

## Oyster farm management advisory: spacing between farms

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The edible oyster *Crassostrea madrasensis* commonly known as the backwater oyster is farmed in the estuarine regions of Kerala by setting up wooden rack farms from which rens are suspended. Proximity to the homesteads is one of the reasons for this technology to become popular among women self help groups. The farming season is from November/December to June, but may extend to July also depending on the onset of monsoon. At present, the farm structures are near to the shore line in a linear manner, providing space for navigation in the inner part of the estuarine channels. Initially when commercial farming started in Sattar Island in the year 2002, there were only few farms, hence, spacing of farms was not a problem. Recently due to development in oyster market, more villagers have adopted oyster farming and sometimes the farms are spaced closely. Environmental impact studies with special reference to sediment texture and organic carbon were carried out. Accordingly management advisory is put forth based on sediment characteristics for sustained development of oyster farming and for reducing impacts on benthos.

Top sediment samples upto 5 cm depth were collected using a PVC corer from two farms (Farm 1 and Farm 2) stocked with edible oyster and from two locations outside the farm; one from the channel side and the other from the inter space between Farm 1 and Farm 2 for environmental impact assessment (EIA) studies. The space between farms was 2 m. Soil texture (percentage sand, silt and clay) was analysed by the International pipette method and percentage organic carbon by the Walkely and Black method.

The inter-space between Farm 1 and Farm 2 was found to be impacted by oyster farming. The sediment from this site showed 20% increase in silt than that of Farm 1 and 15% increase in silt than that of Farm 2 (Fig.1). However, in the sediment from the channel site there was no significant difference.

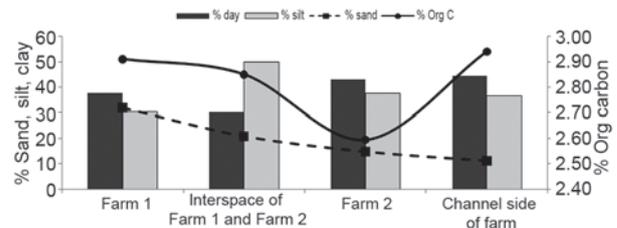


Fig. 1. Soil texture and organic carbon in the top sediment of oyster farms and impact sites

It is inferred that when the farms are very close, the inter space between the two farms is impacted by both the farms. When oyster rens are suspended from the racks, the fecal and pseudofecal matter fall from the column to the sediment with the tidal water flow. From the rens bordering the farm, the fecal matter can fall outside the farm also due to tidal flow. If farms are closely spaced, the water flow will be reduced and this can increase sedimentation rates within the farm and in the inter space region. Also, when the spacing is less, the inter space will be impacted by both the farms and this can change soil texture. In the channel area, percentage of silt is similar to the farm area since there is no obstruction. Even though there is slight increase in organic carbon in the inter space region from that of Farm 2, it was less than that of Farm 1. There was no significant change recorded in the organic carbon levels.

Since the benthic faunal assemblages can change depending on the sediment texture and organic carbon, it is recommended that the interspacing between two oyster farms should be made mandatory and can be kept at a minimum of 10 m. Sediment changes can lead to variation in benthic biota which can cause imbalance in the food web. Hence, scientific advisories which can reduce the negative impacts of mariculture are essential for sustained farming.