

**OBSERVATIONS ON THE AVAILABILITY OF BRACKISHWATER
FISH SEED IN THE MATLAH ESTUARY AROUND PORT
CANNING**

ABSTRACT

Observations on the brackishwater fish seed resources in West Bengal have indicated that the Matlah estuary is rich in fish seed during December-March. The collections made at depths during the high tide were the richest. Occurrence of some species of prawns has been observed to be greater in the collections during the full moon period. The hydrological analysis was made for the period under observation to show the relationship with the seed abundance.

VAST areas of brackishwaters in India, which if utilised for fish culture, will increase the country's fish production considerably. For the scientific and economic management of any fish culture programme, adequate information on the availability of fish seed is essential. While a general idea on the various cultiviable brackishwater species of fish of this country is available, only scanty data has so far been

gathered on the estuarine fish seed resources. Preliminary investigations (Gopalakrishnan 1968, Gopalakrishnan and Rao 1968) conducted in the Hooghly-Matlah estuarine system have shown the availability of fry of Mulletts, *E. tetradactylum*, *L. calcarifer*, *M. brevicornis*, *M. monoceros*, *P. sculptilis*, *P. indicus*, *P. monodon* and *P. stylifera*. As a part of the intensive programme of work on seed prospecting, the present observations were made in the Matlah estuary (Gopalakrishnan and Rao, 1968 for details) around Port Canning (Fig. 1).

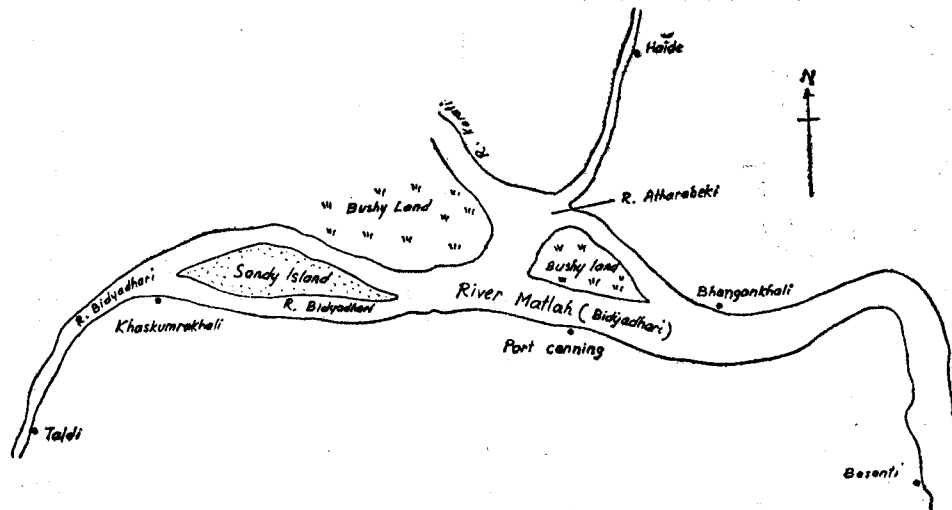


FIG. 1. Diagrammatic sketch of the region of the Matlah Estuary System studied.

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The samples of fish seed were collected from Taldi, Port Canning (Puran-chandini), Bhangankhali, Basanti and Haide (Fig. 1). The collections were made using the standard Midnapore type spawn collection nets. Since the river is quite tortuous and the water level fluctuates considerably in between the tides, it was not possible to operate more nets simultaneously at all these places. The tail of the net forming the collection bag was stitched from the top and fastened with the net. Two poles were tied at the mouth of the net keeping the gap wide open, and were in turn tied with a long rope, kept outside the water for pulling the net out when required. Thus during high tide the net remained at the bottom and as such the collections could be made at a depth of 2-3 m. The collections were preserved in 5% formalin for laboratory analysis. The physico-chemical observations were made during each phase of the tide and all the collections during full and new moon phases.

The data presented in table 1 indicate the abundance of seed of commercially important species of fishes and prawns in this estuary, *Penaeus indicus*, *Metapenaeus brevicornis*, *Palaemon styliferus* and *Parapenaeopsis sculptilis* being the major constituents. The prawns were represented by post-larval stages of *Penaeus monodon* (5-7 mm), *P. indicus* (15-50 mm), *M. brevicornis* (10-70 mm), *P. styliferus*, and *P.*

sculptilis (13 mm). *P. monodon* was obtained mainly in March during the new moon phase.

TABLE 1. Percentage distribution (Volumetrically) of the different species of the brackishwater fish and prawn seed in the Matlah Estuary

Species		High tide				Low tide			
		Dec.	Jan.	Feb.	Mar.	Dec.	Jan.	Feb.	Mar.
<i>P. indicus</i>	F	—	31.5	19.43	21.19	—	7.94	6.48	8.57
	N	8.84	29.72	8.41	7.12	3.29	5.82	8.15	5.37
<i>M. brevicornis</i>	F	—	1.81	3.63	—	—	2.80	0.69	—
	N	—	5.24	7.10	16.96	—	5.47	3.77	2.49
<i>P. styliferus</i>	F	—	9.40	3.71	—	—	2.70	3.03	—
	N	14.10	7.42	2.29	3.64	9.21	1.5	5.02	1.92
<i>M. affinis</i>	F	—	—	1.44	—	—	—	—	—
	N	—	—	—	—	—	—	—	—
<i>P. sculptilis</i>	F	—	—	3.27	—	—	—	3.80	0.95
	N	—	—	5.97	13.34	—	1.11	4.67	6.83
<i>P. monodon</i>	F	—	—	0.42	—	—	—	0.20	4.76
	N	—	—	—	3.13	—	—	—	0.24
<i>P. stylifera</i>	F	—	—	0.42	—	—	—	—	—
	N	—	—	1.26	1.13	—	—	1.97	3.21
<i>M. gulio</i>	F	—	—	12.24	—	—	—	2.93	—
	N	—	8.27	—	1.03	—	—	—	6.47
<i>I. elongata</i>	F	—	—	0.72	—	—	—	—	—
	N	3.80	—	—	—	—	—	—	—
<i>M. parsia</i>	F	—	—	16.02	—	—	0.06	2.74	—
	N	—	—	2.60	—	—	0.30	6.87	0.56
Sciaenids	F	—	—	1.48	—	—	—	0.83	3.33
	N	—	—	2.81	0.49	—	—	—	1.06
Other Polynemids	F	—	—	0.33	—	—	—	—	3.81
	N	—	—	—	0.16	—	—	—	0.54
<i>E. tetradactylum</i>	F	—	—	—	—	—	—	—	—
	N	10.75	—	—	0.76	—	—	—	0.52
Miscellaneous fishes, etc.	F	—	33.09	17.67	73.65	—	27.67	29.04	31.42
	N	—	9.13	39.21	18.03	87.51	12.57	33.04	17.09
Detritus	F	—	24.21	19.57	5.18	—	58.83	50.12	47.12
	N	62.85	40.34	29.76	34.35	—	75.03	36.76	54.23

F—Full moon, N—New moon.

Majority of the fish seed collected were of *Mugil parsia* (20-45 mm), available during January, February and March, with the peak in February. The Post-larval

stages of Polynemids (*Polynemus indicus* and *P. paradiseus*) were obtained mainly during March in the length range of 5-8 mm. *Mystus gulio* and Sciaenids were normally 30-40 mm long.

The miscellaneous species in the collections were *Acetus indicus*, mysids, *Anchoviella*, gobiids, crabs and their larvae, eels, jelly fishes, *Barbus* sp., *Engraulis kam-malensis*, *Ambassis* sp., and *Badis badis*. The collections also had large quantities of detritus.

The observations discussed above indicate that in the Matlah estuary near Port Canning, maximum quantity of seed of cultivable species of brackishwater fish and prawn may be available during February. *P. indicus* and *M. brevicornis* were obtained in larger numbers during January to March. A differential distribution of prawns in relation to full moon and new moon periods has been observed. *P. indicus* was in greater abundance during the full moon than the new moon period. In the case of *M. brevicornis* and *P. styliferus* the pattern of distribution in relation to the lunar periodicity was reverse. *P. stylifera* was mainly obtained during the new moon phase only.

Another significant feature of the observations was that the seed collections made at a depth of 2-4 m during high tide were richer than those of the surface collections. In almost all cases, high tide collections were better than those made during low tides.

The hydrological data obtained are presented in Table 2. During February and March the dissolved oxygen was less and during this period the maximum

TABLE 2. Hydrological data

Months		High tide				Low tide			
		Temperature in °C		Salinity ‰	D.O. ppm	Temperature in °C		Salinity ‰	D.O. ppm
		Air	Water			Air	Water		
December	F	—	—	—	—	—	—	—	—
	N	20.9	21.12	10.42	9.12	23.2	22.2	10.44	9.12
January	F	22.8	20.40	11.89	9.20	23.1	20.7	11.88	9.00
	N	21.9	19.80	14.00	9.60	23.5	20.8	14.06	9.60
February	F	25.5	23.00	14.61	9.08	26.1	23.6	14.61	9.08
	N	27.4	24.25	18.75	6.34	28.64	25.84	18.75	6.34
March	F	33.0	29.60	22.50	6.40	31.60	28.50	22.50	6.40
	N	29.50	28.20	22.50	6.40	28.00	27.00	22.50	6.40

F—Full moon, N—New moon.

quantity of fry obtained was of *M. parsia*. The other species that could be collected during this period were, *P. sculptilis*, *P. monodon*, *P. stylifera*, Sciaenids and Polynemids.

The Matlah estuary is gradually silting and drying towards its western end and perhaps, therefore, the collections from Khaskumrakhali and Taldi were not rich.

The high tide at these places was for about half an hour and the current too feeble. At Haide, there is strong current during low tide and consequently the collections from here are comparatively better. The fry obtained from this centre was mostly of *M. persia*. The best collection centres in this region were Haide and Port Canning.

*Central Inland Fisheries
Research Institute,
Barrackpore.*

K. K. BHANOT

REFERENCES

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