Deep Sea mining

We’ve strip-mined and dug into huge swathes of our land area, leaving toxic dumps and destruction in our wake. Now some are calling for us to hit the repeat button in the most untouched and unknown areas of the Earth: the deep-seabed.

Since the discovery of precious mineral resources on the ocean’s deep seabed decades ago, companies and countries have been eyeing how they can mine this potentially billion-dollar jackpot. This is an ocean gold-rush waiting to happen in a part of the planet that is more alien to us than the moon. As the International Seabed Authority develops new mining rules to move seabed mining from theory to practice, scientists are sounding the alarm bells that biodiversity loss will be unavoidable and we may lose species that we never even knew existed. Should a destructive activity such as commercial deep-sea mining even be given the green light in the first place? Or should we simply press the stop button, learn, and step back from the precipice of potentially untold destruction?

What is deep-sea mining?

- Seabed mining has been happening for decades around the world in shallow waters for gravel, sand, phosphates, gold and diamonds.
- Several decades ago, scientists discovered deep down that the ocean’s floor has rich deposits of valuable metals, such as manganese, copper, cobalt, nickel, lithium, platinum, as well as deposits of a scarce group of minerals collectively known as rare earth elements.
- These precious minerals are prized resources for industry, and many are used in electronics to build everything from computers to mobile phones. Rare earths are also important to the renewables industry and are incorporated in electric cars and other new technologies.
- Prospectors for deep-sea mining are now eyeing these resources further out from shore on the ocean floor beyond national jurisdictions.
- Until recently, the technology to exploit the resources found in the deep sea did not exist. However, some contractors are now confident in their technical capacities to mine the seafloor at depths of up to 6000 metres.
- Commercial deep-sea mining under 500 metres could move from a dream to reality within the next 5-10 years.
- Various countries are looking or have looked to exploit deposits
within their own waters.

- One such country is Japan which has plans to exploit deposits located around the extinct hydrothermal vent systems scattered about the ocean floor off the coast of Okinawa.
- The Solwara 1 project which planned to mine deposits in Papua New Guinea’s waters collapsed in 2019 when Nautilus, the company behind the venture went into administration leaving the PNG government $157m out of pocket.
- Many of the world’s richest seabed mineral deposits lie in the Pacific. Opinion is divided among the Pacific Island Countries as they weigh up the potential economic benefits against the environmental costs.
- In August 2019, Fijian Prime Minister Frank Bainimarama floated the idea of a 10-year moratorium on seabed mining across the entire Pacific Ocean to allow for sufficient research into the likely biodiversity impacts. While the bid was supported by Vanuatu and Papua New Guinea, other countries opposed the move, including the Cook Islands.
- China has been developing underwater drilling, mining platforms that could be launched after 2020 to take samples on the bottom of the South China Sea; it also plans to probe the Mariana Trench - the deepest part of the Ocean.
- Currently China controls the world’s supply of rare earths metals found on land, but other countries, including India are also looking to get in on the deep sea action.

**Deep sea mining threats**

- A growing number of deep-sea scientists, environmentalists and coastal communities have been voicing concerns about the impacts of deep-sea mining on the ocean environment, as well as the livelihoods and well-being of coastal communities.
- The deep sea, once thought of as devoid of life, is now known to be home to a wide array of extraordinary marine life. We are also only just beginning to understand the importance of the deep-seabed as a long-term store of carbon.
- While there are differences in extraction technology and methods used between different deep-sea mineral types and projects, seabed mining actions that may cause harmful effects include: direct removal of seafloor habitat and organisms; alteration of substrate and its geochemistry; modification of sedimentation rates and food webs; release of suspended sediment plumes; release of toxins and contamination from extraction and removal processes; noise pollution; light pollution and chemical leakage from mining machinery.
- Scientists say biodiversity loss from deep-sea mining will be unavoidable and a number of environmental groups argue that deep sea mining should be banned altogether, and efforts should go into
better product design and recycling, rather than mining, to fill the demand for deep-sea raw materials.

- Deep-sea mining will add to the stressors already facing the ocean, and likely lead to cumulative impacts, which will further undermine ocean health and resilience.
- With every deep sea expedition unveiling new weird and wonderful species, can we give the green light to mine these areas when scientists don’t even know what the effects of mining could be or what we could be losing?

**International Seabed Authority**

- The International Seabed Authority (ISA), a body established in 1994 under the UN Convention of Law of the Sea (UNCLOS) to regulate all mineral-related activities— in particular deep-sea mining— in the international seabed area beyond the limits of national jurisdiction on "behalf of mankind as a whole".
- Only UNCLOS signatory states or contractors working for a signatory state can mine in these areas beyond national jurisdiction, if they have a license from the ISA.
- Nobody is mining in the area yet, and so far only exploration licenses have been issued. License applications to the ISA for commercial deep-sea mining in international waters are rapidly increasing.
- ISA is currently developing new regulations for seabed mining and how they’ll be enforced. They hope to finally approve this new mining code in the next year. Now is a crucial time for negotiations of these new rules.
- As part of the ISA, a financial payment system is being set up in terms of royalties and profits from mining of resources that are the common heritage of humankind. Concerns have also been raised on the ISA process, that seems much more skewed towards commercial interests than conservation of a vast area of the common heritage of mankind.
- These concerns are gaining political support. For example, the European Parliament overwhelmingly voted for a resolution calling for a moratorium on deep-sea mining until the risks to the environment are fully understood.

**What needs to happen?**

- The ISA must agree regulations that ensure deep-sea habitats are effectively protected BEFORE ANY deep-sea mining has started, rather than when it is too late.
- The precautionary principle must be applied before any deep-sea mining is approved due to inevitable biodiversity loss and lack of adequate scientific studies.
- Given that 2020-2030 is the UN decade of ocean science, a precautionary pause on any deep-sea mining for the decade needs
to be immediately instituted while we learn more and can then make more informed decisions about next steps.

- Given the predicted damage, it is much wiser to focus on designing products that last or can easily be repaired, as well as recycling the valuable materials contained in over 90% of the world’s electronic waste, rather than developing expensive and potentially very damaging new technologies to exploit new resources.

- A 2016 report questions the claim that deep-sea mining is necessary to fulfill the mineral demands of renewable energy technology. Rare earths are used in a number of different renewable technologies, but according to the report, their availability is not critical if we choose the right technologies and are careful to recycle the materials used as much as possible.

- Industry also has a clear role in rejecting demand for these resources. Apple has already committed to a no-mining future— including deep sea mining.

- For more information visit the Deep Sea Conservation Coalition and check out this report.