A NOTE ON THE CULTURE OF CHANOS CHANOS (FORSKAL) AT BRACKISHWATER FISH FARM, KAKINADA

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India has about two million hectares of brackishwater areas consisting of mangroves, swamps and backwater sites. These areas are highly productive but most of them are lying unused. At present about 12,000 hectares are under brackish water fish culture. The traditional "Bheri" or "Bhashabhada" fish culture of Bengal and "Pokkali" fisheries of Kerala, yield anything from 200 to 250 kg/ha. of fish per annum which is unremunerative and the cultural practices are "wild" and "unscientific" (Jhingran, 1975). Because of the great productivity potential existing in brackish water areas, National Institutes are attaching greater importance to get optimum fish production from these areas so as to meet the protein requirement for rural masses. The present communication deals with scientific culture of *Chanos chanos* to get marketable fish within three months of cultivation.

An earthen pond of 2,000 sq. metres water with an average depth of 30 cm was selected. The pond was thoroughly netted out so as to eliminate all unwanted and predatory fishes and was limed at the rate of 250 kg/ha.

After a day the pond was manured with raw cattle dung and single superphosphate at the rate of 1,000 kg/ha and 250 kg/ha respectively (Fig. 1). The manure was applied in the form of solution which was spread evenly throughout the pond surface. Within two days the colour of the water changed to dark green, suggesting enhanced production of diatoms and desmids. A thick growth of benthic lab lab was also observed which is preferred food of *Chanos chanos*. On 16.8.79, 700 *Chanos chanos* finferlings (rate of stocking 3,500kg/ha) of average size of 49 mm and average weight of 6 gms were stocked (Fig.2). Artificial feeding was not given. But whenever primary

Fig. 1. Cattle dung land superphosphate used for manuring the pond.

Fig. 2. Milk fish fingerlings used for stocking the pond.

TABLE—1

physico-chemical parameters and primary productivity of the pond water.

Date	Temperature °C	Colour of Water	Salinity PPT	pH	Free CO_2 ppm/l	DO ppm/l	Alkalinity ppm/l	Primary production mg C/m^3/day
13.8.79	31.0	dark green	23.00	8.4	Nil	7.8	120.00	450.00
16.8.79	31.0	Bluish green	23.00	7.2	Nil	7.8	66.00	1,032.50
20.8.79	31.0	,,	23.00	7.2	Nil	6.8	65.00	1,032.50
28.8.79	31.0	,,	23.00	7.2	Nil	6.8	65.00	1,032.50
5.9.79	30.0	,,	21.20	7.2	Nil	7.8	65.00	1,032.50
12.9.79	30.0	,,	19.10	7.3	Nil	7.8	65.00	1,032.00
18.9.79	30.0	,,	16.50	7.3	Nil	7.8	67.00	1,032.00
24.9.79	30.0	,,	15.50	7.5	Nil	8.0	70.00	937.50
3.10.79	30.0	,,	14.50	8.2	Nil	6.0	110.00	600.00
10.10.79	30.00	green	16.50	8.3	Nil	5.8	120.00	450.00
16.10.79	30.0	bluish green	16.50	8.2	Nil	6.0	110.00	600.00
22.10.79	30.0	,,	16.50	7.5	Nil	8.0	80.00	937.50
23.10.79	30.0	,,	16.50	7.5	Nil	8.0	80.00	937.50
3.11.79	30.0	,,	16.50	7.5	Nil	6.0	115.00	600.00
9.11.79	30.0	,,	14.60	8.2	Nil	6.0	120.00	600.00
15.11.79	30.00	,,	15.60	8.2	Nil	6.0	120.00	600.00

productivity was found less, the pond was fertilized with single super-phosphate at 50 kg/ha. Three instalments of single super-phosphate at the above date were given in the period of 3 months. Water management was attended carefully during the culture period.

The environmental parameters such as temperature, pH, salinity, free carbondioxide, dissolved oxygen, and alkalinity were also observed weekly while recording the primary production and their values are presented in the table 1. Chemical analyses of the water were done as per the methods described by Welch (1961) and the primary productivity was calculated as described by Strickland & Parsons (1960).

Trial nettings were conducted once in a month to study the general health of the fish and their growth in terms of length was also recorded (Fig.3). When it was observed that the fish have attained marketable size they were finally harvested on 20-11-1979.

Fig. 3. Milk fish harvested from the culture pond.

During the culture period the temperature ranged between 30°C to 31°C, Dissolved Oxygen from 5.8 pp to 8 ppm, alkalinity from 65 to 120 ppm and salinity from 14.6 to 23%. Free carbondioxide was negligible during the entire period of observation.

The weekly observations revealed that primary productivity gradually fell down from 1,032.5 mg. C|m³|day to 450 mg. C|m³|day during 16.8.79 to 10.10.79. On 10.10.79 second dose of single super-phosphate at 50 kg/ha was therefore applied to enhance primary productivity. On 16.10.79 there was slight improvement in primary productivity to 600 mg C|m³| day when again another dose of manuring with single super-phosphate at 50 kg/ha was done- By 22.10.79 there was appreciable improvement in primary production to 937.5 mg C|m³| day. The trend continued upto 3-11-79 when there was fall in primary production to 600 mg C|m³| day. Hence 3-11-79 a slight dose of manuring with single superphosphate at 50 kg|ha was applied. The culture was continued and final harvesting was conducted on 20.11.79.

The average size of *C. chanos* as recorded was 224.75 mm at the end of the first month, 265 mm at the end of the second month and 324 mm at the end of the third month (Figs. 4 & 5).

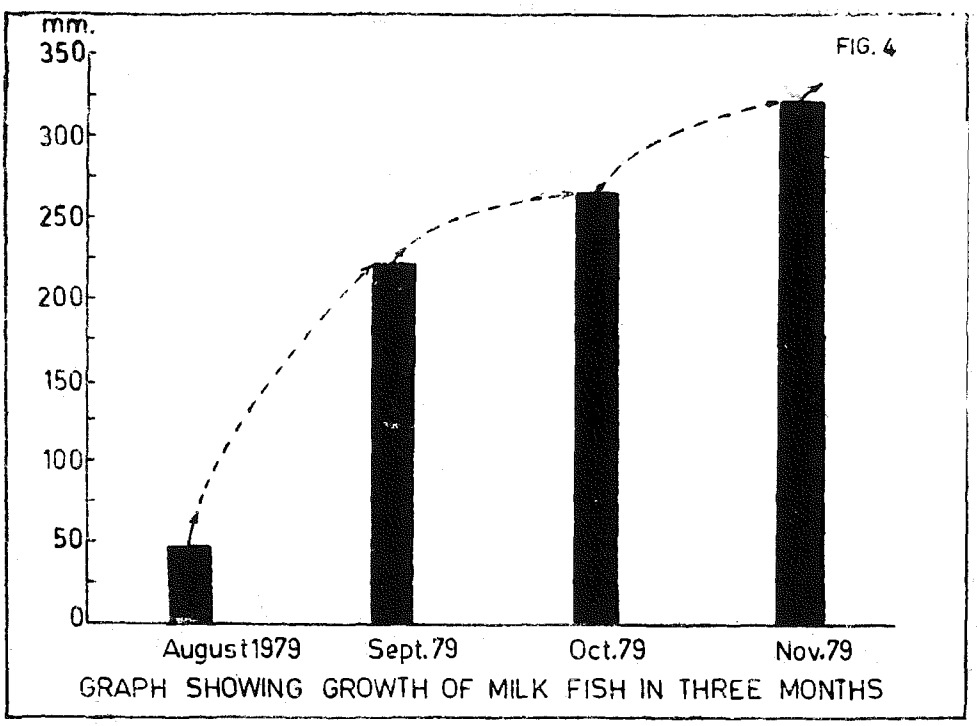
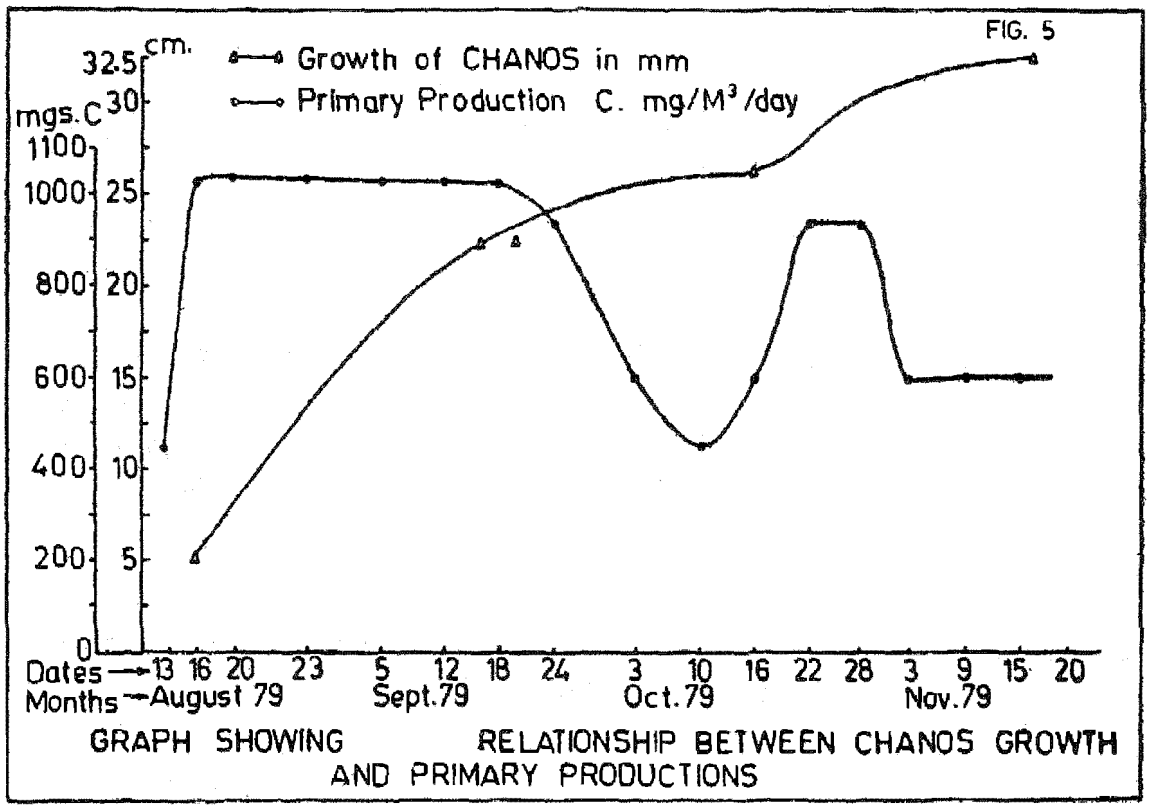


FIG. 4
GRAPH SHOWING GROWTH OF MILK FISH IN THREE MONTHS



Out of 700 fingerlings, stocked, a total of 682 *C. Chanos* were harvested and the survival was 97.43%.

The weight of the fingerlings stocked was 4.2 kgs and the weight of the harvested fish was 161.5 kgs. The gross production was 807.5 kg/ha. in 3 months.

The above observations suggest that by phased manuring coupled with proper water management to keep up enhanced primary productivity, milk fish attained marketable size in three months and four crops of milk fish can be harvested in a year. The experiment thus shows that, under monoculture, with low input technology, it is possible to produce 3000 kg. of chanos per hectare per year.

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