The chaetotary of legs as follows -1-1-1-0. Basifemur 2-2-2-2. Trochanter Telofemur 5-5-2-2, Patella 4-4-3-4, Tibia 7-7-5-5: chaetotaxy of tarsi discussed in the text.

Tarsus I bears 3 dorsal fossary setae, 1 solenidion, 1 profamulus besides 1 ventral filiform seta, 2 ventral distal singlest eupathidia and 4 PAS (Parambulacral setae) (Fig. 2a). Tarsus II bears 3 dorsal fossary setae, 1 solenidion 4 PAS (Fig. 2b) Tarsi III and IV

Dept. of Biology Indian School of Learning, (Indian School of Mines Annexe) Dhanbad - 826 004 Bihar, India.

REFERENCES

117-119.

417-422.

BARTSCH, I. 1984. Bull. mar. sci. 35 : 200-210.

-, 1992. Senckenbergiana biol. 72: 465-488.

CHATTERJEE, T. 1991. J. Bombay Nat. Hist Soc. 88 (i) : 88-92.

-, 1995a. Ibid 92 (i) : 282-286

with 3 dorsal fossary setae, 1 proximodorsal seta and 2 PAS (Fig. 2c, d).

All legs bear a bidentate median claw and two lateral claws. All lateral claws with a dorsal accessory tooth. The lateral claws of II-IV faintly pectinate under high magnification.

Indian Ocean specimen (300-340 µm long Idiosoma) is little bigger than Pacific Ocean specimen.

This species belongs to bardi group of Bartsch (1984).

TAPAS CHATTERJEE

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b. (In press) J. Mar. Biol. Ass. India 37. SARMA, A. L. N. AND T. CHATTERJEE 1991. J. Bombay

Nat. Hist. Soc. 88 (2) : 300-302.

- 1993a. Ibid 90 (1) : - AND -

- 1993b. Ibid 90 (3) : AND the tainy se

SEASONAL VARIATIONS IN SALINITY OF KORAPUZHA ESTUARY (CALICUT, KERALA) IN RELATION TO TIDE AND RAINFALL

ABSTRACT

Hydrographic, tidal and rainfall observations at a selected station situated near the mouth of Korapuzha estuary during the period 1989-1993 revealed that the main causative factor which brings in variations in salinity is rainfall and the associated river runoff rather than the tide eventhough the estuary is connected with the Arabian sea throughout the year permitting a free flow of sea water into the estuary and a counterflow of freh water in the opposite direction.

THE PRESENT study is based on hydrographic, tidal and rainfall observations at a selected station situated near the mouth of the Korapuzha estuary. The estuary is connected with the Arabian sea throughout the year and

hence one can expect a free flow of sea water into the estuary and a counterflow of fresh water in the opposite direction during all the seasons with the intensity varying from time to time (Fig. 1).

Earlier works in the region by Rao and George (1959) found an inverse relationship between salinity and



FIG. 1.

rainfall. No other published work is available on the variations noticed in any one of the major hydrographic conditions in the area.

The station where the observations were made in the Korapuzha estuary is located about 10 km north of Calicut city. The estuary is never dry. During the rainy season, the river water from Korapuzha river and land drainage bring in large quantities of fresh water into the estuary. Since the estuary is comparatively shallow with an average depth of less than 5 m, the effect of high saline sea water is very much felt in the lower reaches of the estuary nearer to the barmouth, especially during the high tide. The tide in this region are semidiurnal characterised by two high waters and two low waters during a 24 hour period. There is always a difference in the intensity of the first high/low tide with the second high/low tide on the same day.

The area where the observations were made is important in view of a flourishing prawn fishery and also an upcoming edible oyster fishery apart from the regular fishery for the typical estuarine forms. Surendranatha Kurup et al (1991) brought out the importance of Korapuzha estuary which serve as a nursery ground for commercially important prawns.

The aim of the present investigation is to find out a possible explanation for the large scale variations noticed in the salinity of the waters near the mouth of the estuary.

The authors wish to express their sincere thanks to Dr. M. Devaraj, Director, CMFRI for his keen interest and encouragement.

Salinity data pertaining to the period 1989-1993 both at surface and bottom (5 m) is made use of in the present study. Rain fall data was gathered from the IDWR charts issued by the Indian Meteorology Department. With the aid of tide tables for the respective year the tidal variations for the nearest harbour viz. Beypore (situated about 15 km away from Korapuzha estuary mouth) were noted down. It was possible to divide the observations for any given month into three different categories viz. those falling at the time of low water, those falling at the time of high water and those falling in between during the lull period. The sampling was then classified considering the period in which the observation time fell.

TABLE 1. Total Number of Observations made during rainy/dry se
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Period	Total		Rainy Season				Dry Season						
a an	observations		Low Salin	ow Salinity		High Salinity		Low Salinity		High Salinity			
		LW	LULL	HW	LW	LULL	нพ	LW	LULL	HW	LW	LULL	HW
1989-1990	32	8	4	NIL	2	1 18	anglis	10	3	3	NIL	NIL	NIL
1990-1991	34	6	4	3	NIL	NIL	NIL	11	5	5	NIL	NIL	NIL
1991-1992	2 31	6	3	NIL	NIL	NIL	NIL	12	NIL	9	NIL	isu n no	NIL
1992-1993	3 24	7	NIL	1	1	NIL	NIL	8	2	4	1	NIL	NIL

During the period under study, salinity varied between 0.19‰ and 35.08‰. In general, the maximum values were associated with the period of high tide especially during those months when rainfall was very little or nil. Low salinity was associated with rainfall and river run off especially during the period of low tide. There were few cases where high salinity values were observed during rainy season but the tidal cycle indicated a high water or a lull period. There were also one or two cases where low salinity values were observed during the dry weather season but the tidal cycle indicated a low water or lull period.

Out of a total of 121 observations made during the period 1989-1993, 47 were made during the rainy season (38.8%) and the balance 74 during dry season (61.2%) when the rainfall was negligible or nill (Table 1).

Among 47 observation made during rainy season, 30 were made during low water (63.8%), 12 during the lull period (25.5%) and the balance 5 during high water (10.6%). Among 74 observations made during dry season, 42(58%) were made during low water, 11 (13.5%) during lull period and the balance 21 (28.5%) during high water.

Among a total of 73 observations made during low water, 27 observations made during

Central Marine Fisheries Research Institute Cochin – 682 014. rainy season (June-September) revealed low salinity values clearly revealing the influence of rainfall and river runoff in bringing down the salinity at the point of observation.

Among a total of 43 observations made during low water, 42 observations made during the dry season (October-May) revealed high salinity values clearly revealing the inverse relationship between rainfall and salinity.

From the above it may be inferred that the main causative factor which brings down the salinity in the area under observation is rainfall and not the phase of the tide. Among 42 observations made during low water refered to above, inspite of low tide conditions high salinity values prevailed in the area. Similarly among a total of 5 observations made during high water in the rainy season, 4 observations indicated low salinity eventhough the high saline sea water was flowing into the estuary at the time of observation clearly revealing the inverse effect of rainfall and associated river runoff on salinity. During the dry season, high salinity values were always observed during high water (21 observations) clearly revealing the effect of high saline sea water in the total absence of rains. During dry season low salinity values were observed only rarely, on 2 occasions one during low tide and another during lull perio.

> C. V. Mathew* P. Swarnalatha* K. P. VIswanathan* V. Narayana Pillai

* Calicut Research Centre of C.M.F.R.I., Calicut-5.

REFERENCES

RAO, S. V. S. AND P. C. GEORGE 1959. J. Mar. biol. Ass. India 1 (2) : 212-223.

KURUP, N. S., P. T. SARADA, K. KAUMUDI MENON

AND S. LAKSHMY 1991. Proc. National Workshop on low energy fishing, Aug. 1991, Cochin, Fishery Technology (Spl. issue): 130-136

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