

D-14: Feasibility study of oyster culturing in the Batticaloa lagoon

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Fisheries is an important sector in the Batticaloa district with its, lagoons, coastal area and inland water bodies. There has been very little attempts made to utilize the non-traditional resources both in the lagoon and the sea. Encouraging this aspect will contribute towards the sustainable use of the natural resources. One such under utilised resource of the lagoon are the edible oysters. A study was conducted of the present status of edible oyster exploitation and a feasibility study of culturing oysters. No previous studies have been done in this regard in the Batticaloa lagoon.

In the preliminary study a survey was conducted at 15 sites in the Batticaloa lagoon to find out about the present status of prevalence of edible oyster species. Based on this study a suitable site was selected for the trial culture in the subtidal zone. Three types of locally available culture material was used: coconut shells, empty oyster shells and bamboo poles. The coconut and oyster shells (n=8) were strung on a rope at 15 cm intervals. Seven such strings were suspended from wooden pole frames at 30 cm intervals in each row. The bamboo poles were planted at 30 cm intervals in the lagoon substratum. The rows of culture materials were alternated. The study was conducted from September 1993 to December 1994. Abiotic factors (salinity, pH, dissolved oxygen, depth, temperature), number of spat attachment and length of shells were recorded at weekly intervals.

The preliminary survey showed that the prevalence of oysters is limited only to a high salinity area stretching from Koddamunai to the bar mouth of the Batticaloa lagoon. Two species were identified: *Saccostrea cuculata*, *Crassostrea madrasensis*. Empty shells indicating recent destructions of oyster species were found at Kallar and Valayaravu. Changes in salinity was attributed to this. Further exploration is needed in this regard. The site selected for the trial culture, was at Koddamunai. Salinity at the site increased above 15 ppt from April 1994. This could be related to the rainfall pattern. Water temperature was maximum in April/May. Spat attachment started to occur in June 1994. Two peaks of spat attachment was observed: May/June and October/November. Mortality was high in December due to low salinity. Out of the 3 types of culture materials used coconut shells yielded the highest number of spat at the rate of 1.81 per shell followed by 0.35 per oyster shell and 0.14 per bamboo pole ($F_2, p=0.048$). Average growth rate was highest on August 1.94 cm declining in September to 0.4 cm. Barnacle in the earlier stage and *Mytilus* spp were the main fouling organisms on the culture material.

The survey showed the destruction of edible oysters from some sites. The trials demonstrate that oyster culturing could be conducted in the Batticaloa lagoon successfully. The best yielding available culture material is the coconut shell. Trials could be laid in the months of March/April and July/August, 2 months prior to the peak spat fall.

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