Current Science Reports

Mariculture in India

Suitable sites in Gujarat

Mariculture, cultivating organisms in the open sea using cages or tanks, is popular given the increasing demand for seafood. The estimated marine production capacity in India is 4–8 million tonnes. But current production is negligible.

To identify the best locations, many constraints need to be considered. Wind, waves, currents and tides determine suitability. Mariculture should also not clash with traditional fishing, maritime traffic and offshore pipelines. It is in such situations that geographic information-based multi-criteria tools can be of help.

Recently, researchers from the ICAR-CMFRI and the K. L. University, Guntur developed a geographic information system-based decision support model and a spatial framework for selecting cage farm sites in the offshore waters at Gujarat.

They divided the coast, based on landforms and oceanography. Then came the laborious process of collecting data on suitability parameters, including remote sensing data from oceanographic parameters and secondary data from scientific literature. The team double-checked secondary data with *in situ* data. Social and infrastructural data were collected with a field survey and from national marine fisheries census data.

The researchers input the data into the model builder in ArcGIS, a geographic information system that generates site suitability maps, by eliminating constraint areas.

More than a fourth of the 24,000 square kilometres of open sea in the territorial waters of Gujarat has suitable sites and another fourth is moderately suitable.

'The most potential sites are along the Saurashtra region. The Gulf of Khambhat has the least,' says D. N. Divu, CMFRI.

'Structural stability levels for the culture system, topographic and socio-infrastructural unsuitability are major hurdles,' says A. Gopalakrishnan, CMFRI.

The method can now be used to find suitable mariculture areas in other coastal regions. Cooperative mariculture can reduce risk for fishers, lifting millions in coastal regions from poverty. And it can make Indian fisheries sustainable.

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