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Part Two

MARCH 1990



NATIONAL SYMPOSIUM ON RESEARCH AND DEVELOPMENT IN MARINE FISHERIES

MANDAPAM CAMP
16-18 September 1987

Papers Presented
Sessions III & IV

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
(Indian Council of Agricultural Research)
P. B. No. 2704, E. R. G. Road, Cochin-682 031, India

Central Marine Fisheries Research Institute
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CHANOS FRY RESOURCES OF INDIA

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ABSTRACT

Chanos fry occur along the south east coast of India in fairly large numbers during the months of March-June and October-November. Its abundance, distribution and seasonal variation are discussed. Conservation measures such as regulated fishing and mesh regulations are suggested. Causes for the decrease of Chanos fry abundance are also brought to focus. Measures to be taken to protect the fry resources are high-lighted.

INTRODUCTION

Occurrence and abundance of milkfish seed along the Indian coast was observed by Chacko and Mahadevan (1956), Tampi (1968), Silas *et al* (1980), Mohan (1984) and Mohanraj *et al* (1984). Though investigation on the chanos seed and its possible utilisation for culture started about 80 years back, the culture of milkfish has not become popular in India.

One of the main constraints for the development of chanos culture is the non-

availability of the seed to the farmers at the required period in required quantity. Lack of Infra-structural facilities for storing and transport are also the reasons for the unsatisfactory state of chanos culture in India. It has been recently observed that the seed abundance has declined in many areas along the Indian coast due to habitat degradation.

Seed Collection:

Ganapathi *et al* (1950); Chacko and Mahadevan (1956), Tampi (1957), Mohan

(1984) and Dorairaj *et al* (1984) dealt with collection of milkfish seed. 'Kondodi' net, a modified drag net along with a scare-line was used for collecting fingerlings. The mesh size of the net was 15 mm. Fingerlings were collected during the early mornings before the sun rise. The catches declined with the sun rise and the subsequent increase in water temperature. The favourable period of collection was 0530-0730 hrs. At Rameswaram Island, near the Pamban sea shore, large pools were made during the low tide. The milkfish fry that came along with the tide got stranded in the tidal pools and collected by velon screen or cotton cloth when the tide receded.

Areas of occurrence:

Along the south east coast of India the seed of milkfish occur in large quantities from Manouli island, Rameswaram island (Pamban, Chinnapalam creek etc.), Pillaimadam lagoon, Panaikulam, Vaalinokam, backwaters of Vedaranyam, Pulicat lake etc. Apart from these areas the milk fish seed was reported along the west coast from Cochin backwaters, Calicut and Elathur (Mohan, 1984; Lazarus and Nandakumaran, 1987) But their abundance is not appreciable.

Tampi (1959) estimated that 400-600 million chanos fry occur in Peninsular India, but the present estimate is considered to be about 200-250 millions based on the observations along east and west coast.

Seasons of abundance

Milk fish seed occur in south east coast of India during two periods (Evangeline, 1967). The primary season was found to be from March-June and the secondary season from November-December in south east coast. During the primary season the catch per haul was as high as 1200 fingerlings in the Pillaimadam lagoon when a net of 20 meter long dragged for 30 minutes covering 200 meters. Maximum number of seed measuring 20-30 mm were collected during the first week of April from Manouli island, Rameswaram island and Pillaimadam lagoon. During the secondary season the fingerlings were collected from Panaikulam creek near Mandapam during

second week of November. About 2000 seed were only collected in 1982. A few fingerlings were obtained from manouli island also. Along the west coast of India, in Calicut the fingerlings measuring 40-60 mm occurred during July August. About 1000 fingerlings per day could be collected for about 10 days during the first week of August in 1972. Secondary season was not observed in the west coast.

Size range of the seed

Length range of the seed vary according to the period of collection. The needle shaped fry measuring 10-15 mm were collected from Manouli island, Rameswaram island and Pillaimadam lagoon during March. Feeding on the abundant growth of algae found in the area, the seed grow fast attaining a length of 20-40 mm, 40-80 mm and 80-110 mm in April, May and June respectively. After July the fingerlings of length more than 120mm were only collected and at this size range the fishes were observed to migrate towards the sea.

During the secondary season fingerlings of length 40-60 mm occurred during October in the Panaikulam creek near Mandapam.

Along the west coast, fry of length 30-40mm occurred at Calicut coast during July and the fingerlings of length 50-80 mm were collected in August.

Remark

Collection and marketing of chanos seed in south east coast is under the control of Department of Fisheries Tamilnadu, Pamban. The fry is collected from the tidal pools of Pamban sea shore kept in Aluminium containers with perforated lids and transported.

Due to the habitat degradation the abundance of milk fish seed has declined considerably along the Pamban coast which was once valued as the most productive area for the seed. The Chinnappalam creek of Rameswaram island which was also one of the important seed collection centres before 4 to 5 decades is no more a collection centre. The creek, though retains its mangroove vegetation, has silted with heavy organic debris. Further in such areas as Pillaimadam lagoon, the seed

are caught in large quantities and dried. Large drag nets with 8-10 mm mesh were used. Nearly 20 fishermen operate each net.

It was observed that the average number of milk fish seed collected from Ramnad and Tinneveli coast during 1950-55 was 26.4 million and it has come down to 0.62 million in 1957-1960, (Tampi, 1968) indicating the decrease in the abundance of seed in the traditional seed collection grounds.

The estimate of abundance of milk fish seed in Mandapam-Rameswaram area is as follows:

Rameswaram island	:	3.0 million
Manouli island	:	1.5 "
Pillaimadam lagoon	:	3.0 "
Sethukarai	:	0.1 "
Panaikulam	:	0.1 "
		7.7 "

With further degradation of the ecology of the habitat, the milk fish seed resource may decline more.

It is important to protect and preserve the traditional chanos seed nursery grounds. The areas should be identified and safe-guarded from human interference and pollution. Fishing should not be allowed in the nursery grounds of Paik Bay and Gulf of Mannar during March-May, the period of peak occurrence of seed. A comprehensive time bound survey should be conducted to study abundance of milk fish resources of India. This study should cover the ecology of the milk fish seed grounds, potential agencies contributing the degradation of the ecology of grounds and other man made causes. A general awareness should be created among the fishermen and the local population that the chanos seed resource is dwindling and proper care should be taken to safe-guard its habitat. Short-term training programme can be arranged for the prospective chanos fish farmers on the scientific handling of the chanos seed. Training should include better mode of collection, transport and stocking procedures. There is good prospects of

culturing chanos along the Kerala coast from June onwards during monsoon depending on the seed collected from the south east coast. The main problem of chanos culture in east coast is the summer months which succeed the chanos seed season. Many of the brackish water areas dry during summer months. Chanos can withstand transport for more than 12 hrs. (Ranganathan and Ganapathi, 1949; Dorairaj *et al.*, 1984; Lazarus & Nandakumaran, 1987). Hence the seed can be transported from south east coast to south west coast of India utilising the monsoon months.

REFERENCES

- CHACKO, P. I. AND S. MAHADEVAN, 1956. Collection and culture of *Chanos chanos* (Forsk.) in and around Krusadi island and Rameswaram island, with note on its biology. *Madras Fish. Stn. Rep. and yearbk.* 1954-55:145-154.
- DORAIRAJ, K., G. MOHANRAJ, V. GANDHI, A. RAJU, V. S. RANGASAMY AND J. XAVIER RODIRGO, 1984. On a potentially rich milkfish seed collection ground near Mandapam along with methods of collection and transportation. *Indian J. Fish.* 31 (2) : 257-271.
- EVANGELINE, G. 1967. Chanos culture at the brackish water fish farm Adayar. *Madras J. Fish.*, 3 : 68-115.
- GANAPATHI, S. V., P. I. CHACKO, R. SRINIVASA AND B. KRISHNAMOORTHY. 1950. On the acclimatisation, transport and culture of some salt water fishes in inland waters of Madras State. *Indian Geogr. Jour.*, 25 (3) : 1-5.
- LAZARUS, S. AND K. NANDAKUMARAN, 1987. Feasibility of Mariculture in the polyethylene filmlined pond. *Fishing chimes*. Feb. 1987 : 17-33.
- MOHAN, R. S. LAL, 1983. Milkfish culture in net enclosures in the Pillaimadam lagoon, near Mandapam, Tamilnadu. *Proc. Natl. Seminar Cage Pen Culture*, Tuticorin 135-141.

- MOHAN R. S. LAL, 1984. Some hydrological characteristics of the surf region of West Hill, Calicut. *Indian J. Fish.*, 31 (3) : 362-365.
- SILAS, E. G., G. MOHANRAJ, V. GANDHI AND A. R. THIRUNAVUKARASU, 1980. Spawning grounds of milkfish and seasonal abundance of fry along east coast of India. *Proc. Symp. Coastal Aquaculture, Cochin 1* : 130-136.
- RENGANATHAN, V. AND S. V. GANAPATHI, 1949. Collection, acclimatisation and transport of fry and fingerlings of *Chanos chanos* (Forsk.), *Indian farming* 10 (9) : 364-374.
- TAMPI, P. R. S., 1957. Some observations on the reproduction of the milk fish *Chanos chanos* (Forsk.) *Proc. Indian Acad. Sci. (B)*, 46 (4) : 254-273.
- TAMPI, P. R. S. 1959. The ecological and fishery characters of a salt water lagoon near Mandapam. *J. Mar. Biol. Ass. India* 1 (2) : 113-130.
- TAMPI, P. R. S. 1968. Culturable marine fry resources from brackish water environment. *Proc. Symp. living Resour. of the seas around India*, 390-397. CMFRI, Cochin.