

THE AMERICAN BIOLOGY TEACHER



About Our Cover

These colorful creatures are the famous giant clams – the world’s largest living bivalve mollusk (genus *Tridacna*; locally called *pā’ua*, their Maori name), with a wide distribution across the Indo-Pacific region. They are seen here in a tank at a breeding facility on the atoll of Aitutaki, one of the Cook Islands.

According to the Ministry of Marine Resources in the Cook Islands, there are two native species of giant clam in the islands’ waters. A smaller rugose variety (*Tridacna maxima*) is commonly found in lagoons, and a larger fluted clam (*T. squamosa*) is found outside the reef. The largest of the giant clams, *T. gigas*, is not native but was introduced to Aitutaki from Australia in 1990. These clams have all experienced population declines because of overharvesting, but attempts are being made to grow these animals in captivity and release them to the wild. The largest of these creatures found to date had a shell 137 cm long and weighed as much as 250 kg when alive.

The larval clams are planktonic but quickly settle to the ocean floor as they begin to produce a calcium carbonate shell after just two days. These animals are primarily filter feeders, but their mantle supports a remarkable ecosystem of symbiotic algae (zooxanthellae). During the day, the clam extends its mantle tissue so that the algae can photosynthesize and, in the process, provide the clams with a supplemental nutrient source.

T. gigas reproduce sexually and are hermaphrodites. The giant clams use a technique of broadcast spawning whereby sperm and eggs are shed into the water. This action is synchronized with the assistance of a transmitter chemical called *spawning induced substance* (SIS).

Sorry to report that there is no truth to the claim that the giant clams are “man-eaters.” If one were foolish enough to stick an arm or leg into the giant clam, it would be possible to be trapped and drown, but the shell closes very slowly and only as a defensive response.

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