

Marine Resources

Giant clam circles save species from extinction



Tokanoa molemole in a clam circle

As long ago as 1979 marine biologists warned the Government of Tonga that one species of giant clam, *Hippopus hippopus* was probably extinct and another, *Tridacna derasa*, was on the brink of extinction.

During Environment Awareness Week of June 1986, Tonga responded to this threat by planting a brood stock of *Tridacna derasa* (Known in Tonga as) on a reef in Nuku'alofa Harbour in an novel attempt to revitalize the stocks of these animals. Brood stock aquaculture is a new idea, originated in Tonga, which may help solve an old problem in the Pacific Islands- of how to regulate the fishery. By protecting the brood stock and letting people catch and eat the young which settle down outside the reserve, the problem of maintaining the stock is easier.

The Ministry of Lands, Survey and Natural Resources organized the giant dam broodstock project with the cooperation of the Fisheries Division of the Ministry of Agriculture, Forestry and Fisheries and Marine Research Foundation. It was the first known attempt to increase natural populations of giant dams (*Vasuva*) using relocation of natural stocks and their subsequent protection in microparks.

In 1987 the project was taken a step further when the people of the Vava'u island group decided to build their own community sponsored and constructed giant clam circles. Under the urging of the Governor of the island, Dr. S. Ma'afu Tupou, (now Minister of Lands, Survey and Natural Resources) the local business community set up a small fund for cash prizes for the fishermen who could catch the most *Tridacna derasa* (*Tokanoa molemole*) and *Tridacna squamosa* (*Matahele*) to make the circles.

The fishermen searched for two months and only found 12 *Tridacna derasa*, underscoring the severe depletion of the local stocks. Finally, during a calm spell, the fishermen were able to reach more remote reefs and gather 60 more, enough to build a respectable circle. Two dam circles were then made, one with the 72 *Tridacna derasa* and another with 75 *Tridacna squamosa*. They were placed in shallow water directly in front of one of the villages in a centrally located part of the island group.

The major reason people have left the vasuva in the Falevai Community Giant Clam circles alone is because it is a social obligation to do so, an obligation to maintain a good supply of these sea creatures for all the people of Tonga. Allowing the Tokanoa molemole to become extinct would be an unforgivable failure on the part of this generation of Tongans to fulfill the social obligations to the future generations of Tongans.

With the aid of a group of researchers from a volunteer organization called Earthwatch International, we conducted extensive surveys of the existing stock of wild clams for a year before the installation of the circle. There were few baby *Tridacna derasa* in the areas we surveyed. In October 1988, 10 months after the circles were installed, we found the first baby *Tridacna derasa*. It was within 10 metres of the community giant dam circles. In July 1989, 18 months after the establishment of the circles, we found many baby *Tridacna derasa* and *Tridacna squamosa* extending down-current from the circles for more than three miles.

Encouraged by the success of the Vava'u project, the Ministry of Lands, Survey and Natural Resources sponsored a second giant dam circle which was placed on another reef in Tongatapu during the June, 1989 Environmental Awareness Week.

Extinction of giant clams

The larger species of giant clams have become extinct or seriously endangered in many Pacific Islands through overfishing. In the past 30 years face-masks and flippers and outboard motors have helped more fishermen collect giant clams more efficiently. The slow growing giant clams have been unable to survive such heavy fishing pressure, mainly because they do not become major egg producers until they are perhaps 15 to 20 years old.

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