

THE FOOD OF SOME YOUNG FISHES FROM BOMBAY*

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INTRODUCTION

A STUDY of the food of young fishes from the Bombay waters was made between June 1945 and June 1947, by the periodic examination of the stomach contents of a number of larval, post-larval and young fishes, belonging to *Clupeidæ*, *Polynemidæ*, *Mugilidæ*, *Gadidæ*, *Percidæ*, *Carangidæ*, *Squamipinnes* and *Sciaenidæ*. Observations have also been extended to adults of *Bregmaceros maclellandi*, *Ambassis commersoni*, *Apogon bandanensis* and *Equula insidiatrix*. The analysis of the stomach contents and the percentages of various organisms constituting the food of the different species along with the feeding habits at various stages were noted. The entire work was divided into two parts, of which the first part dealing with "The food of some young Clupeids"¹ had already been published. The present paper deals with the food of 2,188 specimens belonging to the remaining seven families mentioned above. A resumé of the work on the food of fishes, the places of collection of material, the methods adopted and the bibliography having been incorporated in the first part are omitted here.

In the present account, specimens ranging from 1–25 mm. are placed in stage I, those between 25–50 mm. in stage II, between 50–75 mm. in stage III and those 75 mm. and above upto 100 mm. in stage IV. The calendar year is divided into four seasons, namely, the rainy season—June to September, the dry season—October to November, the winter season—December to February and the summer season—March to June. The nomenclature adopted in this paper is according to Day (1889).

Family: POLYNEMIDÆ

The larval and post-larval forms of *Polynemus tetradactylus* and *P. heptadactylus*, popularly known as "Rawas" and "Dadha" respectively

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¹ Bapat, S. V., and Bal, D. V., "The food of some young Clupeids," *Proc. Ind. Acad. Sci.*, 1950, 32 B, 39–58.

abundant in the waters around Bombay. The former, attaining a length of 4-5 feet is an important commercial food fish highly esteemed as a table fish. The latter grows to a size of 8-12 inches and is mainly consumed by the poor. The fishing is done generally by bag nets and hooks and lines and the fish are landed in large quantities at Sassoon docks, Danda, Versova and other important fishing centres around Bombay. *P. tetradactylus* is also taken in fairly large numbers by the deep sea fishing vessels in the trawl nets.

Polynemus tetradactylus (Shaw.)

220 young forms of *P. tetradactylus* were examined of which 191 were from plankton collections at Versova, Chowpati, Apollo Bunder and Sassoon docks and the remaining from the fishermen's catches at Mahim. 102 of them were taken in the rainy, 54 in dry, 28 in winter and 36 in the summer seasons. A stage by stage analysis of the stomach contents is given in the following table.

Number examined and percentage of food taken by stages I to IV

Stage of fish ..	I	II	III	IV
Total No. of fish examined ..	187	26	2	5
No. of fish with digested or no food ..	79	8	..	1
Items of food taken ..	%	%	%	%
Prawn larvæ ..	65.74	61.12	..	..
Copepods ..	29.62	27.77	..	..
Zoea ..	2.77	..	..	..
Polychætes ..	..	11.11	100.00	75.00
<i>Squilla</i> larvæ ..	..	..	..	25.00
Amphipods ..	0.92	..	..	..
Sagittæ ..	0.92	..	..	..

It is evident from the above table that prawn larvæ and copepods constitute the main food of the young forms in stages I and II. It appears that the more advanced forms in stages III and IV take to polychætes and *Squilla* larvæ. This has to be substantiated with more material. The polychætes were mostly taken during the rainy season.

Polynemus heptadactylus Cuv. and Val.

A total number of 206 specimens ranging from 26-100 mm. were collected from the fishermen's catches at Versova, Danda and Sassoon docks. 34 of them were obtained in rainy, 31 in dry, 86 in winter and 55 in the summer seasons. Their stomach contents in the different stages, excepting the first, are as under;—

Number examined and percentage of food taken by stages II to IV

Stage of fish ..	II	III	IV
Total No. of fish examined ..	21	141	44
No. of fish with digested or no food	8	47	12
Items of food taken ..	%	%	%
Prawn larvæ ..	84.62	57.44	50.00
Fish food ..	..	10.63	12.50
Copepods ..	..	8.51	6.25
Polychætes ..	..	5.31	12.50
<i>Gammarus</i> ..	7.69	2.12	..
Other Amphipods ..	7.69	4.25	..
<i>Cypris</i> ..	..	4.25	3.12
Crustacea remains ..	..	7.44	15.63

It can be seen from the above table, that prawns (*Acetes indicus* and *Acetes* sp.) form the major item of food of *P. heptadactylus* in all the three stages. In the third and fourth stages, the prawn diet is supplemented by fish food consisting of *Otolithus argenteus* and *Bregmaceros macclellandi*, copepods and polychætes. Amphipods and *Cypris* are also taken in smaller percentages.

Chacko (1949)¹ has recorded that *P. tetradactylus* measuring 12–18 cm. feed on prawns belonging to *Penæus* sp. and *Acetes* sp. and *P. heptadactylus* on *Penæus* sp., *Stolephorus* sp. and *Sardinella gibbosa*.

Family: MUGILIDÆ

Mugil dussumieri, *M. troschelli* and *M. parsia* were the three species belonging to this family found in our collections. The first two were obtained exclusively from plankton samples and the last species from the fishermen's catches. *M. troschelli* occurred mostly during the rainy and summer seasons, whereas *M. parsia* practically throughout the year. Specimens of *M. dussumieri* were taken in smaller numbers during the rainy and winter seasons. The stomach of these species is muscular and gizzard-like.

The various species of this family, ranging from 6 to 8 inches in length, are caught in good numbers at Mahim and Versova and are highly esteemed as food when fresh. They are locally known as 'Boi'.

A few specimens from the plankton samples were successfully reared in the laboratory aquaria on fish meal, earthworms and polychætes.

¹ Chacko, P. I. Food and feeding habits of the fishes of the Gulf of Manar. *Proc. Ind. Acad. Sci.*, 1949, 29 B, 83–97.

Mugil dussumieri Cuv. & Val.

Only 9 post-larval forms ranging from 14–24.5 mm. were obtained, 2 in rainy and 7 in the winter season. Of these 8 were taken from Apollo Bunder and one in Mahim plankton samples.

An examination of their stomach contents revealed copepods in seven specimens from Apollo Bunder and foraminifera and sand grains in the remaining two.

Mugil troschelli Bleeker

38 young forms, measuring from 15–24 mm., were taken from plankton samples at Versova, Mahim, Apollo Bunder and Choupati. 18 of them were obtained in the rainy and the remaining 20 in the summer season.

On examining their stomachs, copepods were found in 16 (69.56%) and diatoms in 7 (30.44%) which evidently shows that they form the main food of the smaller forms. Chacko (1949) has reported that bigger forms 100–350 mm. in length, are mainly plankton feeders, occasionally browsing at the bottom and on the weeds.

Mugil parsia Ham. & Buch.

All the 49 specimens of this species were taken from the fishermen's catches at Mahim, 34 in the rainy, 3 in dry and 12 in the winter seasons. An analysis of their stomach contents was as below:—

Number examined and percentage of food taken by stages I and II

Stage of fish	..	I	II
Total No. of fish examined	..	2	47
No. of fish with digested or no food		1	29
Items of food taken	..	%	%
Copepods	..	100.0	55.55
Diatoms	..	..	11.11
Muddy remains	..	..	11.11
Prawn larvæ	..	..	5.56
Crustacea remains	..	..	16.67

From the above figures it appears that copepods constitute the main food of this species and is only supplemented by diatoms and the organic matter taken along with the mud.

Family: GADIDÆ

Bregmaceros maccelellandi Thomps.

Bregmaceros maccelellandi, locally known as 'Tengali', are very common in Bombay waters and generally form the food of the poor. They are taken

in large quantities in the bag net along with other miscellaneous fish at Versova, Danda and Sassoon docks and specimens ranging from 26–100 mm. are available for study throughout the year. According to Day (1889) the species attains a size of 125 mm., but such large sizes are not very common.

It appears that this fish has a prolonged breeding season judging from the mature ova which have been observed for a major part of the year. Its post-larvæ, 8–15 mm. in length, have been taken in plankton samples at the fishing site off Danda, about 5–8 miles away from the shore, indicating that it is an off-shore breeder.

283 specimens were examined for their stomach contents and the details of the findings are given in the following table:

Number examined and percentage of food taken by stages II to IV

Stage of fish ..	II	III	IV
Total No. of fish examined ..	97	164	22
No. of fish with digested or no food	60	89	11
Items of food taken ..	%	%	%
Prawn larvæ ..	40.54	84.00	81.82
Copepods ..	27.02	4.00	..
Crustacea remains ..	32.43	10.66	18.18
Algæ ..	..	1.33	..

It is evident from the above table that prawn larvæ and copepods constitute the main food of *Bregmaceros maclellandi*. It is further seen that the percentage of prawns goes on increasing and that of copepods decreasing as the fish grows in size. Algæ constitute a rare inclusion in the dietary of this fish.

It is of interest to note that this fish forms one of the important items of food of the popularly known "Bombay duck", *Harpodon nehereus*.

Family: PERCIDÆ

This family is represented in our collections by four genera and five species, namely, *Serranus diacanthus*, *Ambassis commersoni*, *Apogon wassinki*, *A. bandanensis* and *Therapon jarbua*.

The post-larvæ of *S. diacanthus* belonging to the first and second stages are common in plankton collections and can be easily identified by the characteristic six to seven vertical bands on their bodies. The continuous occurrence of the post-larval forms indicates the existence of a prolonged breeding season. The adults usually attain a length of about 18 inches and are known for their highly edible qualities.

Specimens of *Ambassis commersoni* are common in the fishermen's catches during the summer months. They are small size fishes rarely exceeding 7-8 cm. in length and are generally consumed fresh by the poor people. It was observed that the gonads of a majority of the specimens measuring from 51-72 mm. were found to be in a mature state during the summer season which was also the peak period of their occurrence at the Mahim creek. Hence the summer season appears to be the spawning season and in all probability the fish may be migrating to the creek waters for breeding purposes.

The genus *Apogon* is represented by two species, viz., *A. bandanensis* and *A. wassinki*. The former were exclusively taken from the fishermen's catches and the latter from plankton samples. They also attain a size of 7-8 cm. and are of little importance to the commercial fishery. The third stage of *A. bandanensis* was taken in large numbers during the summer season and their ovaries were noticed to be in an advanced stage of development. The post-larval forms of *A. wassinki* were taken almost throughout the year, though in smaller numbers, indicating the probability of a prolonged breeding season.

Young forms of *Therapon jarbua* were taken both from plankton samples and fisherman's catches regularly in all the seasons. Their adults attain a length of 7-8 inches and are much less used as food.

The food and feeding habits of the above five species are discussed below in detail separately.

Serranus diacanthus Cuv. & Val.

248 Specimens varying between 12-70 mm. were examined, 150 in rainy, 24 in dry, 41 in winter and 33 in the summer seasons. The results of the examination of their stomach contents are given below:

Number examined and percentage of food taken by stages I to III

Stage of fish	..	I	II	III
Total No. of fish examined	..	137	109	2
No. of fish with digested or no food	..	35	43	..
Items of food taken	..	%	%	%
Copepods	..	56.86	33.33	..
Prawn larvae	..	29.41	19.61	..
<i>Gammarus</i>	..	0.98	19.69	50.00
Other Amphipods	..	9.80	16.16	50.00
Polychaetes	..	..	3.03	..
Bivalves	..	..	3.03	..
Zoea	..	..	1.51	..
Crab remains	..	..	1.51	..
Megalopa	..	0.98	..	..
Crustacea remains	..	1.96	1.51	..

The young forms of this fish during the first and second stages appear to feed mainly on copepods, prawns and amphipods. It is of interest that the percentages of copepods and prawns decrease and those of amphipods increase during the second stage. Prawn larvæ and copepods were consumed more during the rainy season.

Ambassis commersoni Cuv. & Val.

130 Specimens of *A. commersoni*, 117 in summer, 8 in winter and 5 in the rainy season were collected from Mahim creek during the period under report. Their stomachs were found to contain the following:

Number examined and percentage of food taken by stages II to III

Stage of fish ..	II	III
Total No. of fish examined ..	62	68
No. of fish with digested or no food ..	26	24
Items of food taken ..	%	%
Polychætes ..	25.00	63.63
Copepods ..	25.00	..
Prawn larvæ ..	11.11	18.18
Gastropods ..	13.89	6.81
<i>Gammarus</i> ..	11.11	6.81
Other Amphipods ..	..	4.54
Crustacea remains ..	13.89	..

It appears from the above that the main food of *A. commersoni* consists of polychætes, prawn larvæ and copepods, the last being taken only in the second stage. The percentage of polychætes and prawns is on the increase as the fish grows in size. The organisms supplementing the above food are *Gammarus*, gastropods and amphipods.

Apogon bandanensis Bleeker

78 Specimens of this species were collected from the fishermen's catches, 53 from Versova and 25 from Sassoon docks in the summer season. A detailed report of their stomach contents according to different stages is given above.

It is seen from the above that prawns and fishes form the main food of *A. bandanensis* in the early stages supplemented by amphipods and *Cypris*. The fish food comprised of *Bregmaceros maclellandi*, *Engraulis commersonianus* and *Clupea* sp.

Number examined and percentage of food taken by stages II to III

Stage of fish	..	II	III
Total No. of fish examined	..	55	23
No. of fish with digested or no food	..	17	3
Items of food taken	..	%	%
Prawns	..	31.57	50.00
Fish food	..	21.05	30.00
<i>Gammarus</i>	..	10.52	..
Other Amphipods	..	15.78	10.00
<i>Cypris</i>	..	15.78	5.00
<i>Squilla</i> larvæ	..	..	5.00
Crustacea remains	..	5.26	..

Apogon wassinki Bleeker

A total number of 99 specimens of *A. wassinki* ranging from 4.5-17 mm. in length were examined, 13 in rainy, 20 in dry, 56 in winter and 10 in the summer seasons. 92 of them were taken in Apollo Bunder and 7 in Choupati plankton samples. An examination of their stomachs revealed copepods in 20, diatoms in 7, prawn larvæ in 1 and crustacean remains in 5. The remaining 66 had either digested food or empty stomachs.

It has been observed that the post-larval forms fed mostly on copepods almost throughout the year, diatoms being taken mainly during the winter season.

Therapon jarbua (Forsk.)

78 Specimens of *T. jarbua* were examined, of which 31 were from the fishermen's catches and the remaining from plankton samples. 17 of them were obtained in the rainy, 14 in dry, 33 in winter and 14 in the summer season.

Number examined and percentage of food taken by stages I to III

Stage of fish	..	I	II	III
Total No. of fish examined	..	47	24	7
No. of fish with digested or no food	..	23	12	2
Items of food taken	..	%	%	%
Copepods	..	62.50	8.33	..
Prawn larvæ	..	20.83	16.66	20.00
Muddy remains	..	16.66	25.00	60.00
<i>Gammarus</i>	..	..	33.33	..
Polychætes	..	..	8.33	20.00
Fish remains	..	..	8.33	..

The younger forms of *T. jarbua* appear to feed mainly on copepods while the more advanced ones resort to bottom feeding, when mud along with a small percentage of prawn larvæ, *Gammarus* and polychætes is taken.

The adults of this species have been described as omnivorous feeders by Chacko (1949)¹ and insectivorous by Job (1940).²

Family: CARANGIDÆ

The family Carangidæ is represented in our collection by four species belonging to two genera, namely, *Chorinemus toloo*, *Equula fasciata*, *E. insidiatrix* and *E. ruconius*. *E. fasciata* occurred exclusively in plankton collections and the other three species from the fishermen's catch only.

The adults of *C. toloo* reach a length of about 18 inches while those of *Equula*, popularly known as 'Silver Bellies' to 4-5 inches. *C. toloo* and *E. fasciata* occurred in large numbers during the rainy season. Specimens of *E. insidiatrix* 26-50 mm. in length were in abundance during the winter and the more advanced stages in the summer season. *E. ruconius* were found in the winter season only.

Chorinemus toloo Cuv. & Val.

In all 65 specimens were collected from the Mahim creek, 40 in rainy, 4 in dry, 7 in winter and 14 in the summer season. A study of their stomach contents during the second and third stages can be summarised as below:

Number examined and percentage of food taken by stages II to III

State of fish ..	II	III
Total No. of fish examined ..	55	10
No. of fish with digested or no food ..	26	3
Items of food taken ..	%	%
Prawn larvæ ..	68.96	71.42
<i>Gammarus</i> ..	13.79	14.28
Copepods ..	6.89	..
Crustacea remains ..	10.34	14.28

It appears from the above data that post-larval and immature forms of *C. toloo* mainly subsist on prawn larvæ and *Gammarus*, copepods being taken only by the forms belonging to the second stage.

¹ Chacko, P. I. Food and feeding habits of the fishes of the Gulf of Manar. *Proc. Ind. Acad. Sci.*, 1949, 29 B, 83-97.

² Job, T. J. Nutrition of Madras Perches. *Rec. Indian Mus.*, 1940, 42, 286-364.

Equula fasciata (Lacep)

In all, 45 specimens measuring 9–18 mm. were taken in plankton samples, 43 from Apollo Bunder and only 2 from Choupati. 41 of them were obtained in rainy, 3 in dry and a single specimen in the summer season. An examination of their stomach contents revealed copepods in 21, gastropods in 1 and the remaining 23 had either digested food or empty stomachs.

From the data available it can only be inferred that copepods form the main food of the post-larval forms of *E. fasciata*.

Equula insidiatrix (Bloch)

A total number of 127 specimens of this species were examined, of which 68 were obtained in winter and 59 in the summer season. Almost all of them were taken from the fishermen's catches at Mahim creek, excepting 12 from Sassoon docks. An examination of their stomach contents according to different stages showed as under:

Number examined and percentage of food taken by stages II to III

Stage of fish	..	II	III
Total No. of fish examined	..	85	42
No. of fish with digested or no food	..	48	22
Items of food taken	..	%	%
Copepods	..	35.13	15.00
Polychaetes	..	35.13	60.00
Gastropods	..	10.81	..
Prawns	..	2.70	5.00
Crustacea remains	..	16.21	20.00

It will be seen from the above table, that polychaetes and copepods formed the main food of *E. insidiatrix*. The former were mostly taken in summer and the latter in winter. Gastropods were consumed only by specimens of the second stage, during winter months.

Equula ruconius (Ham. & Buch.)

Only ten specimens of this species ranging from 36–38 mm. were obtained from the fishermen's nets during the winter season from Mahim creek and Sassoon docks. On examining, 7 of them were found to contain polychaetes, 1 had crustacea remains and the remaining 2 had no food.

This tends to show that *E. ruconius* like *E. insidiatrix* takes a very high percentage of polychaetes.

Family: SQUAMIPINNES

Scatophagus argus (Bloch.)

Scatophagus argus is the single species of this family recorded in our collections from plankton as well as fishermen's catches. It is easily detected by its characteristic flattened body and a large number of bright dark green spots on the back. It is a rare fish in Bombay waters and is said to attain a foot in length.

In all 16 specimens varying between 31-79 mm. in length were examined, 2 in dry, 5 in winter and 9 in the summer season. 5 of them were taken from plankton samples collected off Apollo Bunder and the remaining from the fishermen's catches at Mahim creek. An examination of their stomach contents revealed green algæ in 9, prawn larvæ in 1 and the remaining 6 had either digested food or empty stomachs. This leads us to believe that *S. argus* is a herbivorous feeder, and this view is further supported by the presence of a very long alimentary canal usually found in herbivorous fishes. In a specimen of 73 mm. long the alimentary canal was 196 mm., nearly three times the length of the fish itself.

Family: SCIÆNIDÆ

This family was represented in our collection by five species, four belonging to the genus *Sciæna* and one to *Otolithus*. Of the five species, *Otolithus argenteus* and *Sciæna semilustosa* occurred practically in all the seasons. *S. glauca* and *S. miles* were found in good numbers in summer, though a few specimens of the former in winter and of the latter in the rainy season were also collected. *S. albida* was rare and was obtained only once in August 1945. A total number of 491 young forms of these species were collected from the fishermen's catches from Sassoon docks and Versova. They were conspicuously absent in the plankton samples.

Adult fishes measuring 3-5 feet in length, popularly known as 'Ghol' are hauled by fishermen in good numbers at Sassoon docks, Versova, Danda and other fishing villages around Bombay, almost throughout the year. They also form an important group of the catches of trawlers operating off Bombay. They possess highly edible qualities and have a good market at Bombay. The immature forms are used as food by the poorer class of people.

Sciæna miles Cuv. & Val.

A total number of 66 post-larval and immature forms, 56 in summer and 10 in rainy were examined.

Number examined and percentage of food taken by stages II to IV

Stage of fish ..	II	III	IV
Total number of fish examined ..	23	25	18
No. of fish with digested or no food ..	7	7	3
Items of food taken ..	%	%	%
Prawn larvæ ..	93.75	66.66	40.00
Copepods ..	6.25	..	..
<i>Squilla</i> larvæ ..	..	16.66	6.66
<i>Cypris</i> ..	..	5.55	6.66
Fish food ..	..	..	40.00
Amphipods ..	..	..	6.66
<i>Gammarus</i> ..	..	5.55	..
Crustacea remains ..	..	5.55	..

It may be seen from the above table that prawn larvæ formed the major item of food of the young forms of *S. miles*. The grown-up fish take in addition fish food comprising *Bregmaceros maclellandi*. This was supplemented to some extent by *Squilla* larvæ, *Cypris* and *Gammarus*.

Sciæna albida (Cuv. & Val.)

Only five specimens of this fish measuring 60–90 mm. were collected on 10th August 1945, at Sassoon docks. An examination of their stomachs revealed prawn larvæ belonging to the genus *Acetes* in three, and the other two were empty.

Sciæna semiluctosa (Cuv. & Val.)

A total number of 109 specimens, 11 in rainy, 23 in dry, 35 in winter and 40 in the summer season were examined for their stomach contents and an analysis of the same is given below:

Number examined and percentage of food taken by stages II to IV

Stage of fish ..	II	III	IV
Total No. of fish examined ..	38	69	2
No. of fish with digested or no food ..	11	20	..
Items of food taken ..	%	%	%
Prawn larvæ ..	59.25	59.18	50.00
<i>Cypris</i> ..	18.52	..	..
Fish food ..	3.70	26.53	..
Copepods ..	7.41	4.08	..
Polychaetes ..	3.70	..	..
Amphipods ..	..	2.04	..
Crustacea remains ..	7.41	8.16	50.00

From the figures cited above, it can be inferred that prawn larvæ are again the main item of food. The other planktonic forms taken are *Cypris*, copepods, polychætes and amphipods. *Bregmaceros macclellandi*, *Coilia dussumieri* and some Clupeids also formed a considerable part of the food of the specimens of the third stage in particular. *Sciæna semiluctosa* appears to be a voracious feeder as the stomachs of most of them were usually gorged with food material.

Sciæna glauca Day

Young forms of *S. glauca* 99 in number were collected from Sassoon docks and Versova, 6 in winter and 93 in the summer season. The adults of this species popularly known as 'Dhoma' attain a length of about 2-3 feet and are common at Bombay.

Number examined and percentage of food taken by stages II to IV.

Stage of fish	..	II	III	IV
Total No. of fish examined	..	13	46	40
No. of fish with digested or no food		3	18	8
Items of food taken	..	%	%	%
Prawn larvæ	..	80.00	67.85	56.25
Fish food	..	..	7.14	25.00
Polychætes	..	10.00	..	..
<i>Squilla</i> larvæ	..	..	7.14	..
Crab remains	..	..	3.57	..
<i>Cypris</i>	..	..	..	3.12
Muddy remains	..	..	..	3.12
Crustacea remains	..	10.00	14.28	12.50

It can be seen from the above data that prawn larvæ also form the main food of *S. glauca* in the second, third and fourth stages. The fish food mainly consisting of *Bregmaceros macclellandi* and *Engraulis commersonianus* is taken in increasing proportions by the advanced forms. The other organisms consumed in smaller percentages are polychætes, *Squilla* larvæ and *Cypris*.

The tendency to feed on refuse at the bottom is not uncommon as observed from the presence of mud along with lobster and crab remains. It appears to be a voracious feeder as the stomachs of most of the specimens were found packed with food materials.

Otolithus argenteus Cuv. & Val.

The post-larval forms of *O. argenteus* are very common in Bombay waters almost throughout the year. In all 208 specimens were collected

from the fishermen's catches at Versova and Sassoon docks, 93 in rainy, 46 in dry, 28 in winter and 41 in the summer season. An analysis of their stomach contents is given in the table below:

Number examined and percentage of food taken by stages I to IV

Stage of fish	I	II	III	IV
Total No. of fish examined	4	102	80	22
No. of fish with digested or no food	.	39	26	4
Items of food taken	%	%	%	%
Prawn larvæ	25.00	73.01	88.88	50.00
<i>Gammarus</i>	25.00	1.58	..	..
Fish food	..	0.34	1.85	38.88
Other Amphipods	..	9.53	1.85	..
Copepods	..	4.76	1.85	..
<i>Squilla</i> larvæ	..	1.58	..	..
Polychaetes	..	..	1.85	..
Crab remains	..	..	..	5.55
Sand and gastropods	50.00	..	..	..
Crustacea remains	..	3.17	3.70	5.55

A close scrutiny of the above figures will show that prawns form the main food of *Otolithus argenteus* like that of *Sciæna* sp. during all the four stages described here. It appears to be a surface plankton feeder. In the more advanced forms it appears that the fish food is taken in increasing percentages until finally it forms the major item of the food of the adult. The fish food mainly consisted of *Bregmaceros maclellandi* and *Pellona* sp.

SUMMARY

In the present investigation extending over a period of two years from June 1945 to June 1947, the stomach contents of 2,188 young fishes belonging to 21 species were examined for determining their food and feeding habits.

1. The young forms of almost all the species are surface plankton feeders, and are carnivorous, except *Scatophagus argus* which feeds mainly on algæ.

2. Planktonic prawn larvæ mostly belonging to the genus *Acetes* formed the main food of the young forms of a number of species mentioned above, whereas the grown-up ones seem to prefer mostly fish diet consisting of *Bregmaceros maclellandi*, *Engraulis commersonianus*, *Otolithus argenteus*, Clupeids, etc.

3. *Equula insidiatrix* and *E. ruconius* seem to have a special liking for polychætes, whereas copepods formed the main food of the young forms of *E. fasciata* during the first stage.

4. Diatoms in fairly high percentages were taken by *Mugil troschelli* and *M. parsia*, though copepods formed their main item of food.

5. Amongst the Percidæ, the amphipods formed an important item of food in addition to prawn larvæ and copepods. *Ambassis commersoni*, however, has a greater preference to polychæte food.

6. The younger forms of all the Sciaenids take prawns as their main food, and the percentage of their fish food goes on slowly increasing as they grow in size.