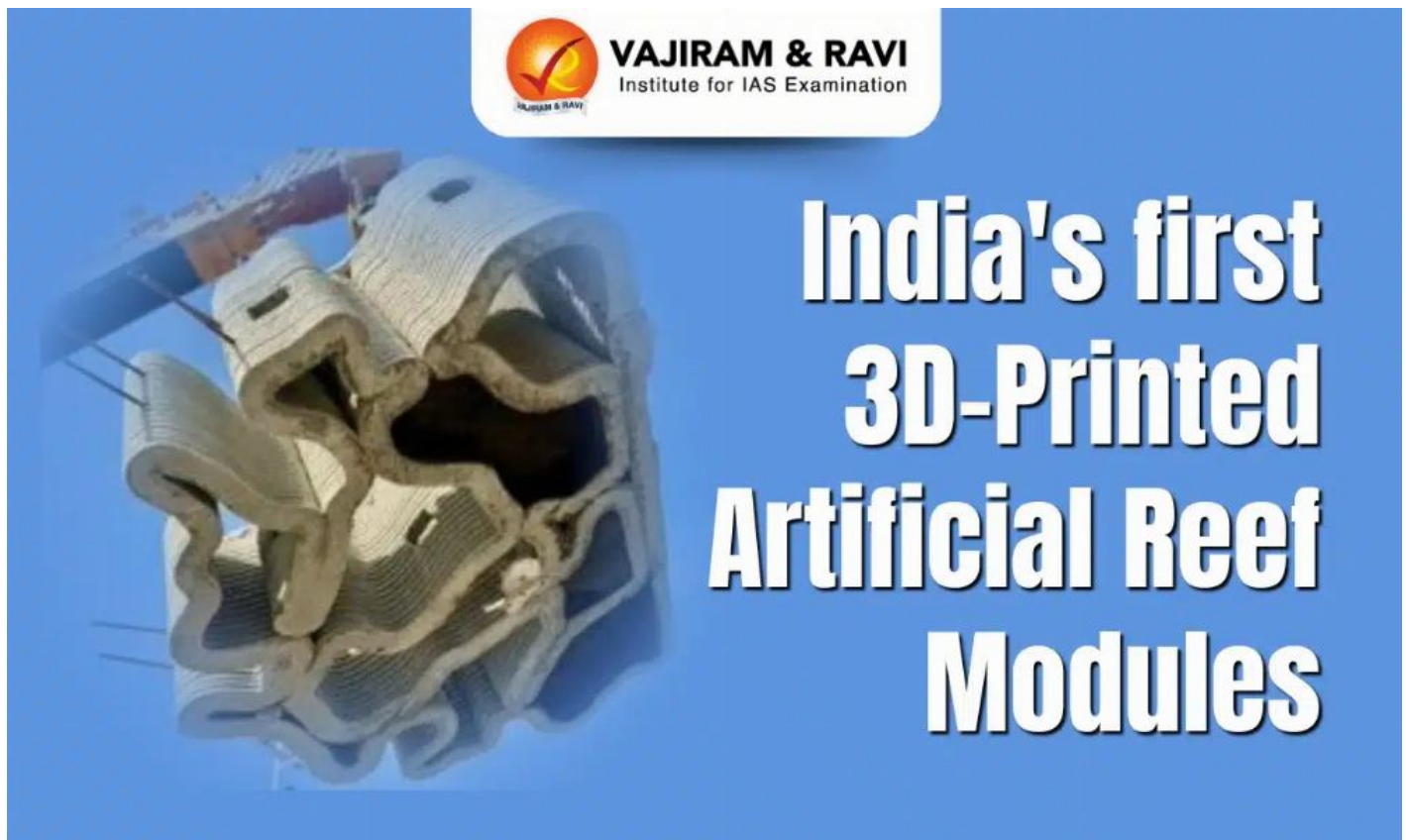


India's first 3D-Printed Artificial Reef Modules

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India's first 3D-Printed Artificial Reef Modules Latest News

Tamil Nadu is set to deploy India's first 3D-printed artificial reef modules in coastal waters as part of an ambitious marine habitat restoration initiative under the second phase of the Pradhan Mantri Matsya Sampada Yojana.

About India's first 3D-Printed Artificial Reef Modules

- It is to be deployed by **Tamil Nadu in coastal waters** off the Ramanathapuram coast.
- It is part of an ambitious **marine habitat restoration initiative** under the **second phase** of the **Pradhan Mantri Matsya Sampada Yojana**.
- It will serve as a pilot to assess the performance of **six newly developed reef designs** created through **advanced 3D-printing technology**.
- The **modules, each weighing about 1 tonne**, were **developed by Chennai-based startup Tvasta, an IIT Madras-incubated company**, in **collaboration with Visakhapatnam Regional Centre of the ICAR-Central Marine Fisheries Research Institute**.
- These modules will be deployed about two nautical miles offshore.

India's first 3D-Printed Artificial Reef Modules Features

- Unlike conventional artificial reefs made from reinforced concrete structures, the new modules feature **complex geometries with multiple crevices, folds and attachment surfaces** designed to enhance biodiversity.
- They are manufactured **without iron reinforcement** and incorporate material innovations aimed at **increasing porosity and creating substrates more suitable for marine organisms**, including corals, sponges and other reef-associated fauna.
- They allow **greater structural complexity, higher surface area, and species-specific habitat design**.
- The technology offers significant advantages over traditional reef modules, including **faster fabrication, reduced labour** requirements and **flexibility** to alter material composition according to site-specific ecological needs.

News: NIE

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