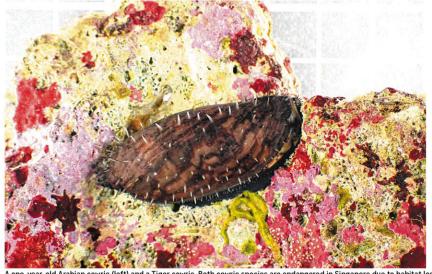


Source: The Straits Times, pA18

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S'pore study makes headway in finding methods to farm sea snails





rear-old Arabian cowrie (left) and a Tiger cowrie. Both cowrie species are endangered in Singapore due to habitat loss and over-collection. PHOTOS: NUS

Clean seawater, suitable diets and identifying behavioural cues are key for growing cowrie larvae

Lynda Hong Senior Environment Correspondent

The larva development of two cowrie species native to Singapore waters has been successfully recorded by marine biologists from the Tropical Marine Science Institute (TMSI) at the National University of Singapore in a study published in

April.

Offspring of the cowries from one of the two sea snail species – the Arabian cowrie (Mauritia arabian) of the cowries bica) - even survived into the sec-

ond life stage of the animal and remain alive to this day.

Ms Teresa Tay, the TMSI research assistant on this study, said: "Previous reproduction studies have managed to collect egg masses from the wild and rear their larvae, but none of them reported success in getting the larvae to develop and settle into juveniles."

Both the Tiger and Arabian cowrie species are endangered in Singapore because of habitat loss and over-collection, and this study seeks to develop farming methods so that the production of cowries can be scaled up for research, con-servation and the aquarium trade. Cowries, especially the rare spe-

cies, are popular among shell col-lectors and aquarium hobbyists because of their polished ornate shells and striking appearance when their mantle is fully extend-

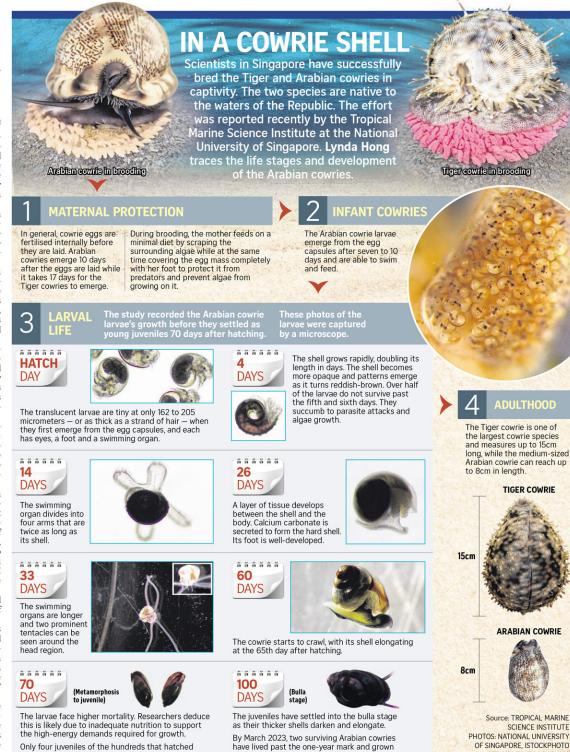
Cowries are often harvested from the wild and are not protected un-der any international agreement like the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Cites), which makes them vulnerable to overexploitation, said Dr Neo Mei Lin, senior research fellow at TMSI and principal investigator of the

Cites regulates the international trade in over 36,000 species of plants and animals.

"Previous reproductive studies on cowries have also not reported success in breeding juvenile cow-ries, which meant that the trade in cowries would continue to rely on wild harvesting that may become unsustainable in the near future,"

she added.
The life phases of cowries can be divided into three stages – the lar-va stage, where the hatched larvae are in their swimming forms as their shell volume increases, before settling on the seabed as juveniles. Their shell continues to thicken even as they mature into adulthood and reach sexual maturity

Dr Neo said: "Our study found that growing cowrie larvae require clean seawater and suitable mi-croalgae diets to thrive. In addition, being able to identify the behavioural cues of larvae was critical for the metamorphosis from larvae



to juvenile, and settlement." Researchers had to wait eight months before their study subjects of 14 Tiger cowries (Cypraea tigris) and seven Arabian cowries produced egg masses.

The study began in July 2021 and

survive to this stage

Only four juveniles of the hundreds that hatched

took over a year to complete. The strongest larva of the tiger cowrie species survived for 37 days.

More than 80 per cent of the tiger

larvae survived the first four days But the surviving larvae kept dying from day five to day 14, and the study concluded that a few batches of the Tiger larvae were ravaged by severe algal growth on their shells, which can impede shell growth. At the same time, they were also attacked by parasites.

have lived past the one-year mark and grown

Dr Neo concluded that the results can be incorporated into how to culture the larvae "to increase the success of cowrie reproduction in captivity".

STRAITS TIMES GRAPHICS

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