

Previous records of whale sharks from Indian waters are few. Hailey (1883, 1890), Day (1889), Thurston (1890, 1894), Regan (1908), Southwell (1912-13), Deraniyagala (1936, 1944) and Gudger (1940) have reported this from Ceylon waters; Lloyd (1908) from the Bay of Bengal; Pillay (1929) from Travancore coast; Prater (1941) from Karachi and Bombay; and Kulkarni (1948) from Bombay waters. One of us (P. I. C.) during his inspection of the pearl bank, Thollayiram paar, in the Gulf of Manaar, on 11th December 1953, observed a whale shark about 25 ft. in length, swimming motionless in the vicinity in spite of the motor fishing vessel being taken around it several times.

MARINE BIOLOGICAL STATION, WEST HILL,
MALABAR,
March 22, 1954.

P. I. CHACKO
M. J. MATHEW

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32. FOOD ORGANISMS OF *GADUSIA CHAPRA* (HAM.) FROM CERTAIN PONDS WITH THICK *EUGLENA* BLOOMS

Gadusia chapra is a common herring of the Mahanadi river system. The juvenile stages of this fish are often caught in large numbers with the carp and other fresh-water fry. The fish attains a length of about six to seven inches.

While working on the gut contents of different fishes from some ponds having thick blooms of *Euglena*, certain interesting features were observed on the feeding habits of *Gadusia chapra*.

Investigations on the food of *Gadusia chapra* have been based on the analysis of the contents of the stomach of 110 specimens from

four ponds. Three of these ponds belong to the Kendrapara fish farm, while the other is in Dry Dock (Cuttack). In all cases it was observed that the fish were fed to the extent of 92% to 100%. For the sake of experimental convenience, the fish were divided into three different stages depending on the size of the specimens. Specimens ranging from 60 mm. to 90 mm. were put in stage I, those between 90 mm. and 100 mm. were put in stage II and those between 120 mm. and 145 mm. in stage III. All these records were made during the months of December, January and February 1949-50 and 1950-51.

The food of *Gadusia chapra* as analysed was mostly composed of Flagellates. The different genera of organisms that have been identified in the stomachs are as follows:—

(1) Euglenids—*Euglena* (species—*acus*, *oxyrius*, *spirogyra*, and *viridus*); *Phacus* and *Lepocinclis*. The first genus was seen to predominate in the gut ranging from 60% to 80%.

(2) Dinoflagellids—*Peridinium*, *Gymnodinium*, and *Ceratium*, the first found to be in greater numbers.

(3) Diatoms—*Synedra*, *Tabellaria*, *Navicula*, *Amphora*, *Pleurosigma*, *Fragilaria*, *Stauroneis* and *Cyclotella*.

(4) Microscopic Green Algae—*Closterium*, *Staurastrum*, *Euastrum*, *Coelastrum*, *Ophiocytium*, *Scenedesmus*, *Chlorella*, *Crucigenia*, *Kirchneriella*, *Pediastrum*, *Ankistrodesmus* and *Pleurococcus*.

(5) Filamentous Green Algae—*Spirogyra* was seen in only two instances.

(6) Blue Green Algae—*Merismopedia*, *Aphanocapsa*, *Tetrapedia*, *Chroococcus* and *Oscillatoria*.

(7) Rotifers—*Rattulus*, *Brachionus*, *Rotifer*, *Asphanchna* and unidentified forms due to decomposition. Eggs of Rotifers were found in the stomach in some of the cases.

(8) Crustaceans—Broken appendages of Cladocers were rarely observed in negligible proportions.

Mud, sand and waste matter were observed in all the specimens.

TABLE SHOWING THE TOTAL NUMBER OF FISH EXAMINED AND THE AVERAGE PERCENTAGE OF FOOD EATEN.

Stage of fish Total number of fish examined	Stage I 14	Stage II 73	Stage III 23
Euglenids ...	78%	72%	68%
Dinoflagellids ...	6%	8%	8%
Diatoms ...	3%	3%	4%
Smaller Green Algae ...	3%	2%	1%
Filamentous Green Algae ...	negligible	—	—
Blue Green Algae ...	2%	2%	2%
Rotifers and eggs ...	5%	7%	10%
Crustaceans ...	—	negligible	negligible
Mud, sand and waste matter ...	5%	6%	7%

It appears from the table that *Gadusia chapra* is a selective plankton feeder as it shows a liking for the Euglenids and Dinoflagellids. Rotifers, Diatoms, microscopic green algae and others

were probably supplementary forms consumed with the former types of plankton. Other organisms such as Cladocers and Copepods have been excluded from the food, though they were observed in the plankton samples collected on the same dates as the fish. As a matter of fact, the plankton consisted of a high percentage of Flagellates.

Thanks are due to Sri G. N. Mitra, Director of Industries, Orissa, for his interest.

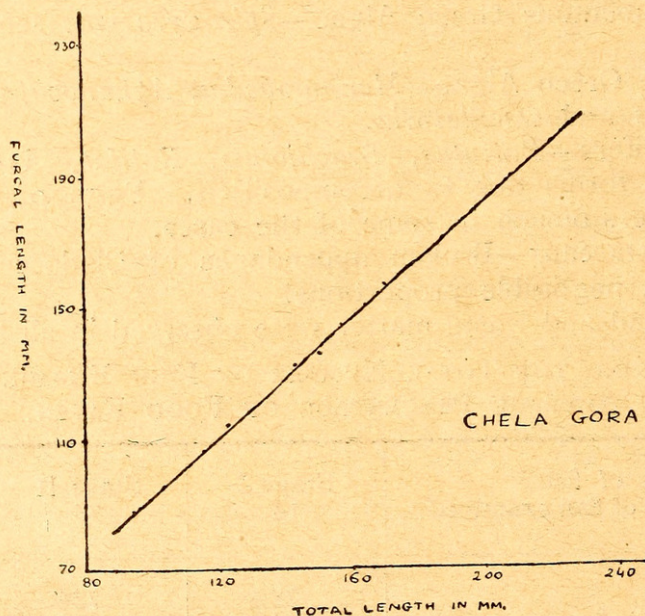
DEPARTMENT OF FISHERIES,
GOVERNMENT OF ORISSA,
CUTTACK,
June 25, 1954.

P. MOHAPATRA

33. THE RELATIONSHIPS OF TOTAL LENGTH TO FURCAL LENGTH FOR FIVE CYPRINIDS

(With five graphs)

This note deals with the study of the general relationship between the total length and furcal length in the Indian Cyprinids, *Chela bacaila* (Ham.), *Chela gora* (Ham.), *Barbus stigma* (Cuv. & Val.), *Rohtee*



cotio (Ham.) and *Rohtee vigorsii* (Sykes). The expression furcal length means the length of the fish between the anterior extremity of the snout and the points where the caudal fin bifurcates. In the above-mentioned varieties the total length can be measured more easily than the furcal length, particularly in the field. But as the total length is often vitiated by wear and tear it is advisable to record both the lengths. The main object here has been to derive appropriate mathematical value, correlating the two variables, total length and furcal length, in a general manner and for calculating one from the other. In view of this, a wide range for each species has been included



Mohapatra, P. 1954. "Food Organisms of *Gadusia* Chapra (Ham.) from Certain Ponds with Thick *Euglena* Blooms." *The journal of the Bombay Natural History Society* 52, 624–626.

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