Chapter 18
Changes in seabed mining

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Keynote points

- The present chapter provides an update to chapter 23 of the first *World Ocean Assessment* (United Nations, 2017a) in terms of shallow-water aggregate, placer deposits, ironsand deposits and phosphorite deposits. It focuses on exploration licences for deepwater seabed mineral resources, the number of which has increased significantly since the first Assessment.
- New technologies to reduce impacts on the marine environment are now envisaged for the exploitation of placer deposits, traditionally mined by dredging. Prospects for mining phosphorite deposits have faced opposition from stakeholders and have yet to become a reality.
- Seabed mineral deposits covered in the present chapter (polymetallic nodules, polymetallic sulphides and cobalt-rich ferromanganese crusts) are being considered for mining and the object of 30 contracts for exploration awarded by the International Seabed Authority (ISA).
- One driver for those activities is that deepwater seabed mineral resources contain diverse rare and critical metals that would support the implementation of Sustainable Development Goals adopted by the United Nations in 2015.[1]
- The environmental impacts of the exploitation of those seabed mineral resources are a scientific community focus, and regulations are now being developed by ISA.
- A lack of information on biodiversity, connectivity and ecosystem services exists, and a robust collection of baseline ecological data is necessary for predictions related to the future deepwater seabed mining activities, given the risk of irreversible damage to deep-sea ecosystems.
- ISA has considered various financial models for the commercial mining of polymetallic nodules. Metal prices are difficult to predict, which can create significant risk that may delay commercial mining.
- Deepwater seabed mineral resources are typically located far from human communities and the social impacts of their exploitation may be less than those of terrestrial mining. However, significant concerns exist about loss of biodiversity and ecosystem services, including the role of the deep ocean in climate regulation. Those legitimate concerns constitute the basis for a "social licence to operate".

1. Introduction

1.1. Links to the first *World Ocean Assessment*

Chapter 23 of the first *World Ocean Assessment* focused on marine mining, in particular established extractive industries, which are predominantly confined to nearshore areas, where shallow-water aggregate and placer deposits and somewhat deeper-water phosphate deposits are found (United Nations, 2017b). At the time of its publication, there were no commercially developed deepwater seabed mining (DSM) deposits, but an assessment of mining leases and exploration activity was included. Since the first Assessment, the number of deepwater (i.e., depths greater than 200 m below the ocean surface) seabed exploration licences has increased both within national jurisdictions

[1] See General Assembly resolution 70/1.