

A PRELIMINARY NOTE ON THE PLANKTON OF BOMBAY HARBOUR

THE plankton from Bombay and adjoining waters has not been regularly studied in the past and no published account of its composition, seasonal abundance and variation is available, except for a few notes on the systematics of such groups as Hydromedusæ¹ and Sagittæ². We have, therefore, undertaken a systematic study of our local plankton with a view to collect such information as will, when accumulated, be of great practical help in the expansion of our fisheries on scientific lines. The present note is a result of our observations made during the past few years, particularly from June 1944. Plankton collections are made twice a week. Two hauls, each of fifteen minutes' duration, are taken each time. Moreover, a weekly record of chemical analysis of sea-water collected from the same site, together with the meteorological data is maintained to enable us to correlate at a later date the fluctuations in the planktonic population with the physical and chemical conditions of the sea.

The salient features of our plankton are the following:—

- (1) The Hydromedusæ, Siphonophores, Ctenophores, Sagittæ and Copepods are some of the commonest members of our plankton obtained almost all the year round. The siphonophores and ctenophores are found in large numbers from November to March. The copepods have two periods of maxima, one in July and the other in January.
- (2) Most of the Decapod larvæ make their appearance towards the end of rainy season and are found in majority of the subsequent catches till the end of March.
- (3) The Tunicates appear by the middle of October and reach their maximum in January and February.
- (4) The number of fish-eggs in our samples is lesser than those collected in European waters over the same period. Fish-larvæ and post-larvæ of some fishes occur over a number of months, thereby indicating a prolonged breeding season.
- (5) The Diatoms and the Dinoflagellates which constitute the bulk of the phytoplankton are found in abundance during the cold months of the year, particularly January and February.

The following is the summary of the occurrence and seasonal variations of some of the important groups of planktonic organisms. *Protozoa* (Infusorians, Dinoflagellates, Foraminifera and Heliozoa):—

Members of each of these groups occur in our collection almost throughout the year.

Cœlenterates :

Hydromedusæ form one of the major groups which, in our collection, include both littoral and oceanic forms carried in by the currents of water. Some of the commonest species are *Steenstrupia bigelowi*

(Mass.), *Phortis ceylonensis* (Browne), *Phialucium virens* (Bigelow), *Agiaura hemstoma* (Perorn et Lesueur), *Lirope tetraphylla* (Chamisso et Eysenhardt) and *Solmundella bitentaculata* (Quoy et Gaimard).

phonophores: These include species of Monophyes and Diphyes and a few colonies of Physonecti, the latter occurring in August, September, January and February.

tenophores: They consist of Pleurobranchia and Berœ, occurring in fairly large numbers from September to the end of March. The largest specimen of Berœ found in our samples was 2" x 1".

chæta:

anktonic forms of Nereida occur at intervals all the year round but are very common from September to May. Tomopteris is fairly constant in our catch from September to March.

tognatha:

ie three commonest species of Sagittæ are *S. gardineri* (Doncaster), *S. bedoti* (Beraneck), *S. Bombayensis* (Lele et Gae) and they appear in varying numbers almost throughout the year.

epods:

general survey of Copepods from month to month shows that their peak periods of occurrence are in the months of July and January suggesting thereby two cycles of maxima. They are found in fairly large numbers at the beginning of monsoon and reach their maximum by the end of July, after which the number falls to its minimum by August. From September onwards their population gradually increases again until it reaches its maximum by January of the next year. Some of the commonest species are: *Acrocalanus monachus* (Giesbrecht), *Eucalanus suborassus* (Giesbrecht), *Paracalanus parvus* (Giesbrecht), *Acartia spinicauda* (Giesbrecht), *Centropages dorsispinatus* (Thompson et Scott), *Centropages typicus* (Kroyer) and *Euchæta marina* (Giesbrecht).

pod larvæ:

pepod naupli are found throughout the year.

omatopod larvæ (mostly Alima) are present from August to May and in large numbers in November.

æa of Porcellana occur from November to March with swarms at intervals in December.

æa of Brachyura is collected from August to April in varying numbers.

galopa is taken in small numbers all the year round.

yllosoma of Panulirus is present from December to April, largest number being in January.

rvæ of Prawns are obtained from May to January inclusive. Their number is pre-eminently large first in the months of July and August, and again in November and December.

Tunicates:

Doliolum and Salpa are the chief forms representing this group in our samples and occur from the middle of October to the end of February. In January and February they appear in very large numbers, at times in swarms. They occurred in unusually large quantity once in October 1942.

Our biological year beginning with the onset of monsoon can be roughly divided into the following four periods according to the variations in the catch. During the rainy season, i.e., June-September, our plankton samples are rather poor both in quality and quantity; but after the rains, viz., from October to December there is an appreciable increase in the catch as more and more transitional planktonic organisms like Decapod larvæ, occur in fluctuating numbers. January, February and part of March seem to be the most favourable months of the year for the occurrence of plankton as swarms of a number of groups of organisms appear at frequent intervals. But during April and May there is a considerable fall in the number of the transitional as well as permanent members of the plankton with the result that the samples taken towards the end of May appear to be meagre.

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1. Lele, S. H., and Miss Gae, P. B., *J. Bom. Uni.* 1935, 3, Pt. 5. 2. —, —, *Ibid.*, 1936, 4, Pt. 5.