

GIANT CLAM CULTURE AND ITS PROSPECT IN INDONESIA

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Giant clams (Indonesia = kima) are large bivalves molluscs (Tridacnidae) that live in coral reef habitats in the Indo-Pacific region. This family consists of two genera, i.e. *Tridacna* and *Hippopus*, and eight species, i.e. *Tridacna gigas*, *T. derasa*, *T. squamosa*, *T. maxima*, *T. crocea*, *T. tevoroa*, *Hippopus hippopus*, and *H. porcellanus* (Figure 1).

Giant clams' shell is made up of two valves which are joined by a ligament located ventrally forming a hinge. The shells are closed and opened by an adductor muscle situated either at the center or posterior part of the shell. The size that can be reached by tridacnid clams varies considerably according to the species. Adult *T. gigas* can exceed 100 cm which is the largest clam species, while the maximum size of *T. crocea*, the smallest clam, is about 15 cm. The shape of the shell can be suboval to a fan-like.

Unlike other bivalves, such as mussels, oysters, scallops, and cockles, giant clam nutrition is not only supplied by filter feeding activity but also mostly provided by symbiotic single cell dinoflagellate algae called zooxanthellae. These tiny zooxanthellae (approximately 10 mikron in size), scientifically known as *Symbio-*



Figure 1. *Hippopus sp.* showing its mantle.

dinium microadriaticum, can be found on the clams' mantle in millions. Like any other green algae, zooxanthellae are capable of producing carbohydrate by photosynthesis and translocate part of the products to the host. In fact the nutrition of these giant clams, which directly influences their growth, depends on the amount of photosynthate being passed by these algae.

The demand for giant clams, either the meat or the shells is increasing. In Taiwan and Japan, the price of 1 kg of dried adductor muscle can reach up to US\$ 100 while 1 m of shell can be marketed as much as US\$ 100 in the Philippines (Lee, 1988). He also suggested that such prices will lead to over exploitation of giant clam natural populations around the world. To

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