

# Deep-Sea mission

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## Why in news?

The Deep Ocean Mission is to be launched by the Ministry of Earth Sciences with a corpus of ₹ 10000 crore and to explore the deep ocean.

## What's the mission?

- The mission will focus on deep-sea mining, ocean climate change advisory services, underwater vehicles and underwater robotics related technologies.
- Studying climate change, marine biodiversity and survey for compounds like hydrocarbons and minerals are part of the deep ocean mission.
- This mission includes a desalination plant powered by tidal energy and a submersible vehicle capable of exploring depths of at least 6,000 metres whereas submarines can reach only about 200 metres.



- This mission will enable India to exploit the resources of the Central Indian Ocean Basin (CIOB).
- India has been allocated 75,000 square kilometers in the CIOB by the United Nations International SeaBed Authority for the exploration of poly-metallic nodules.
- Now ISRO has successfully developed a design for its crew module, a sphere shaped capsule.
- A three-member crew can be accommodated in the sphere, one of the key components of the manned submersible vehicle.
- NIOT is tasked with aspects like electronics and navigation for the manned submersible.
- Multiple agencies, including the Goa based National Centre for Polar and Ocean Research, Centre for Marine

Living Resources and Ecology at Kochi and Indian National Centre for Ocean Information Services (Hyderabad) are involved in the initiatives.

### **Polymetallic nodules**

- Polymetallic nodules (manganese nodules) are potato-shaped, largely porous nodules found in abundance of deep sea rugs on the seafloor of world oceans.
- They are composed of manganese and iron, nickel, copper, cobalt, lead, molybdenum, cadmium, vanadium, titanium, of which nickel, cobalt and copper are considered to be of economic and strategic importance.
- This will help India meet India's energy requirements for the next 100 years.
- It has been estimated that 380 million metric tons of polymetallic nodules are available at the bottom of the Central Indian Ocean.