following suit from the national government, SEAFDEC/AQD Chief Dan Baliao, issued an administrative order (AO) “Department-wide Guidelines on COVID-19 Pandemic” on 19 March 2020. The administrative order prescribed precautionary measures that affected employee work schedules, travels, the conduct of trainings and seminars, and processing of documents.

The next day, on 20 March, Iloilo Gov. Arthur Defensor, Jr. issued Executive Order No. 080 declaring an enhanced community quarantine in the province of Iloilo, effectively shuttering nonessential establishments, imposing strict curfews, and restricting travel for the duration of the quarantine.

Despite broad restrictions eventually imposed over the entire Panay Island, SEAFDEC/AQD continued to function as a provider of essential services that are vital to food security. Nevertheless, preventive measures were necessary and disruptions to some activities were inevitable.

## Work and travel

TO ENSURE the safety of employees and maintain necessary physical distancing, SEAFDEC/AQD adopted a skeleton workforce system with only a minimum number of employees required to report physically on a weekly rotation basis. Working hours were also adjusted with employees working in offices from 8 a.m. to 4 p.m. Employees at the Manila Office, senior staff at the Binangonan Freshwater Station, and some employees at the Tigbauan Main Station were allowed to work from home. The use of email for the electronic processing of documents and requests were also encouraged to minimize physical interaction.

Employees returning from travel to areas with positive cases were required to observe a mandatory 14-day quarantine. Further travel, both local and international, was likewise restricted until the pandemic is over.

## Seminars and meetings

IMPORTANT meetings were done following safety measures such as wearing of mask and observing physical distancing. SEAFDEC/AQD also adopted video conferencing as a way to communicate with other SEAFDEC departments and with key personnel who cannot be present in person. The conduct of in-house seminars and other gatherings within SEAFDEC/AQD premises were also put on hold.

## Visitor Center

FISHWORLD, SEAFDEC/AQD's museum-aquarium and visitor center, was temporarily closed and did not accept field trips and tour visits beginning 17 March 2020. Based on FishWorld's data in 2019, the visitor center would have normally catered to about 1,000 visitors during the period of its two-month closure. Other guests and

visitors such as those in study tours, group visits, and sports activities in Department facilities were likewise restricted from entering.

## Training Activities

TRAINING courses offerings scheduled in March and April were postponed. There are about 18 scheduled regular and specialized training courses this year, but due to the current situation, they were put on hold and set to be rescheduled once the situation becomes already favorable. Seven on-site courses and about 16 other courses still being arranged are on hold. The Training Section also did not accept on-the-job trainees and interns.

To adapt to the difficulty of holding in-person trainings, plans are in place to offer more online courses. SEAFDEC/AQD's experience in holding online trainings was likewise shared with other SEAFDEC departments.



AQD staff assigned in hatcheries wearing masks while conducting its usual activities amidst the enhanced community quarantine.  
PHOTO BY C DIONELA

## Library Services

SEAFDEC/AQD Library services and operation remained unhampered during the pandemic. For safety purposes, entering the library was only allowed once a week and for checking out of references only. Library services were mostly delivered online wherein it was able to send more than 70 aquaculture- and fisheries-related publications to SEAFDEC/AQD scientists, researchers, and other staff and to some interested stakeholders through email. About 170 document requests or inquiries were also catered.

To serve the employees better, the Library arranged a free access to the ODILO Academic Platform also known as the Netflix-styled solution for intelligent digital libraries. The Library, with the help of the Management Information System Office, also set up a remote access to its digital collection for the benefit of employees who are working outside the Tigbauan Main Station.

Indexing work was also not affected wherein the Library was able to index about a hundred titles comprised of SEAFDEC publications, local journals, and grey literature. These were then inputted to the ASFA data entry software.

## Analytical Services

AS A PRECAUTIONARY measure to avoid the spread of COVID-19 at SEAFDEC/AQD, the Laboratory Facilities for Advanced Aquaculture Technologies came up with supplemental guidelines on sample submission and releasing of test reports for both its SEAFDEC/AQD and external clients. Clients must maintain physical distancing with laboratory staff in submitting samples or claiming of test reports. External clients on the other hand are restricted

Re : Guidelines on LFAAT Sample Acceptance and Releasing of Test Reports in view of COVID-19 Pandemic

In reference to Administrative Order No.11, s. of 2020-DDB: Department-wide guidelines on COVID-19 Pandemic, the Laboratory Facilities for Advanced Aquaculture Technologies (LFAAT) of SEAFDEC AQD hereby presents guidelines in sample submission and releasing of test reports for laboratory testing/analytical services:

### A. Internal (SEAFDEC) clients

1. Availment of testing services will follow the already established protocol by LFAAT (CAL-SP-7.1-001 & 002: *Review and Acceptance of Requests for Analysis and Guidelines on Requests for Analysis*, respectively), provided physical distancing between the client and the laboratory staff will be strictly observed.

### B. External (NON-SEAFDEC) clients


1. CAL-SP-7.1 001 & 002 will still be followed, however there will be restrictions regarding interaction with the clients. They will not be allowed to enter the premises. The main gate will serve as their holding area. The concerned laboratory staff for the client's testing/analytical services will be assigned to the main gate.

- Proximate analysis/freeze drying – Ms. Jeralyn F. Panillo
- Atomic Absorption Analysis/Rotavap – Ms. Hannah M. Panillo
- Soil and Water Analysis – Angel Ann Juanillo (Loc 1112)
- Microbiological testing/electron microscopy – Ms. Margarita T. Arnaiz (Loc. 1112)
- Sample receiving/test report releasing) – Mr. Tereso T. Arnaiz (Loc. 1112)
- General & other concerns – Margarita T. Arnaiz (Loc. 1112)

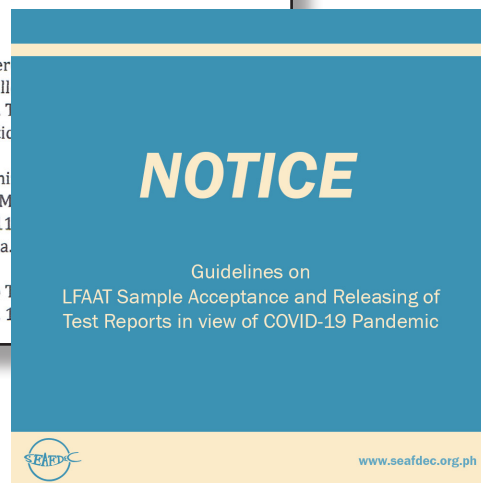
An excerpt of the LFAAT guidelines released by SEAFDEC/AQD

from entering laboratory premises with the main gate at the Tigbauan Main Station serving as their holding area for transactions with laboratory personnel.

## Hatchery Services

DESPITE the enhanced community quarantine over the entire Panay Island, SEAFDEC/AQD continued to deliver aquaculture seeds to fish farms in Iloilo, Guimaras, Capiz, and Negros Occidental. These were done with due precaution by observing safety protocols such as physical distancing and wearing of mask among others. 

—RH LEDESMA



AQD employees observing social distancing the service shuttles. PHOTOS BY SB SALONGA

# PhilHealth presents expanded benefits for members



SEAFDEC/AQD staff pose for a photo with PhilHealth-6's Public Affairs Unit Head Ms. Janimhe Jalbuna following the in-house seminar on new and expanded benefits under the Universal Healthcare Act. PHOTO BY JF ALDON

TO UPDATE employees about health benefits, recent developments and programs were presented during an in-house seminar conducted by Ms. Janimhe Jalbuna, Head of Public Affairs Unit of Philhealth Western Visayas for AQD staff last 11 March 2020 at its Tigbauan Main Station.

“The Philippine government published the Universal Health Care (UHC)

Act or the Republic Act No. 11223 which ensures equitable access to quality and affordable health care and protection against financial risks due to illnesses of every Filipino,” said Jalbuna during her lecture.

In her presentation, this new act includes expanded benefits including the PhilHealth *Konsulta* (*Konsultasyong Sulit* at

*Tama*) Package. This package comprises of improved health services such as free or discounted consultation, health screening and assessment, laboratories, and access to drugs and medicines.

In the light of a recent global pandemic, the new package also addressed the spectrum of care for COVID-19 patients which

includes a referral package of Php 4,000 for initial management to isolation package of Php 14,000 in case a member was admitted or quarantined after contact with the infectious disease.

A no co-payment scheme in basic and ward accommodation was also rolled out as part of the new set of benefits. However, these are still subjected to certain scopes and limitations.

“It is important for our employees to be informed and educated when it comes to their benefits especially when new packages such *Konsulta* are being introduced. This will make them feel more secure in terms of health and safety in the workplace,” said Ms. Sunshine Salonga, Officer-in-Charge of AQD Human Resource and Management Section. [a](#)

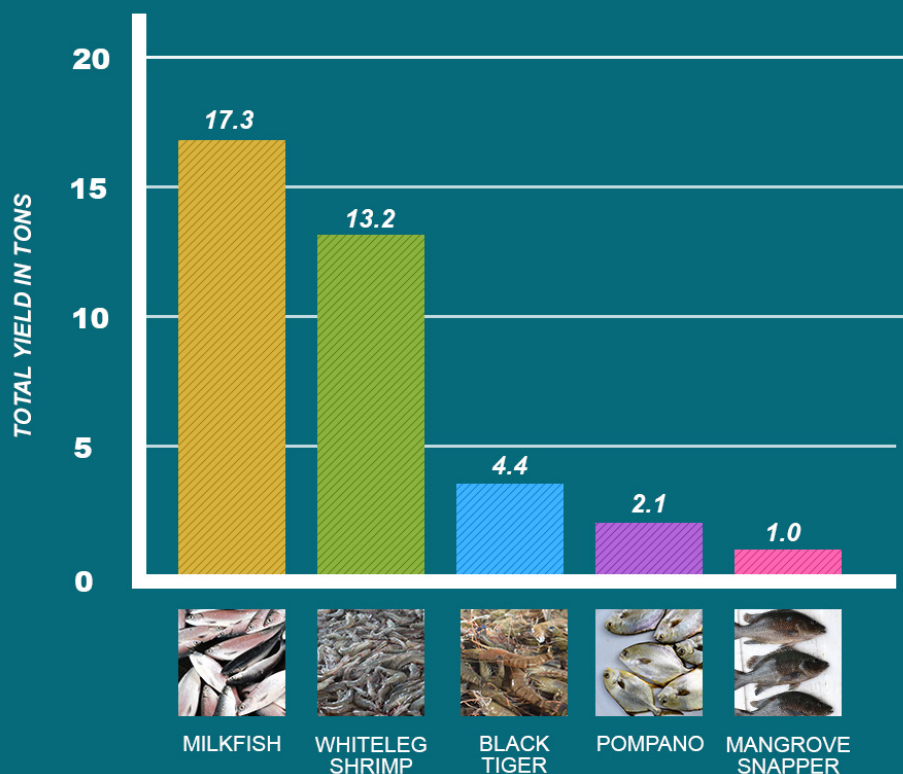
— JM DE LA CRUZ

## SEAFDEC/AQD COMMODITY HARVEST 2019

SEAFDEC/AQD's research and verification runs produce tons of good quality harvests.

Over 38 tons of market-sized fish and crustaceans were byproducts of AQD experiments in 2019.

This chart shows the top five species produced by the Department.



COMMODITIES