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New research programme, hatchery tech centre to solve problems of S'pore aquaculture sector

by Shabana Begum on 5 December 2022



Seven fish farms will work with researchers to tackle the challenges they face in the aquaculture sector. ST PHOTO: ALPHONSUS CHERN

SINGAPORE - A new aquaculture research programme and a hatchery technology centre will help boost the local supply of healthy newly hatched fish, protect farmed fish from diseases and solve other pressing problems faced by fish farms here.

AquaPolis, as the programme is called, will bring scientists and fish farms together to drive innovation and help to advance the local aquaculture sector, with a goal of providing consumers with higher quality fish and shrimp.

AquaPolis involves the Singapore Food Agency (SFA), National University of Singapore, Temasek Life Sciences Laboratory (TLL) and seven aquaculture players.

Under the initiative, the seven fish farms will work with the institutions' researchers to tackle challenges they face.

Warmer waters caused by climate change could lead to higher levels of viruses, bacteria and parasites in the seas.

This worries Barramundi Group, which grows Asian seabass – or barramundi – in offshore sea farms across the southern waters. The aquaculture firm hopes to work with researchers to develop solutions to tackle such pathogens that affect barramundi, said Mr Tan Ying Quan, its head of operations in Singapore.

"We need solutions to solve the challenges today and also build capabilities to deal with "Disease X" in the future. For any aquaculture species to be successful long term, it needs to be supported with a strong focus on fish health and having access to efficacious vaccines," he added.

Local farm The Fish Farmer wants to research and develop ways to determine the best time to move their juvenile seabass and red snapper into its sea farms to get the best yield.

If young fishes are kept in the nursery and reared under controlled conditions for too long, the farm's operational cost will increase and the fishes are not grown naturally, said its chief executive Malcolm Ong.

"We want to find the sweet spot, where young fishes are not spending too much or too little time in the nursery," added Mr Ong.

"We want to help translate research done in the lab to real ocean conditions. My job is to grow the fish well. If it works for our farm, it will work for other farms."

Barramundi Group and The Fish Farmer are part of AquaPolis. The organisations and firms involved in the programme inked an agreement at an international aquaculture conference held at the Singapore Expo last week.

On Wednesday, Minister for Sustainability and the Environment Grace Fu said at the World Aquaculture Singapore conference that seafood is a priority area for Singapore's food security.

This is because it is one of the more carbon and resource-efficient food types to produce in order to help the country achieve its target of producing 30 per cent of its food needs by 2030, the minister said.



Minister for Sustainability and the Environment Grace Fu (far right) visiting the World Aquaculture Singapore conference. PHOTO: LIANHE ZAOBAO

AquaPolis will be part of the second phase of the Singapore Food Story R&D Programme, which recently received an additional $165 million of research funding.

TLL chief executive Peter Chia said: “Aquaculture is a complex problem. You don’t just bring in biologists. You need to bring in the engineers and experts in artificial intelligence.”

Other areas of research for aquaculture include identifying customised solutions for each species’ health ailments, enhancing immunity without using vaccines, and creating optimal and less pollutive feed, he added.



Barramundi fingerlings getting vaccinated. PHOTO: BARRAMUNDI GROUP

On Wednesday, the SFA also signed an agreement with Belgium-headquartered Inve Aquaculture to set up a hatchery technology centre here.

Inve provides specialist nutrition for the early stages of shrimp and fish production.

At the new centre – to be set up at SFA's Marine Aquaculture Centre on St John's Island – scientists from both parties will develop advanced hatchery technologies that are suitable for tropical marine fish.

They will also work on an automated hatchery system to produce brine shrimp and other live feeds for newly hatched fish.



Barramundi Group’s sea farm off St John’s Island. PHOTO: BARRAMUNDI GROUP

“The centre will also serve as a training hub for farmers from Singapore and the region for knowledge transfer, to help build up a consistent supply of good quality fish fry for production,” said SFA and Inve in a joint statement.

Fish farmers in Singapore mostly import newly hatched fish, called fry, and they can be of inconsistent quality.

Drawing on Malaysia’s recent ban on chicken exports, Mr Jeremy Ong, chief executive of vertical shrimp farm Universal Aquaculture, noted that if Singapore does not build its capability to produce fry of many species here, it might be affected if supplying nations decide to halt exports to stabilise their own aquaculture sectors.

Fish farms are also looking for good quality fry to rear, added The Fish Farmer’s Mr Ong.

“When young fishes are flown in, they can be stressed because the temperature and pressure conditions on the plane are not ideal,” he added.



A school of fingerlings. PHOTO: TEMASEK LIFE SCIENCES ACCELERATOR

On Wednesday, Ms Fu also said Singapore could create tropical aquaculture solutions with global export potential.

“Farms should also collaborate with each other and enjoy economies of scale... By transforming and scaling up together, the industry can become more resilient,” she added.

Dr Matthias Halwart, who heads the Sustainable Aquaculture – Global and Regional Processes team at the United Nations Food and Agriculture Organisation, said Singapore’s intensive fish farming industry must focus on managing aquatic pests and diseases, maintain water quality and have affordable feeds in sufficient quantity and quality.

“Welfare of aquatic animals will be of importance to producers and consumers alike,” added Dr Halwart, who attended the conference.

Discussion Questions:

Why is achieving self-sufficiency in our food supply important?

Do you think Singapore's aquaculture can feasibly help us achieve self-reliance?