



## ***Trochus niloticus* spawnings at Tongareva Marine Research Centre, Penrhyn Atoll, COOK ISLANDS.**

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The commercial topshell, *Trochus niloticus*, was introduced to Penrhyn atoll from Aitutaki atoll about 10 years ago. In a recent survey by the Ministry of Marine Resources, the broodstock trochus are mainly distributed on the west side of the lagoon, along the islet where Omoka, the Tongareva Marine Research Centre [TMRC] and the airport are located. At the end of the first week of November 1996 there were 43 *Trochus* collected from the corals on the reef front outside of TMRC. These were cleaned and set into a tank.

The following day (8 November 1996) they were "induced" to spawn using the heavy aeration method in a small amount of seawater. The induction method ceased at 18.00 hr and trochus were placed into a spawning tank with clean filtered seawater (fsw). The seawater was raised and lowered a couple of times until release of sperm began, followed by eggs. Large quantities of eggs were spawned, but only a smaller batch of eggs were kept, fertilised and stocked into 2 hatching tanks.

The following day an estimated 5,600,000 trochophore larvae had hatched and after reaching the veliger stage these were stocked into a raceway tank filled to approximately 7,000 litres. Pearl oyster spat were later placed into this raceway with the trochus juveniles and due to movements of spat and cleaning of raceways, many of the trochus juveniles were lost down the drain. By mid-March the remaining juveniles had reached only about 5 mm basal diam., but this was due to limited food and rather poor holding conditions in a small tank.

By mid-May the juveniles were returned to a raceway along with a newly settled batch of hatchery-reared trochus. They were subsequently placed into a raceway with trays containing blacklip pearl oyster spat of >5 mm. As of late August 1997, the size of this first batch of trochus juveniles averages 20 mm basal diam.

The second spawning took place after 46 adult trochus were collected on 5 May 1997 along the reef front outside of the TMRC. No induction method was used. Some sperm was released the night of 5 May, but no further activity to 23.00 hr. There were a massive number of eggs spawned by the following morning [estimate 15,000,000 eggs]. On the night of 6 May 1997 several females spawned eggs, but total numbers only about 2,000,000 eggs. The counts of veliger larvae on 9 May indicated 770,000 larvae, and these were transferred into a raceway tank (7,000 litres).

Once again, as pearl oyster spat were moved in and out of raceways and with cleaning of the raceways, many juvenile trochus were lost down the drain. As of 30 August 1997, the average size of this batch of trochus would be about 4-5 mm basal diam. Both batches of trochus are foraging on raceway walls, bottom, and on trays containing blacklip pearl oyster spat. In future it is hoped that a proper study will be conducted to look at the advantage of having trochus and pearl oyster spat in polyculture with regards to control of filamentous algae, especially around pearl oyster spat.