

in 6 months at Bhatye. The mean length of 22 mm was reported at Shirgaon, by observing the shifting of modes during six months. The same group could be traced at 24–25 mm at Shirgaon and at 23–24 mm at Bhatye in May 2004. Thus, growth at the end of first year was found to be 29 mm at Shirgaon and 30 mm at Bhatye in October 2004.

Through the similar progression of modes, *P. malabarica* was observed to reach a size of 39 mm at both the stations in the second year *i.e.* in October 2005. In similar studies conducted at Ashtamudi estuary, Appukuttan (1996) has studied the age and growth in *P. malabarica* and reported that this clam grew to 30.05 mm in one year, 38.21 mm in second year and 41.44 mm in the third year. It was also reported that 1 year class (30.05–38.21 mm) ranked first in the commercial catches, followed by 0 – year class (less than 30.01 mm) and 2 + year class and 3 + year class (above 38.21 mm). Von Bertalanffy Growth Equation obtained was:

$$L_t = 44.426 [1 - e^{-0.8389(t + 0.3452)}]$$

In *P. malabarica* inhabiting the Mulky estuary, Northwest coast of India, Rao (1988) recorded the growth rate as 36.3 mm in 6 months, 43.1 mm in 9 months and 48.1 mm in 1 year. The  $L_\infty$  value was recorded as 59 mm and  $K = 0.0039$  / day,  $t_0$  as (-62 days). Ranade (1964) reported growth of 40 mm in one year, 49 mm in two years and 55 mm in three years in the clam, *M. meretrix* from Ratnagiri. The growth rate reported by the same author for *K. opima* was 21 mm, 31 mm and 42 mm in first, second and third year, respectively. The growth rate of *K. opima* reported by Kalyansundaram and Kashinathan (1983) was 15.15 mm in 0 year, 26.55, 36.2 and 41.15 mm during first, second and third year, respectively. Balasubramnyan and Natarajan (1988) have reported the age and growth of *M. casta* and observed a mean growth of 17 mm in six months and the growth at the end of one year was found to be about 24 mm. Growth rate and other popular parameters obtained for *P. malabarica* during the study were comparable with other species as reported by Winckworth (1931) on *P. undulata*, Mane and Nagabhushanam (1979 a, b) on *P. laterisulca*. As per this study,  $L_\infty$  value for *P. malabarica* was 44.426. Kalyansundaram and Kashinathan (1983) have studied the age and growth in *Katelysia opima* from Vellar estuary. This study showed that the clam attained a length of 26.65, 36.2 and 43.15 mm during 1st, 2nd and 3rd year, respectively. Abraham (1953) studied growth of *M. casta* in Adayar estuary at Madras on the east coast and found growth of 29.5 mm in nine months. Salih (1973) reported

a growth rate of 3.7 mm per month (*i.e.* 33.5 mm for 9 months) in one case (earlier brood) and 3.2 mm per month (*i.e.* 35.4 mm for eleven months) in another case (later brood) of *M. casta*. Parulekar *et al.* (1973) showed a growth rate of 2.7 mm and 2.9 mm per month in *M. casta* occurring at estuaries in Goa. Balasubramanyan and Natarajan (1987) had studied age and growth of *M. casta* from Vellar estuary. Employing length–frequency method, growth of *M. casta* at the end of one year was found to be about 24 mm. Probability plot method was used find the modal values of different year classes. Parulekar (1984) had reported that the growth rate of tropical bivalves was many times higher as compared to the temperate species. Higher growth rate in *P. malabarica* was observed in the present study at Mandovi estuary. In terms of annual growth, the rate of growth progression in tropical species is many times higher than in temperate species.

Growth rate observed for *P. malabarica* during the present study seems to be comparable with that of results of studies on the same species (Appukuttan, 1996; Rao, 1988). The higher growth rates reported at Mulky estuary can be attributed to the low population density as low as 10 no./m<sup>2</sup> (Rao, 1988) in the prevailing environmental conditions and the nature of substratum. The slower growth rate observed at Ashtamudi estuary was attributed to the high density (8 – 3732 no./m<sup>2</sup>). Appukuttan *et al.* (2002) as well as higher levels of exploitation. The same can be true for the slower growth rate observed during the present study. The present result can be of much more importance, especially in the exploitation of the shortneck clam through culture practices along the vast estuarine coastal areas of Maharashtra. Due to higher growth rate, this species of clam attains a marketable size in less time and can commercially be exploited early.

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