‘Grow-A-Clam’ for a healthier reef

NUS scientists are trying to grow an endangered giant clam in the lab

They sit regally on the seabed, their shells opening in a riot of jewel-like colours that have enchanted naval architects and marine biologists for centuries. But these giant clams are increasingly scarce, and many people want for skills to grow them, while threats like oyster beds and oil spills eat away at their habitats.

This demand is fueling the research of this marine creature from the wild.

Scientists at the National University of Singapore (NUS) are studying whether giant clams, members of a family which includes the giant Pacific oyster, can be grown in laboratories or nurseries. If successful, findings could improve the reproduction of these species, which is otherwise difficult to breed outside their natural habitat.

Giant clams are not able to reproduce on their own in the wild. Their eggs must be fertilized by sperm released by another individual.

The NUS team is working on reproducing giant clams in the lab. The process involves separating the eggs and fertilizing them with sperm from another individual.

Dr Neo Mei Lin of the NUS Tropical Marine Science Institute (TNap) and her colleagues successfully grew the eggs of the giant clam in the lab and hatched them into baby clams. The team is now trying to grow the baby clams in the lab. They are hoping that this technology will help them to increase the population of giant clams.

The giant clam is a large species that can weigh up to 150 kg and can reach lengths of over a metre. As they grow, they can produce thousands of eggs and millions of sperm each year.

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Dr Neo Mei Lin (right) and Mr Samuel Lee, an intern studying life sciences at the National University of Singapore, prepare giant clams for the spawning exercise at NUS Tropical Marine Science Institute (TNap) on St John’s Island.

Before the spawning exercise, researchers check the clams with equipment such as endoscopes to ensure they are not damaged.


grow-a-clam for a healthier reef

By Audrey Tan

NUS scientists are trying to grow an endangered giant clam in the lab.

The project, led by Dr Neo Mei Lin of the NUS Tropical Marine Science Institute (TNap), aims to understand the biology of giant clams and develop techniques to breed them in captivity.

“Grow-A-Clam” is a project that is part of a larger initiative that is working to save the giant clam from extinction. The project started in 2016 and has been working to breed the species in captivity.

Dr Neo Mei Lin (right) and Mr Samuel Lee, an intern studying life sciences at the National University of Singapore, prepare giant clams for the spawning exercise at NUS Tropical Marine Science Institute (TNap) on St John’s Island.

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After the spawning exercise, the clams are then placed in a nursery tank where they are fed for a week before being moved to their normal habitat.

Principal investigator of the project, Dr Neo Mei Lin of the NUS Tropical Marine Science Institute, said the team is excited about the progress they have made so far.

“This is the first time we have successfully grown these giant clams in the lab,” she said.

The team hopes to breed the clams in captivity and release them back into the wild to help increase the population.

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Researchers injecting sperm into a breeding giant clam (Tridacna crocea). This triggers a reaction which contracts their muscles in their sexual organs. (Left) Denuded immediately after the gonad is injected, the clam starts to eject sperm through its siphons, as seen from the clearness in the water. (Right) when the clams start producing eggs after ejecting sperm, they are moved from tank to tank so that there is less chance of contamination and in breeding.

The Islam (aftad) of the breeding giant clams are removed using shears. Sperms and eggs are ejected from them.

Ideally, the clams would spawn naturally. But little is known about the anatomy of these creatures.

Dr Lee checking to see if one of the clams is still able to spawn. When the clams are younger, they produce more spores, and after seven to 10 years they produce fewer spores and the differentiations.

Wil giant clams in Pakistan are increasingly coveted by people, such as for their shells and meat.

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This demands in turn is fueling the exploitation of this marine creature from the wild.

PHOTO: COURTESY OF YEOH HOD LIAN