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On the occurrence of the black clam, *Villorita cyprinoides* (Gray) in Pulicat Lake

The black clam *Villorita cyprinoides* (Gray) belonging to the family corbiculidae is widely distributed in the estuaries of west coast of India. Extensive beds of *Villorita* spp. are found in the estuaries of Kerala, specifically in the Vembanad Lake, where the annual production was estimated to be 25,000 t. Large quantities of sub-fossil deposits containing the shells of this species were being exploited for many years in the Vembanad Lake. Distribution of this species in living conditions along the east coast is not known.

The black clam was found for the first time in the y-shaped extension of the Pulicat Lake running for a distance of 3 km on the western side, between Arambakkam and Elavur villages (Fig. 1). For estimating the standing stock of the clam, samples were collected from stations using a quadrat of 25 cm² and four such samples were mixed to get the total clam present in one m². Details of the hydrographic parameters and nature of the substratum are given in Table 1 and extent of the clam bed, density of the clam and estimated biomass are given in Table 2. Biological details such as length range, average length, average weight, percentage of edibility, stages of maturity and sex ratio are given in Table 3. Water depth in the area was between 0.30 to 0.70 m. Bottom was hard with muddy substratum. Due to mixing of rainwater, the salinity was also less in this area and there was no clam present from this point. Maximum concentration of *V. cyprinoides* (124 clams weighing 1272 g/ m²) was found at Station 2, where the substratum was sandy muddy and the salinity 13.00 ppt. Length range of the clam recorded was from 12.0 to 40.0 mm and the average length ranged from 25.8 to 27.2 mm in these five stations. Average weight varied from 8.5 to 10.3 g and

the percentage edibility from 9.8 to 10.9. Ripe and spent gonads were present and the latter with active resorbitive conditions. Males were high among the clam population forming 63 to 83%.

Table 1. Station-wise average values of depth, nature of substratum and hydrographical parameters of the *Villorita cyprinoides* beds

Station No.	Water (m)	Nature of substratum	Salinity (ppt)	Water temperature °C	Dissolved oxygen (ml/l)
1	0.50	Soft muddy	35.00	29.0	2.89
2	0.60	Sandy muddy	13.00	28.5	3.84
3	0.60	Sandy muddy	13.00	29.0	3.12
4	0.30	Sandy muddy	10.00	28.5	3.52
5	0.60	Sandy muddy	12.00	29.5	3.52
6	0.70	Muddy	5.00	29.5	3.46

V. cyprinoides is a brackish water species, distributed in the upper reaches of backwaters, where the salinity is low. Clams ranging from 15.0 to 20.0mm were found to grow well in the salinity range of 0.37 to 29.25 ppt and those of size from 40 to 50 mm in the range of 4.73 to 27.11 ppt.

Table 2. Abundance of *Villorita cyprinoides* in the area surveyed

Station No.	Extent of the bed (m ²)	Average density of clams (nos/m ²)	Average biomass (g/m ²)	Estimated biomass (t)
1	3600	41	422	1.520
2	4000	124	1272	5.109
3	3000	86	886	2.657
4	3600	108	1112	4.004
5	5600	44	453	2.538
6	Nil	Nil	Nil	Nil

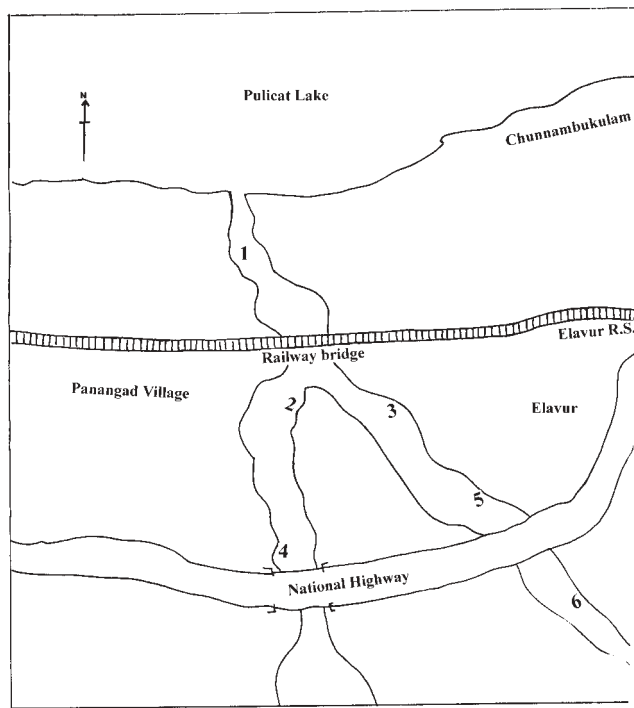


Fig. 1 The study area

Closer view of dried clam shells (shells of *M. casta* and *V. cyprinoides*)

Pulicat Lake, black clam is totally absent.

The present observation is highly significant in that the occurrence of *V. cyprinoides* in the Pulicat Lake, that too in large numbers in a wider area is being reported for the first time. Whether this new resource can emerge as an important one, is difficult to predict at this

Table 3. Size composition, percentage edibility, stages of maturity and sex ratio of *V. cyprinoides* in the clam bed

Station	Size range (mm)	Average length (mm)	Average wt. (gms.)	Percentage edibility	Stages of maturity	Sex ratio (M. F)
1	19.0 - 30.0	25.8	8.6	9.8	Ripe and spent	20 : 80
2	18.0 - 30.0	25.8	8.8	10.9	Ripe and spent	27 : 73
3	15.0 - 36.0	25.8	8.5	10.1	Ripe and spent	23 : 77
4	12.0 - 40.0	27.2	10.3	10.3	Ripe and spent	17 : 83
5	17.0 - 31.0	26.3	9.3	10.2	Ripe and spent	37 : 63
6	-	-	-	-	-	-

The larval stages were found to survive and settle well in the salinity range between 17.2 to 18.35 ppt and can survive even in the freshwater conditions. The beds of *V. cyprinoides* in the Pulicat Lake are away from the mouth, where the salinity is low. In the main canal of

junction. However, by adopting suitable methods of propagation, the abundance of *Villorita* resources can be expanded and made sustainable.

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