

Environmental parameters of experimental pits in relation to the stocking density of the clams *Paphia mabarica* and *Katelysia opima* of Kalbadevi estuary, Ratnagiri

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SUMMARY

The two species of edible clams, *Paphia malbarica* and *Katelysia opima* were stocked at five stocking densities viz. 50, 100, 200, 500 and 1000nos/m² in the pits (1m x 1m x 0.25m) dug in the tidal flat area of Kalbadevi estuary, Ratnagiri. During seven months period, (July 2002 to January 2003) surface water temperature and salinity in the experimental pits varied from 27 to 31°C and 22 to 30 ppt, respectively without any particular seasonal trend. The maximum pH of 7.83 was at 50nos/m², while the minimum occurred at 1000nos/m². The dissolved oxygen (D O) fluctuated from 2mg/l at stocking density of 1000nos/m² to 5.62 mg/l at 100nos/m² in *P. malbarica* and 5.36 mg/l at 50nos/m². Both the pH and dissolved oxygen showed marginal and gradual decrease with the increase of stocking density and also with the progress of the season. Dissolved sulphide increased with increase in stocking density ranging from 0.43mg/l at 50nos/m² to the maximum 1.12 and 1.16mg/l at 1000nos/m² in case of *P. malbarica* and *K. opima*, respectively. The soil sulphide fluctuated from 1.26 mg/l at stocking density of 50 nos/m² to the maximum of 2.86 and 2.91mg/l at 1000nos/m², while the pH was 7.57 and 7.44 at 1000 nos/m², but both species had maximum of 8.47 at 50nos/m². Soil sulphide and organic carbon showed gradual increase with increasing stocking density but pH showed decrease with increasing stocking density.

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Edible clams form cheap but important source of nutrition and employment generation especially to the coastal people. Along the coast of Maharashtra state, vast areas including muddy bays, rocky inshore areas, estuaries and backwaters are known to support the molluscan resources comprising of clams, oysters and mussels forming regular fishery along the coast. The estuarine creeks of Ratnagiri support clam species namely, *Paphia malbarica*, *Katelysia opima* and *Meretrix meretrix* regularly commanding good market.

The venerid clam, *Paphia malbarica*, commonly known as false clam contributes 80 to 90% of the total frozen clam export from India (Appukuttan *et al.*, 1999). The other species *Katelysia opima* is identified to be potential clam species for export purpose (Appukuttan *et al.*, 2002). The clam meat, rich in protein, is the most preferred mollusc by the local people for regular consumption. Of late, the clam has gained popularity as supplementary food in semi- intensive prawn farming during the entire culture period including nursery phase (Kripa and Gopakumar, 1996). Clams contribute substantially to the total production of molluscs

for human consumption as well as for raw material for the cement and lime industry. Clams are abundantly found along the entire coast of India, however the richer resources are found along the west coast of the country.

Traditionally, the clams are kept by the fisherman in pits serving as, 'live godown' by stocking 1200 to 1500 nos/m² for a short period of 8 to 10 days at Shirgaon, Ratnagiri, prior to their transport to Mumbai market. These pits are constructed alongside the creek in the intertidal region of Kalbadevi and Mirya estuaries. These pits are not managed properly and sometimes large scale mortality of the clams has been observed.

In view of the culture potential and the repeated incidences of mass mortality of clams in the pits, the present investigation was undertaken in the Kalbadevi estuary, Ratnagiri to standardize optimum stocking density of *P. malbarica* and *K. opima* with reference to sulphide level.

MATERIALS AND METHODS

Study area:

Shirgaon creek, which is a part of the

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