

CHAETOGNATHS OF THE ENNORE ESTUARY, MADRAS

ABSTRACT

Three species of chaetognaths namely *Sagitta bedoti* Beraneck (1895) *S. inflata* Grassi (1881) and *Krohnitta pacifica* (Aida, 1897) are recorded for the first time from the Ennore Estuary and their seasonal fluctuation in abundance are also discussed.

THE Kortalaiyar Estuary, popularly known as Ennore Estuary is situated 15 kilometres north of Madras. The estuary is three kilometres in length and connected with the Bay of Bengal through a narrow mouth. The bar of the estuary is kept open throughout the year due to the dredging done by the Ennore Thermal Station and there is thus free influx of sea water into the estuary throughout the year. Prior to dredging, sand bar at the mouth of the river used to remain closed nearly for six months in a year and open only during the North-East Monsoon (October-December).

The hydrobiology and fisheries of the Ennore estuary were studied in detail by several workers (Chacko, 1956, 1963 ; Chacko and Rajagopal, 1962 ; Evangeline and Subbiah, 1969). None of them seems to have recorded any species of chaetognaths, present in the estuary, except Evangeline and Subbiah (1969) who have just mentioned that *Sagitta* were present. The present investigation was carried out with a view to finding out the species of chaetognaths present in the Ennore Estuary and their seasonal fluctuation in abundance.

Material and Methods

The material for this investigation was obtained through regular monthly surface plankton samples collected with a 25 cm ring net made up of bolting silk, towed for ten minutes at 0900 hrs from two fixed stations, one near the bar mouth and the other one away from the mouth (about one kilometre seaward from the mouth). Zooplankton samples were collected between July and December 1974 and analysed for chaetognaths.

Chaetognaths of the Estuary

Three species of chaetognaths belonging to the genera *Sagitta* Quoy and Gaimard and *Krohnitta* Ritter-Zahony were present in the plankton samples collected

from the estuary. None of them was reported earlier from this estuary. So this account forms the first record of the presence of the following three species from the Ennore Estuary.

Species	No. of specimens	Percentage
<i>Sagitta bedoti</i> Beraneck	206	59.4%
<i>Sagitta inflata</i> Grassi	140	40.3%
<i>Krohnitta pacifica</i> (Aida)	1	00.3%
Total	347	100%

Sagitta bedoti

Among the three species of chaetognaths recorded *S. bedoti* ranks first in order of abundance and it forms 59.4% of the Chaetognatha collected from the estuary. All the specimens of the collections are in immature stages (Stage 0, I) and ranged between 1.8 and 6.0 mm in total length (excluding the tail fin) and the tail length between 22 and 30% of the total length.

S. bedoti is present in all the samples collected from both the stations (Table 1) between July and December 1974. Maximum number (110) of specimens was obtained during November 1974 from station II (that is near the bar mouth).

TABLE 1. Number of specimens of the three species of chaetognaths from the Ennore Estuary

	Month											
	July		Aug.		Sep.		Oct.		Nov.		Dec.	
Station	..	I II	I II	I II	I II	I II	I II	I II	I II	I II	I II	I II
<i>S. bedoti</i>	..	7 9	8 3	3 2	15 16	26 110	2 5					
<i>S. inflata</i>	..	6 6	1 1	6 ..	3 2	30 60	5 20					
<i>K. pacifica</i> 1					

Sagitta inflata

Sagitta inflata comes next to *S. bedoti* in abundance and out of the 140 specimens obtained from the samples, 89 are from the station II (near the bar mouth) and 51 are from Station I. The total length of the specimens varied from 2.4 to 11.0 mm and the tail length from 17 to 20% (mean = 19%) of the total length. All the specimens are in immature stages (Stage 0, I, II). It is interesting to note that specimens of 11 mm size present in the collection are in immature stages. Whereas, the specimens of the same size collected from Cochin Backwater (Srinivasan, 1972) were in fully matured condition.

As in the case of *S. bedoti*, *S. inflata* is also present in all the samples collected from both the stations, except in one station. Maximum number (90) of specimens was obtained during November 1974.

Krohnitta pacifica

The presence of *Krohnitta pacifica* an oceanic species (Srinivasan, 1976) in the estuary is very interesting. Only one specimen was obtained at station II during September 1974. It measures 2.8 mm in total length and the tail length is 32% of the total length. It is an immature species (Stage II). Beyond the present record of *K. pacifica* from Ennore Estuary, this oceanic chaetognath was already reported from Bombay Harbour (Silas and Srinivasan, 1968) and Cochin Backwater (Nair, 1972).

Discussion

The ecosystem of Ennore Estuary is completely disturbed and changed in the recent years due to the dredging carried out by the Ennore Thermal Station. This is obvious from the results of this investigation. For instance, Evangeline and Subbiah (1969) when they analysed the plankton of Ennore Estuary, they came across *Sagitta* in the plankton only during December (1966), April and May (1967), but in the present investigation, the chaetognaths are present in all the plankton samples collected from July to December, 1974. This is due to the fact the estuary is kept open because of the dredging and that results in the free flow of sea water into the estuary throughout the year.

The occurrence of maximum number of chaetognaths (226 specimens out of total 347 specimens) during November and the presence of *K. pacifica* an oceanic species in the estuary during September might indicate the possible incursion of oceanic waters, of the Bay of Bengal into the coastal waters, that has resulted in the transportation of these species into the estuary due to North-East Monsoon.

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Zoological Survey of India,
Southern Regional Station,
69, Santhome High Road,
Madras-600 028, India.

M. SRINIVASAN

REFERENCES

- CHACKO, P. I. 1956. *Proc. 43rd Indian Sci. Cong.*, 3 : 308.
 ——— 1963. *Proc. 50th Indian Sci. Cong.*, 4 : 504.
 CHACKO, P. I. AND A. RAJAGOPAL 1962. *Madras J. Fish.*, 1 : 102-104.
 EVANGELINE, C. AND K. SUBBIAH 1969. *Ibid.*, 5 : 139-151.
 NAIR, V. R. 1972. *J. mar. biol. Ass. India*, 13 : 226-233.
 SILAS, E. G. AND M. SRINIVASAN 1968. *Ibid.*, 9 (1) : 84-93.
 SRINIVASAN, M. 1972. *Ibid.*, 13 (2) : 173-181.
 ——— *Ibid.*, 16 (1) : 126-142.