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13. DISTRIBUTION OF MOLLUSCAN FAUNA IN PULICAT LAKE

R. Thangavelu and P J. Sanjeevaraj
Zoology Department, Madras Christ/an College, Tambaram, Madras-600 059.

ABSTRACT

The Pulicat Lake was surveyed from the barmouth to Ougarajapatnam for molluscan fauna Extensive oyster beds occur in the southernmost region of the Pulicat Lake. Dense population of oyster beds wes'eco'ded at Kulathumedu and scattered distribution near the mouth, Moosimani lock. Kottaikuppam. Sriha'liiota and Ougarajapatnam on the northern side of the lake. Beds of the clams, *Meretrix* casfa and *Katelysia opima* was found arcund the small Islets lying between Gunakuppam and Kottaikuppam. Regular fishery for ci*ms exists in this area. Brds of Oonax spp occur near the bar-mouth of the lake. The button shell. L/mbon/um i/es^anum is distributed from the mouth of the lake uptT 1 km- southwards. *Cerithidea* (C) *cingulata* were also found to form extensive beds. Ihe distribution of the molluscen fauna in the lake is correlated with environmental parameter*.

INTRODUCTION

India has very valuable nnarine molluscan resources which has been widely used as food and source of lime, pearls in ornaments and some shells as medicinal constituents. During the past two decades detailed investigations have been made to study the commercially important molluscan resources Though there is good deal of information available on the resource potential of edible oysters, clams and mussels (Hornell 1908, 1916, 1917; Rai 1928 and 1932; Ranade 1964; Jones 1968; Aiagarswami and Narasimham 1973; Nair and Mahadevan 1974; Rao 1974; Rasalam and Sebastian 1974; Nayaret al 1984; Nayar and Rao 1984 and Sreenivasan 1985) except the works of Rao and Rao (1985) and Rao et al (1987) at Athankarai estuary on the quantitative survey on the resources of oyster beds, no information is available in regard to backwaters or estuary of east coast of India. Distribution of benthic fauna of Cochin backwater has been studied by Desai and Krishnamurthy (1961) and Kurian (1972),of Kali estuary by Harkantra (1975), and of Pulicat Lake by Chacko et al (1955), Krishnamurthy(l971)andRao(1974).Athorough knowledge on the natural resources of bivalve molluscs and their ecology is very essential for starting culture.

In the present paper an attempt has been made to give information on the distribution of oysters, clams, mussels ^nd other molluscan fauna in the Pulicat Lake based on a survey undertaken for this purpose.

MATERIAL AND METHODS

The Pulicat Lake was surveyod during January to April, 1980 for finding out the distribution of molluscan fauna. The edible oysters, clams and *Cerithidea cingulata* popu- '^t'on densities were estimated by using * ""^^'^ ^"^^rat at the sampling sites and the molluscs present in the quadrat were counted ^'"^ .'"""'^''^'^ ^°' ^ ^^j -^-^f^^-Samples were obtained at an interval of 200m at the Low ^^^^^ ^^^^ ^^WM), Mid Tide Level (MTL) and High Water Mark and additional samples were also obtained at a depth of 1 mètre in the lake to estimate the moluscan fauna. Totally 286 stations have been fixed and surveyed. Data collected for *Cerithidea cingulata* from 25 stations were pooled together and average was given in the taole against the villages. The extensive oyster and clam beds were surveyed ^y measuring their length, breadth and height. °ata on the size, weight, percentage of dead and live oysters were estimated in each bed ^ndthetotal oyster biomass was determined, ^^'^^ ^'^"^'^'"^ *^« °^^'^' ^'^"^ ^ ^"'^« ^^^ ""^^^^ ^^^ '"°««'^' ^« ' ^^'Q^^* determined and from ^'^'^ Percentage of meat weight was calculated (meat weight X 100)/ whole weight. Regula** observations were also made on the clam landings of the Pulicate Lake. Various environmental parameters such as salinity,

dissolved oxygen and temperature have been collected at all the sampling sites.

PHYSIOGRAPHY OF PULICAT LAKE

The Pul.cat Lake (Let: 13^26' to 13"43- North and Long: 80°03' to 80=18' East) is the second largest brackishwater lake or lagoon in India, lying almost parallel to the Bay of Bengal covers an area of 461 sq. km between Chingleput District of Tamil Nadu and Neliore District of Andhra Pradesh (Fig. 1). The lake is about 59 km north to south, the maximum width from east to west in the northern sector is about 19 km and the narrowest region of the lake is about 350 m between Dhonirevu and Monaikal. The southern end of the lake opens into Bay of Bengal by a narrow mouth or pass, closely north of Gunakuppam village. There are three small rivulets Swarnamukhi, Kalangi and Arniar, opening into the lake at its northern, western and southern ends respectively The Buckingham Canal, a navigable one, runs parallel between the lake and the sea opening into the lake at one point. There are two large islands, Venadu and Irakkam in the northern region of the lake. The average

The bottom of the lake is oozy mud in deeper parts and quartz sandy along the shores. The eel grass, *Enhalus koenjii* and *Halophila ovaJis are* the two common weeds found all over the lake At the southernmost part of the |,?ke, from Edamanikuppam to Annamalaichery tho seagrassess *Diplanthera uninerves,* and *Halophila avails,* the brown alga *Rosenvlngia intricata.* the green algae *Enteromorpha* sp, *Chaetomorpha* sp, *Gracilaria verrucosa. Acetabularia* and the green alga *Oscllllatoria* form the bulk of the weed bed.

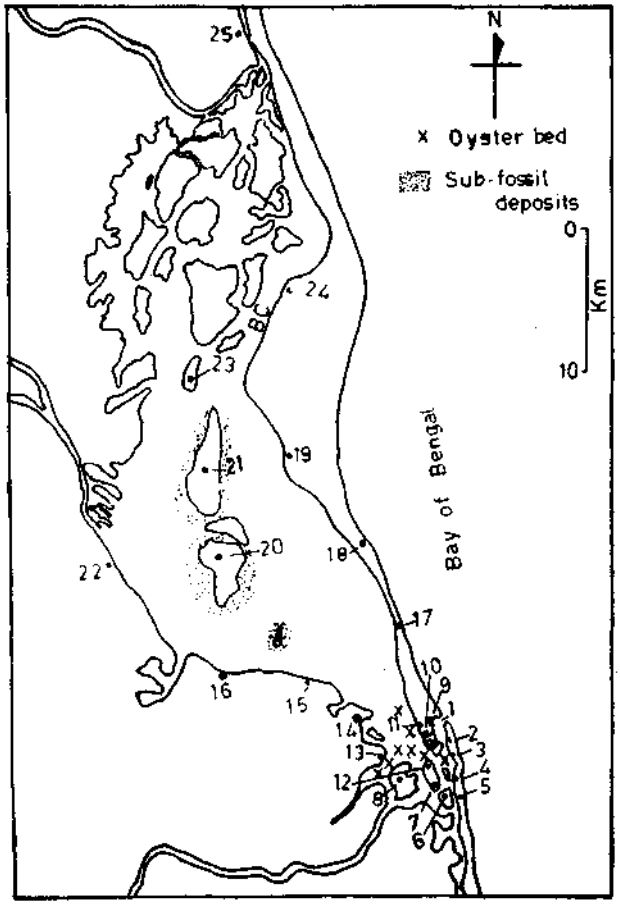

Fig. 1 A map of the Pulicat lake showing the stations and the oyster and subtossii beds

OBSERVATIONS

The survey of the Pulicat Lake revealed that the edible oysters and clams are the major bivalves that occur in vast beds and the gastropod *Cerlthidea cingulata* occur abundantly in the intertidal area of the southernmost region of the Pulicat Lake (Table 1). The distribution of oysters in the Pulicat Lake is illustrated in Fig 1. There are eleven oyster beds with a total area of 9.05 hectares.

OYSTERS

Kulathumedu / Sinnaparaval Bed

This is the largest oyster bed located about 4 km from the pass of the lake. There are 16 extensive patches of oyster beds and with a flat bed of scattered oysters extending to 84,003 sq m. area. Estimated oyster biomass was 13,01,565 kg and meat weight 72,893 kg. Density of oysters, size ranga, nature of bottom, percentage of live and dead oysters and hydrological conditions of the Pulicat lake are given in Tables 2 and *I* The height of the oyster bed varied between 15 cm to 120 cm. The oyster patches are oval, rounded or irregular and exposed during low tide. The oysters which live in patches adjacent to streams grow to longer size and majority of them were found alive. In flat exposed areas, empty oyster shells lay scattered every-where and on these

TABLE 1. *Distribution of moliuscan fauna in different areas of Pulicate Lake.*

Station.	POLECYPODS										GASTROPODS								
1. Bar-mouth	+	—	—	—	—	—	+	—	+	—	+		—.	+	—	—	—	—	—
2. Gunakuppam	—	—	+	—	—	—	4-	—	—	—	-h		—	+	—	—	—	+	—
3. Light Housekuppam											+	+	+						
4. Sttankuppam	—	—	—	—	—	—	+	—	—	—	+	+	+						
5. Koraikuppam	+	—	—	—	—	—	+	—	—	—	+		—						
6. Edamanikuppam	+	—	—	—	—	—	+	—	—	—	+	+	+	—	—	—	+	—	—
7. Pulicatekuppam	+	—	—	—	—	—	+	—	—	+	+	+	+	—	+	—	—	—	—
8. Kottaikuppam	+	+	+	—	+	+	+	-t-	—	+	+	+	+	—	+	+	+	+	+
9. Karimanal	4-										+		—	—	+	—	—	+	—
10. Dhonirevu	+	—	+	4-	+	—	+	—	—	—	+		—	—	—	—	—	—	—
1'. Moosamani Lock	+	—	+	+	+	—	+	+	—	—	+	+	+						
12, Kulathumedu	+	+	—	—	—	—	+	+	—	4-	+		+	—	+	+	—	—	—
13. Avirivakkam	+										+								
14. Annamaiaicherry	—	—	—	—	—	—	+	—	—	—	+								
15. Mangodu											+								
15. Sunnambukulam											+								
17. Arangam											+								
18. Pulianchery																			
19. Zonangipalayam																			
20. Irakkam																			
21. Venodu																			
22. Tada																			
23. Atakinithippa	+	—	—	—	—	—	-|-	—		—	+								
24. Sriharikota	+	—	—	—	—	—	+	—	—	—	+								
25. Durgarjapatnam	+						+				+								

-\|- Present — Absent

numerous oysters settled and they seem to be very stunted due to overexposure at low tide. The bottom was muddy in this region. The oysters in the bed are characteristically elongate, long and narrow in form and remarkably regular in growth. The oysters are very much crowded, gradually thinning out along the margins. Depth of water on each side of the bed varies between 0.8 to 1m during the low tide. The successive generations of oysters result in a thick bed.

The oysters exposed at low tides are devoid of fouling organisms and in the submerged oysters there was algal growth. 23% of the oysters were infested with *Polydora ciliata.* The coral boring bivalve mollusc *Lithophaga* burrows into the shell of dead oysters in this bed. Burrows made by *Lithophaga* were long and cylindrical in outline. Oysters also found infested with the boring sponge *Cliona* sp. The weaving mussel *Modiolus undulata* was very common. Gastropods *Thais rudolphi, the*

TABLE 2. *Tfie estimated area of oyster beds in PuHcat Lal<e, number and biomass of oysters and meat weight.*

Name of Oyster bed	Estimated1 area of oyster beds (Sq m)	Estimated number of oyster	Estimated biomass of oyster (Kg)	Estimated weight (Kg)
Bar-mouth	1,312	15,744	1,476	120
Koraikuppam	450	3,160	170	10
Edamanikuppam	1,200	16,600	889	60
Pulicatkuppam	19	3.876	209	14
Kottaikuppam	10	15,215	1,11	89
Karimanal	49	3,250	174	10
Dhonirevu	7	721	58	3
Moosamani Lock	925	2,23.850	12,436	659
Kulathumedu	84,000	2,50,32,000	13,01,664	72,893
Sriharikota	124	2,136	164	8
Kondurpalayam & Durarajapatnam.	2,400	40,800	2,203	1,153
Total.	90,590	25,35,6342	1320,575	75,019

TABLE 3. *Density of oyster, size range, nature of bottom, percentage of live and dead oysters and hydrologicai conditions in pulicate Lake.*

S/N0.	Nams of oyster	Numb8r/m2	Size range(mrri)	Mean size	Percentage Dead	Alive	Nature of bottom ,	Na'ure of oyster bed	Salinity S7o0	Tem. ve	Dissol-ved oxygen (ml/l)
1.	Bar-mauth	12	40-137	93 2	63.8	36 2	Muddy sand	Scattered	34.14	28.5	6.7
2.	Koraikuppam	7	36-125	87.2	35.4	642	Muddy	Scattered	34.40	29.0	56
3.	Edaminikuppam	13	42-127	78.0	368	63.2	Muddy	Scattered	34.40	29 0	6.4
4.	Pulicate	204	31-124	77 3	23.6	76.4	Muddy	Vertical	34.14	29.8	5.2
5.	Kottaikuppam	147	33-125	905	28.4	71.6	Granite stones	Vertical	35.30	28.6	54
6.	Karimanal	67	24-118	91.4	58.5	41.5	Muddy	Heaps	35.20	29.S	6.2
7.	Dhonirevu	103	21-134	72.6	39.4	60.6	Granite stones	Heaps	35.84	30.2	6.3
8.	Moosamani Lock	242	18-134	71.9	33.6	66.4	Muddy	Scattered	35.62	29.6	5.4
9.	Kulalhumadu	298	22-138	52 5	43.2	56.8	Muddy	Vertical horizontal	36.40	31.2	6-5
10.	Sriharikota	89	36-124	808	33.8	66 2	Granite stonea	Vertical	39.2	34.0	5.2
11.	Kondurpalayam & Dugarajapatnam	17	45-119	79.7	60 0	40.0	Muddy	Scattered	36.82	33.3	5.4

Hemifusus sp and the polychaetes *Marphysa* and *Eunice* sp were also found in the crevices of oysters.

Bar-mouth:

There is a small oyster bed exposed during low tide at about *i* km distance on the western side from the pass of the lake. The estimated area of this bed is 1312 sq.m. and the oyster biomass was 149 kg with 15,744 oysters. The meat weight obtained was 120 kg in this bed. The bed is on a sandy bottom and oysters are scattered everywhere^ The percentage of live biomass is lesser than dead oysters.

Korailiuppam

There is a small oyster bed here with oysters scattered over a wide area of 450 sq.m. with an average of 7 per sq. m. The size of oysters ranged between 36 mm and 135 mm. The live ones formed 64.2%. of total oysters The substratum is hard muddy. The estimated biomass was low, at 170 kg. total numbers 3,150, and meat weight at 3.7 kg.

Edamanikuppam

The oyster bed is widely spread with an average number of 13 oysters per sq. m. and estimated biomass was 889.2 kg in a total area of 1,200 sq. m. with a total number of 15,600 oysters. The size range varied between 42 mm and 127 mm and the percentage of live oysters was 63.2.

Pulicatlfuppam

Oysters are found attached to a concrete pillar and also on granite stones in the southern region of the Pulicat village. Total estimated area is 19 sq. m. and the live oyster biomass was 209.3 kg and the meat weight was estimated to be 13.9 kg. The size of oysters range between 31 mm and 124 mm. The maximum percentage of oysters were found in the live condition in this bed compared with other beds-

Kottaikuppam

There are six patches of oyster bed having a total area of 10 per sq. m., of which two were on the granite stones in the lock area and four small ones north of Kottaikuppam. The estimated total number of oysters was 15,215 and biomass 1,111 kg. The estimated meat weight was 89 kg. in this bed. Alongwith *Crassostrea madrasensis* which is the main species, the rock oyster *Saccostrea cucullata* is sparsely distributed in this area. The green mussel *Perna viridis. Modiolus undulata* and *Anomia* sp are also found associated with the oysters. The other four patches are small and spread over 49 sq. m. These are found on muddy bottom. Oysters were also sparsely found attached to small shells in some places.

Karimanal

This is a small bad consisting of four patches located in the bay like projection of the lake near Karimanal area which is about 2 kilometres from the mouth of the lake. The height of the bed ranges between 20 to 60 cm. The total area of the bed is 48.5 sq. m. a total biomass of 174 kg and meat weight calculated to be 88.9 kg with a total number of 3,250 oysters The percentage of dead oysters was calculated to be 58.5%, The bottom of the bed is muddy. The patches of oysters are partly buried in the muddy bottom and thereby a majority of the oysters were dead.

Dhonirevu

There is a small patch of oysters found on the western side of the village with a total area of 7 sq. m. having 103 oysters per sq. m. estimated to be 721 oysters in this bed. Estimated live biomass was 58 kg. The bottom consists of granite stones. The size of the oyster ranges from 21 mm to 134 mm with a mean length of 72.6 mm. The estimated total biomass was low, 55.4 kg.

I\/loosamani Lock

There are four patches of oysters attached to the granite stones of the lock. Oysters are also found scattered in this area. The total area of the patches is 925 sq. m The estimated number of oysters per sq. m. is 242 and total of oysters 22,32,450 are found. The size of oysters ranged between 18 mm and 134 mm with a mean length of 72 mm.

Sriharikota

The oysters are found attached to the granite stones of the road bridge in the Buckingham Canal. The total area of this patch is 124 sq. m. with 2,186 oysters having a biomass of 1 64.5 kg. The size range of the oysters was 36 and 124 mm with a mean length of 81 mm. Oysters were also found live on the dead shells on either side of the bridge.

Kondurpalayam and Dugarajapatnam

The oysters were sparsely distributed on the muddy bottom. Most of the oysters are attached to the empty oyster shells and were sparsely distributed. Thick patches of oysters were observed only in two places. The ^density of the oysters were calculated to be 89 per sq. m. and the estimated biomass was 2203.2 kg consisting of 40,800 oysters. The estimated wieght was 1,153 kg. The size range of oysters was 46 and 118 mm and mean size 80 mm in this area,

CLAMS

Rich clam beds exist at a distance of about 2.5 km from the pass of the lake. The total area of clam beds of the lake has been estimated to be 12.08 ha. and the total biomass 121 tonnes (Table 4). There are three islets existing in the lake between Kottakuppam and Gunakuppam from where fisherwomen hand-picked the clams for marketing. On the northern side of Kottakuppam up to Moosamani lock, the clams are sparsely distributed.

The density of clams was high around the islets in the lake area near Gunakuppam and another wide spread area adjacent to Kottaikuppam was also rich in clams. The total area of the bed approximately has been estimated to be 3.6 ha and 1.6 ha near the two islets near Gunakuppam with an average number of 270 and 140 clams per sq.m. The total biomass of clams was 67,557 kg. (Table 4) The size of the clams ranged between 17 mm and 40 mm. The clam bed was black muddy with 40 cm slushy bottom.

The Kottaikuppam bed is more or less triangular in shape which is exposed during low tide. The bed was rich in clams in the northernmost region and the density of the clams was gradually decreased on the southern side. There was growth of *Halophila ovalis-Chaetomorpha* and *Enteromorpna* sp at the bottom in the area. The total area of the bed is 2 ha with an average of 63 clams per sq. m. and biomass 19,932.9 kg. In the area lying between Dhonirevu and Moosamani lock also clams were sparsely distributed. The clams were found upto a depth of l .5 metres near Dhonirevu and at Moosamani lock. The areas of the two beds were 1.68 ha and 3.2 ha with average number of 28 and 10 clams per sq. m. The total estimated biomass in Dhonirevu and Moosamani lock were 7870 kg and 6,709 kg respectively.

OTHER BIVALVES

Beds of the clam *Katelysia opima* occur near the Kottaikuppam lock area. The density

TABLE 4. *Total area of the clam bed, total biomass of clams, numbers and mean weight of clams in Pulicat Lake.*

Name of the clam bed	Total area in hectare	Total Nos. per sq.m.	Mean weight of a clam	Total number of clams	Total biomass of clams (kg.)
Gunakuppam	3.60	270.4	6.94	97,34,400	67,557
Light House kuppm	1.60	140.0	8.53	22,40,000	18,937
Kottaikuppam	2.00	63.4	15.72	12,68,000	19,933
Dhonirevu	1.68	28.0	16.73	4,70,400	7,870
Moosamani lock	3.20	9.6	21.64	30,72,000	6,710
Total	12.08	511.4	69.76	167,84,800	121,007

of clams ranged between 1 to 9 ciams/sq.m. They lay usually buried in the muddy region. *Anadara granosa* is found between Dhonirevu and iVloosamanl lock. This species is found at a depth of 10 cm. The bottom of this area is muddy. The green mussel *Perna viridis* was present in small numbers at Kottaikuppam lock area where they occur along with the oysters. Two species of *Dofiax* occur in the sandy beaches at the pass of the lake. *Donax cuneatus* is the predominant species with a density of 50-270 sq. m. and *D. scortum* is rare in this locality. *The cora\ horet Litfiopfiaga* was found in the dead shells of the oysters. The weaving mussel, *Modiolus undulata* is very common in the oyster beds. Numerous shells of *Nuculana* sp were noticed at Sunnambukulam area during April, but live ones were not found.

GASTROPODS

Cerithidia cingulata occur at a distance of 2 km from the pass of the lake. The density of the *Cerittiidea* population was very low north of Gunakuppam area and high towards Light House Kuppam and Sattankuppam. Highest density of population was observed at Pulicat, Kottaikuppam, Karimanal, Lighthouse Kuppam, Sattankuppam and Dhonirevu. The population of *Cerithidia* sp. slowly decreases from Dhonirevu to Arangam on the eastern bank and similarly from Avirivakkam to Mangodu on the western bank. *Ceritf)idea* specimen were absent at Sunnambukulam, Zonangipalayam, Irakkam, Venadu and Atakinithippa. The salinity of this arsa ranges between zero during the monsoon season to 56%o in postsummer season.

TABLE 5. *Distribution of* Cerithidea cingulata *in tfie three intertidal areas of Pulicat Lake {No^jm^).*

	Station	High Water Mark	Mid Tide Level	Low Water Mark
1.	Bar-mouth			
2.	Gunakuppam	8	33	7
3.	Lighthouse Kuppam	579	1179	456
4.	Sattankuppam	354	801	381
5.	Koraikuppam	392	1031	332
6.	Edamanikuppam	46	315	56
7.	Pulicatkuppam	401	1229	318
8.	Kottaikuppam	259	1719	203
9.	Karimanal	891	1289	433
10.	Dhonirevu	199	1138	413
11.	Moosamani Lock	301	997	316
12.	Kulathumedu	685	1333	366
13.	Avirivakkam	230	657	280
14.	Annamalaichery	152	326	127
15.	Mangodu	193	394	284
16.	Sunnambukulam			
17.	Arangam	36	131	34
18.	Pulianchery			
19.	Zonangipalayam			
20.	Irakkam			
21.	Venadu			
22.	Tada			
23.	Atakinithippa			
24,	Sriharikota	67	249	55
25.	Dugarajapatnam			

The presence of *Cerithidi!.* sp was observed in the three parts of the intertidal areas. HWM, MTL and LWM. The highest population was observed in the Mid Tidal Level and the populations were comparatively less in the high water mark and low water mark. C *cingulata* is thickly populated on mat like formations of *Enteromorpha intestinalis.* They are very poor near the algae of *Halophila ova/is.* C. *cingulatum* ranged from 6 mm to 28mm in length at different stations and the most common sizes were 18-22 mm.

The gastropod, *Hymnaea* sp is very common in the weed infested areas. It usually occurs in large numbers where seaweeds are plenty. *Thais rudolphi. Hemifusus* sp and *Turbo* sp are the gastropods occurring in the Kottaikuppam, Karimanal and Pulicat areas *Nassa* sp and *Littorina* sp are the small gastropods which occur alongwith the *Cerithidea* population. The Scsphopod *Dentalium* sp is rarely found at Kottaikuppam lock area. Cephalopod *Sepiella* sp was caught in dragnets operated in the Dhonirevu area during April.

CLAM FISHERY IN PULICAT LAKE

The clams are regularly fished in this lake by poor fisherwomen residing at Athipattu, Minjur, Anuppampattu, Pakkam and Ennore. Clam fishing starts in January or February and continues till October-November. The best catches were observed during February-June. In the fishery females dominated throughout the period of observation. The clam meat is sold in the local market at the rate of Rs. 1/ per measure *(Azhakku Ca* 200gm)and the shells are left at the Shell Industry of the private entrepreneur for making them into shell grit. The shell industry owner used to supply one saree per year to the fisherwomen engaged in fishing.

EXPLOITATION OF SUB-FOSSIL DEPOSITS

Rich beds of sub-fossil deposits are found around Irakkam and Veynadu islands of Pulicat lake. Irakkam has a shell potential of about 1,000 ha of land and Veynadu has 800 ha of shell deposits. The annual yield of sub-fossil deposits was 33,4701 and 23,745 t respectively in the two areas in 1980. Expioltatfon Usually starts during the post-monsoon season in the month of January-February and extends till the onset of monsoon. The peak period of excavation was observed between April and June in both the islands. Each man engaged in shell excavation is paid by the lease owners at the rate of Rs. 8/- *parpora* (200 kg). The maximum percentage in the order of abundance was *Meretrix, Cardium, Tellina, Area, Pilar, Pecten, Umbonium, Ceritliidia* etc. Edible oyster shells are also collected for lime burning.

DISCUSSION

The survey brought to light the distribution of dense oyster and clam beds in tha southernmost region of the Pulicat Lake. Three were no molluscs beyond Arangam and Mangodu. The central part of lake beyond Veynadu island is completely dry during the summer season and inundated with freshwater during monsoon which does not favour the survival of brackishwater molluscs. The molluscan distribution was found in the northern region at Dugarajapatnam where there is another mouth. The Kulathumedu bed or Sinnaparaval bed as explained by Hornell (1908) alone constituted 98% of oysters. The density of oysters in the Pulicat oyster bed ranged between 7 and 298 oysters per sq. m. The highest densities of oysters were observed at Kulathumedu, Moosamani lock, Pulicat and Kottaikuppam whereas in all other beds the oysters are scattered. The size, total weight, meat weight etc., does not show much difference in beds. Among the dead and live oysters in all beds, the maximum percentage of live ones was observed at Pulicat, Kottaikuppam, Moosamani lock and Edamani. The lowest percentage of oysters were found at the Karimanal area since the oysters are partly immersed in mud.

Edible oysters were exploited during Hornell's time (1908) and they were sold to the Madras hoteliers for consumption. At present only shells are exploited by the local people for lime burning. Occsionally local fishermen collect the oysters for consumption.

Rao *et ai* (1987) has given that Athankarai estuary with a total area of 1.56 ha produced a total biomass of 388.9 t. In Pulicat Lake 9 05 ha has a total oyster biomass of 1320.6 t.

Hornell (1908) has observed eight oyster beds namely 1. Edamanikuppam, 2. Pulicat 3. Lighthouse kuppam 4. kottaikuppam 5. Sinnaparaval bed 6. Pudupettai bed 7. Karimanal and 8. Vannanthurai bed. The Lighthouse kuppam, Vannanthurai and Pudupettai beds are not found at present. These beds may have been destroyed due to natural calamities or covered by silt and sand. At present 11 oyster beds are present. The oyster beds at Koraikuppam, Moosamani lock, Sriharikota, Chonirevu and Dugarajapatnam are newly reported.

The rich beds of oysters, clams and *Cerithidaa* are found in the southernmost region upto which the tidal effect extends in the lake. The most important environmental factors influencing the distribution of oysters in the lake are salinity, temperature, configuration of bottom and the availability of food in the lake. Decline in the population density of these molluscs was observed in the middle of the lake, due to high salinity and also drying up of the lake, during the summer months. Salinity of the central part of the lake almost reaches freshwater conditions and temperature also simultaneously decreases during the monsoon season. Several workers have mentioned that benthic biomass is poor when the salinity is low (Desai and Krishnamurthy 1967; Kurian 1972). Contrary to the above point Harkantra (1975) has suggested that temperature plays a significant role in the distribution and abundance of the benthos. In the present ecological conditions of the lake, salinity and temperature showed very wide fluctuations during different seasons of a year, which determine the distribution of molluscan fauna.

Gopinathan and Qasim (1971) have mentioned that a major factor affecting the distribution of edible oyster in coastal estuary appears to be the siltation which resulted in turbid conditions. The tidal wave which enters during the cyclonic period along the Pulicat Lake plays a major role in disturbing the bottom configuration of the lake and also destroys the oyster and clam beds by covering them with sand and mud. The oysters found partly buried in the Karimanal inlet area support the view of Galtsoff (1960) that the presence of suspended matter on benthic oysters, prevents setting and survival of spat.

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