

DIVING INTO DEEP SEA MINING: BALANCING THE NEED FOR METALS WITH ENVIRONMENTAL PROTECTION

Jane Carmody
Perkins Coie LLP

Introduction

Renewable power requires precious metals. Electric car batteries, wind turbines, solar installations, and cell phone batteries are just a few of the modern technologies that use metals such as cobalt, copper, and nickel. Existing land mining operations for these metals are concentrated in a few locations, some of which are known for political instability. These issues have led some to consider an unlikely source for metals—the ocean floor. However, the deep ocean and ocean floor remain the largest unexplored place on Earth. More people have traveled to outer space than have traveled to the deepest depths of the ocean. Mining the ocean floor presents an opportunity for tremendous growth and discovery, but the potential environmental impacts are uncertain.

The Basics of Deep Sea Mining

Deep sea mining aims to extract cobalt, copper, manganese, nickel, platinum, zinc, and rare earth minerals from the ocean floor. Some areas in the ocean contain millions of polymetallic nodules—potato-shaped rocks that store several rare earth elements in one. The location of these nodules on the ocean floor dictates which law and regulatory schemes apply to exploration and mining activities.

The ocean is divided into two areas—exclusive economic zones (EEZs) and international waters. EEZs are areas of the ocean where a sovereign state has the right to exploit, develop, manage, and conserve all resources, such as fish, oil, or gas. EEZs stretch from the country's coastline out 200 nautical miles—around 230 miles. Once a vessel travels beyond 200 nautical miles, it transitions into international waters and a different set of rules apply. Most polymetallic nodules and other valuable minerals are in international waters.

Mining the deep sea and the ocean floor involves submerging technologically advanced equipment, such as remotely operated vehicles connected to a series of hydraulic pump systems, to extreme depths and extreme pressure. Deep sea mining activities are generally divided into three categories: (1) prospecting, which is the initial search to determine the distribution of minerals and their potential economic value; (2) exploration, which involves the use of mining equipment to measure the mineral deposits and to provide environmental and technical studies of various areas within mining zones; and (3) exploitation, which includes mineral extraction to produce and sell minerals.

Legal Foundations and the International Seabed Authority

Because many of the nodule-rich areas are in international waters, regulation is not based on any one country's authority; rather, it is based on a body of customs, treaties, and international agreements. For deep sea mining, two conventions of international law provide the legal

foundation. The first is the United Nations Convention on the Law of the Sea, which entered into force in 1994 and is referred to as the Law of the Sea Treaty (the Treaty). This is the first international agreement defining and regulating international waters.¹ The Treaty sets forth the legal framework for the use and protection of the sea, the seabed, and the marine environment. The U.S. is not a party to the treaty but nevertheless observes the Treaty as part of customary international law and practice.

The second is the International Seabed Authority (the Authority) that was established by the Treaty to organize and control all mineral related activities in the international seabed area—around 54 percent of the total area of the world’s oceans.² The Authority serves a dual role. It encourages and supports industry and mining, but because it was formed under the Treaty it must also manage international waters as the “common heritage of mankind.”³ Under the Treaty, any governmental or private party wishing to prospect, explore, or exploit deep sea mineral deposits must obtain authorization from the Authority. The Authority and these parties enter into contracts that typically include conditions and mitigation requirements designed to protect the marine environment.

An understanding of the Authority’s structure and several governing bodies is important for understanding its control over deep sea mining. The Assembly is the supreme organ of the Authority. All parties to the Treaty, including 167 States and the European Union, are automatically Members of the Assembly. Notably, the U.S. is not a Member but nevertheless observes the foundations of the Treaty as part of customary international law. Notwithstanding, several subsidiaries of American-owned companies associated with Member countries have obtained licenses from the Authority for exploration.

The Authority’s Assembly elects 36 members to serve on the International Seabed Authority Council (the Council), which includes five separate Groups from the following sectors: consumers, investors, exporters, developing states and special interests, and equitable geographic representation. The Council considers agenda items for the final disposition of the Assembly. Many of the matters under consideration at the Council come as reports and recommendations by the Legal and Technical Commission (the Commission), which is a 30-person expert advisory body. Members of the Commission have expertise related to the “exploration for, exploitation and processing of mineral resources, oceanography, protection of marine environment, or economic or legal matters relating to ocean mining.”⁴

The Commission conducts most of the day-to-day work for the Authority. It reviews applications for plans of work, supervises the exploration of mining activities, reviews annual reports submitted by contractors, develops environmental management plans, assesses the environmental implications of activities in the Area, and makes recommendations to the Council on all matters relating to exploration and exploitation of non-living marine resources, such as polymetallic nodules.

¹ Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397.

² *Id.* art. 156.

³ *Id.* art. 136.

⁴ THE INTERNATIONAL SEABED AUTHORITY, <https://www.isa.org.jm/authority/legal-and-technical-commission> (last visited February 4, 2021).

The International Seabed Authority's Mining Code

The Treaty requires the Authority to exercise due diligence in preventing significant harm to the marine environment.⁵ The Authority has broad authority to establish conditions and regulations under which Member States can explore and exploit minerals found in international waters.⁶ However, it has yet to formalize regulations for mining the ocean floor. The Authority is in the process of developing the Mining Code, which will be a comprehensive set of rules, regulations, and procedures to regulate prospecting, exploration, and exploitation of marine minerals in international waters.⁷

Currently, activity in international waters is restricted to prospecting and exploration.⁸ The Authority has issued thirty contracts allowing governments and independent companies to collect baseline data on mineral resources, test mining procedures and equipment, and conduct environmental impact studies in the Indian, South Atlantic, and Pacific Oceans.⁹ China, France, Germany, India, Japan, Russia, and South Korea collectively hold much of the exploration contracts through either state-owned companies or government agencies. Another seven contracts are held by three private companies that are working with “sponsor countries” that are Members of the Treaty.

It is unclear when the Authority will finalize the Mining Code and issue contracts for extraction. The Authority was slated to discuss the current draft Mining Code for exploitation in July 2020, but the coronavirus pandemic has delayed discussions. Most recently, on June 25, 2021, the Pacific Island of Nauru, which sponsors a deep sea mining company, invoked the Treaty's “two-year” rule that would require the Authority to consider deep sea mining exploitation contracts regardless of whether the Mining Code is finalized.¹⁰ Until then, governments and companies will continue to research and explore the ocean floor.

⁵ Convention on the Law of the Sea, art.192, Dec. 10, 1982, 1833 U.N.T.S. 397.

⁶ *Id.* art. 157.

⁷ THE INTERNATIONAL SEABED AUTHORITY, <https://www.isa.org.jm/mining-code>.

⁸ *Id.*

⁹ THE INTERNATIONAL SEABED AUTHORITY, <https://isa.org.jm/exploration-contracts>.

¹⁰ Convention on the Law of the Sea, annex section 1(15)(b), Dec. 10, 1982, 1833 U.N.T.S. 397.