# Deep Sea Mining

## Why in news?

The International Seabed Authority (ISA) is preparing to resume negotiations that could open the international seabed for mining, including for materials critical for the green energy transition.

## What is Deep Sea Mining?

- Deep sea mining involves removing mineral deposits and metals from the ocean's seabed.
- **Types -** There are 3 types of such mining:
    1. Taking deposit-rich polymetallic nodules off the ocean floor
    2. Mining massive seafloor sulphide deposits
    3. Stripping cobalt crusts from rock
- These nodules, deposits and crusts contain materials, such as nickel, rare earths, cobalt and more.
- **Significance -** These minerals are needed for batteries and other materials used in tapping renewable energy and also for everyday technology like mobiles and computers.
- These are strategically important resources as onshore reserves are depleted and demand continues to rise.
- **Mining technology -** Engineering and technology used for deep sea mining are still evolving.
- Vacuum materials from seafloor using massive pumps, AI-based technology to teach deep sea robots to pluck nodules off the floor, advanced machinery to mine underwater, etc. are being considered.

## How is deep sea mining regulated now?

- The high seas and the international ocean floor are governed by the United Nations Convention on the Law of the Seas (UNCLOS).
- It is considered to apply to states disregard of signing and ratification.
- Under the treaty, the seabed and its mineral resources are considered the ***'common heritage of mankind'***.
- They must be managed in a way that protects the interests of humanity through the sharing of economic benefits, support for marine scientific research, and protecting marine environments.
- **License -** More than 30 exploration licenses have been issued so far by ISA.
- The Clarion-Clipperton Fracture Zone between Hawaii and Mexico is the most focused area of exploration.

## Why is there pressure on the ISA to establish regulations now?

- In 2021 the Pacific island nation of Nauru applied to the ISA to exploit minerals in a specified deep sea area that triggered a clause of the U.N. treaty.
- **Two-year rule -** The clause requires the ISA to complete regulations governing deep sea exploitation by July 2023 (2 years from date of application).
- If ISA fails to approve a set of rules and regulations by July 9, Nauru can submit an application to conduct the mining without any governing regulations.
- Other countries and private companies can start applying for provisional licenses.

## What are the environmental concerns?

- The full extent of implications for deep sea ecosystems is unclear, as only a small part of the deep seabed has been explored.
- But scientists have warned that biodiversity loss due to mining is inevitable and potentially irreversible.
- **Damage from mining -** Can include noise, vibration and light pollution.
- There is a possibility for leaks and spills of fuels and other chemicals used in the mining process.
- **Sediment plumes** from the some mining processes are a major concern as it can harm filter feeding species like corals and sponges.
- **Need for regulation -** Without any environmental protocols, the damages and their implications might be huge.
- Countries including France, Germany and several Pacific Island nations have officially called for a ban, pause or moratorium on deep sea mining at least until environmental safeguards are in place.
- **Against -** Some companies such as Google, Samsung, BMW and others have backed the WWF's call to pledge to avoid using deep sea mined minerals.
- **For -** Many countries view deep sea minerals as a strategic source to energy transition.
- Countries such as Norway, are also proposing to open their waters to mining.

## What is next?

- The earliest that mining under ISA regulations could begin is 2026.
- Applications for mining must be considered and environmental impact assessments need to be carried out.
- The ISA's *Legal and Technical Commission* oversees the development of deep sea mining regulations.
- The Commission is about to meet in early July to discuss the yet-to-be mining code draft.
- **Related Topic -** *Deep Ocean Mission*

## Quick Facts

### International Seabed Authority

- An autonomous UN body established in 1994 under the 1982 United Nations

Convention on the Law of the Sea (UNCLOS)

- International Seabed Authority (ISA) regulates the world's ocean floor and control all mineral-resources-related activities in the area
- **Headquarters -** Kingston, Jamaica
- **Members -** 168 Members which includes 167 Member States and the European Union

## United Nations Convention on the Law of the Sea

- UNCLOS is an international agreement adopted in 1982.
- It lays down a comprehensive law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources.
- India ratified UNCLOS in 1995.

## The Clarion-Clipperton Zone (CCZ)

- It spans between Hawaii and Mexico, an abyssal plain as wide as the continental United States and punctuated by seamounts.
- Lying atop the muddy bottom or embedded just beneath it are trillions of potato-size polymetallic nodules.
- These rocklike deposits contain nickel, manganese, copper, zinc, cobalt, and other minerals.

### References


1. The Indian Express – Deep sea mining permits may be coming soon
2. The Financial Express – Nations rush to get licenses; mine for rare metals



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