

Imbao, the mangrove clam



By **RIY Adan**

Thirty to 90 cm deep in the mud lies the mangrove clam – one of the most noteworthy species among the edible mangrove-associated mollusks.

This mangrove clam *Anodontia edentula* (locally known as *imbao*) is widely distributed in the Indo-West Pacific, from East and South Africa, including Madagascar and the Red Sea, to eastern Polynesia; north to southern Japan and Hawaii, and south to New South Wales. It inhabits the muddy bottom of mangrove areas, or the adjacent mudflats. It grows to a maximum size 8-9 cm shell length, total weight of 180-210 g and is a potential aquaculture species.

Imbao is a highly-prized shellfish in coastal areas where it is abundant; hence an important source of food and livelihood. In the Philippines, *imbao* is ample in Visayas and Mindanao. It is sold in some seafood restaurants at prices slightly higher than other clam species, at P5-8 apiece. *Imbao* is often cooked as soup, steamed or broiled, others prefer to eat it raw. However, overexploitation and habitat destruction has led to the decline of its population.

In 1997, SEAFDEC/AQD started work on *imbao* – as a component of its mangrove-friendly aquaculture program. AQD sees stock enhancement within a wider program of mangrove conservation and rehabilitation as a way to bring it back. Towards this end, AQD researchers led by Senior Scientist Dr. Jurgenne Primavera has undertaken studies on the shell's reproductive biology and existing fisheries.

Mangrove clams were collected in San Roque, Estancia, Iloilo using the “mata” system – a non-destructive collection method. They hired the services of skilled *imbao* collectors; people who can pinpoint the exact location of *imbao* through the opening of its siphon – or what is locally called “mata” (a reference to the hole or opening in the substrate). This method spares mangroves from damage caused by digging.

Field samplings revealed that *imbao* can be collected at mean depths of 30-40 cm. Monthly range of sizes of *imbao* was 43 –51 mm mean shell length and 21 - 170 g total weight. Moreover, female and male adults were successfully induced to spawn using serotonin. Females that spawned ranged from 60 g, 57 mm shell length to 125 g, 73 mm shell length. The maximum number of eggs spawned by a 71 g female was 1 million.

AQD researchers are also studying the potential of *imbao* as sediment cleaner. *Imbao* belongs to a shell family (Order Veneroida, Family



Juvenile Anodontia edentula inside the cavity of an adult clam



AQD researcher Junemie Lebata injecting serotonin in imbao to induce spawning



Using the “mata” method in collecting A. edentula from the burrow in mangrove mud

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The United States has grown to become the single largest pearl jewelry consumer, purchasing US\$1.47 billion, or 36% of the global pearl jewelry sales. Europe, which accounted for only a small fraction of the pearl market five years ago, is seeing its market share expand at a tremendous pace, with wholesalers reporting substantial growth year after year. The European pearl jewelry market is estimated at US\$700-900 million. Meanwhile, Tahitian cultured pearl exports are expected to exceed 7,000 kg in 2000. Annual reports of Tahitian pearls were about 5,000 kg in 1996 and 1997; and more than 6,000 kg in 1998 and 1999. The Philippines, on the other hand, continues to establish itself in the international pearl market with exports increasing 22.8% to 586,665 g or 156 kg in 1999 compared with 1998.

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Lucinidae) that harbors symbiotic bacteria. This shell family has also been observed to live in hydrogen sulfide-rich habitats such as sewage outfalls, seagrass beds, mangrove swamps, and in organically rich sediments.

This means, researchers say, that *imbao* harbors symbiotic sulfur-oxidizing bacteria in its gills and has the mechanism within itself to use up sulfide. This capability would make *imbao* useful if raised in polyculture with shrimp. It is a fact that brackishwater pond sediments contain plenty of sulfide, particularly where the cultured animals are fed protein-rich diets. *Imbao* can very well answer this problem – and make aquaculture more environment-friendly.

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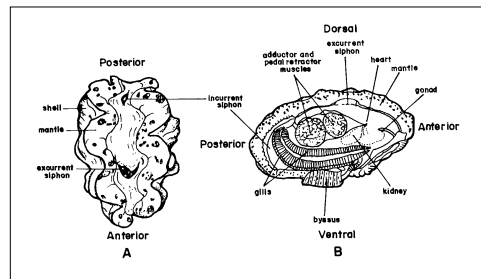
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clams are popular for export. But it is important to note that in order to produce meat biomass and supply the adductor muscle/mantle markets, time for which capital and resources are tied up prior to sales is lengthy, thus quick returns are not possible.

In Australia, farm-gate price of fresh clam meat ranges from \$A3 to 7. In 1986, it was reported that Taiwan demand for adductor muscle of 100 ton/yr was at \$US 7.50 - 21.25/kg.



The giant clam life cycle shows its stages of development



The parts of the giant clam shows the adductor muscle which is the most valuable part of the clam for export purposes. The adductor muscle is highly priced in Japan for sashimi and fetches a good price

Conclusion

Experts say that the giant clams (nearing extinction in most parts of the world) are attractive to farm for economic, social, and ecological reasons because of their innate characteristics - self-feeding, sedentary habit, adult resistance to predation. Besides, technology for its mass production from breeding to harvest has been proven successful in many parts of the Indo-Pacific. But its development as an industry is difficult to appreciate considering the duration that capital is tied up to production. Perhaps its importance lies not so much on its promise for immediate profits but on its ecological importance to coasts worldwide. Resembling big trees in primary forests, their importance cannot be measured immediately but their contribution is far-reaching and simple, one fails to see it. As in most ecological issues, the profit is promised for the coming generations. ####