

## Samudrayaan Mission

*Prelims: Current events of national and international importance*

### Why in news?

Recently the National Institute of Ocean Technology (NIOT) announced that, Samudrayaan, mission which is slated for launch by the end of 2026.

- **Samudrayaan** - It is the India's first **manned ocean mission** using self-propelled manned submersible Matsya-6000 to a depth of 6,000 meters.
- The mission is part of India's **Deep Ocean Mission**, a flagship initiative to explore and harness deep-sea resources.
- **Implementation** - It is implemented by the **National Institute of Ocean Technology (NIOT), Chennai**, under the **Ministry of Earth Sciences (MoES)**.
- **Key Objectives** - To explore India's **Exclusive Economic Zone (EEZ) and continental shelf** for:
  - Polymetallic nodules
  - Gas hydrates
  - Cobalt-rich ferromanganese crusts
  - Deep-sea biodiversity
- To strengthen India's presence in the **blue economy** and oceanic research.
- To develop a **manned submersible** capable of diving to a depth of 6,000 meters.

### Matsya-6000

- It is the **indigenously developed submersible** that is a specialized underwater vehicle designed to explore and conduct research in the deepest parts of the ocean.
- It is named after the fish incarnation of Lord Vishnu—**Matsya**.
- It is designed to carry **3 humans** to a depth of **6,000 meters (6 km)**.
- It is made of **Titanium alloy** to withstand the extreme pressures (up to 720 bar) encountered at 6,000 m depth.
- **Developed by** - ISRO
- **Operational endurance:**
  - **12 hours** of continuous mission capability
  - **96 hours** emergency survival capacity
  - **Buoyancy and Ballast systems** for submergence and resurfacing.
- **Key features:**
  - Manoeuvring propellers for navigation.
  - Power and control systems with onboard battery storage.
  - Subsea intervention manipulators for sample collection.
  - Communication systems by Ethernet and acoustic communication.
  - Navigation and positioning devices.

- Safety systems for emergency support.
- **Strategic Importance** - It enhances India's ***technological self-reliance*** in marine exploration.
- It supports India's commitment to sustainable ocean resource use.
- It strengthens India's capabilities in,
  - Resource extraction
  - Scientific research
  - Environmental conservation

## Reference

[India Today| Samudrayaan Mission](#)

