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How To Establish A Clam 'Farm ' For Food Security In Future

By Richard H. Chesher, Ph. D.

EDITORS NOTE. -Dr Chesher participated in the Kingdom's Environment Awareness Week by conducting a re-mirivatioxcultivation of giant clams (tokanoa),off Mounuafe Island on June 7.

Not too many years ago it was easy to find tokanoa in shallow water near most villages. Today they are getting harder and harder to find. Even the younger small ones are not so common as everyone would like.

Clams have always been an important part of the diet of Pacific island people. They also represent a potential export food item, as clam meat is highly valued by other people of the world. Within the past ten years, however, scientists have become concerned that the larger species of giant clams (tokauoa) such as Tridacna gigas and Tridacna derasa have been overfished. These, the largest kinds of clams in the world, have been exterminated in many island countries.

Could the giant clams become extinct? The International Union for the Conservation of Nature has placed these species on their endangered list. Scientists from many countries are researching the giant clams and have successfully farmed them in the Micronesian island of Palau.

In 1979 the Fisheries Division of MAFF called in a biologist to survey tokanoa.

"There is a good indication that the present level of fishing is having a significant effect in reducing the clam stocks at a rate greater than the clam population can adjust, thereby supporting a case for a reduction in fishing effort if clams are to remain a common sight in the fish markets of Tongatapu," the survey report said.

It recommended that commercial fishing for T. derasa, the big, smooth-shelled tokanoa, be stopped and that commercial export of giant clam meat or shells be stopped. It said the giant clam protein was more valuable to the people of Tonga than their potential export value.

Fortunately, there is a way to improve the steady decline of giant clam stocks which might return the clams to their former abundance and even allow some for export. The method has never been tried before but it is not difficult to do, and, based on knowledge of the giant clam's biology, it should work. Basically, the idea is to set up a brood stock of large clams which will supply the eggs to re-seed the reefs.

This concept was tried for the first time during the recent Environment Awareness Week.

The brood stocks were placed in shallow water, in the pattern of two circles, one inside the other. A hundred clams of the largest size and all of the same kind were used to make the circles. Sixty-six were placed in the outer circle and 33 in the inner circle. The biggest clam of all was put in the centre. Although 100 clams does not seem like too large a brood stock, it turns out that the amount of egg production from one big clam with a shell half a metre wide is greater than the number of eggs produced by 4,000 smaller clams with shells only 15-cm wide. The circle, when the clams have reached a large size, can release as many eggs as half a million smaller clams. Also, because the clams will all be close to each other, the eggs have a much better chance of being fertilized than if the clams were spread out over miles of sea floor.

Actually, the idea is not really new, as brood stocks of giant clams were common in the Pacific islands in the past. Indeed, some still exist. In Western Samoa, off the northwest side of Savaii, some giant clams are held as "emergency food reserves" for times of storms or food shortage. Some of the larger clams have names and have been there for generations.

The concept was an ideal activity for Environment Awareness, Week. Like planting trees, it , was something the whole community could do to protect its future. The tokanoa circles will not benefit any one person but will provide everyone in future with the much-loved clams.

The best places to lay brood-stocks are where the young clams, which swim for about 10 days, will stay in the area. In Tongatapu, the circle was put down near Pangaimotu Island, through others may be established off Mounuafe island or on one of Nuku'alofa's harbour reefs.

The. best locations seem to be in the Vava'u Island group, where the Hon. Fulivai has said he is interested in seeing such a circle set up in Hunga Lagoon.

One day, there may be many such circles in the shallow waters near villages of many Pacific islands and there will be plenty of clams for future generations of island people.

Any village interested in setting up a a tokanoa circle should a contact Uilou Samani, ecologist and environmentalist with the Ministry of Lands, Survey and Natural Resources, for more information.

The best clam to use is the large, smooth shelled Tridacna derasa (tokanoa) as these grow larger and faster than other clams. Fishermen are urged to bring any Trrdacna derasa they find to the fisheries department or to their chosen locations for their village circle.

HOW TO SET UP A VASUA CIRCLE:

Pick a location in 10 to 20 feet of water in a protected clear water bay. The circle should be neither too close to shore nor very far away.

The best clam to use is the tokanoa. The smaller clams found attached to the coral rock with the thin cups on the outside of the shell do not grow as big or as quickly as the smooth shelled clam, which likes to live on the sand.

Fishermen should bring any tokanoa they find to the place where the circle will be. Do not treat them roughly and do not leave them out of the water too long, especially in the hot sun. As they are found, add them to the circle, starting with the inner circle.

Put 33 in the inner circle and 66 in the outer circle and a very big clam in the middle.

Keep the clams two metres apart. This means the inner circle will be about 21 metres in diameter and the outer circle about 42 metres in diameter.

Place them on the sand or clear rock area with their opening facing up, just as they were found.

Check the clams occasionally to see they are alive and well. If one is dying, replace it.

The clams may live for more than 100 years. They do not have to be fed or cared for. As long as these big clams are not harmed, people can collect the young produced by the big ones. It would be best to leave a few small ones near the circles.

The young clams will grow to market size in about three years.

Remember, if the circle of clams is broken, there will soon be no more clams.

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