

Deep Sea Mining Technologies, Equipment and Mineral Targets

<https://marketpublishers.com/r/D2E181B3197EN.html>

Date: May 2019

Pages: 127

Price: US\$ 2,750.00 (Single User License)

ID: D2E181B3197EN

Abstracts

REPORT SCOPE:

For the purpose of this report, deep sea mining is defined as a mineral retrieval process (mining) that takes place on the ocean floor. Deep sea mining is also alternatively known as ocean floor mining, ocean bed mining, sea floor mining or seabed mining. However, deep sea mining is different from shallow sea mining. Since deep water mining is a relatively new industry, there is no standard definition that segregates deep sea mining from shallow sea mining. However, various stakeholders in the industry as well as others active in the market generally agree that deep sea mining is the removal of minerals from sea beds deeper than 500 meters.

Based on types of deposits at sea floor, deep sea mining can be categorized into three types-

Cobalt rich crusts (CRC).

Manganese nodules.

Seafloor massive sulphides (SMS).

Cobalt rich crusts, also known as cobalt crusts or cobalt rich ferromanganese crust, are rock-hard, metallic layers that form on the flanks of submarine volcanoes, called seamounts. It is estimated that slightly more than 55% of sea floor cobalt crusts are located in the Pacific Ocean. Cobalt crusts also represent a very large metal resource in the sea and contain a relatively large amount of cobalt compared to deposits on land

and to manganese nodules. The largest share of metals in the cobalt crusts, however, consists of manganese and iron. Cobalt crusts are also called as cobalt rich ferromanganese crusts. On an average, most promising cobalt crusts lie at water depths of 800 to 2,500 meters.

Manganese nodules, also known as polymetallic nodules (PMN or PN), contain mainly manganese, along with other minerals such as iron, nickel, copper, titanium and cobalt. Manganese nodules are mainly present in the Pacific and Indian Oceans, in the wide deep-sea basins at depths of 3,500 to 6,500 meters.

Seafloor massive sulphides, also known as sulphide deposits, originate at hydrothermal vents in the ocean where sulphide-enriched water flows out of the seabed. Massive sulphide deposits are expected to contain valuable metals such as copper, gold and silver. However, high temperatures around the hydrothermal vents make it is nearly impossible to carry out mining activities near the active vents; high temperatures would damage machinery and mining vehicles. SMS deposits typically occur at depths of 500 to 4,000 meters. Currently, the focus is on depth within 500 to 2,500 meters range as that is considered economical and profitable.

The scope of this report includes various types of equipment used in the deep sea mining market. The market is broken down by major equipment, minerals, mining stages, and regions. The market has not yet started on a commercial scale and the first commercial exploration is expected to start in 2019. Therefore, the revenue forecast period is from 2020 through 2030. The revenue forecast includes manufacturers' total revenue and is categorized by major equipment as well as by mining stages.

DETAILED INCLUSIONS

For the purpose of this report, deep sea mining is defined as the mining of minerals and metals from sea floor at a depth of more than 500 meters.

The report covers the following stakeholders in the global market for deep sea mining-

Core deep sea mining companies (e.g. Nautilus Minerals and Neptune Minerals).

Companies and institutions, including government bodies, that are not yet active in the deep sea mining market but have applied for a license

and have shown interest in deep sea mining.

Manufacturers of deep sea mining equipment.

For manufacturers of deep sea mining equipment, revenue includes both product/ manufacturing revenue and services revenue.

Revenue forecasts from 2020 to 2030 are given for the overall market and regional market with estimated values derived from manufacturers' and deep sea mining operators' total revenues.

Deep sea mining has the following phases: Exploration, evaluation, extraction and mining, mineral lifting (to support vessel), surface operations, and transfer of mineral to shore.

However, in this report, for purpose of market revenue calculation, only the stages that are directly linked to mining activity are considered. Hence, only extraction and mining, mineral lifting, and surface operations phases are considered; these stages are together known as exploitation stage.

For company profiles, the report has considered players/companies from the above three categories, depending on their importance in the global market only.

Companies considered for profiling are based on a number of criteria such as number of licenses, geographic presence, current activity in deep sea mining, innovation capability, revenue, etc.

The report considers mining licenses granted (approved) as well as applied for (yet to be approved) by both ISA and individual countries (where the mining area falls under a particular country's territory or exclusive economic zone (EEZ)).

For deep sea mining in a country's territory (EEZ), the report only considers license information that is publicly available through trusted sources.

DETAILED EXCLUSIONS

The report has not considered 2017 and 2018 revenue as although the active companies are spending significant amount, the mines are not yet operational and hence are not considered.

Any mining activity at a depth of less than 500 meters is considered as shallow sea mining and is excluded from the scope of this report.

Evaluation and exploration stages of deep sea mining are not considered as exploration and evaluation does not necessarily indicate mining. There is often a huge time gap between the exploration and evaluation phase and start of actual deep sea mining process.

Equipment and systems such as vessels that are used to transport mineral to shore, vessels used for exploration, mineral cleaning systems, etc. are excluded from the scope of this report.

The report also excludes any post sales service providers who are into consulting, education, support, etc.

The report also excludes any revenue or expenditure out of environmental impact assessment.

REPORT INCLUDES:

38 tables

An overview of the global markets for deep sea mining technologies, marine, equipment and mineral targets

Analyses of global market trends, with estimated data from 2020 and 2024, and projections of compound annual growth rates (CAGRs) through 2030

An overview of historical developments of deep-sea mining equipment and technologies and assessment of its impact at a global level

Briefing about International Seabed Authority (ISA) and exclusive economic zone (EEZ) and discussion of their role in regulation of deep-sea mining activities in order to protect the marine environment

Company profiles of the top players in the industry, including Eramet Group (Eramet S.A.), Hydril Pressure Control (GE Hydril), Nordic Ocean Resources AS (Nora), Teledyne Technologies, Inc., and UK Seabed Resources (Lockheed Martin UK Ltd.)

Contents

CHAPTER 1 INTRODUCTION

Study Goals and Objectives
Reasons for Doing This Study
Scope of Report
International Seabed Authority (ISA)
United Nations Convention on the Law of the Sea (UNCLOS)
Exclusive Economic Zone (EEZ)
Information Sources
Methodology
Mineral Market Revenue Calculation
Deep Sea Mining Equipment Market Calculation
Geographic Breakdown
Analyst's Credentials
BCC Custom Research
Related BCC Research Reports

CHAPTER 2 SUMMARY AND HIGHLIGHTS

CHAPTER 3 MARKET AND TECHNOLOGY BACKGROUND

Need for Deep Sea Mining
History and Evolution of Deep Sea Mining
Role of ISA and EEZs
ISA and UNCLOS
EEZ
Deep Sea Mining Stages
Exploration
Evaluation
Extraction
Lifting
Surface Operations
Key Stakeholders in the Deep Sea Mining Market
Core Deep Sea Mining Companies
Companies and Institutions That Are Not Yet Active but Have Applied for Licenses
Manufacturers of Deep Sea Mining Equipment
Key Company Strategies

Funding and Investment
Partnership with Other Stakeholders
Focus on EEZs
Continuous Technological Improvement, Including Focus on Cost-Cutting While Improving Efficiency
Market Trends
Growing Interest from Various Governments
Expected Entrance of New Companies
Funding to Become More Important in the Coming Years
Increase in Competition Among ISA Member States
Global Market Forecast for Deep Sea Mining Technologies, Equipment and Mineral Targets

CHAPTER 4 MARKET BREAKDOWN BY MINING STAGE

Extraction and Mining
Lifting Systems
Surface Operations
Opportunity Analysis
Extraction Segment
Lifting Segment
Surface Operations Segment

CHAPTER 5 MARKET BREAKDOWN BY TYPE OF EQUIPMENT/COMPONENT

Vehicles, Collectors and Cutters
Vehicles
Cutters
Collectors
Lifters (Lifting Systems)
Research Vessels
Others
Opportunity Analysis
Vehicles Subsegment
Collectors Subsegment
Lifting Systems Segment

CHAPTER 6 MARKET BREAKDOWN BY MINERAL EXTRACTION POTENTIAL

Sea-floor Massive Sulphides (SMS)
Polymetallic (Manganese) Nodules
Cobalt-rich Ferromanganese Crusts
Manganese
Zinc
Copper
Nickel
Cobalt

CHAPTER 7 MARKET BREAKDOWN BY REGION

Breakdown by Region Where Exploration/Exploitation Licenses Have Been Issued
Breakdown by Region Where Exploration/Exploitation Licenses Have Been Issued
North America
Europe
APAC
Others
Opportunity Analysis of All Regions

CHAPTER 8 INDUSTRY STRUCTURE AND PATENT ANALYSIS

Deep Sea Mining Market Supply Chain
Future Prospects for the Deep Sea Mining Market
Level of Competition Among Existing Players
Level of Threat from Substitutes
Level of Threat to Existing Players from New Entrants
Market Drivers
Over Dependence on Certain Countries for Supply of High Importance Metals
Depleting Land Resources
Desire to Earn Revenue and Self-Reliance, Especially Among Small Island Nations
Strong Growing Electronics and Electric Car Markets
Technological Advancement in the Deep Sea Mining Equipment Space
Market Challenges
High Initial Investment and Long Break-Even Period
Protests from Various Groups
Higher Risk than Land-Based Mining
Metal Price Fluctuation
Patent Analysis

CHAPTER 9 COMPANY PROFILES

2H OFFSHORE ENGINEERING LTD.
ACTEON GROUP LTD.
BAUER MASCHINEN GMBH
BOSCH REXROTH AG
CALEY OCEAN SYSTEMS LTD.
CELLULA ROBOTICS LTD.
DAEWOO SHIPBUILDING & MARINE ENGINEERING CO. LTD.
DEEP REACH TECHNOLOGY, INC.
DEEPPGREEN METALS, INC.
DREDGING ENVIRONMENTAL & MARINE ENGINEERING NV
ECA GROUP
ERAMET GROUP (ERAMET S.A.)
HYDRIL PRESSURE CONTROL (GE HYDRIL)
GMC LTD.
HYDRO-LEK LTD.
KEPPEL OFFSHORE & MARINE LTD.
KONGSBERG MARITIME AS
MHWIRTH AS
NAUTILUS MINERALS, INC.
NEPTUNE MINERALS, INC.
NORDIC OCEAN RESOURCES AS (NORA)
ODYSSEY MARINE EXPLORATION, INC.
ROYAL IHC LTD.
SEAS (SUBMERSIBLE EQUIPMENT & SERVICES) OFFSHORE PTY LTD.
SEATECH SOLUTIONS INTERNATIONAL (S) PTE LTD.
SOIL MACHINE DYNAMICS LTD.
TECHNIPFMC PLC
TELEDYNE TECHNOLOGIES, INC.
TRITECH INTERNATIONAL LTD.
UK SEABED RESOURCES (LOCKHEED MARTIN UK LTD.)

List Of Tables

LIST OF TABLES

Summary Table: Global Market for Deep Sea Mining, by Mining Stage, Through 2030

Table 1: Global Demand for Cobalt, Through 2020

Table 2: Percentage Share of Global Demand for Cobalt, by End Use, 2006-2020

Table 3: Global Market for Rare Earth Metals, Through 2024

Table 4: Some Key Minerals/Metals, Their Global Production and Applications

Table 5: Some Key Manufacturers of Deep Sea Mining Equipment and Components

Table 6: Some Key Exploration and Mining Licenses in EEZs by Various National Governments

Table 7: Global Market for Deep Sea Mining, by Mining Stage, Through 2030

Table 8: Global Market Shares of Deep Sea Mining, by Mining Stage, 2020

Table 9: Global Market Share of Deep Sea Mining, by Mining Stage, 2024

Table 10: Global Market Share of Deep Sea Mining, by Mining Stage, 2030

Table 11: Global Market for Deep Sea Mining Extraction and Mining, Through 2030

Table 12: Global Market for Deep Sea Mining Lifting Systems, Through 2030

Table 13: Global Market for Deep Sea Mining Surface Operations, Through 2030

Table 14: Global Market for Deep Sea Mining, by Type of Equipment/Component, Through 2030

Table 15: Global Market Share of Deep Sea Mining, by Type of Equipment/Component, 2020

Table 16: Global Market Share of Deep Sea Mining, by Type of Equipment/Component, 2024

Table 17: Global Market Share of Deep Sea Mining, by Type of Equipment/Component, 2030

Table 18: Global Market for Deep Sea Mining Vehicles, Collectors and Cutters, Through 2030

Table 19: Global Market for Deep Sea Mining Lifting Systems, Through 2030

Table 20: Global Market for Deep Sea Mining Research Vessels, Through 2030

Table 21: Global Market for the Deep Sea Mining Others Segment, Through 2030

Table 22: Global Market Volumes of Deep Sea Mining, Estimated Gold and Silver Content in Some Deposits, by Region

Table 23: Global Market Volumes of Deep Sea Mining, Estimated Total Metal Content in CCZ vs. Land-Based Deposits

Table 24: Global Market Volumes of Deep Sea Mining, Estimated Total Metal Content in PCZ vs. Land-based Deposits

Table 25: Global Market Volumes of Deep Sea Mining, Mineral Extraction Potential, by

Type of Deposit

Table 26: Global Market Volume Shares of Deep Sea Mining, Mineral Extraction Potential, by Type of Deposit

Table 27: Global Market for Deep Sea Mining, by Mineral Extraction Potential, Through 2030

Table 28: Global Market Shares of Deep Sea Mining, by Mineral Extraction Potential, 2020 and 2030

Table 29: Global Market for Deep Sea Mining, by Region Where Exploration/Exploitation Licenses Have Been Issued, 2018

Table 30: Global Share of Exploration/Exploitation Licenses which Have Been Issued for Deep Sea Mining, by Region, 2018

Table 31: Global Exploration/Exploitation Licenses Which Have Been Issued for Deep Sea Mining, by Region and Type of Deposit

Table 32: Global Share of Exploration/Exploitation Licenses Which Have Been Issued for Deep Sea Mining, by Region and Type of Deposit

Table 33: Regional Classification of Exploration or/and Exploitation Licenses for Deep Sea Mining by Companies, Government Bodies and Business Units

Table 34: Regional Classification of Exploration or/and Exploitation Licenses Share for Deep Sea Mining by Companies, Government Bodies and Business Units

Table 35: Regional Classification of Exploration or/and Exploitation Licenses for Deep Sea Mining by Companies, Government Bodies and Business Units and Type of Deposit

Table 36: Regional Classification of Exploration or/and Exploitation Licenses Share for Deep Sea Mining by Companies, Government Bodies and Business Units and Type of Deposit

Table 37: North American Market for Deep Sea Mining, by Country Where Exploration/Exploitation Licenses Have Been Issued

Table 38: European Market for Deep Sea Mining, by Country Where Exploration/Exploitation Licenses Have Been Issued

Table 39: APAC Market for Deep Sea Mining, by Country Where Exploration/Exploitation Licenses Have Been Issued

Table 40: Opportunity Analysis of Global Deep Sea Mining Market, by Country

Table 41: Key Drivers and Their Impact on the Global Deep Sea Mining Market

Table 42: Patent Share of Global Deep Sea Mining Technologies, by Category, 2018

List Of Figures

LIST OF FIGURES

Summary Figure: Global Market for Deep Sea Mining, by Mining Stage, 2017-2030

Figure 1: Global Demand for Cobalt, 2017 and 2020

Figure 2: Percentage Share of Global Demand for Cobalt, by End Use, 2006-2020

Figure 3: Global Market for Rare Earth Metals, 2017 and 2024

Figure 4: Global Market for Deep Sea Mining, by Mining Stage, 2017-2030

Figure 5: Global Market Shares of Deep Sea Mining, by Mining Stage, 2020

Figure 6: Global Market Share of Deep Sea Mining, by Mining Stage, 2024

Figure 7: Global Market Share of Deep Sea Mining, by Mining Stage, 2030

Figure 8: Global Market for Deep Sea Mining Extraction and Mining, 2017-2030

Figure 9: Global Market Share for Deep Sea Mining Lifting Systems, 2017-2030

Figure 10: Global Market for Deep Sea Mining Surface Operations, 2017-2030

Figure 11: Global Market for Deep Sea Mining, by Type of Equipment/Component, 2017-2030

Figure 12: Global Market Share of Deep Sea Mining, by Type of Equipment/Component, 2020

Figure 13: Global Market Share of Deep Sea Mining, by Type of Equipment/Component, 2024

Figure 14: Global Market Shares of Deep Sea Mining, by Type of Equipment/Component, 2030

Figure 15: Global Market for Deep Sea Mining Vehicles, Collectors and Cutters, 2017-2030

Figure 16: Global Market for Deep Sea Mining Lifting Systems, 2017-2030

Figure 17: Global Market for Deep Sea Mining Research Vessels, 2017-2030

Figure 18: Global Market for the Deep Sea Mining Others Segment, 2017-2030

Figure 19: Global Market for Deep Sea Mining, by Mineral Extraction Potential, 2017-2030

Figure 20: Global Market Share of Deep Sea Mining, by Mineral Extraction Potential, 2020

Figure 21: Global Market Share of Deep Sea Mining, by Mineral Extraction Potential, 2030

Figure 22: Global Share of Exploration/Exploitation Licenses which Have Been Issued for Deep Sea Mining, by Region, 2018

Figure 23: Global Share of Exploration/Exploitation Licenses Which Have Been Issued for Deep Sea Mining, by Region and Type of Deposit

Figure 24: Regional Classification of Exploration or/and Exploitation Licenses Share for

Deep Sea Mining by Companies, Government Bodies and Business Units

Figure 25: Regional Classification of Exploration or/and Exploitation Licenses Share for Deep Sea Mining by Companies, Government Bodies and Business Units and Type of Deposit

Figure 26: Patent Share of Global Deep Sea Mining Technologies, by Category, as of 2018

I would like to order

Product name: Deep Sea Mining Technologies, Equipment and Mineral Targets

Product link: <https://marketpublishers.com/r/D2E181B3197EN.html>

Price: US\$ 2,750.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/D2E181B3197EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970