



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 regardless 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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