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PROVEN TECHNOLOGY

5. TECHNOLOGY OF EDIBLE OYSTER CULTURE*

Highlights: Oysters are cultured by the Central Marine Fisheries Research Institute at Tuticorin by rack and tray method. The spat of the edible oyster *Crassostrea madrasensis* are collected using lime-coated semi-cylindrical country tiles and other suitable spat collectors and when the spat grow to a size of about 25 mm, they are scraped, reared in cages and, after a period of further growth, grown in trays kept over racks erected in coastal waters. The oyster reaches a harvestable size of 80–90 mm, weighing 100–120 g shell-on, in about a year. Regular shaped oysters are produced in the farm by this method.

Operational details: The site for oyster farm is selected based on the following criteria: The area must be protected by nature against violent wind and wave action and a natural population of oysters must be present nearby in sufficient numbers to ensure adequate spatfall. There should be tidal flow and salinity range must be between 25 ppt and 37 ppt. The water must contain abundant phytoplankton suitable as food for oysters and larvae.

Fig. 1. Edible oyster farm of CMFRI at Tuticorin showing the rack-and-tray method of culture.

The oyster spawns during two seasons, namely March-April and August-September in Tuticorin area. After a free swimming life of about three weeks, the larvae settle on a hard substratum and become spat. Oyster spat are collected on a large scale using lime - coated tiles. The tiles are given double coating of lime and sand, dried in shade and are kept in trays placed over racks set up in the neighbourhood of breeding oysters during the spawning season in shallow coastal waters, bays or creeks. Spat are also collected on other materials such as oyster shells strung on rope and asbestos sheets. On the spat growing to a size of 25 to 30 mm they are removed from the spat collectors using a chisel and reared in cages of 40 × 40 × 10 cm size, stocking at a density of 300–350 spat per cage. After two or three months, the oysterlings are transferred to rectangular trays of 90 × 60 × 15 cm for further growth. About 250 oysterlings are put in each tray and the trays are kept tied on racks erected in interdidal zone. Each rack measures 24 × 12.5 m and is constructed by fixing six teakwood or casuarina poles 2.5 m in height in two rows 2 m apart. The two rows of vertical poles are connected by horizontal poles and a platform-like structure is provided for the culture trays to be kept. Farm maintenance is carried out regularly and pests and predators are eliminated. The oysters grow fast and attain average size of 80–90 mm weighing 100–120 g with meat forming 8–10% at the end of the year. The harvested oysters are purified with filtered sea water treated earlier with chlorine in 3 ppm strength.

Production: From the culture operations in a three year period in 0.25 ha area the estimated production of oyster would be 125 tonnes with a meat yield of 10 tonnes. At the end of each year approximately 42 tonnes of oyster could be harvested. Apart from the meat, the oyster shells fetch a substantial return as by-product since they are used in the manufacture of calcium carbide and cement.

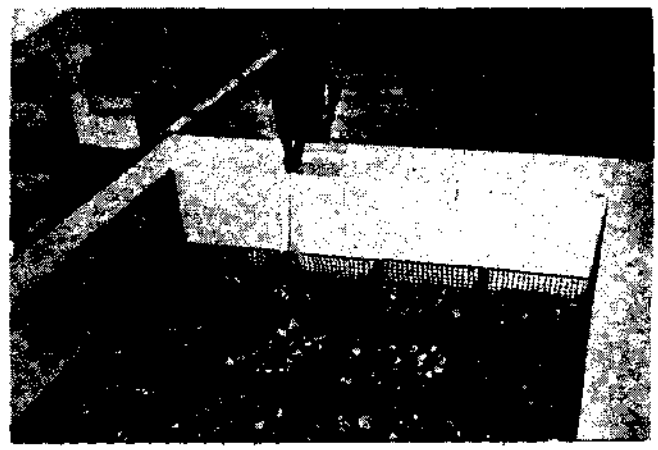

Fig.2. Depuration of oysters.

Inventory and cost: The materials involved in oyster culture such as racks, dinghy, iron cages, trays and other farm accessories can be used for three

years. For a three year project the expenditure would be as follows: capital cost of materials Rs.96,000, contingent expenses for seed collection Rs.10,000 and wages Rs.35,000. Total estimated cost would be Rs.1,41,000. The estimated cost of production determined based on current cost of materials is Rs.15/- per kg of oyster meat.

Prospects: There are good prospects for culturing edible oyster *Crassostrea madrasensis* adopting the method described above in the large stretches of shallow coastal waters, creeks, and bays. The high rate of spatfall, the fast growth of oysters and its nutritional value makes *C.madrasensis* an ideal species for farming which could step up production substantially. The Sonapore backwaters, Pulicat lake, Killai backwaters, Tuticorin bay, Punnakayal estuary, some of the backwaters in Kerala and low lying areas adjoining some of the estuaries of Karnataka are suitable for oyster culture. The edible oyster has at present a limited domestic market potential in metropolitan cities and this should be enlarged. Processed oyster meat has an export potential.

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*Prepared by Molluscan Fisheries Division

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