

4. Protected Marine Areas Not Part of Offshore Blocks- Environment

The Ministry of Earth Sciences (MoES) informed Parliament that offshore mining blocks were identified only after excluding all Marine Protected Areas and key biodiversity zones

Background and Context

The Union government's proposal to auction 13 offshore mining blocks has triggered significant public and political debate. These blocks include

1. Sand mining off the coast of Kerala
2. Lime mud deposits off Gujarat
3. Polymetallic nodules near Great Nicobar

Strong opposition has emerged, particularly from fishing communities in Kerala, supported by a resolution of the State Legislative Assembly.

Key concerns raised include

1. Threats to marine biodiversity and fish breeding grounds
2. Damage to coastal ecosystems and nearshore sediment dynamics
3. Loss of livelihoods for traditional fishing communities

The Union government has clarified that actual mining operations can proceed only after detailed Environmental Management Plans (EMPs) and statutory clearances.

Offshore Mining

Offshore mining refers to the extraction of mineral resources from the seabed, generally at depths exceeding 200 metres, beyond the continental shelf. It involves recovery of Polymetallic nodules Rich in manganese oxides and iron oxy-hydroxides Act as hosts for economically valuable metals such as nickel, cobalt, copper, titanium, and rare earth elements (REEs)

Mining process characteristics- Nodules are collected using seabed crawlers or suction systems. Extracted material is sorted onboard vessels. Unwanted sediments are often discharged back into the sea, raising concerns about turbidity plumes and ecosystem disturbance.

Marine Protected Areas (MPAs)

Marine Protected Areas (MPAs) are ocean regions legally designated for the long-term conservation of marine ecosystems. Core objectives include-

1. Protection of critical habitats such as coral reefs, mangroves, and seagrass meadows
2. Conservation of marine biodiversity and endangered species
3. Sustaining ecosystem services such as fisheries, coastal protection, and carbon sequestration

Regulatory features

1. Certain extractive activities may be restricted or prohibited.
2. Many MPAs permit regulated fishing, scientific research, or eco-tourism under strict conditions.

Offshore mining near or within MPAs raises complex legal and ethical issues due to potential conflicts between conservation mandates and resource extraction.

Offshore Mining in India- Strategic Rationale

Offshore mining is part of India's broader effort to harness ocean resources for-

1. Minerals
2. Energy
3. Strategic materials

Key objectives-

1. Extraction of seabed minerals, hydrocarbons, and construction sand to support industrial growth.
2. Reduction of import dependence, especially for critical and rare earth minerals.

It is positioned as a pillar of India's Blue Economy, contributing to-

1. Energy security
1. Infrastructure development

2. Technological and scientific advancement

With global competition intensifying for REEs and battery minerals, offshore mining is seen as enhancing India's strategic autonomy and self-reliance in clean energy, electronics, and defence sectors.

Issues and Challenges

Environmental Concerns

1. Physical disturbance of the seabed can destroy benthic habitats.
2. Sediment plumes may affect photosynthesis, coral health, and fish spawning grounds.
3. Long-term ecological impacts remain poorly understood due to limited baseline data.

Livelihood and Social Impacts

1. Fishing communities fear depletion of fish stocks and restricted access to traditional fishing zones.
2. Risk of displacement and loss of income, especially for small-scale and artisanal fishers.

Governance and Regulatory Complexity

1. Overlap between mining zones, MPAs, and coastal regulation frameworks.
2. Weak coordination between central authorities and coastal states can intensify Centre–State tensions.
3. Enforcement and monitoring challenges in deep-sea environments.

Scientific Uncertainty

1. Deep-sea ecosystems are among the least studied on Earth.
2. Irreversible damage may occur before impacts are fully understood.

Government Initiatives and Safeguards

Deep Ocean Mission

1. A flagship programme to explore, map, and sustainably harness ocean resources.
2. Emphasises scientific research, technology development, and environmental sustainability.

Samudrayaan Project

1. A component of the Deep Ocean Mission.
2. Features India's first indigenous manned submersible MATSYA 6000, capable of operating at depths of 6,000 metres.
3. Aims to study deep-sea biodiversity and mineral resources firsthand.

Regulatory Safeguards

Rule 5(2), Offshore Areas Operating Right Rules, 2024– Mandates prior consultation with relevant stakeholder Ministries and Departments before notifying offshore areas for mining.

Rule 10(5) and Rule 18(3), Offshore Areas Mineral (Auction) Rules, 2024– Require successful bidders to obtain all statutory clearances, including environmental approvals, before exploration or production.

Section 16A, Offshore Areas Mineral (Development and Regulation) Act, 2002– Provides for the establishment of the Offshore Areas Mineral Trust as a non-profit autonomous body. Coastal States are included as members of both the Governing Body and Executive Committee, strengthening cooperative federalism.

Conclusion and Way Forward

Offshore mining presents a dual-edged prospect for India.

1. On one hand, it offers opportunities for energy security, industrial growth, and strategic mineral access.
2. On the other, it poses serious risks to fragile marine ecosystems and coastal livelihoods if poorly regulated.

The way forward requires

1. Robust environmental impact assessments grounded in scientific evidence.
2. Meaningful consultation with coastal States and fishing communities.

3. Clear demarcation and protection of Marine Protected Areas.
4. A precautionary, sustainability-first approach under initiatives like the Deep Ocean Mission.

Ultimately, balancing economic development with ecological stewardship will determine whether offshore mining becomes a strategic asset or an environmental liability for India.

Source- <https://www.thehindu.com/sci-tech/energy-and-environment/protected-marine-areas-not-part-of-offshore-mining-blocks-says-union-government/article70380527.ece>

