

## Population characteristics of the mangrove clam *Polymesoda (Geloina) erosa* (Solander, 1786) in the Chorao mangrove, Goa

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Mangroves are the tropical and sub tropical coastal and/or estuarine intertidal or island plant communities. Since the early history of mankind, mangrove ecosystems have played important role in the socio-economic development of coastal people in the Indo-Pacific region. This unique but fragile ecosystem has been providing firewood, charcoal, pole, tannin and some traditional medicine to the people of coastal areas. (They also act as feeding and nursery ground for young ones of fishes, shellfish, prawns, crabs and others. However, the rapidly increasing population, illicit felling of mangrove trees, grazing by cattle, bund construction for Aquaculture farms and other illegal activities has necessitated the intensification of the utilization of mangroves.

Edible marine bivalves (clams, mussels and oysters) are widely distributed and form a sustainable fishery along the Maharashtra, Goa and Karnataka coast of the west coast of India. They provide cheap source of nutritious food for the coastal people. The estuarine and backwater systems along Maharashtra, Goa and Karnataka coasts are characterized by rich fauna, notable among them are members of the bivalve molluscs. The clams belonging to the genera *Meretrix*, *Polymesoda*, *Paphia*, green mussel; *Perna viridis* and oyster; *Saccostrea cucullata* and *Crassostrea gryphoides* are abundantly available in the mangroves of the central west coast of India.

Mud clams of the genus *Polymesoda (Geloina)* are widely distributed in the mangrove habitat. Although mud clams are considered to be a poor man's diet, their demand as delicious seafood for human consumption is increasing day by day. Further, due to the non-availability of fish particularly during monsoon seasons, the bivalves including mud clams are indiscriminately harvested for human consumption, thus, raising a concern about long-term sustainability.

Three species of the mangrove clams belonging to sub genus *Geloina* are reported from the Indo-Pacific region (Ingole *et al.* 1994). They are *Polymesoda erosa*, *P. bengalensis* and *P. expansa*. The distribution of *P. bengalensis* is restricted to the Bay of Bengal, whereas *P. erosa*, and *P. expansa* are known to occur along the east as well as west coast of India. Despite their economic importance and food potential, mangrove clams have received very little attention. Accordingly, a detailed study on the ecology and population dynamic of *P. erosa* was conducted in the Charao mangrove of Goa and some results are discussed here.

Population characteristics of the mangrove clam *Polymesoda (Geloina) erosa* (SOLANDER, 1786) were studied in the intertidal mangrove habitat of Chorao Island situated 3 km upstream of the mouth of Mondovi River along the central west coast of India. To study the population dynamics and life cycle pattern, samples of *P. erosa* were collected on monthly basis from December 2000 to January 2002. Collection of adult clams was done by hand picking from the known area (on an average 75 clams per collection from  $\approx 100 \text{ m}^2$  area). For the juvenile clams

population, sediment samples were collected with a metallic quadrant (25x25x10 cm area) and sieved on 0.5 mm mesh sieve. The specimens of *P. erosa* were in the range of 21.1 – 93.06 mm total length and 10.91 to 316.00 g total weight (wet wt.). The modal length of the population was in 60-80 mm total length (Fig. 2). Breeding of *P. erosa* occurs through out the year in Chorao mangrove, however high occurrence of juvenile clams during July - September suggests the possibility of peak breeding activity during pre monsoon season). The population density of adult clams varied from 1- 23 individuals m<sup>-2</sup> (mean±SD = 6.4±5.5) in high clam concentrated area. The density of juvenile clams was higher in the sediment near the feeding creek, where as the density of adult clams was higher in the sediment adjacent to the mangrove roots.

Although *P. erosa* is distributed in the major mangrove habitat along the central west coast from Honawar to Dahanu, it is discretely exploited for human consumption in Goa, particularly during the monsoon season. Although the density of adult population was constant through out the study period, the population of the adult clams declined marginally during the monsoon months (July - September), indicating the fishing pressure on *P. erosa* at Charao Island. This edible mangrove clam is one of the major bioturbators in the Chorao mangrove and expected to play an important role in nutrient recycling. In addition to this *P. erosa* also possess high antiviral activity (Chatterji *et al.* 2002), suggesting its biomedical potential. However, enhanced anthropogenic activities along the west coast and the destruction of mangrove habitats are threatening the survival of this clam.

The increased urbanization and agro-industrialization are the major contributors to mangrove destruction. The destruction has reached a point where preservation and conservation of the genetic diversity and the marine living resources of the mangrove ecosystem becomes imperative. The utilization of mangrove in a sustainable manner, maintaining the ecological processes, life supporting system and protecting such areas with high diversity is the need of hour. Since *P. erosa* is endemic to the mangrove habitats, more efforts are needed to conserve this important resource.

We wish to thanks the Director, NIO, Goa for encouragement the facilities and to the Dept. of Environment & Forests, Govt. of India for financial support.

#### References

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