Successful induced spawning of the top shell, *Trochus niloticus*, at SEAFDEC/AQD, Philippines

R.S.J. Gapasin[1], W.G. Gallardo[1] and B. Polohan[1]

The top shell, *Trochus niloticus*, with its mother-of-pearl shell and edible meat is one of the most heavily exploited marine gastropods in the Indo-Pacific region. In the Philippines, the unregulated commercial harvest of trochus has reduced the natural population to near extinction. Studies on the reproductive biology and ecology of trochus have led to the development of spawning and hatchery techniques to produce seeds for aquaculture and possible restocking programmes to help regenerate depleted natural stocks.

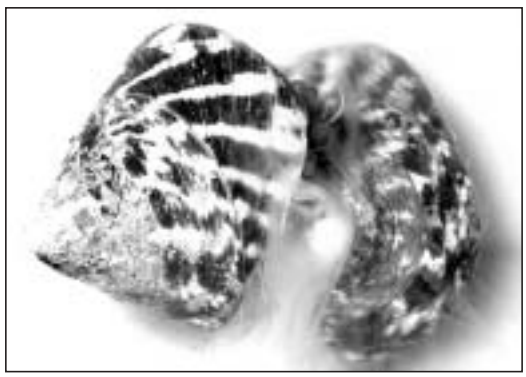
Induced spawning and seed production of trochus was done in the 1980s, notably in the South Pacific region and subsequently in Australia, Indonesia and elsewhere. The Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC / AQD) successfully spawned gravid trochus on 1 February 2002 with the objective of mass-producing top shell juveniles for stock enhancement. Forty mature trochus (50–80 mm basal diameter) of mixed sexes were subjected to combined static-water stimulus and thermal shock. Of the 2.3 million eggs spawned and incubated in flow-through, UV-treated seawater, about 337,333 developed to become veligers.

In our second spawning trial (27 February 2002), a batch of 80 gravid trochus was divided into two groups. The first group received static-water stimulus while the second group was subjected to thermal shock. Both groups received UV-treated, flow-through seawater thereafter. The first group responded first giving 1.5 million eggs, of which, 391,000 became veligers. The second group, responding only after the second thermal shock attempt, produced 480,000 eggs, of which, only 46,000 became veligers.

Our third spawning trial (13 March 2002) was similar to the second one, except we compared the effect of sand-filtered seawater as a flow-through medium with UV-treated seawater. This was done, after the stimuli were delivered, to determine the cost-effectiveness of the two rearing methods. Only static-water stimulus with UV-treated, flow-through seawater was effective, producing 1.2 million eggs, of which, 437,000 developed into veligers. Both groups given the static-water stimulus and sand-filtered, flow-through seawater and those treated with thermal shock and UV-treated, flow-through seawater did not respond. In the group given thermal shock and sand-filtered, flow-through seawater, only the males spawned.

Veligers produced from the three spawning trials were stocked in our settlement tanks (i.e. provided with corrugated plates covered with diatom growth). They are being monitored for growth and survival.

As a result of the success in induced spawning, funds are being requested to support our seed production and stock enhancement research programme.



Male *Trochus niloticus* spawning

1. Aquaculture Department, Southeast Asian Fisheries Development Center (SEAFDEC), Tigbauan, 5021, Iloilo, Philippines