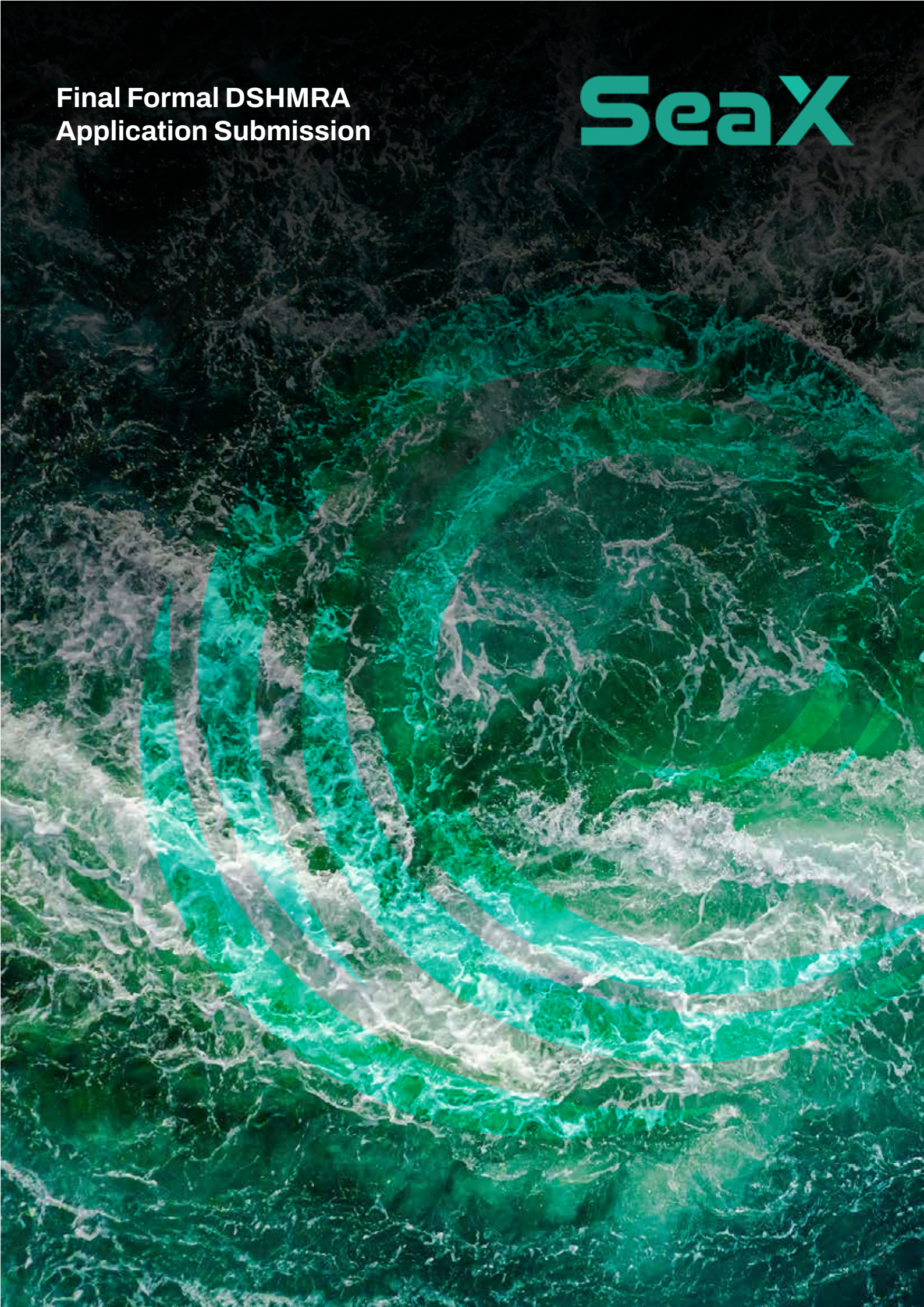
Final Formal DSHMRA Application Submission

SeaX



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1.0 Executive Summary

10 August 2025

Laura Grimm
Chief of Staff
Performing the Duties of Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

Dear Ms Grimm,

SeaX Inc., a subsidiary of American Metal Inc. (together referred to herein as "**American Metal**" or the "**Company**") is pleased to submit this final formal application under the Deep Seabed Hard Mineral Resources Act ("**DSHMRA**" or the "**Act**") and Part 970 of the Deep Seabed Mining Regulations for Exploration Licenses (the "**Regulations**").

In this application, SeaX is seeking a license to explore for deep seabed polymetallic nodules ("**polymetallic nodules**") in the Clarion-Clipperton Fracture Zone ("**CCZ**") of the East Pacific Ocean.

To assist restore American leadership in offshore critical minerals, and to assist the United States ("**U.S.**") meet its critical mineral needs, we plan to explore for and responsibly develop an extensive deposit of high-grade polymetallic nodules containing Nickel, Copper, Cobalt and Manganese, as well as other critical minerals and Rare Earth Elements (**REEs**).

These metals are vital for manufacturing advanced technologies, including clean energy systems, electric vehicles (**EV's**), and electronics.

We are encouraged by the President's Executive Order dated 24 April 2025 titled **Unleashing America's Offshore Critical Minerals and Resources** (referred to herein as the "**Offshore Critical Minerals EO**"), as well as the Executive Order dated 20 March 2025 titled **Immediate Measures to Increase American Mineral Production** (referred to herein as the "**Mineral Production EO**").

As stated in the Offshore Critical Minerals EO "*Our Nation must take immediate action to accelerate the responsible development of seabed mineral resources, quantify the Nation's en-dowment of seabed minerals, reinvigorate American leadership in associated extraction and processing technologies, and ensure secure supply chains for our defense, infrastructure, and energy sectors*."

Seafloor polymetallic nodules are expressly referenced in the Offshore Critical Minerals EO. Importantly, because polymetallic nodules lie loose on the seafloor surface, it is possible to bring them into production faster than traditional land based deposits, as there is no overburden to remove, and no need to sink mine shafts and build related mine site infrastructure, as is typical for many land based deposits.

We therefore believe this project can play an important role in assisting to meet the aims of the Offshore Critical Minerals EO and the Mineral Production EO.

Polymetallic nodules also contain a number of critical minerals in the one deposit. To produce the same metals on land would typically require building multiple different mines at different locations, potentially in sensitive habitats and unique ecosystems.

Nickel, Cobalt and Manganese are also included in the "**2022 final list of critical minerals**" as presented by the Secretary of the Interior.

In addition, polymetallic nodules contain Copper, which is a key metal for electrification and EV's in the United States. Copper was the subject of another Executive Order on 25th March titled "**Addressing the Threat to National Security From Imports Of Copper**".

As stated in the Offshore Critical Minerals EO "*These resources are key to strengthening our economy, securing our energy future, and reducing dependence on foreign suppliers for critical minerals*".

By opening up a new source of minerals, SeaX plans to help achiece the aims of the Offshore Critical Minerals EO, including through supporting economic growth and reindustrialization, as well as assisting to create new processing capabilities.

With respect to processing capabilities, our team already have a successful track record of being involved in developing metallurgical processing technology in the U.S. for polymetallic nodules.

Geologically, the U.S. has limited readily accessible territorial deposits of certain minerals. Harvesting polymetallic nodules from the CCZ extends the geographical options for the U.S. to source resources from outside its land jurisdiction.

We believe that obtaining multiple critical minerals from polymetallic nodules will provide the U.S. with

an alternative option for mineral production, which we believe will have less of an environmental and social impact compared to building new land based mines.

By supplying polymetallic nodules and/or metals to the U.S. for stockpiling and domestic use, we plan to assist help the United States reduce it's dependence on foreign supply chains that can be unstable and vulnerable to geopolitical risks.

This project also presents an opportunity to boost domestic mineral production, reduce U.S. reliance on foreign minerals and create U.S. jobs.

American Metal represents the culmination of over two decades of world-leading success in the deep sea mineral industry, in which time the Company's founders have carried out extensive deep sea exploration and development work for the benefit of many countries in their territorial water and Exclusive Economic Zones, as well as the international community under the regulation of the International Seabed Authority ("**ISA**").

Through this application, we are looking to apply our world-leading polymetallic nodule expertise to directly benefit the U.S.

Benefits to the U.S.

In the 1970's the United States played a key role in exploring the CCZ for polymetallic nodules.

American Metal Director and Founder, Dr. John Halkyard, was the director of the Ocean Mining Laboratory for the Kennecott Manganese Nodule Consortium in the 1970's, and led their successful mining system development effort.

American Metal's engineering partner, Deep Reach Technology ("**DRT**"), also includes members from all four of the major 1970's polymetallic nodule mining consortia, including OMA, OMCO, OMI and Kennecott.

Since that time, there have been significant advancements in offshore technology driven by such industries as dredging and offshore Oil and Gas. Importantly, over the past 20 years, the following companies, which were started by American Metal's founders, have taken deep-sea mineral exploration to the next level: Nautilus Minerals Inc., Nauru Ocean Resources Inc. (**NORI**), Tonga Offshore Mining Limited ("**TOML**") and DeepGreen Resources Inc. (now known as "TMC The Metals Company").

These companies, founded by American Metal's principals, have now gone on to spend in excess of **US$1 Billion** on deep sea mineral exploration, development and environmental studies, and have gone on to achieve a number of world firsts, including:

(i) Granted the world's first deep-sea mining license after producing the world's first EIS for seafloor polymetallic sulphides;

(ii) Most successful trial harvesting in the CCZ, recovering 3,000 wet tonnes of polymetallic nodules; and

(iii) Most comprehensive deep-sea environmental study in the CCZ.

SeaX is looking to provide the U.S. with an opportunity to re-engage directly in this industry and benefit from the critical minerals contained in polymetallic nodules.

Through SeaX, the U.S. can establish a direct presence in the CCZ to safeguard its deep sea mineral strategic and economic interests, and reassert deep sea mineral leadership.

We also plan to bring the following benefits to the U.S.:

(i) **Exclusive supply:** We plan to supply our polymetallic nodule metals **exclusively** in the U.S. for domestic use;

(ii) **Building onshore Mineral Production capacity (Processing Plant or Refinery) in the U.S.:** We plan to build an onshore processing plant or metal refinery in the U.S. to treat seafloor polymetallic nodules and/or produce valuable metals or materials. In so doing, we will be partnering with local industry and technological innovators, whilst supporting U.S. jobs and stimulating economic growth, creating a robust supply chain of metal that strengthens the U.S. economy;

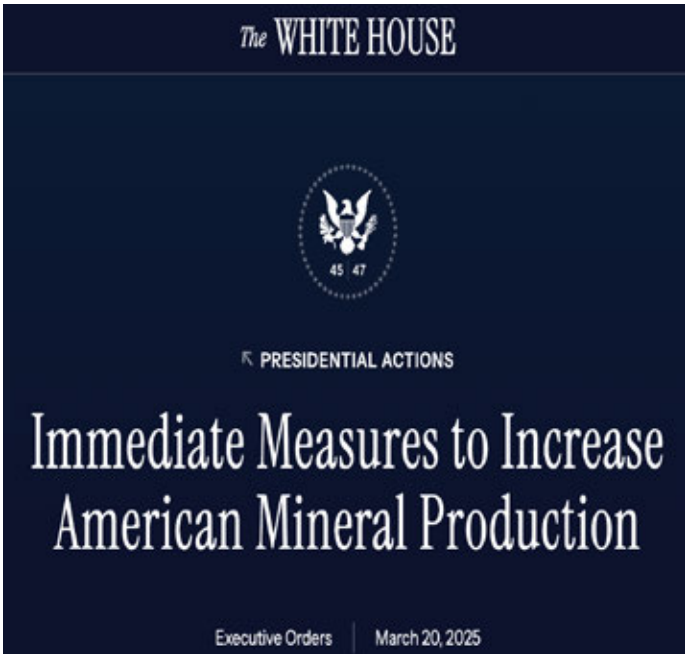
(iii) **Stockpiling:** Polymetallic nodules can be stockpiled on land as an 'asset' of 'contained' metal. Rather than buy nickel, copper, cobalt or manganese metal for stockpile, the U.S. can stockpile our polymetallic nodules as 'metal in ore' for release and 'resale' at a later date to a processing plant. This may be relevant as the best option may not be to make conventional stockpile metals but have the nodules available in stockpile to go direct to the appropriate metal compound such as Nickel sulphate for EV and off grid storage batteries;

(iv) **Investment in new deep-sea technologies:** We plan to make a significant investment in the U.S., engage local companies to design new technologies for offshore exploration

and harvesting, and facilitate the transfer of technological know-how to the U.S. for deep-sea technologies;

(v) Increased knowledge of the Deep Sea: Pursuant to the Offshore Critical Minerals EO, we will support significant investment in deep sea science. The scientific research that we fund, coupled with the environmental data obtained from our studies, will help bridge essential knowledge gaps regarding the deep sea environment, and further the United States' scientific, geological and environmental understanding of the deep sea. Not only will we partner with U.S. based environmental organizations and experts to carry out the environmental program, we are also committed to publicly sharing our environmental research, studies and results.

Immediate measures are being taken by the Government to increase American mineral production to address the U.S. critical mineral shortage. Realistically, developing mines on land takes many years to build infrastructure and remove overburden. In contrast, from a practical perspective Polymetallic Nodules lie loose on the seafloor surface and can be brought into production sooner, as there is no overburden to remove through cutting and blasting, and no need to sink mine shafts and build related mine site infrastructure.



Source: whitehouse.gov

We plan to assist the U.S. meet its critical mineral needs:

In an era where technological innovation and sustainable development are paramount, the sourcing of critical minerals has emerged as a strategic priority for the U.S.

Critical minerals will be the cornerstone of economic resilience and national security, as well as play a crucial role in transitioning to a Green Economy and "Reshoring" manufacturing jobs.

The importance of critical minerals has been reflected in recent Presidential Executive Orders.

For example, the Mineral Production EO states:

"Transportation, infrastructure, defense capabilities, and the next generation of technology rely upon a secure, predictable, and affordable supply of minerals. The United States was once the world's largest producer of lucrative minerals, but overbearing Federal regulation has eroded our Nation's mineral production. ***Our national and economic security are now acutely threatened by our reliance upon hostile foreign powers' mineral production. It is imperative for our national security that the United States take immediate action to facilitate domestic mineral production to the maximum possible extent***."

Likewise, the Offshore Critical Minerals EO states: "*The United States has a core national security and economic interest in maintaining leadership in deep sea science and technology and seabed mineral resources …The United States faces unprecedented economic and national security challenges in securing reliable supplies of critical minerals independent of foreign adversary control*".

The minerals that we plan to process include Nickel, Cobalt, Manganese and Copper, all of which are targeted by the Executive Orders. We are also investigating the potential of recovering Rare Earth Elements.

The Executive Orders also reflect the objective of the DSHMRA, which explicitly recognized that the U.S. is dependent upon foreign sources of supply for certain minerals.

It is also apparent that the United States has fallen significantly behind other countries when it comes to mineral production and deep sea mineral exploration.

Seafloor polymetallic nodules are fast becoming a strategically important resource, particularly as countries look to secure new sources of mineral reserves, which are rapidly depleting on land.

Who we are:

SeaX Inc. and American Metal Inc., are U.S. corporations existing under the laws of Delaware.

These companies have been established with the specific aim of sourcing metals from the seabed for supply to the United States.

Our management have been at the forefront of the deep sea mineral industry for over 20 years, with a legacy of success in creating companies that lead the world in deep-sea mineral exploration and deep-sea environmental studies.

For example, American Metal's founders were responsible for creating the following 3 leading deep sea mineral companies:

(i) Founded Nautilus Minerals Inc. (Canada) in 2002, which successfully carried out trial mining and was granted the world's first Deep Sea Mining License and Environmental Permit to develop the world's first hard rock copper-gold mine at 1,700 meters below sea level. American Metal's David Heydon personally raised US$334 million in just two years while founding CEO of Nautilus;

(ii) Created Nauru Ocean Resources Inc. ("NORI") in 2008, which was the first private sector company to be granted a license to explore for polymetallic nodules by the International Seabed Authority ("**ISA**"); and

(iii) Founded DeepGreen Resources Inc. (Canada) in 2011, a world leader in the deep sea mineral industry, and which became TMC The Metals Company when it listed on the Nasdaq Stock Exchange in 2021.

Those three companies, created by American Metal's management, became world leaders in the commercial exploration and sustainable development of deep-sea mineral resources, and have gone on to achieve a number of accomplishments including:

(i) Combined expenditure of over **US$1 Billion** on deep sea mineral exploration and development, as well as environmental studies;

(ii) Public Listing on the Nasdaq Stock Exchange as well as the Toronto Stock Exchange, and on AIM, a market operated by the London Stock Exchange;

(iii) Attracted the backing of world leading mining and offshore companies as shareholders, including:

(iv) Successful deepsea trial mining with the recovery of 3,000 tonnes of polymetallic nodules from the CCZ;

(v) Successful trial mining of seafloor massive sulphide deposit at 1,700 meters below sea level;

(vi) Production of unprecedented environmental data relating to a seafloor massive sulphide deposit;

(vii) World leading environmental studies in the CCZ;

(viii) First NI 43-101 compliant mineral resource estimate for a seafloor massive sulphide deposit;

(ix) First NI 43-101 compliant mineral resource

estimate for polymetallic nodules;

(x) Around 30 successful offshore environmental cruises across various oceanic regions; and

(xi) Successful production of deep-sea Environmental Impact Statement leading to the granting of the world's first deep sea mining permit.

The following deep sea mineral experts are part of the American Metal team:

David Heydon, a pioneer of the modern day commercial deep sea mineral industry.

Dr. John Halkyard, who has been involved in deep sea mining in the CCZ for 50 years, including with Kennecott in the 1970's, and more recently with the initial designs of the NORI offshore harvesting system. He also recently founded Ocean Minerals, LLC which received a polymetallic nodule Exploration License from the Cook Islands in 2022.

Robert Heydon, who created NORI, TOML and DeepGreen, and has played an instrumental role in re-igniting global commercial interest in seafloor polymetallic nodule exploration and development.

Jonathan Lowe, American Metal's Exploration Director, who has 30 years of global mineral exploration, mostly with BHP Ltd. He was previously Nautilus Minerals' Vice President Strategy and Exploration, where over ten years he led the exploration program to pioneer many world firsts in seabed mineral exploration. This includes significant polymetallic nodule exploration and development work within the CCZ with TOML.

Michael Rai Anderson, who has many years of managing technology companies, including as CEO of Deep Reach Technology, a specialty offshore marine emerging markets consulting and engineering firm.

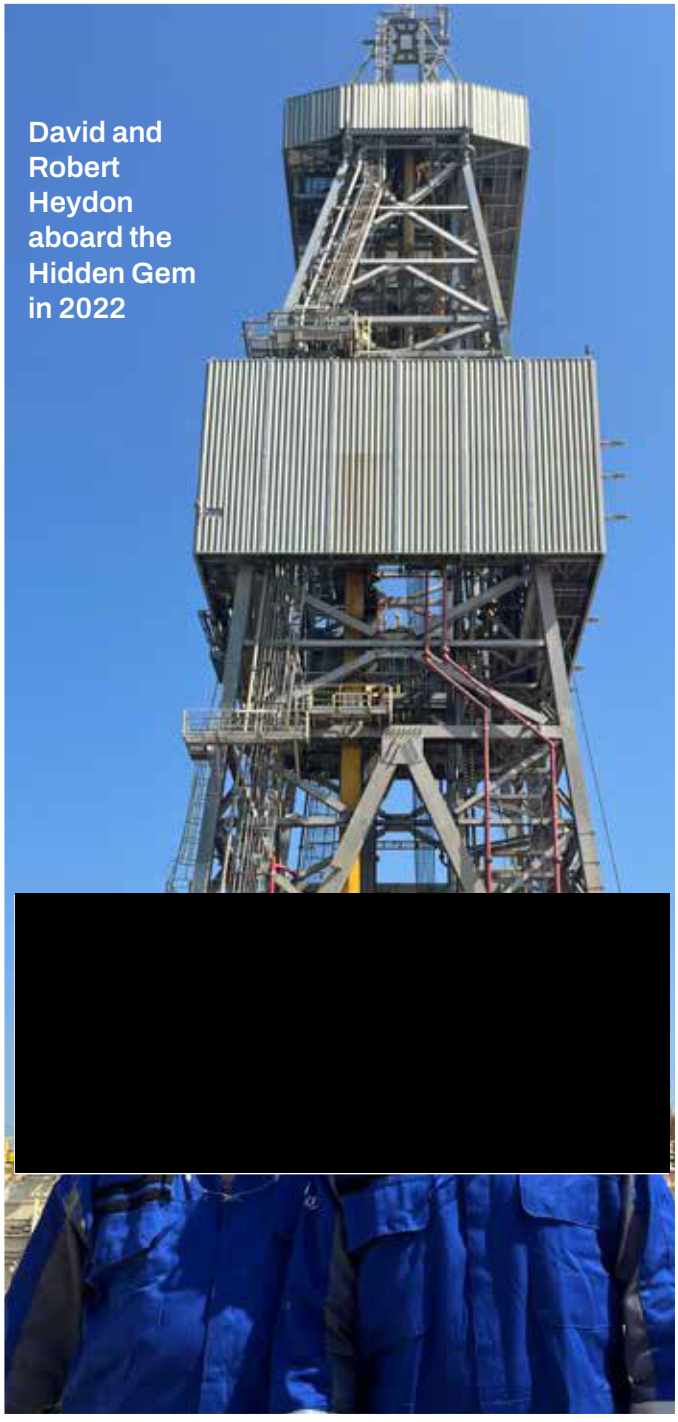
Moya Cahill, a pioneer in developing solutions for complex seabeds in the global marine energy and technology industry.

Michael Johnston, geologist and international mining expert, was CEO of Nautilus Minerals from 2012 to 2018, and led a number of successful deep sea exploration campaigns.

American Metal also possesses a wealth of metallurgical processing knowledge and expertise, including **Tom Hunter**, who has over 50 years of international experience as a metallurgist, including with respect to processes for the recovery of Nickel, Cobalt and Copper.

We are also partnering with a number of leading deep sea engineers, environmental consultancies and offshore service providers.

As a U.S.-based entity, SeaX is prioritizing U.S. suppliers and service providers where feasible. This strategic orientation is reflected in the partnerships the Company has already formed in anticipation of a successful grant of an exploration license under DSHMRA.



David and Robert Heydon aboard the Hidden Gem in 2022

Environmental Protection

We are committed to carrying out the Exploration Plan in adherence with the environmental requirements contained in DSHMRA, the Regulations, the exploration license conditions, as well as other applicable rules and regulations.

Because the SeaX Exploration Plan is comparable to Marine Scientific Research and exploration activities that have already been carried out in the CCZ for decades, we do not anticipate any significant effects to be caused to the environment under the Exploration Plan.

We will also build upon the extensive environmental studies and monitoring programs that have been carried out in the CCZ over the past 20 years.

We also believe polymetallic nodules offer significant environmental and social advantages compared to land-based mining, where declining ore grades and diminishing quality pose increasing environmental and social impacts. Unlike traditional mining on land, harvesting seafloor polymetallic nodules requires minimal overburden removal, avoids deforestation, demands limited production infrastructure, and avoids major environmental and social issues such as acid mine drainage, community displacement and human rights violations.

In addition, as low-carbon technologies become more embedded in energy systems to address rising global power demands, minerals are taking on a vital role. Green Energy Technologies like EVs, solar panels, wind turbines, and batteries depend heavily on critical minerals such as nickel, cobalt, manganese, copper, and REEs.

The demand for these minerals is expected to continue to rise, and our mission is to provide the U.S. with an alternative option for where it sources critical minerals, and to demonstrate the sustainable nature of this alternative through comprehensive studies and research.

Summary

As terrestrial mineral deposits are depleted and ore grades decline across the world, the need to explore offshore minerals becomes increasingly important.

Essential minerals like nickel, copper, cobalt, manganese and REEs, found in seafloor polymetallic nodules, serve as fundamental building blocks for economic growth, the Green Economy and national security.

While it is not possible to quickly turn on a supply of critical minerals, foreign metal supply can be cut off rapidly in a trade war or real conflict.

We believe that seafloor polymetallic nodules can offer the United States an environmentally sustainable option to assist secure supply of these critical metals, and protect the U.S. from supply shocks.

We believe that the harvesting and processing of these critical minerals can be conducted in an environmentally responsible manner, minimizing ecological impact and aligning with the United States' goals for sustainable development.

We are committed to investing in the future of U.S. industry and securing the critical metals necessary for technological advancements and national resilience, and submit this application accordingly.

Yours Sincerely,

Robert Heydon
Director
SeaX Inc.

2.0 American Metal Team

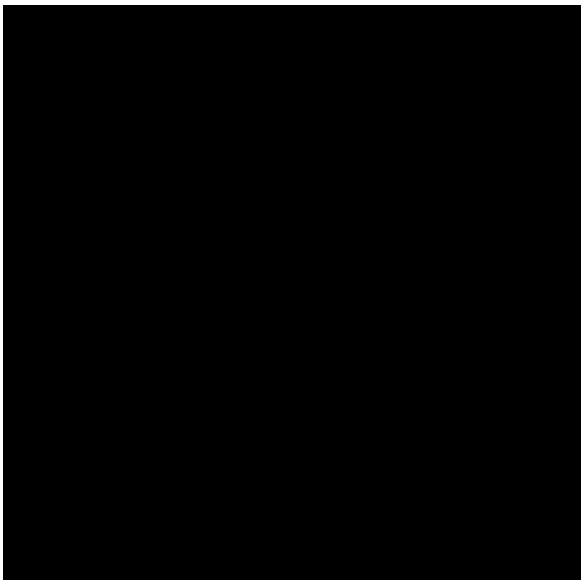
David Heydon
Chairman

David Heydon is recognized as a pioneer of the modern day commercial deep sea mineral industry. He was a founder and CEO of DeepGreen Resources Inc. (now TMC The Metals Company), as well as founder and until 2008 CEO of Nautilus Minerals Inc. Both DeepGreen and Nautilus became world leaders for their respective deep sea mineral deposits. He attracted investments from senior miners such as Placer Dome (now Barrick Gold), Teck Resources and Anglo American while at Nautilus. He oversaw the deep sea mineral feasibility study and environmental program which led to Nautilus being granted a seafloor mining license.

Since taking Nautilus public in May 2006, Mr Heydon raised US $334 million in cash for Nautilus to fund development of seafloor polymetallic sulphides.

Mr Heydon was the recipient of the Moore Medal for contribution to science and human's knowledge of marine minerals and its environs. Since retiring as CEO of DeepGreen Resources, David has continued his passion for the oceans with a focus over the last 8 years on the polar regions of the Arctic and Antarctica taking both scientists and passengers to view the changes in these areas over recent years. In 2024 at his initiation, he along with 20 international scientists visited the North Pole of Inaccessibility. Being the first people ever to reach this pole of inaccessibility they gathered valuable data from this remote polar transect - creating data points of the Arctic never before accessed.

David Heydon is recognized as a pioneer of the modern day commercial deep sea mineral industry



Dr. Halkyard has been involved with polymetallic nodules in the CCZ for 50 years, including with Kennecott in the 1970's, and more recently with the initial designs of the NORI offshore harvesting system

Dr. John Halkyard
Director

Dr. John Halkyard is an Ocean Engineer and active in deep ocean projects involving mining and oil & gas since the late 1960s. He was the Director of the Ocean Mining Laboratory for the Kennecott Manganese Nodule Consortium in the 1970s and led the successful mining system development effort.

He recently founded Ocean Minerals, LLC which received a polymetallic nodule Exploration License from the Cook Islands in 2022.

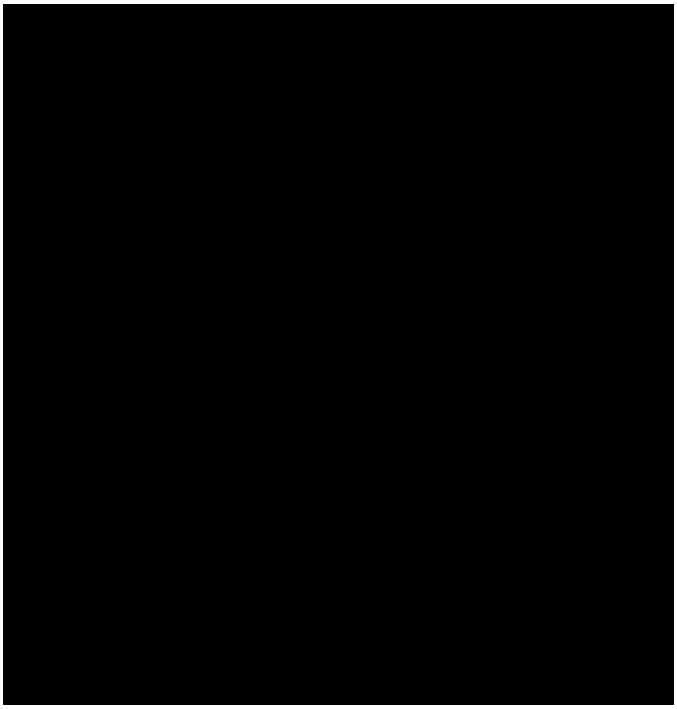
From 1988 – 2000 he was Technical Director for Deep Oil Technology, Inc., which successfully developed and commercialized a proprietary deep water oil and gas platform, the "Spar". From 2000 – 2007 he served as the Vice President R&D and Chief Technical Advisor for Aker Maritime, Inc. which was acquired by Technip, the world's largest energy engineering and project service company.

In 2011 he co-founded Deep Reach Technology, Inc. (DRT), which provided services for the deep-sea mining industry. In 2014 DRT entered into a Cooperative Research Agreement with the U. S. Army Research Laboratory Materiel Command ("Investigation of Rare Earth Element Extraction from Deep Sea Sediment", Prime Award W911NF-12-R-0011). DRT and Dr. Halkyard also served as the Competent Authority regarding the offshore technology for the polymetallic nodule Preliminary Economic Assessment and SEC SK-1300 report for TMC The Metals Company in 2021.

Dr. Halkyard holds an ScD degree in Ocean Engineering from the Massachusetts Institute of Technology. He is a Life Fellow of the American Society of Mechanical Engineers (ASME) and Fellow of the Society of Naval Architects and Marine Engineers (SNAME). He is a Licensed Professional Mechanical Engineer in California.

Robert Heydon
Director & CEO

LLB (Hons), Bbus Man



With a background in law and business, Robert has been creating and pioneering seafloor mineral projects for nearly 20 years.

He created the following deep sea mineral companies and has played an instrumental role in re-igniting global commercial interest in seafloor polymetallic nodule exploration and development:

(i) Nauru Ocean Resources Inc. (**NORI**);
(ii) Tonga Offshore Mining Limited (**TOML**);
(iii) DeepGreen Resources Inc. (Canada), now TMC The Metals Company;
(iv) DeepGreen Resources LLC (North Carolina), now operating as The Metals Company USA, LLC**;**
(v) United Nickel Inc., which developed international seabed mineral ventures with Pacific Island nations.

Robert successfully pioneered the model under which Developing States were able to finally participate meaningfully in mineral exploration in the international seabed area under the United Nations Convention on the Law of the Sea.

As a result, NORI and TOML became the first private sector companies to be granted a licence by the International Seabed Authority to explore for minerals in the international seabed area.

NORI, TOML and DeepGreen have gone on to spend over US$500 million on seafloor mineral exploration and development, including:

- Successful trial harvesting at over 4,000 meters below sea level, recovering 3,000 tonnes of seafloor polymetallic nodules;
- Carrying out around 20 offshore environmental campaigns, culminating in one of the largest deep-sea environment datasets ever compiled; and
- Development of proprietary hydrometallurgical processing technology to treat seafloor polymetallic nodules.

Robert has also worked to promote the development of various legal frameworks regulating deep sea minerals. This has included playing a key role in having invoked, for the first time, the jurisdiction of the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea in Hamburg, Germany.

Robert created NORI, TOML and DeepGreen, and has played an instrumental role in re-igniting global commercial interest in seafloor polymetallic nodule exploration and development.

Jonathan Lowe led the team that delivered the TOML polymetallic nodule exploration and development work in the CCZ

Jonathan Lowe
Exploration Director

BSc(hons), MBA, GAICD, SEG, FAusIMM

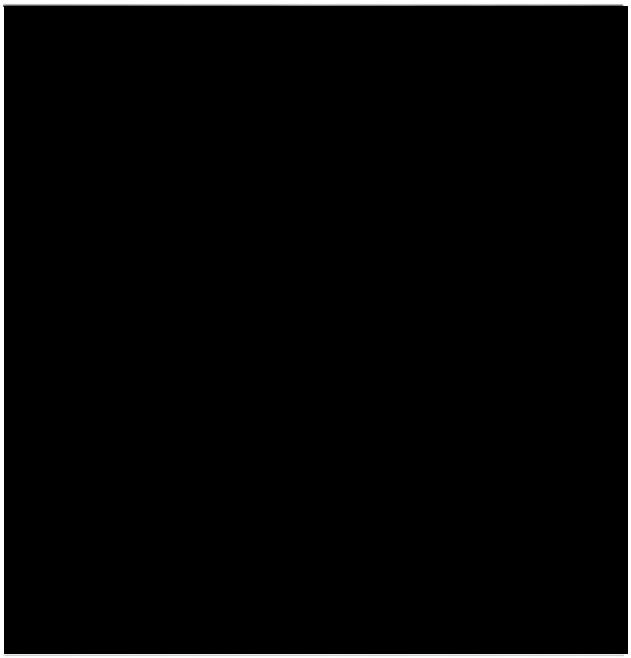
Jonathan Lowe boasts over 30 years of extensive experience in the minerals industry, 18 years of which focused on global metals exploration and bulk commodity mining at BHP, with the rest dedicated to adapting exploration processes and technologies to prospect and develop deep-sea mineral deposits.

During his 10-year tenure at Nautilus Minerals, he advanced from Chief Geophysicist to Exploration Manager and subsequently to Vice President of Strategic Development and Exploration. Numerous world-first successes emerged from this deep-sea work, particularly from the seafloor massive sulfide exploration and development within the Pacific Rim of Fire. This included delineating the Solwara 1 copper and gold resource in Papua New Guinea and the discovery of many other base and precious metal prospects in the deep-sea regions of PNG and Tonga.

Most notably, in the field of polymetallic nodule exploration and development, Jonathan led the team that delivered the exploration and development work in the Clarion-Clipperton Zone for Tonga Offshore Mining Limited (TOML), culminating in the first stock exchange reportable polymetallic nodule resource estimate. He is particularly honoured to have been recognized for his input into the recent Chief of Naval Operation Strategic Studies Group directed by James R. Hogg, Admiral, U.S. Navy (ret).

With a proven track record of successful, multi-commodity mineral exploration across a wide range of political and geographic jurisdictions, Jonathan firmly believes that the abyssal plains of the Pacific Ocean represent the next transformative step in the highly competitive resource industry.

He holds tertiary degrees in geophysics, an MBA, is a graduate of the Australian Institute of Company Directors, a Fellow of the Australian Institute of Mining and Metallurgy and Member of the Society of Economic Geologists.



Moya Cahill
Marine Engineer

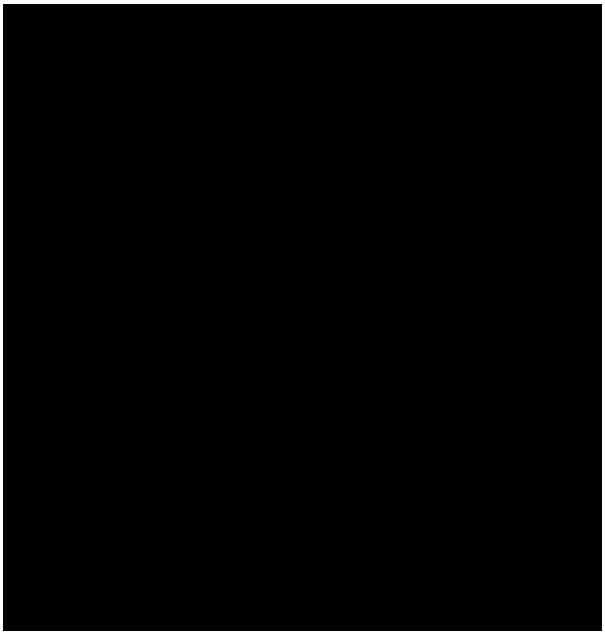
Moya Cahill is a seasoned entrepreneur and professional engineer, holding a degree in Naval Architecture and Marine Engineering from Memorial University of Newfoundland. With over 35 years of experience in the energy sector, Ms. Cahill has been a pioneer in developing solutions for complex seabeds in the global marine energy and technology industry.

Ms. Cahill began her career with Norsk Hydro in Norway before returning to Canada in the early 1990s to establish her own project management and engineering firm, MNC Group Inc. She later co-founded Pan Maritime Energy Services Inc. and, in 2006, became an angel investor and co-founder of PanGeo Subsea Inc., an ocean technology company.

Ms. Cahill has been a pioneer in developing solutions for complex seabeds in the global marine energy and technology industry

PanGeo Subsea was a technology and service provider specializing in high-resolution 3D sub-bottom acoustic imaging. As PanGeo's CEO, Ms. Cahill successfully raised over $30 million through Norwegian and U.S. private equity and government programs, advancing innovation and commercialization efforts. In 2021, she sold PanGeo to Kraken Robotics, a publicly traded company on Canada's TSX Venture Exchange. As Executive Vice President at Kraken, she led the integration of her team and technology, establishing a bundled service division that delivers Robotics as a Service (RaaS) to clients worldwide. Ms. Cahill has since returned to lead Pan Maritime Energy Services, supporting the global energy sector including Offshore Wind and Deep Sea Mining through strategic investments, board participation and advisory roles.

Throughout her distinguished career, Ms. Cahill has been recognized for her leadership and community contributions. Her accolades include the Canadian Women Entrepreneur of the Year Award, Canada's Top 40 Under 40, and the Newfoundland and Labrador Oil and Gas Industry Association (NOIA) Outstanding Contribution Award.



Michael Rai Anderson
Chief Operating Officer

Mr. Michael Rai Anderson has 25+ years in executive management, corporate turn-around and start-up roles in energy services and technology. Experience includes CEO of Deep Reach Technology, a specialty offshore marine emerging markets consulting and engineering firm; CTO of TerraSource Global, a multinational specialty mining, minerals and O&G technology company; CEO of Sentinel Turn-Key Services, a specialized oil & gas environmental services start-up firm; CEO of Plugless Power, a cutting-edge magnetic resonance wireless EV charging technology start-up firm; President of Elgin Separation Solutions, a multi-national dewatering and liquid / solid separation technology company; Vice President of T-3 Energy, a multinational oil-field pressure control solutions company; and Senior Project Manager for CDM Smith's Environmental Services Division.

Michael has 25+ years in executive management, corporate turn-around and start-up roles in energy services and technology

Mr. Anderson has sat, or currently sits, on five different boards, including Kem-Tron Technologies Inc. India / Russia / Canada, Plugless Power, Gaumer Process, Deep Reach Technology, and Carroll College's Engineering Advisory Board; co-founded two start-ups including Sentinel Turn-Key Services and Plugless Power; executed six successful change of controls, including the sale of T-3 Energy Services to National Oilwell Varco ("NOV") in 2010, KEMTRON Technologies, Inc. to Elgin Industries in 2014, Gaumer Process to NIBE Industrial in 2017, Sentinel Turn-Key Services to Posillico Inc. in 2017, Engin Industries to TerraSource Global in 2023 and TerraSource Global to Astec Industries in 2025; championed more than 20 different acquisitions and/or divestures; and a founding investor of Ocean Minerals, LLC.

Mr. Anderson received his Bachelor of Arts in Applied Mathematics from Carroll College and Bachelor of Science in Chemical Engineering and Minor in Environmental Engineering from Columbia University. Mr. Anderson obtained his Professional Engineering License in Environmental Engineering.

Dr. Charles Morgan
Technical Consultant

Dr. Morgan, an oceanographer and geologist, is the Principal Scientist at Moana Hohonu Consulting LLC., an Hawaii based company specializing in environmental and regulatory permitting of offshore projects.

Dr. Morgan has been at the forefront of the seafloor minerals industry for 50 years. He is a leading authority on polymetallic nodules in the Clarion Clipperton Zone (CCZ) and was responsible for managing and completing the Geological Model for the CCZ for the International Seabed Authority (ISA Technical Report #6).

In the 1970's he was Senior Research Scientist for Lockheed Advanced Marine Systems, as part of the Ocean Minerals Company ("OMCO") polymetallic nodule mining consortium, where he was responsible for Resource Assessment and Environmental Compliance. After many years of research and development, costing $100 million (in 1979 dollars), OMCO successfully conducted a trial harvesting operation for polymetallic nodules in the CCZ. This was achieved using a remotely controlled, fully manoeuvrable, self-propelled harvester.

Dr. Morgan was Senior Research Scientist for Lockheed's seafloor polymetallic nodule mining in the 1970's in the CCZ

Since that time Dr. Morgan has had extensive involvement with the seafloor minerals industry, including as Chairman of the Underwater Mining Institute. He was also the only U.S. Representative on the Legal & Technical Commission of the International Seabed Authority (1997 –2001). He is registered as a Competent Person for seabed mineral resource assessment by the Society for Mining and Metallurgical Exploration (SME, Registration #4041112).

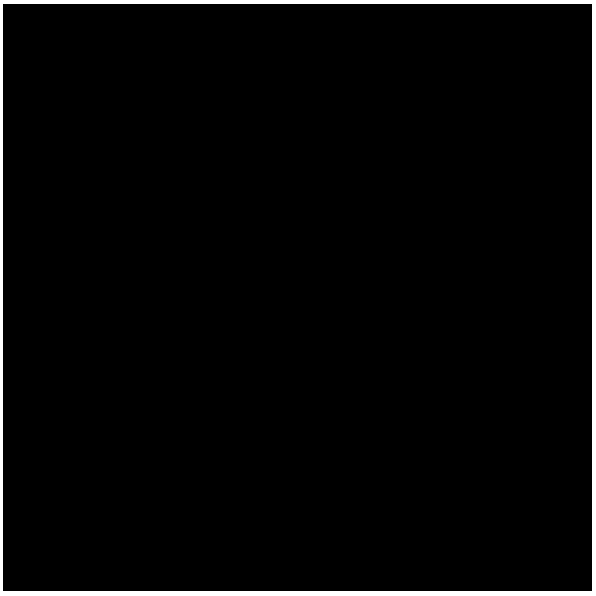
He has written over 20 publications on deep seabed mining and has managed and participated in a large number of deep-sea mineral projects.

Michael Johnston
Exploration Geologist

Mr Johnston has extensive mining experience both onshore and offshore.

From 2012 to 2018 he was President & CEO of Nautilus Minerals, where he managed the development of the world's first seafloor copper - gold mine. In addition to managing numerous offshore exploration campaigns, he managed the build and successful trialling of the offshore mining system.

Prior to that he was technical services manager at the giant Porgera Gold Mine during the 1990s, and general manager of Placer Dome's exploration for all of Australia and Asia Pacific in the early 2000s.



Tom Hunter
Metallurgical Processing & Engineering

Mr Hunter has over 50 years of international experience as a metallurgist in operational, process, project development and start-up plant roles. Formerly with Mount Isa Mines, Minproc, and major engineering companies including Aker Solutions, Jacobs and Outotec, he has been involved in a number of large metals projects in gold, copper, nickel/cobalt, tungsten and uranium.

He currently consults to Worley as a specialist in process engineering and the development of bespoke processes for the recovery of Nickel, Cobalt and Copper.

Krystal Wedge
Chief Financial Officer

PGCertAppFin, BComm, GAICD, FGIA

Krystal Wedge is a corporate executive with experience in management, governance, capital markets, and corporate finance. She specialises in public offerings, equity raisings, and debt financing in sectors including mineral resources, agriculture, and private equity. With extensive experience on various listed exchanges, she has worked with companies from early-stage exploration to full-scale production, playing a key role in discovering and developing significant mineral deposits.

Boyd Willis
Chief Metallurgist

Mr. Willis holds a Bachelor of Applied Science degree in Applied Chemistry. He has more than 40 years of process engineering experience, including 31 years in complex hydrometallurgical processes for base metal recovery, including 26 years in nickel laterite ore processing.

Mr Willis was involved in DeepGreen's polymetallic nodule process development program, and has also been involved in over 30 laterite nickel projects. His experience spans process development, design and coordination of detailed testing and pilot programs, process modeling and study management from field studies to PFS and DFS. In addition, Mr Willis has 15 years of experience in plant operations.

Tim Searcy
Geologist & Business Development

P.Geo, MSc, MBA

Mr. Searcy is a Professional Geologist who served as the VP of Business Development for Nautilus Minerals, while Nautilus went from a private company to a well-capitalized TSX & AIM listed company. Nautilus is developing the first seafloor massive sulphide mine in the exclusive economic zone of Papua New Guinea. In 2010, Mr. Searcy co-founded Auryx Gold Corp., a TSX listed company. Mr. Searcy played a key role in the discovery of the Wolfshag deposit, which added over a half million high-grade ounces to the Otjikoto reserves. Mr. Searcy started his working career in 1995 as an exploration geologist, and holds a BSc in Geology.

Steven Rizea
Engineer

Steven has 20 years' experience in the design and numerical techno-economic modeling of offshore renewable energy and deep-sea mining systems. He was a Senior Mechanical Engineer at Makai Ocean Engineering, including Ocean Thermal Energy Conversion (OTEC) design and modeling.

He has developed and validated airlift numerical simulations, and he has led DOE and ARPA-E projects that included plume mitigation technology for deep-sea nodule collectors.

He has a BS from U of Florida, Mechanical Engineering and an MS from U of Central Florida, Mechanical Engineering.

3.0 Statement of Financial Resources

In accordance with § 970.201 of the Regulations, this Section details our financial resources to carry out the exploration program set forth in the SeaX Exploration Plan.

As detailed below, and in accordance with § 970.201 and § 970.401, SeaX and American Metal will be financially responsible to meet all obligations under the exploration program, and is capable of committing or raising sufficient resources to cover the estimated costs of the exploration program.

The companies started by American Metal's founders have, to our knowledge, gone on to spend more on deep sea mineral exploration (and related development and environmental studies) than any other deep sea mineral company in the modern era.

Since incorporating Nautilus Minerals Inc. ("Nautilus") in 2002, American Metal's founders have demonstrated their ability to finance large-scale deep sea mineral projects, and have a proven track record of raising and committing funds to carry out exploration and development programs.

For example, while leading Nautilus, American Metal's Chairman David Heydon personally raised US$334 million in cash in just 2 years to fund deep sea mineral resource exploration and trial mining in the Bismark Sea of Papua New Guinea.

In total, the companies previously created by American Metal's management have gone on to spend over US$1 Billion on deep sea mineral exploration and development.

In that respect, Nautilus and NORI/DeepGreen have separately carried out over US$500 million each of exploration work and development on their respective deep sea mineral projects, including funding world leading environmental studies led by international scientists and institutions as well as the design and build of offshore equipment and technologies.

These companies also attracted strategic investment and backing from world leading mining and offshore companies who joined as shareholders, including Placer Dome, Barrick, Teck Resources, Anglo American, Glencore, Maersk and Allseas.

As detailed in Section 3.2, SeaX will also benefit from collaborating with American Metal Resources LLC.

This collaboration will allow SeaX to access significant cost savings through joint exploration programs, data sharing, operational synergies, and joint asset utilization.

For example, significant cost savings may be made through coordination of at-sea surveys and sharing mobilization and demobilization costs. There may also be significant cost savings with respect to joint engineering and metallurgical studies.

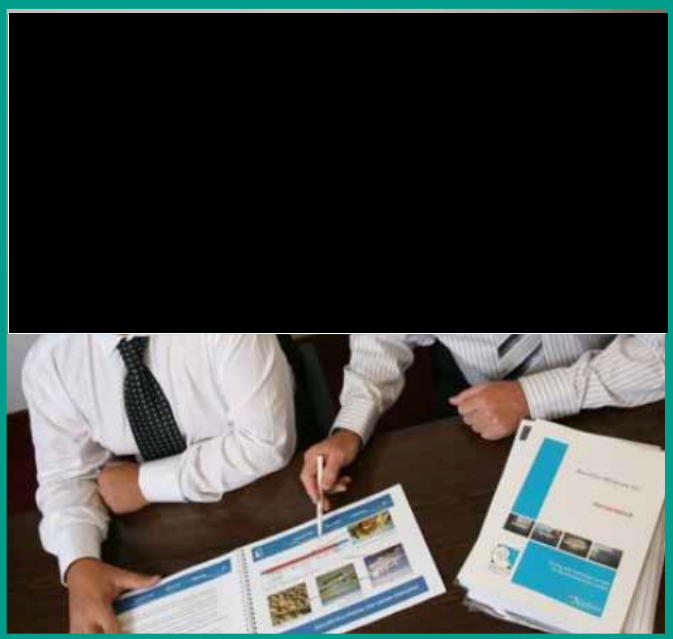
This Section 3 includes the following Sub-Sections in line with the requirements of the Regulations:

3.1 Financing the Exploration Program

3.2 Estimated Cost of the Exploration Program

3.3 Audited Financial Statement

3.4 Credit Rating and Bond Rating



American Metal's Chairman David Heydon with the Nautilus Minerals Prospectus at the time of Publicly Listing on the Toronto Stock Exchange

3.1 Financing the Exploration Program

In accordance with § 970.201(1), this Section 3.1 provides a description of how SeaX intends to finance the exploration program.

As is standard practice in the mineral exploration industry, and as American Metal's founders have successfully done in the past, financing for the SeaX Exploration Plan will be raised as and when required as the project moves through the development phases.

SeaX and American Metal have a range of funding options available to support the SeaX Exploration Plan, including the following (summarised in further detail on the following pages):

(i) Continued Financing from Current Shareholders;
(ii) Equity Market Financings;
(iii) Issuing shares to Technical Partners in exchange for vessels and services;
(iv) Financings and Strategic Partnerships with Major Mining Companies;
(v) Partnerships with Government;
(vi) Partnerships with Research Institutes;
(vii) Stockpiling Agreements; and
(viii) Pre-sale of Metals and Products in the U.S.

SeaX can also benefit from collaborating with American Metal Resources LLC. This collaboration can allow SeaX to access significant cost savings through joint exploration programs, data sharing, operational synergies, and joint asset utilization. There may also be significant cost savings with respect to joint engineering and metallurgical studies.

Continued Financing from Current Shareholders

American Metal's shareholders have the capability to fund further exploration and development work via their current resources and holdings (refer accompanying Letter of Financial Support).

Equity Market Financings

American Metal's management have conducted large scale capital raisings in the equity market, and the companies that they have started in the past have gone on to finance exploration and development via public listings. As an example of the types of options that are available to SeaX and American Metal to raise capital via public listings:

A. Nautilus Minerals Inc., as part of significant equity capital raisings, was publicly listed on the Toronto Stock Exchange (TSX) by American Metal's Chairman and on AIM, a market operated by the London Stock Exchange; two of the world's premier stock exchanges for resource companies; and
B. DeepGreen, founded by American Metal's Chairman as well as it's President & CEO, went on to be publicly listed on the Nasdaq Stock Exchange in September 2021. To date, DeepGreen/TMC has spent over US$500 million on seafloor polymetallic nodule exploration and development.

American Metal and SeaX have already held a number of discussions with financial groups who can facilitate financings once an exploration license has been granted (refer accompanying Letter of Financial Support).

Issuance of Shares to Technical Partners

The deep sea mineral companies started by American Metal's founders have successfully attracted the backing of world leading mining, offshore and maritime companies. These partnerships have facilitated substantial contributions of services and resources in exchange for equity in these deep sea mineral ventures.

SeaX and American Metal plan to put in place similar strategic alliances where SeaX can receive both cash investments as well as services rendered in exchange for shares.

Financings and Strategic Partnerships with Major Mining Companies

American Metal's management has a strong track record of attracting world leading international resource companies to fund deep sea exploration work. For example:

- **Teck Cominco** (a diversified mining and metals company) invested US$40 million in equity capital in Nautilus Minerals while David Heydon was CEO. Specializing in copper and zinc, Teck (now Teck Resources) is a world leading mining company. Teck also formed a joint venture with Nautilus to explore other deep-sea areas for base metals of copper and zinc;
- **Anglo American** invested US$25 million in Nautilus. Anglo American is one of the world's largest mining and natural resource groups; and
- Nautilus also formed a joint venture with **Placer Dome**, and successfully completed a drilling and sampling program on board the 104 meter DP Hunter, in which a A 200 horse power ROV was used to support drill operations, rock sampling and trial mining, as well as to provide a platform for environmental studies.

Partnerships with Government

SeaX recognizes the strategic importance of this project to the U.S., and plans to offer the U.S. Government opportunities to partner on different aspects of the project. This will assist the U.S. to further its technical capacity and knowledge transfer, as well as assist the U.S. to obtain mineral independence.

As an example, the U.S. Department of Defense (DoD) recently invested $400 million into MP Materials, the operator of the Mountain Pass rare earth mine in California, to bolster the domestic supply chain for rare earth elements.

Partnerships with Research Institutes

American Metal's management have carried out a number of collaborations with research institutes to share exploration cruise costs. For example:

- *RV Kilo Moana (UNOLS) in Tongan EEZ, in collaboration with the University of Hawaii*
- *RV Sonne in PNG EEZ, in collaboration with GEOMAR*
- *RV Southern Surveyor in Tonga, in collaboration with the Australian National University*
- *RV Melville in the Manus Basin of PNG, in collaboration with Woods Hole Oceanographic Institution*

Stockpiling Agreements

Polymetallic nodules can be stockpiled on land as an 'asset' of 'contained' metal. Rather than buying nickel, copper, cobalt or manganese metal for stockpile, the U.S. can stockpile SeaX's polymetallic nodules as 'metal in ore' for release and 'resale' at a later date to a processing plant. This may be relevant as the best option may not be to make conventional stockpile metals but have the nodules available in stockpile to go direct to the appropriate metal compound such as Nickel sulphate for EV and off-grid storage batteries.

This stockpile can also operate in much the same way as the Strategic Petroleum Reserve. SeaX can also pre-sell ore to the National Defense Stockpile, which is maintained by the Department of Defense (DOD), and stores materials that are strategic and critical to defense and essential civilian needs in times of national emergency.

As such, SeaX can also look to fund exploration through pre-sales of its polymetallic nodule ore for the purpose of Stockpiling.

Pre-Sale of Metal and Offtake Agreements

SeaX has the ability to pre-sell its metals and products through offtake agreements with metal traders and end users, such as car manufacturers who are in need of critical metals that have been ethically and sustainably sourced.

For example, DeepGreen raised money from Glencore, one of the world's largest commodity traders as part of offtake agreements, under which Glencore was sold the right to purchase 50% of the nickel and copper production from the NORI polymetallic nodule license area in the CCZ.

SeaX plans to enter into similar offtake agreements in exchange for cash with U.S. purchasers and end users.

3.2 Estimated Cost of the Exploration Program

Year	Estimated Budget (USD)
1	$4,000,000
2	$5,000,000
3	$6,000,000
4	$6,000,000
5	$15,000,000
6	$30,000,000
7	$15,000,000
8	$12,000,000
9	$10,000,000
10	$10,000,000

3.3 Audited Financial Statement

SeaX Inc., and its parent American Metal Inc., are special purpose vehicles that have been recently formed in 2025 to source critical minerals for the U.S. from seafloor polymetallic nodules.

Establishing new entities within the U.S. has allowed the company to bring our team's world leading deep sea mineral expertise and knowledge to the U.S., and assist the U.S. to secure critical minerals from seafloor polymetallic nodules.

In accordance with the objectives of the Offshore Critical Minerals EO, this will also allow us to facilitate the transfer of know-how to the U.S. with respect to deep sea mineral exploration and development, to play a role in assisting the U.S. re-establish and maintain its leadership in deep sea science and technology.

As was done in the past with Nautilus Minerals Inc. and DeepGreen Resources Inc., by establishing a project specific entity, we are able to be focus on delivering the deep sea mineral exploration project. Often what can happen in mineral exploration is that once a large existing mining company secures an exploration license, it can then slow down its exploration and not progress the project, as it has other project's and cashflow businesses to focus on that compete for capital allocation or are only developed sequentially over time in a pipeline of other mining projects.

In contrast, SeaX is focused on fast-tracking this project in order to produce metals from seafloor polymetallic nodules for the supply in the United States.

Because SeaX Inc. and American Metal Inc. were recently formed in 2025, they have not yet completed an accounting cycle. As such, there is currently not a "most recent audited financial statement".

SeaX Inc. was incorporated on January 27, 2025 and in accordance with standard corporate practice and applicable regulatory requirements, the financial reporting period is aligned to the calendar year, commencing on January 1 and ending on December 31.

We confirm that the audit of SeaX Inc.'s financial statements will be conducted in accordance with Generally Accepted Auditing Standards (GAAS) in the United States and applicable professional and regulatory requirements, and will be carried out following the conclusion of the current financial reporting period. That is, the audit will be carried out upon completion of the financial reporting period, which ends on 31 December 2025.

As soon as the audit is complete the audited financial statements will be provided to NOAA.

3.4 Credit Rating and Bond Rating

SeaX confirms that a Credit Rating or Bond Rating will not be required to obtain the financing required to carry out the proposed exploration program.

Such a rating has not been required in the past to fund large scale deep sea mineral exploration, and such a rating will not be required to fund this exploration program.

As such, SeaX Inc. and its parent American Metal Inc. do not intend to obtain a credit rating or bond rating.

4.0 Statement of Technological Experience & Capabilities

In accordance with § 970.202 and § 970.402 of the Regulations, this Section 4 provides information to demonstrate that SeaX and American Metal have the technological experience and capabilities to carry out the exploration program contained in the SeaX Exploration Plan. The following Sub-Sections contain further detailed information demonstrating that SeaX and American Metal have the requisite knowledge and skills, as well as the technology and expertise, to carry out the exploration:

As demonstrated in Sections 4.1 to 4.4, the American Metal team have successfully carried out a large number of deep sea exploration programs in the past, and are recognized as world leaders in deep sea mineral technological capability. Combined, they possess extensive knowledge and experience in the deep sea mineral industry spanning decades.

American Metal's founders and management team have been at the forefront of deep sea mineral exploration, environmental studies and development for many years.

The American Metal team has been directly involved in world leading at-sea polymetallic nodule exploration, polymetallic nodule metallurgical development work, design of offshore equipment to harvest polymetallic nodules, and were responsible for initiating the most comprehensive deep-sea polymetallic sulphide environmental study ever undertaken by international scientists at the time. Possessing skills and experience for both offshore and onshore operations, they have also been responsible for bringing together world leading teams and technical alliances.

For example, American Metal's Chairman, David Heydon, was founder and CEO of Nautilus Minerals Inc. from 2002 to 2008. In that time, he oversaw Nautilus' deep-sea exploration and mining feasibility study, as well as the environmental program, which led to Nautilus being granted the world's first deep sea mining license.

Likewise, American Metal's Chairman as well as it's CEO created Nauru Ocean Resources Inc. (NORI) and DeepGreen Resources Inc. (now TMC The Metals Company), and they successfully commenced and led the initial offshore exploration and environmental programs, and oversaw the metallurgical development program under which a process was designed and patented to treat seafloor polymetallic nodule ore.

Another American Metal Founder and Director, Dr. John Halkyard, led the Manganese Nodule Mining System development in the 1970's for Kennecott. The Kennecott Consortium carried out significant polymetallic nodule exploration and development work in the CCZ, and was granted a license by NOAA for the area known as USA-4. He also recently founded Ocean Minerals, LLC which received a polymetallic nodule Exploration License from the Cook Islands in 2022.

American Metal's Exploration Director, Jonathan Lowe, led the team that delivered the TOML polymetallic nodule exploration and development work in the CCZ, and was previously Nautilus' Exploration Manager for seafloor polymetallic sulphides. Likewise, American Metal founder Michael Johnston was CEO of Nautilus Minerals from 2012 to 2018, and led a number of successful deep sea exploration campaigns.

American Metal's COO Michael Rai Anderson has many years of managing technology companies, including as CEO of Deep Reach Technology, which provides services for the deep-sea mining industry.

Moya Cahill is a pioneer in developing solutions for complex seabeds in the global marine energy and technology industry.

American Metal's founders have played an instrumental role in pioneering the modern-day deep sea mineral industry. For example:

(i) Founded Nautilus Minerals Inc. in 2002, which was granted the world's first deep sea mineral License and Environmental Permit, and is developing the world's first hard rock copper-gold mine at 1,700 meters below sea level;

(ii) Created Nauru Ocean Resources Inc. in 2008;

(iii) Founded United Nickel Inc., which owned Nauru Ocean Resources Inc (NORI) and Tonga Offshore Mining Limited (TOML). NORI and TOML became the first private sector companies to be granted licenses to explore for polymetallic nodules in the CCZ by the International Seabed Authority;

(iv) Founded DeepGreen Resources Inc. in 2011, a world leader in deep sea mineral exploration and development, and which became TMC The Metals Company;

(v) Founded Deepgreen Engineering Pte Ltd, which successfully developed and patented a metallurgical process to treat seafloor polymetallic nodule ore in an environmentally sustainable manner with zero waste; and

(vi) Created DeepGreen Resources LLC (North Carolina), now operating as The Metals Company USA, LLC**.**

These companies went on to become world leaders in the commercial exploration and sustainable development of deep sea mineral resources. Some of the accomplishments of these companies include:

(i) Combined expenditure of over US$1 Billion on deep sea mineral exploration, development and environmental studies;

(ii) Public Listing on the Nasdaq Stock Exchange as well as the Toronto Stock Exchange, and on AIM, a market operated by the London Stock Exchange;

(iii) Attracted the backing of world leading mining and offshore companies as shareholders, including:

GLENCORE Teck AngloAmerican BARRICK

Allseas MAERSK PLACER DOME

(iv) Successful trial mining of deep sea polymetallic nodules in the CCZ and recovery of 3,000 tonnes of nodules;

(v) Successful trial mining of seafloor massive sulphide deposit at 1,700 meters water depth;

(vi) large number of successful offshore environmental cruises, including deep sea environmental baseline studies, monitoring, and prototype mining impact assessments;;

(vii) Production of world first deep sea Environmental Impact Statement leading to a Mining License being granted for deep sea mineral;

(viii) Production of world's first NI 43-101 compliant resource statements for seafloor massive sulphides and seafloor polymetallic nodules; and

(ix) Patents granted over metallurgical process to treat seafloor polymetallic nodule ore.

Due to their past experience and knowledge, the American Metal team understand the vessels, technologies, and operational logistics required to execute deep sea mineral programs. Their expertise includes sourcing and mobilizing equipment across international markets, supported by established relationships with commercial, academic, and governmental entities capable of contributing to the proposed activities.

In addition to the past experience of the American Metal team, SeaX will also look to contract services from other leading consultants and service providers.

In that regard, SeaX confirms that it is ***not*** dependent upon any one group or particular company to provide services and support, and is not relying upon any vessels or equipment that may be used or owned by other companies or competitors.

There are a large number of service providers looking to participate in this industry and provide their equipment and services. SeaX will continue to engage additional groups as and when needed pursuant to the Exploration Plan.

Based upon the experience of the American Metal team, there has not been issues in the past accessing technology and equipment to carry out deep sea mineral exploration. Our experience is that there are a number of service providers who will be wanting to bid for the exploration work when we go out to tender.

As is typical in the industry, and as the American Metal founders have done many times in the past, a tender process will be carried out for vessels and equipment when the exact timing of exploration campaigns is known. This will allow vessel operators to lock in the work. Until the exploration license is granted, it is not possible to commit to a timing window for the charter and hire of vessels and equipment.

Likewise, it would not be prudent to start investing significantly in the design and manufacture of subsea harvesting equipment until after the license is granted.

That being said, and with a view to ensuring that the exploration program can commence promptly upon a license grant, SeaX is taking pro-active steps to put in place partnerships in anticipation of a successful grant of an exploration license.

SeaX will be pleased to provide copies of agreements and letters of support from these technical alliance partners, service providers and expert consulting groups. Due to the confidential nature of some of these agreements (including with respect to commercial terms and development of new technologies), it is proposed that these agreements will be provided in a separate document that accompanies this Application.

SeaX wishes to also note that it is not reliant upon any one technical group or service provider, as the American Metal team already possesses the experience and skills to execute deep sea mineral programs. However, we hope that by including these partnerships and technical alliances it can be demonstrated beyond any doubt that SeaX will have access to the technology, equipment and resources that are needed to carry out the Exploration Program.

4.1 Offshore Exploration Experience & Capabilities

American Metal's team are world leaders in deep sea mineral exploration, and have an extensive track record of achievements in the deep sea mineral industry.

The team have successfully managed a large number of offshore mineral exploration campaigns, and possess world leading knowledge and skills regarding deep sea mineral exploration.

For example, the principals of American Metal started and led the intial deep sea exploration programs at Nautilus Minerals Inc., Nauru Ocean Resources Inc., and DeepGreen Resources Inc.

American Metal's founders have also carried out polymetallic nodule exploration across multiple areas in the CCZ. For example, in 2012 David Heydon and Robert Heydon successfully managed the first private sector modern-day polymetallic nodule exploration cruise in the CCZ. This cruise was carried out using the RV Mt Mitchell, and over 50,000km2 was surveyed. Nodules were also recovered for larger scale metallurgical work. This cruise successfully delineated the NORI D Area and identified that deposit as the priority area for the NORI Project. Following this cruise, the NORI D Area went on to become the focus for the most successful and comprehensive trial harvesting and environmental studies ever carried out in the CCZ.

Similarly, American Metal Founders Jonathan Lowe and Michael Johnston led Nautilus Minerals' polymetallic nodule exploration in the CCZ through Tonga Offshore Mining Limited (TOML).

The polymetallic nodule exploration work previously led by American Metal founders is summarized on the following pages. As shown below, the American Metal team has extensive experience carrying out the work proposed in SeaX's Exploration Plan, as well as experience and know-how using the exploration equipment proposed in the SeaX Exploration Plan.

The exploration equipment proposed in the Exploration Plan is included in Section 4.5 below. As shown on the following pages, the American Metal team has extensive experience managing cruises that utilize these exploration technologies.

With respect to capabilities and experience to carry out the offshore environmental studies and monitoring, this is also outlined in Section 4.4.

During NORI's 2012 polymetallic nodule exploration cruise in the CCZ, NORI carried out bathymetric mapping of the seafloor within NORI Areas C and D, along with bulk nodule sampling for use in metallurgical testing. This was done aboard the RV Mt. Mitchell, pictured below.

The bathymetric data obtained from NORI Area D is pictured on the following page.

Using a hull-mounted Kongsberg Simrad EM120 12 kHz multibeam echo sounder system (MBES), capable of surveying full-ocean depths, approximately 25,720 km² were mapped in NORI Area C and about 25,439 km² in NORI Area D. The MBES data collected during the 2012 campaign was processed to identify regions of high nodule density. The geophysical interpretation of the MBES data was highly effective, and dredge sampling was guided by bathymetric surfaces and backscatter intensity analysis.

Bulk nodule samples were collected through dredging operations, which included five deployments in Area C and 28 deployments in Area D. These efforts resulted in the recovery of approximately 280 kilograms of nodules from Area C and roughly 4,500 kilograms from Area D. Pictures of some of the polymetallic nodule samples recovered are shown on the following page.

Video footage was also captured during these dredging activities, providing visual confirmation of nodule presence in both Areas C and D.

A total of twenty nodule samples were assayed following the NORI 2012 campaign, which included two from Area C and eighteen from Area D. Assay results indicated average grades of 1.20% nickel, 1.03% copper, 27.9% manganese, and 0.13% cobalt.

Additionally, a number of other elements were analyzed. A drying test conducted on a nodule sample from the campaign revealed a moisture loss of 24% when dried at 120°C.

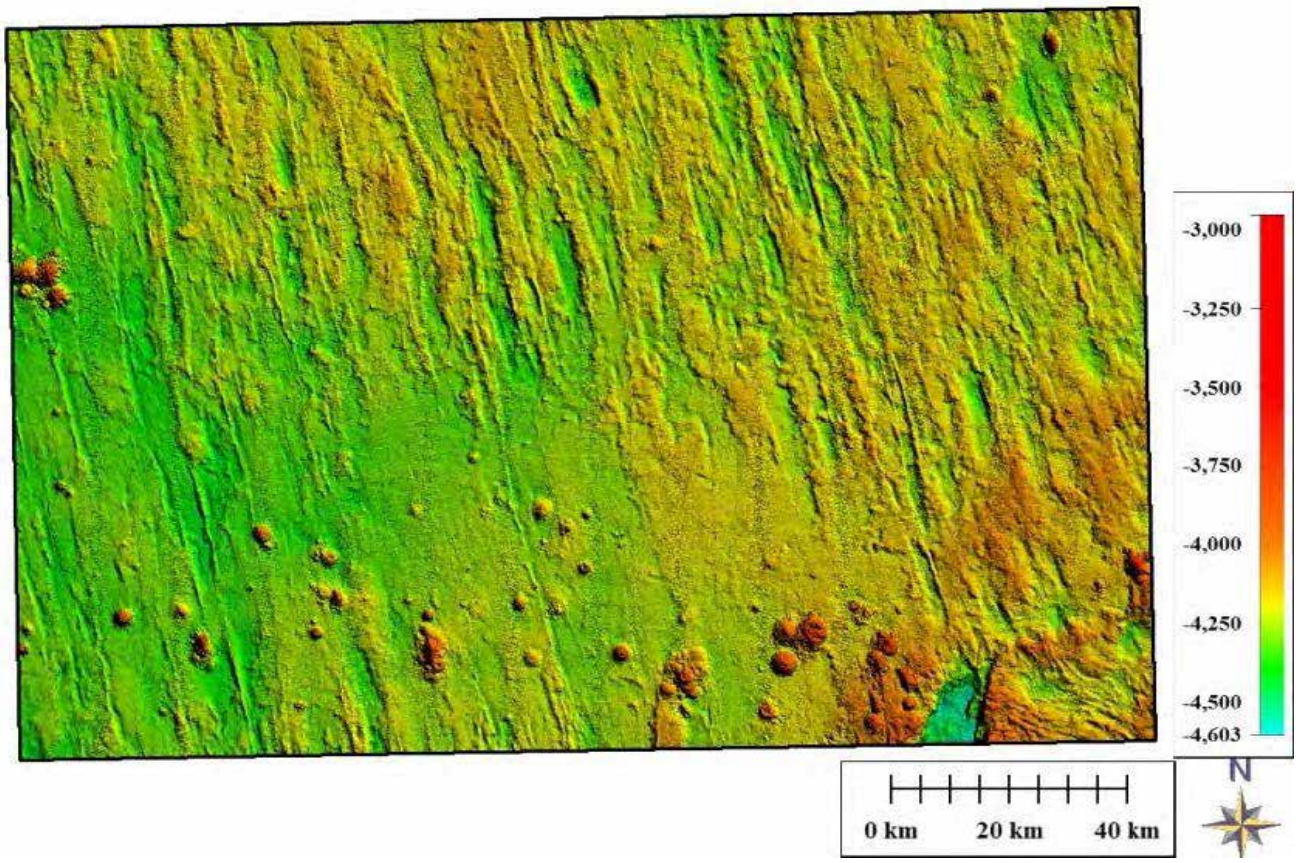
This exploration cruise set a new benchmark for modern day polymetallic nodule exploration in the CCZ.

The cruise was also carried out with zero safety or environmental incidents.

This successful cruise identified the NORI D Area as the priority area for the NORI Project, and since that discovery the NORI D Area went on to become the focus for the most successful and comprehensive trial harvesting and environmental studies ever carried out in the CCZ.

The information contained in this Section regarding the 2012 NORI cruise and resource is sourced from the Technical Report Summary, AMC Project 321012, 17 March 2021, which can be accessed at the following site: https://metals.co/wp-content/uploads/2022/03/01.05-NORI-D-Initial-Assessment-US-SK-1300-by-AMC-March-2021.pdf

Source: globalseas.com



Above: Bathymetric data obtained on 2012 NORI Cruise
Below: Polymetallic nodules recovered during the 2012 NORI Cruise.
Source: Technical Report Summary, AMC Project 321012, 17 March 2021

The following year, Robert Heydon (now American Metal's CEO) and Jonathan Lowe (now American Metal's Exploration Director) played a key role in managing NORI's 2013 polymetallic nodule cruise, this time to Areas A and B in the CCZ.

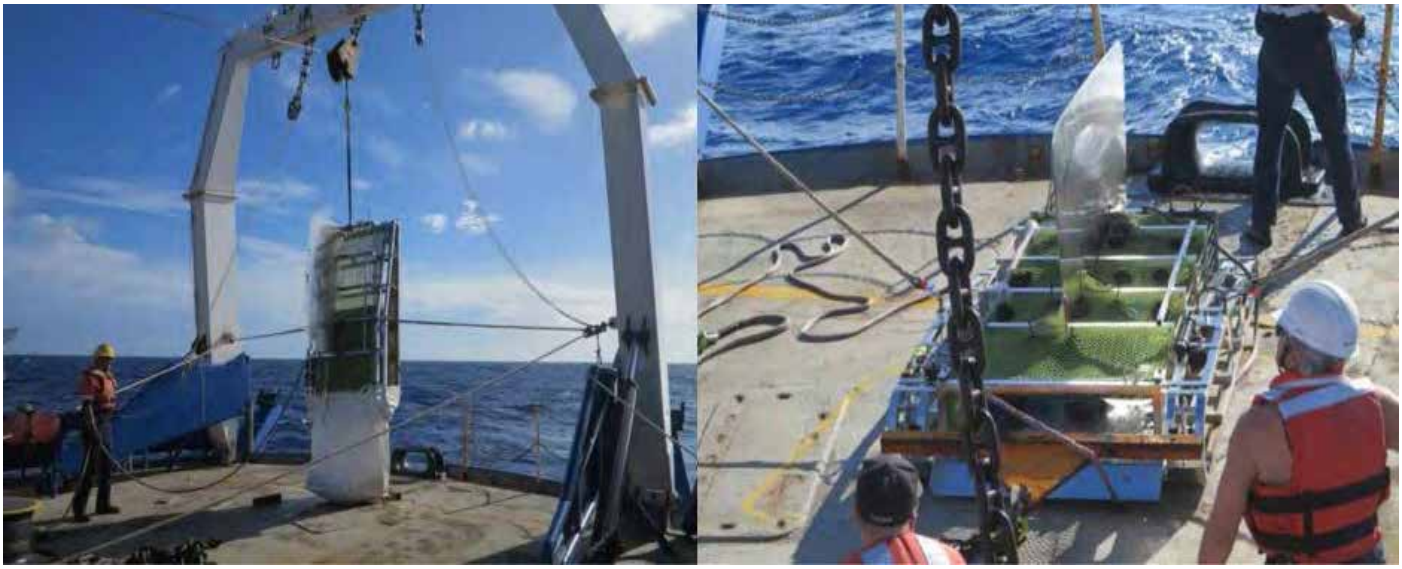
On that cruise, bathymetric mapping was carried out as well as bulk sampling of polymetallic nodules.

A hull-mounted Kongsberg Simrad EM120 12 kHz, full-ocean depth multibeam system was used to survey approximately 8,924 km2 in NORI Area A and approximately 2,911 km2 in NORI Area B.

Dredging for bulk nodule sampling was carried out using an epibenthic sled (pictured below). The epibenthic collector was designed to skim the seafloor collecting epibenthic and inbenthic nodules with minimum sediment, leading to a reduction in environmental impact.

Each dredge sample was sub-sampled for laboratory analysis using a simple random scoop sampling to obtain two 2 kg samples. The four sub-samples from NORI Area A and B were sent to ALS Laboratories for preparation and analysis. The samples were dried at 120 C for 12 hours then assayed using a four-acid digest specifically designed for high-manganese samples, followed by AAS (method Mn-AA62) and four-acid digest followed by ICP-MS for concentrates (ME-MS61c).

Further details of the 2012 and 2013 cruises are contained in NORI's Technical Report Summary, AMC Project 321012, 17 March 2021, which can be accessed at the following site: https://metals.co/wp-content/uploads/2022/03/01.05-NORI-D-Initial-Assessment-US-SK-1300-by-AMC-March-2021.pdf



Above: The epibenthic sled used to collect nodules during the 2013 NORI Cruise
Below: Polymetallic nodules recovered during the 2013 NORI Cruise
Source: Technical Report Summary, AMC Project 321012, 17 March 2021

American Metal's Exploration Director, Jonathan Lowe, as well as American Metal's geologist Michael Johnston, both previously led the team that delivered the polymetallic nodule exploration and development work in the CCZ for Tonga Offshore Mining Limited (TOML).

TOML, originally created by American Metal CEO Robert Heydon in 2008, was granted a polymetallic nodule exploration license by the ISA in 2011.

Jonathan Lowe and Michael Johnston were responsible for managing the team that carried out the polymetallic nodule exploration cruise to the TOML Area in 2013, as well as the polymetallic nodule exploration cruise carried out in 2015.

On the 2013 cruise, a multibeam echo sounder system was used to map the seafloor and delineate nodule fields in TOML Areas B through F. Over 64,000 km2 of multibeam sonar bathymetry and backscatter response and interpretation was carried out (as shown on the maps below and on the following page).

In addition, 13 polymetallic nodule bulk samples were collected from the TOML Areas, and conductivity-temperature-depth (CTD) soundings were performed at each of the survey areas.

On the 2015 cruise, a number of exploration tasks were carried out, including box-coring, dredging, multibeam, sidescan, and environmental studies.

A large amount of box-coring was undertaken in order to collect nodule samples for mineral resource estimation as well as geotechnical data.

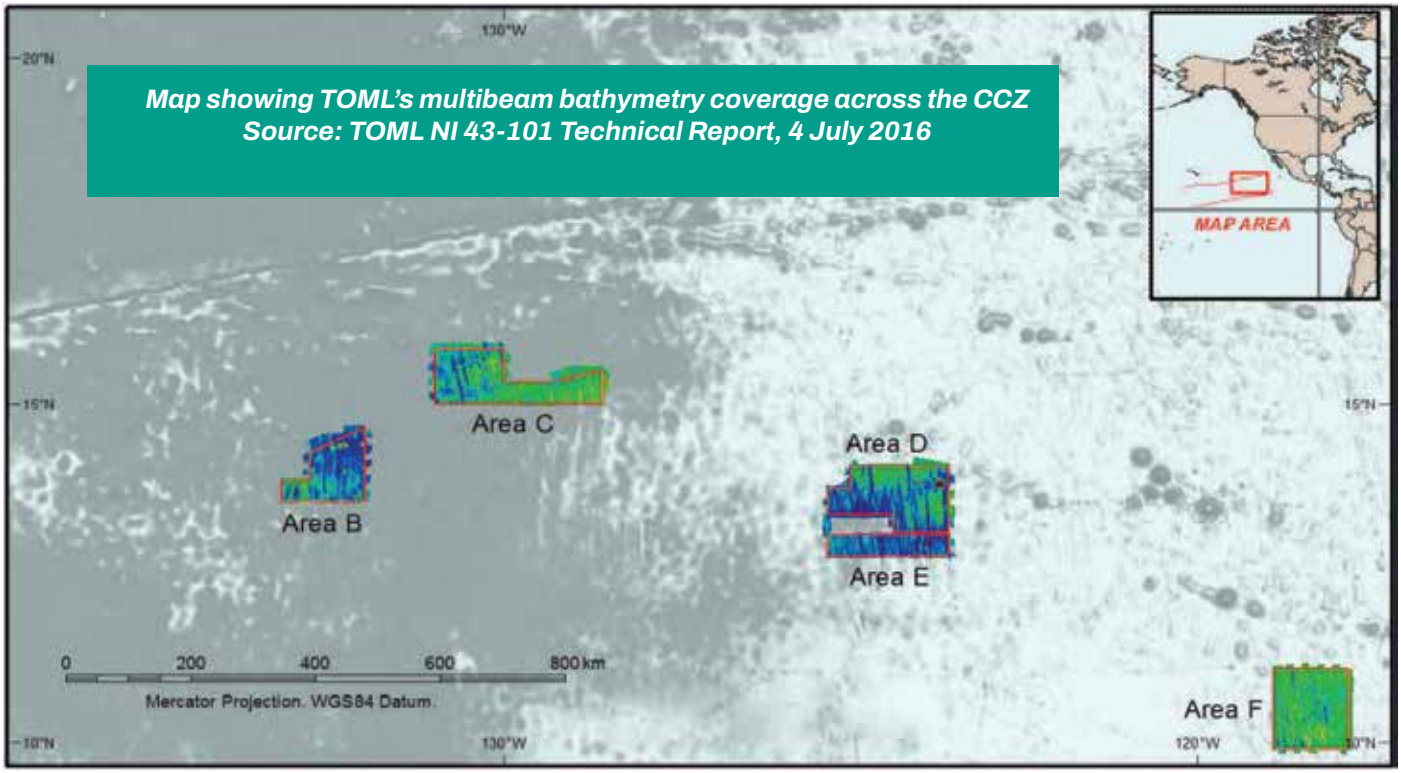
This included over 100 box core samples to study nodule abundance. Two types of box-corers were used during the 2015 cruise, including a 0.75 m2 box-corer and a 0.25 m2 box-corer.

Photo-profiling was undertaken to provide data on short range continuity of nodules and visual based estimates of nodule abundance for mineral resource estimation.

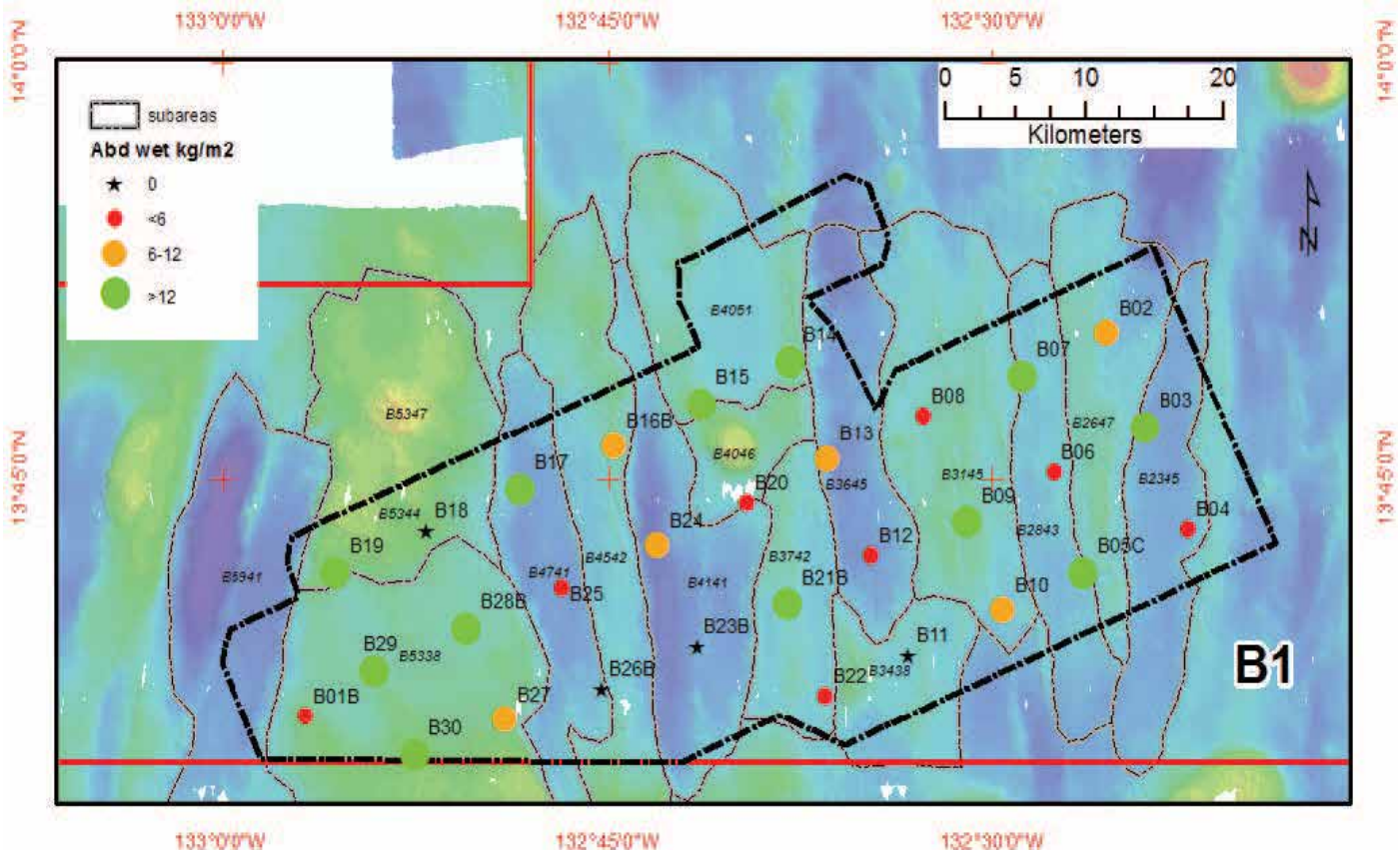
A deep towed system was used to map and characterize the seafloor bathymetry in detail via a 30 kHz side scan system, and 280 line km of sidescan and sub-bottom profile sonar survey was carried out.

SeaX's Exploration Plan is similar to the work that was carried out by TOML, which was organized by American Metal's Exploration Director Jonathan Lowe. As such, American Metal has extensive experience carrying out similar exploration work with this type of equipment.

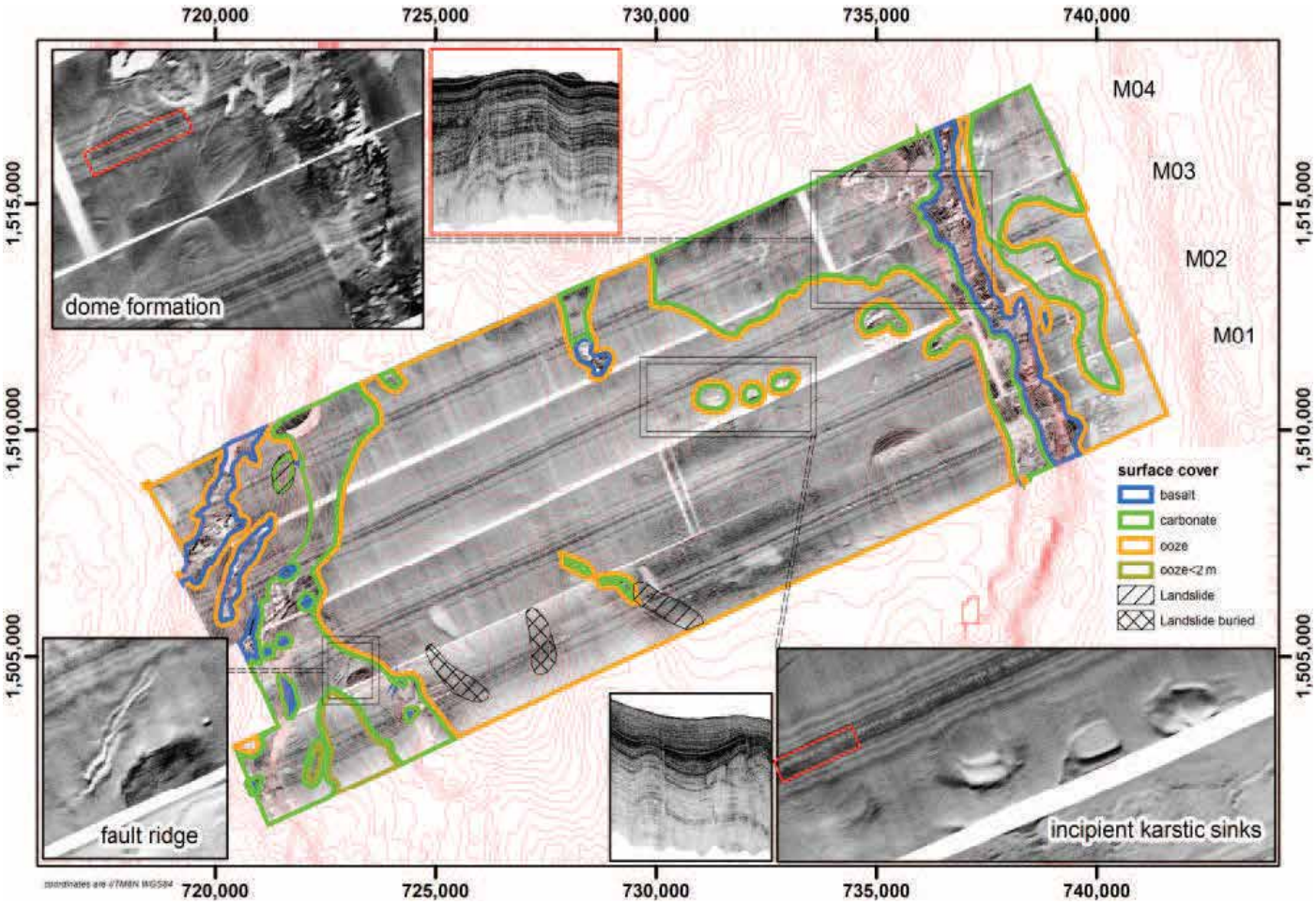
The information above, and further details of TOML's 2013 and 2015 cruises, can be found in the TOML NI 43-101 Technical Report, 4 July 2016, which can be accessed here: https://www.researchgate.net/profile/John-Parianos/publication/309315120_TOML_Clarion_Clipperton_Zone_Project_Pacific_Ocean/links/5809746008ae993dc050a3b9/TOML-Clarion-Clipperton-Zone-Project-Pacific-Ocean.pdf?origin=publication_detail&_



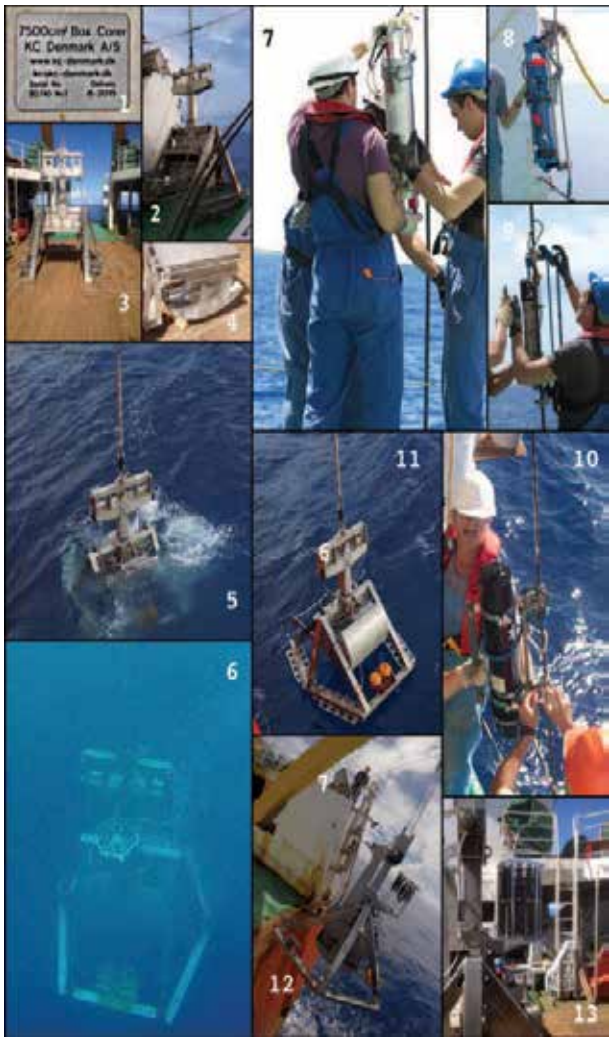
Map showing TOML's multibeam bathymetry coverage across the CCZ
Source: TOML NI 43-101 Technical Report, 4 July 2016



Above: Map showing TOML's nodule abundance in Area B1
Below: An example of TOML's side scan coverage and geological interpretation in the CCZ
Source: TOML NI 43-101 Technical Report, 4 July 2016



Box Coring in the CCZ in 2015, organised by Jonathan Lowe (now American Metal's Exploration Director)
Source: TOML NI 43-101 Technical Report, 4 July 2016



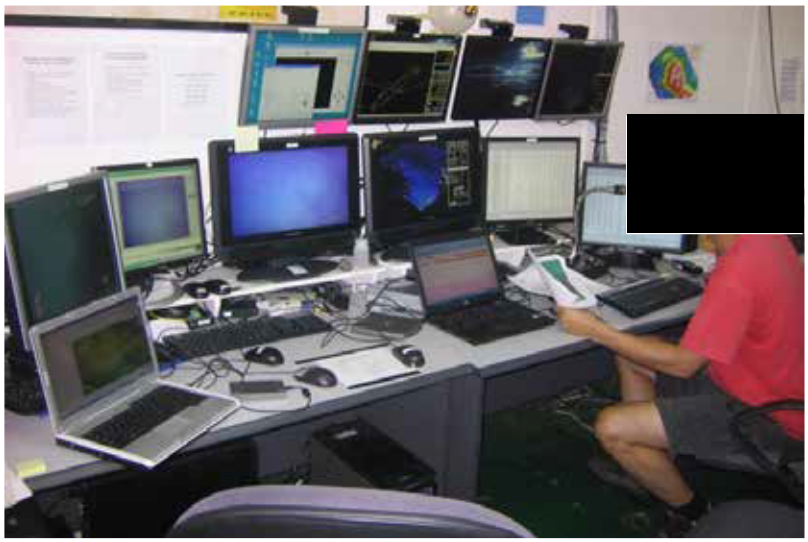
In addition to his polymetallic nodule exploration experience and skills, American Metal's Jonathan Lowe was also Chief Geophysicist and Exploration Manager at Nautilus for its seafloor massive sulphide exploration work. Numerous world-first successes emerged from this deep-sea work, including delineating the Solwara 1 copper and gold resource in PNG and the discovery of many other base and precious metal prospects in the deep-sea regions of PNG and Tonga.

Jonathan was also instrumental in carrying out the world's first commercial seafloor electromagnetic (EM) survey of polymetallic sulphide deposits, with fifty-two line-kilometers of EM data acquired from a ROV operating in 1,500 m water depth at Nautilus' Solwara 1 Project (pictured below).

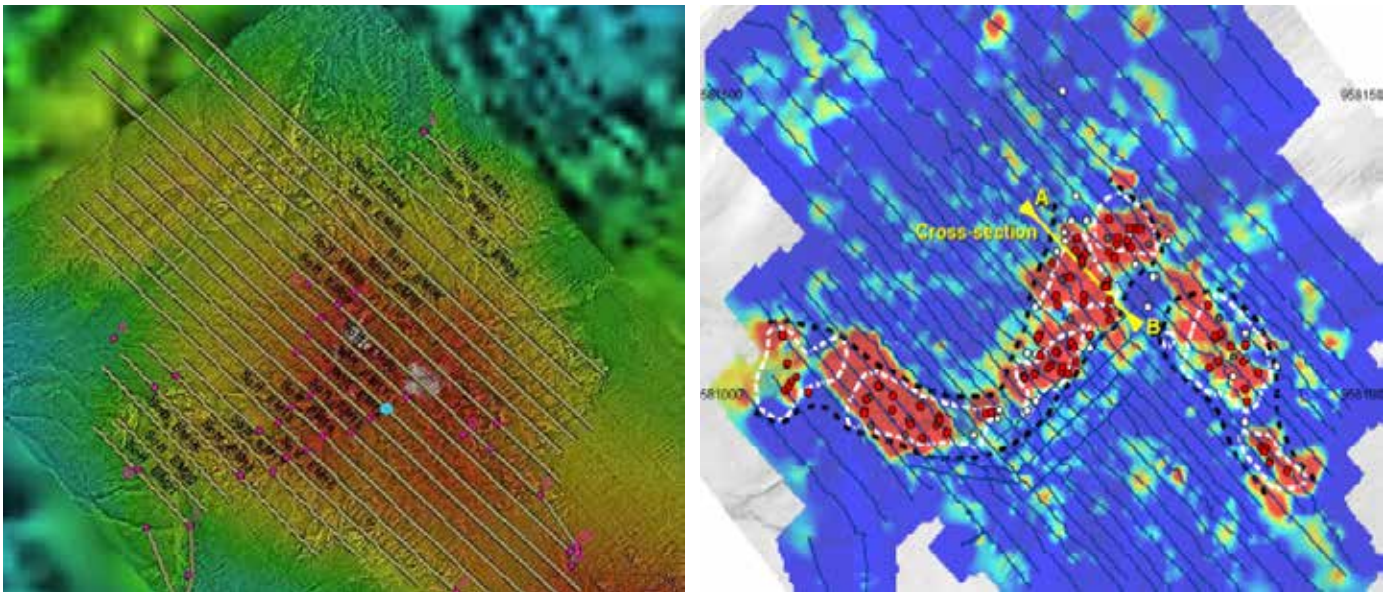
After solving the problems associated with inducing measurable fields from within the conductive sea-water environment, Nautilus and its partners demonstrated the electromagnetic method could be utilized not only by airplane and helicopter over land, but also by ROV on the seafloor.

Jonathan also shared his deep sea mineral insights with the Chief of Naval Operations Strategic Studies Group, and was honored to have been recognized for his input into the Chief of Naval Operations Strategic Studies Group directed by James R. Hogg, Admiral, U.S. Navy (ret).

SeaX will also partner with global leaders in offshore exploration and deep sea technology. For example, in the past American Metal's founders formed Technical Alliances with major international companies from the offshore equipment, services and engineering industries, including Worley Parsons, Perry Slingsby Systems, Canyon Offshore, Voest Alpine, Williamson and Associates and Seacore.



American Metal's Exploration Director, Jonathan Lowe, monitoring seafloor mineral exploration for Nautilus



EM survey of Nautilus' Solwara 1 seafloor massive sulphide deposit

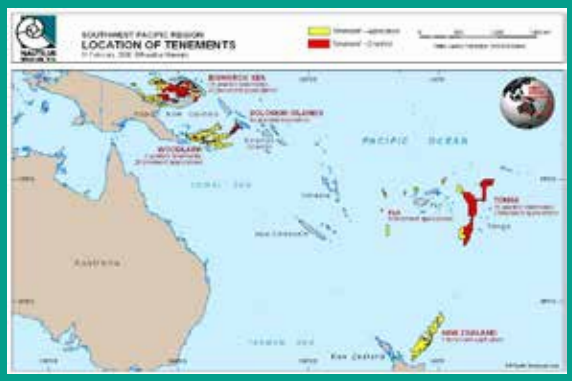
Some of the vessels used by companies that were founded by American Metal's principals for deep sea mineral exploration and environmental studies:

Source: reuters.com

American Metal's leadership boasts world renowned deep-sea exploration expertise, with a legacy of successful discoveries and sustainable development in the seafloor environment across multiple mineral types.

For example, while American Metal's founders were managing Nautilus, it was the world leader in deep sea mineral exploration and development, with exploration carried out in PNG, Fiji, Tonga, the Solomon Islands and New Zealand.

A map of Nautilus' tenements is shown below. Within those tenements Nautilus carried out the world's largest exploration campaign for seafloor polymetallic sulphides, discovering numerous polymetallic sulphide fields.



Above: Remote sampling of polymetallic sulphide outcrop at 1700m below sea level

Development of new Deep Sea Exploration and Collection Technologies:

American Metal's founders have a track record of successfully conceiving, engineering and deploying new technology for the exploration, delineation and collection of resources in the deep sea.

For example, Nautilus and its partners developed a trial mining machine, marinizing land based mining and excavating equipment on a standard 200 HP oilfield ROV. Operating on the Solwara 1 polymetallic sulphide deposit at a water depth of 1,500 meters the machine demonstrated it could cut and pump all rock types tested, including unmineralized basement andesites.

Fifteen tones of bulk samples were recovered using a pick cutting head situated on a marinized excavator arm attached to the ROV (pictured below). The cutting test results demonstrated that the mining component of Nautilus' envisaged mine plan was indeed workable and provided invaluable engineering data.

4.2 Engineering Capabilities & Experience

American Metal founders were also responsible for creating Nautilus Minerals Inc., Nauru Ocean Resources Inc. and DeepGreen Resources Inc., as well as Deep Reach Technology (**DRT**).

Those companies were involved in the design of advanced seafloor mining technology for both Seafloor Massive Sulphide deposits and Seafloor Polymetallic Nodule deposits.

This equipment was state-of the art and was designed with environmental protection as a priority.

As American Metal's founders did with their previous companies, we will partner with leading offshore equipment providers and engineering firms to ensure that state of the art technology is employed in SeaX's operations.

For example, SeaX and American Metal have partnered with Houston based Deep Reach Technology, which is a world leading specialist Ocean Engineering consultancy for deep sea minerals.

DRT was founded by Dr. John Halkyard, who is also a Director of American Metal Inc.

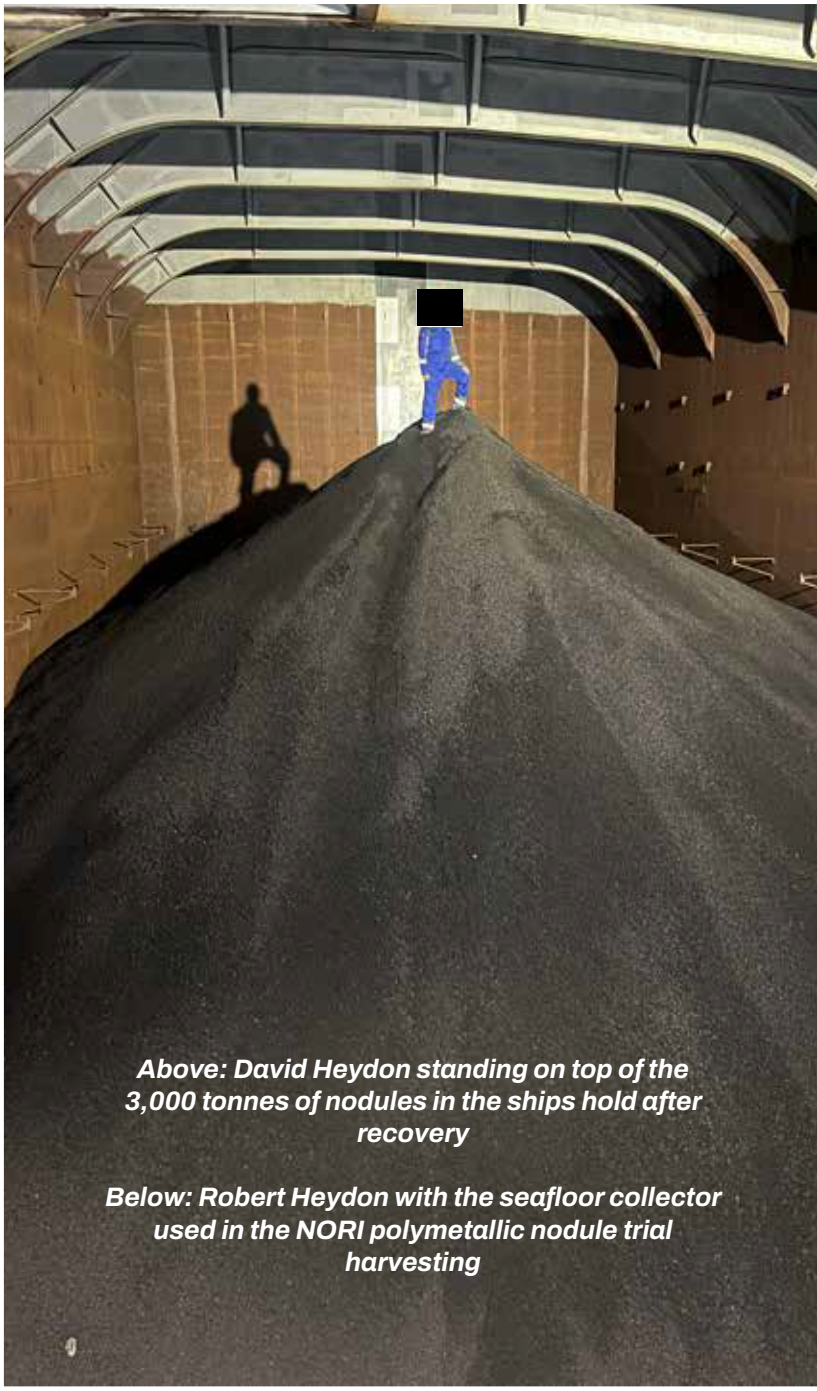
DRT was instrumental in initiating the offshore engineering program for the NORI project. NORI recently carried out the first integrated trial harvesting in the CCZ since the 1970s, recovering 3,000 wet tonnes of polymetallic nodules (pictured right).

Dr. John Halkyard was also the Director of the Ocean Mining Laboratory for the Kennecott Manganese Nodule Consortium in the 1970s and led the successful mining system development effort.

Kennecott undertook extensive exploration campaigns to locate and assess nodule deposits, and was the original owner of the USA-4 exploration license issued by NOAA.

American Metal's COO Michael Rai Anderson has many years of managing technology companies, including as CEO of Deep Reach Technology.

Moya Cahill has extensive experience in developing solutions for complex seabeds in the global marine energy and technology industry.



Above: David Heydon standing on top of the 3,000 tonnes of nodules in the ships hold after recovery

Below: Robert Heydon with the seafloor collector used in the NORI polymetallic nodule trial harvesting

At Nautilus Minerals Inc., American Metal founders led the program to have the world's first full-scale deep-sea mining system designed and built.

The Seafloor Production Tools (**SPT's**) (pictured below) formed part of an ocean floor mining and production method for seafloor polymetallic sulphides that consisted of the following main components:

(i) Disaggregating the sulphide deposit to slurry form by remote seafloor mining tool utilizing cutter/suction dredge equipment on the seafloor operated from a dynamically positioned ship;

(ii) Pumping the slurry to the surface by a Riser and Lifting System (RALS) to put the ore directly onto a barge;

(iii) De-watering of the slurry, to take place on the barge; and

(iv) Barging to land-based concentrator.

After extensive engineering studies, the full-scale mining machines were built, and were then used in successful submerged trials in Papua New Guinea, as pictured on the following page.

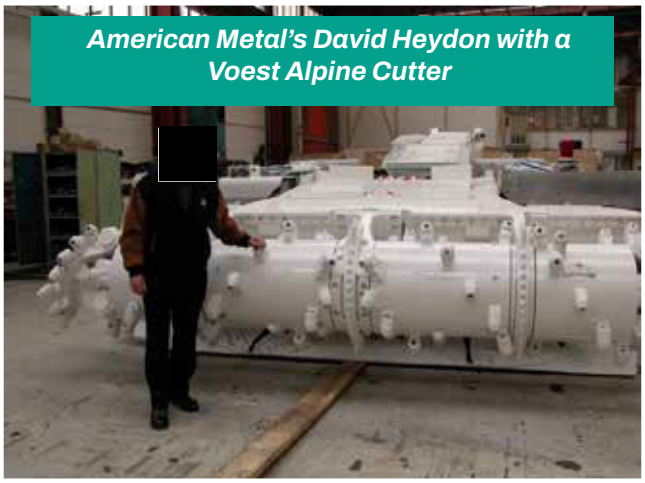
There were three SPT's; the Auxiliary Cutter, the Bulk Cutter and the Collecting Machine. Each of the machines weighed around 250 tonnes, and were designed to operate at depths of around 1,500 meters (4,900 feet) in temperatures of 2.6 °C.

The Auxiliary Cutter was a preparatory machine designed to prepare the rugged seabed for the more powerful Bulk Cutter. Rock was to be disaggregated on the seafloor by the Auxiliary Cutter, excavating material by a continuous cutting process. The plan was to use this process to create "benches" for the other machines to work.

The second machine, the Bulk Cutter, had higher cutting capacity and was designed to work the benches created by the Auxiliary Cutter. Both machines were designed to leave cut material on the seafloor for collection by the Collecting Machine.

The Collecting Machine was designed to collect the cut material (sand, gravel, silt) by drawing it in as seawater slurry with internal pumps and pushing it through a flexible pipe to the riser and lifting system. The material would then be drawn up to the support vessel above via the riser and lifting system.

The SPT design was an extension of existing subsea trenching equipment combining hard rock mining technology with that of subsea remote system technology. The SPT's were to be deployed from the Production Support Vessel (PSV) using a lifting frame and operated via a power and control umbilical.



American Metal's David Heydon with a Voest Alpine Cutter

Nautilus Minerals' seafloor production tools carrying out submerged trials in PNG.

SeaX's Engineering Partner

Deep Reach Technology

Deep Reach Technology (**DRT**) is SeaX's and American Metal's ocean engineering partner, and is a world leading specialist Ocean Engineering consultancy for deep sea minerals.

DRT, head-quartered in Houston, Texas, has decades of experience in offshore engineering, including deep-sea mining, developing and patenting novel anchoring solutions, and advising operators in offshore wind.

DRT was founded by American Metal Director, Dr John Halkyard.

Their experience spans all aspects of developing offshore oil and gas installations, including floating production systems, spars and tension-leg platforms.

They also have over 50 years of experience in deep-sea mining, working with many of the major deep sea mining contractors and license holders. Their work has included initial feasibility studies, development plans, and offshore system concept designs.

DRT also includes members from all four of the major 1970's polymetallic nodule mining consortia, including OMA, OMCO, OMI and Kennecott.

As detailed in the Letter of Support accompanying this Application, Some of the services DRT plans to provide SeaX include:

- Project management on behalf of SeaX for technical work performed by Strategic Partners.
- Definition of top-level requirements and basis of design for systems and subsystems.
- Support Strategic Partners with concept design and technical design review based on DRT's experience.
- Maintain techno-economic models of the complete harvesting and transportation process for the purpose of performing feasibility studies, and for evaluating design option selection.
- Organize and run periodic Technical Review sessions with Strategic Partners to align goals and solutions.
- Conduct special technical studies and develop new solutions as appropriate, for example plume mitigation on the collector.

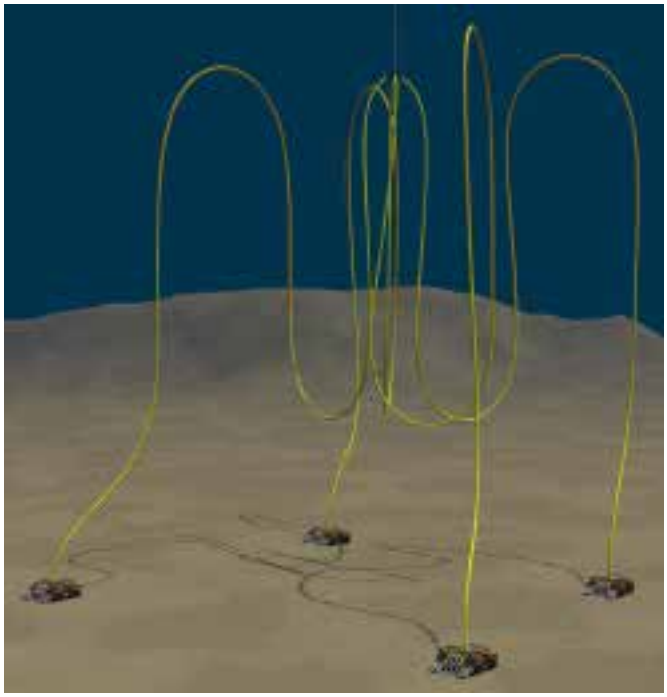
DRT is also planning to assist SeaX with the development of a digital twin. In this regard, DRT has already developed a Deep-Sea Mining Digital Twin to enable engineering and operational optimization. The digital twin was developed to integrate new and innovative systems and technologies, including a full physics engine and offshore dynamics. System components that were integrated into the model included a production support vessel, offshore supply vessels, subsea harvesters, and a riser system.

With decades of experience in deep-sea mining planning, modelling, and real-life operations, DRT was able to develop a comprehensive and accurate deep sea mine development plan, offshore system concept and various staged development systems for production support vessels.

DRT is also the Project Manager for the University of Tokyo for their Environmental Impact Assessment of the Minamitorishima Nodule Project. For that project, DRT has already carried out a Survey and Resource Assessment.

For that resource assessment, DRT mobilized the MV Anuanua Moana. Initial reports indicated around 230 million tons of polymetallic nodules, including around 610,000 tonnes of Cobalt and around 740,000 tons of Nickel.

Survey samples were taken at over 100 locations, including sampling via free-fall grab and box corer, and surveying via an ROV.



DRT has significant experience designing nodule harvesting vessels and collector systems

4.3 Metallurgical Processing Experience & Capabilities

American Metal's founders have secured funding for and developed metallurgical processes for a wide range of minerals and materials. The team possesses specific expertise in polymetallic nodule processing as well, having been involved with pioneering innovative and environmentally responsible processing technologies.

Recognising that onshore metallurgical processing is an essential component of a successful commercial polymetallic nodule operation, in 2011 American Metal's founders commenced a multi-year development program at DeepGreen to invent a process to treat polymetallic nodules in an efficient and environmentally friendly way.

This process development program was carried out in the U.S. and it successfully pioneered new technologies to process polymetallic nodule ore.

This processing technology was successfully patented, and involved putting the key polymetallic nodule metals into solution from which they could be sequentially recovered.

The process allowed for high recovery of valuable metals and products from nodules in an atmospheric and medium temperature environment.

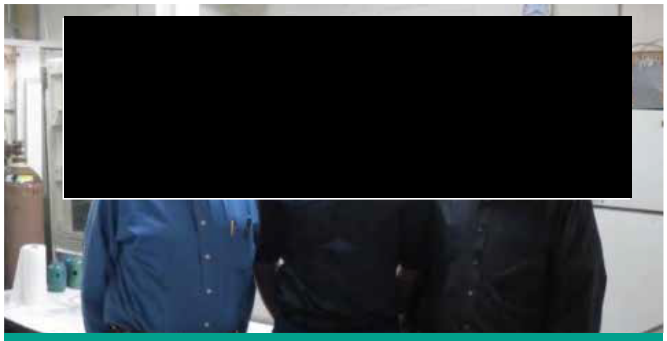
Importantly, from an environmental perspective, the patented process resulted in **zero tailings generation**.

This presented a revolutionary opportunity for the mining industry where disposal of large volumes of tailings is considered one of the biggest environmental impacts imposed by land based mining.

One of the key benefits recognized was that polymetallic nodules have distinct mineralogy that is conducive to metallurgical processing solutions that offer the potential for significant environmental advantages.

Not only is SeaX committed to building an environmentally friendly onshore processing plant to treat seafloor polymetallic nodules, but it is also planning to build the plant in the United States, subject to commercial and regulatory viability.

SeaX will also look to utilize existing plant capacity to ensure that the U.S. can meet its short term critical mineral demands as well.



American Metal's Robert Heydon pictured here in 2013 with DeepGreen's chemical engineering partners at their laboratories in Charlotte, North Carolina. The team invented and patented an environmentally friendly process to treat seafloor polymetallic nodules

Examples of the metallurgical processing experience and technical capabilities of the American Metal team are listed below:

Tom Hunter
Tom has over 50 years of international experience as a metallurgist in operational, process, project development and start-up plant roles. Formerly with international engineering groups including Aker Solutions, Jacobs and Ototech, he has played a key role in a number of large international metals projects in copper, nickel/cobalt, tungsten and uranium.

David Heydon
American Metal's Chairman, David Heydon, has a long history of successful metallurgical process development, including with respect to polymetallic nodule ore.

He was the founder of Mineral Process Technology Limited that developed a hydrometallurgical process to convert antimony minerals into chemicals for use as a catalyst in the process for making PET bottles and polyester fibre as well as a fire retardant.

David was also the founder of Pyrotech Resources Limited which developed a new pyrometallurgical process to treat waste zinc slags from older inefficient processes to maximise the recovery of metals from mining.

Boyd Willis
Mr. Willis has more than 40 years of process engineering experience, including 31 years in complex hydrometallurgical processes for base metal recovery, including 26 years in nickel laterite ore processing.

Mr Willis was also involved in DeepGreen's polymetallic nodule process development program, and has also been involved in over 30 laterite nickel projects. His experience spans process development, design and coordination of detailed testing and pilot programs, process modeling and study management from field studies to PFS and DFS. In addition, Mr Willis has 15 years of experience in plant operations.

4.4 Environmental Program Experience & Capabilities

The deep sea mineral companies previously founded by American Metal's management went on to carry out around 30 successful offshore environmental cruises across various oceanic regions, including multiple deep sea environmental studies and environmental impact assessments.

For example, American Metal's founders led Nautilus Minerals Inc., which was the first company in the world to be granted a Deep Sea Mining License and Environmental Permit, and achieved unprecedented success advancing society's knowledge and understanding of the deep sea environment regarding these seafloor mineral deposit environments.

That Deep Sea Mining License was granted after significant environmental work was carried out, which culminated in a comprehensive Environmental Impact Statement.

As founders of DeepGreen, American Metal's Chairman and CEO both initiated the NORI environmental program, which has now gone on to become the most comprehensive environmental study of the CCZ. Hundreds of terabytes of environmental data has now been collected by NORI, and the studies have been ongoing for over a decade.

A further summary of the environmental work that has now been carried out by NORI in the CCZ is detailed in its Collector Test EIS at the following link: https://metals.co/wp-content/uploads/dlm_uploads/2022/12/NORI-D-Collector-Test-EIS-Final-Executive-Summary-and-Table-of-Contents.pdf

This provides an example of the types of environmental work carried out by companies that were started by American Metal's founders.

Additional polymetallic nodule environmental studies in the CCZ were carried out by TOML under the management of American Metal's Jonathan Lowe and Michael Johnston.

In addition, under the rules and regulations of the ISA, American Metal's management previously carried out environmental work under what is arguably the world's most stringent environmental rules for exploration. Those rules and regulations show an over-riding concern for the safeguarding of the environment, with significant input and direction from international environmental experts.

Moreover, American Metal's management have shown their ability to go beyond the regulations and adapt, develop and apply innovative underwater technology for the purpose of environmental studies. They have also demonstrated their ability to work closely with environmental agencies, government and stakeholders to ensure that the deep sea activities will not cause any significant harm to the environment.

To advance environmental research and impact monitoring, American Metal and SeaX Inc. are forming partnerships with leading environmental experts and industry consultants.

These partnerships are detailed in accompanying documentation.

The environmental equipment proposed in the Exploration Plan is detailed in Section 4.5.

As shown on the following pages and in the accompanying documentation, the American Metal team, as well as their environmental partners and consultants, have extensive experience managing environmental research cruises that utilize these technologies to study and monitor the marine environment.

Environmental Program Experience:

In addition to their work with seafloor polymetallic sulphides, American Metal's Jonathan Lowe and Michael Johnston were responsible for managing the team that carried out the environmental work on the 2015 TOML cruise to the CCZ.

Some of the environmental work carried out on that cruise included:

- Deployment of moorings;
- 334 profiles of water chemistry and sea column characterization data and analysis;
- Biological taxonomy of 3195 collected samples; and
- Logging of megafauna from the photos and 192 hours of continuous video.

Box-coring was undertaken in order to collect biological samples for environmental baseline measurement. Two types of box-corers were used, including a 0.75 m2 boxcorer and a 0.25 m2 boxcorer.

Biological-sediment baseline samples were collected from the majority of boxcore samples.

Samples were collected to obtain an understanding of the infauna and epibenthic community composition and sediment characterization. A variety of sample types were collected from each boxcore, which were fixed and preserved separately for morphological and molecular taxonomy.

Sample types collected included overlying water fauna, megafauna, nodule fauna, microfauna, meiofauna, macrofauna and sediment chemistry.

Water column samples were collected as part of the environmental baseline characterisation. Samples were collected via a Niskin bottle rosette attached to the box-corer. The Niskin bottle rosette contained 12 x 300 ml Niskin bottles, which were triggered using a pressure sensor.

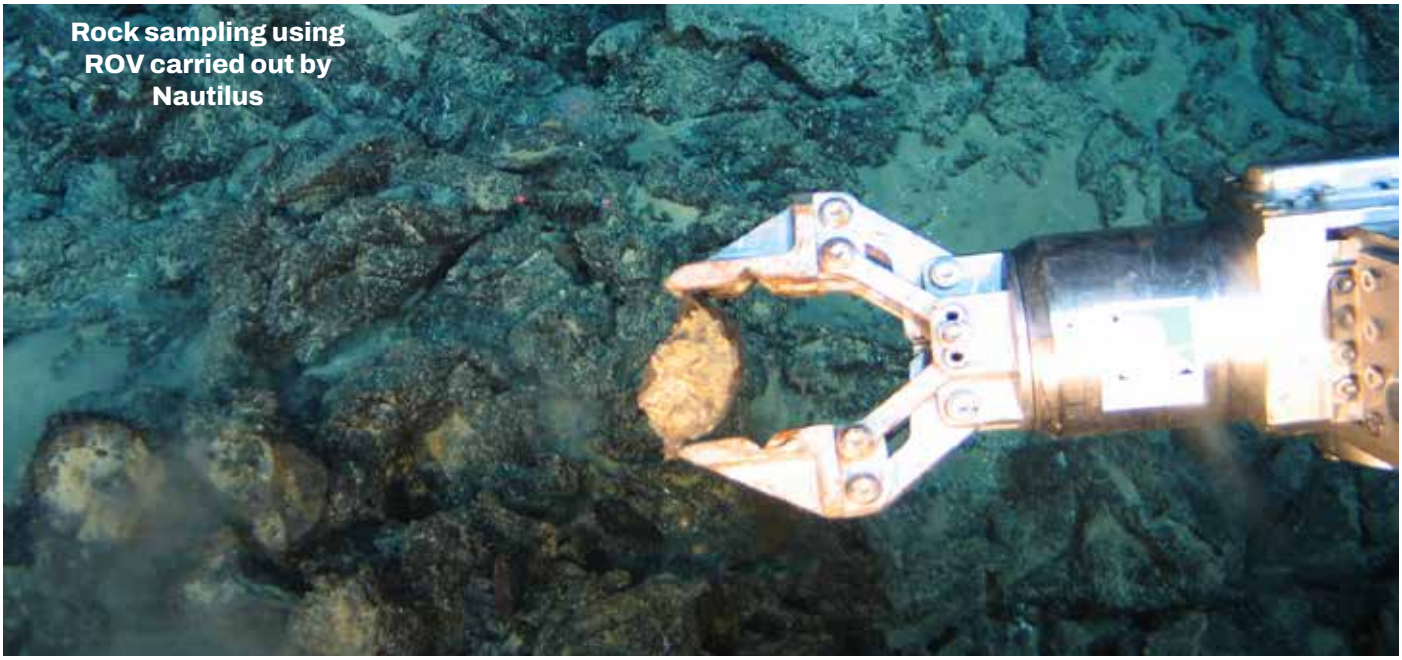
The water sampling program was designed to collect samples from varying depth strata across all areas where box coring was conducted.

Water column profiles were also collected as part of the environmental baseline characterisation. The majority of water column data were collected via a Mini Autonomous Plume Recorder (MAPR) with sensors for Temperature (°C), Turbidity (NTU) and Depth (m).

Photo profiling was undertaken to provide a census of megafauna and macrofauna for environmental base line measurement and habitat mapping.

Two moorings were also deployed.

The information above, and further details of TOML's environmental work can be found in the TOML NI 43-101 Technical Report, 4 July 2016, which can be accessed here: https://www.researchgate.net/profile/John-Parianos/publication/309315120_TOML_Clarion_Clipperton_Zone_Project_Pacific_Ocean/links/5809746008ae993dc050a3b9/TOML-Clarion-Clipperton-Zone-Project-Pacific-Ocean.pdf?origin=publication_detail&_



Rock sampling using ROV carried out by Nautilus

Environmental Program Experience:

American Metal's founders led Nautilus Minerals Inc., which was the first company in the world to be granted a Deep Sea Mining License and Environmental Permit.

That Deep Sea Mining License was granted after significant environmental work was carried out, which culminated in the production of a comprehensive Environmental Impact Statement (EIS). Some of the environmental studies that were carried out under the leadership of American Metal's founders are included on the following pages.

SeaX can also provide a copy of the publicly available Nautilus EIS for further information upon request.

ENVIRONMENTAL IMPACT STATEMENT

Nautilus Minerals Niugini Limited

Solwara 1 Project

Executive Summary

September 2008

CR 7008_9_v4

coffey natural systems
SPECIALISTS IN PEOPLE AND PLACE

NAUTILUS
Minerals Niugini

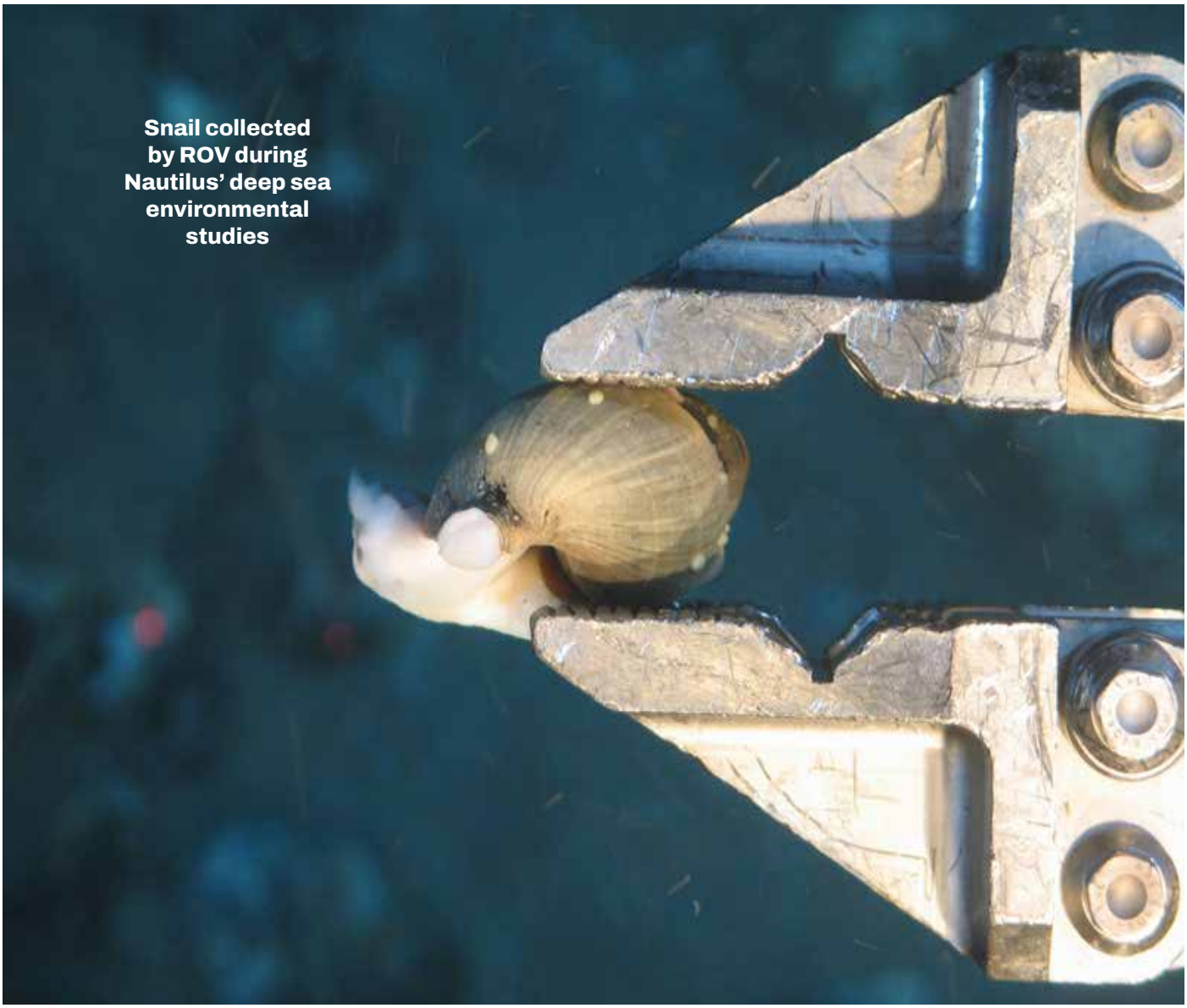
The Environmental Impact Assessment (EIA) process carried out by Nautilus included oceanography, biology, chemistry, water quality and sedimentation rate studies.

During the EIA process, Nautilus also collaborated with numerous world-leading experts with the aim to enrich the field of marine science through additional deep sea study. Over the course of eight environmental cruises, Nautilus logged over 110,000 observations of the seafloor, recorded over 7,000 hours of seafloor video footage, took over 6,000 seafloor photographs, and collected over 30 terabytes of data.

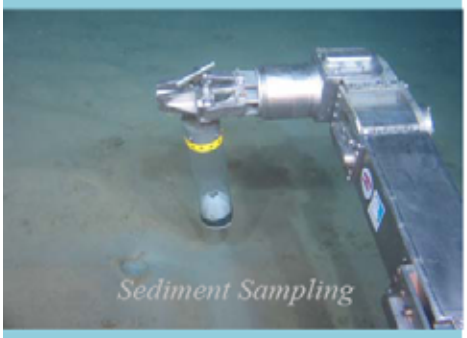
Nautilus also made significant efforts to ensure that independent experts had a voice throughout the process.

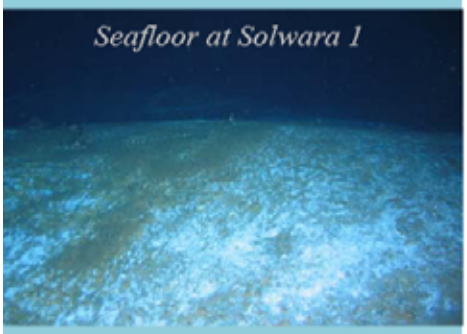
Some of the research institutions and consultancies that were involved in the Nautilus EIA studies included:

- Asia Pacific Applied Science Associates, Australia
- Australian National University, Australia
- Charles Darwin University, Australia
- Coffey Natural Systems, Australia
- College of William and Mary, USA
- Commonwealth Scientific Industrial Research Organization, Australia ("CSIRO")
- Curtin University of Technology, Australia
- Duke University, USA
- Hydrobiology, Australia
- James Cook University, Australia
- Rabaul Volcano Observatory, PNG
- Scripps Institution of Oceanography, USA
- University of Papua New Guinea, PNG
- University of Toronto, Canada
- Woods Hole Oceanographic Institute ("WHOI"), USA



Snail collected by ROV during Nautilus' deep sea environmental studies





Examples of Environmental Studies carried out by Nautilus

OFFSHORE STUDIES

Benthic Habitat Assessment

Objectives

- Characterise the seafloor areas adjacent to venting sites.

Approach

- Visual assessment from video transects, and sediment samples for faunal characterisation.

People Involved

- Scripps Institution of Oceanography, USA

Bioaccumulation

Objectives

- Determine the potential for contaminants to accumulate via the food chain into top-order species such as surface schooling mackerels and tunas.

Approach

- Utilise an integrated biophysical model of dispersal and uptake of metals through several trophic levels. Validate the model with tissue (e.g., tuna) samples
- Characterise deep-sea biomass

People Involved

- Hydrobiology, Australia

Bioluminescence

Objectives

- Predict the effect of mining activities on deep-sea species of fish that rely on bioluminescence.

Approach

- Undertake a general scientific literature review to determine the likely presence of midwater and deep sea bioluminescent species
- Use results of hydrodynamic modelling to assess impacts of increased water turbidity on animals reliant on bioluminescence.

People Involved

- Hydrobiology, Australia

Endemicity

Objectives

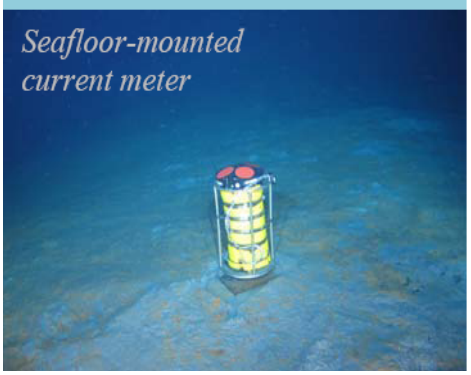
- Determine species present at Solwara 1 and the taxonomic and genetic similarities with species of vent communities at local, regional and global scales (as far as practicable).
- Determination of species present at a reference site

Approach

- Species identification and DNA investigations on samples collected on the Luk Luk 07 Campaign.
- Compare Solwara-1 with the reference site and other regional data.

People/ Institutions Involved

- Duke University, USA
- University of Papua New Guinea, PNG



Existing Resource Utilisation

Objectives

- Describe the nature of offshore commercial and subsistence fisheries.
- Assess the potential impact on these fisheries from the project.
- Develop procedures to communicate with fishing vessels during construction and operation.
- Describe commercial shipping routes and development measures to manage respective operations.

Approach

- Discussions with fishery and shipping agencies in PNG, and local consultation. Consultation with National Fisheries Authority and other experts with relevant in-country experience

People Involved

- Coffey Natural Systems, Australia

Hazard and Risk Assessment

Objectives

- Identify and characterise potential hazards and risks associated with construction and operation of the project, including risks to the project area from seismic activity
- Estimate the likelihood of the project activities setting off a hazard event (e.g. earthquake, volcanic eruption, etc)
- Inform project design, construction methods and operating procedures so that significant risks are reduced to be as low as is reasonably possible.

Approach

- Undertake a workshop to characterise potential hazards posed by the project.
- Utilise relevant data and information, including seismic activity and zoning data.

People Involved

- Vulcanology Experts, PNG
- Coffey Natural Systems, Australia

Hydrodynamic Modelling – Dewatering Process

Objectives

- Determine the composition of the water to be discharged during the dewatering process.
- Model the dispersion of discharged water at different depths taking into account density of the discharge water, sediment content, particle size, lateral/vertical ocean currents and the presence of any upwelling.
- Determine the most appropriate depth of discharge taking into account factors such as euphotic and oxygen minimum zones.
- Determine the contours of concentrations of contaminants and mixing zone boundaries.
- Assess compliance with ambient water quality standards.

Approach

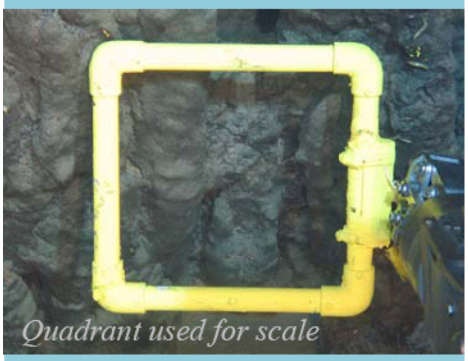
- Gather year round data on local hydrological information such as current direction and speed to use in hydrodynamic modelling.

People Involved

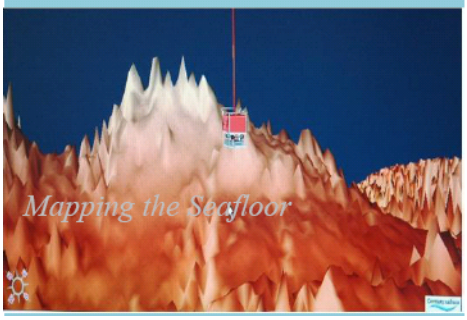
- Coffey Natural Systems, Australia
- APASA, Australia

Subsea scoop sampling of snails

Deep Sea Sediment Trap



Quadrant used for scale



Mapping the Seafloor

Hydrodynamic Modelling – Seafloor

Objectives

- Determine the potential and extent of the formation of plumes caused by the seafloor mining equipment.
- Model plume dispersion at the seafloor.

Approach

- Hydrodynamic modelling using data obtained at Solwara 1, including oceanographic and bathymetric measurements and investigations

People Involved

- Coffey Natural Systems, Australia
- APASA, Australia

Noise and Light

Objectives

- Determine the underwater noise and likely attenuation characteristics of the project vessels and mining equipment.
- Assess the distances from source for noise to attenuate to threshold levels and determine likely impacts on marine life, particularly cetaceans.
- Manage potential interactions with cetaceans by application of threshold distances equivalent to those from the extensively researched activities of drilling rigs/tender vessels in major migration routes elsewhere (e.g. Northwest Shelf of Australia).
- Describe likely fish attracting and other physical aspects of the presence of the vessel on surface and near surface swimming animals.

Approach

- Desktop study using research findings from offshore oil and gas operations.
- Review anecdotal and published accounts of cetacean and turtle activity in the greater project area (including consultation with DEC and other identified sources of expertise within PNG).
- Local consultation.

People Involved

- Coffey Natural Systems, Australia

Waste Management

Objectives

- Develop a waste minimisation and management plan for the project.

Approach

- The waste minimisation and management plan will meet all relevant PNG and international regulations (e.g., the International Convention for the Prevention of Pollution from Ships [MARPOL]).

People Involved

- Coffey Natural Systems, Australia

Visual Observation logging

Objectives

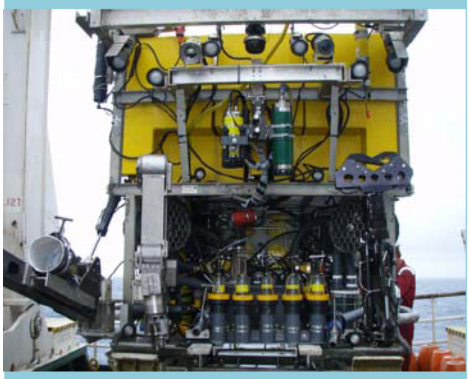
- To record biological, geological, and water observations of the deep seafloor at Solwara 1 and the reference site.

Approach

- Using live video feed from the ROV, observations were logged by scientists into a database to characterise the seafloor. Over 8000 observations have so far been made.

People Involved

Nautilus Personnel, Contracted Scientists



Video documentation

Objectives

- To record the benthic environment at Solwara 1.

Approach

- The submersed ROV ran transects on and around Solwara 1 and the reference site, as well as capturing footage during scientific sampling and geological tasks. Over 3000 hours of footage has been recorded.

People Involved

- Nautilus Personnel

Oceanography

Objectives

- To obtain 12 months of full water column current profiles at Solwara1
- Use collected data and researched data to model currents within The Bismarck Sea

Approach

- Deployment of four Acoustic Doppler Current Profilers at various depths with data downloaded every three months.

People Involved

- Coffey Natural Systems, Australia
- APASA, Australia

Sediment Geochemistry

Objectives

- To determine baseline sediment geochemistry and composition surrounding Solwara 1 and the control site.

Approach

- Sediment cores collected by the ROV to be analysed in association with cores taken from previous studies.

People Involved

- University of Toronto, Canada

ONSHORE STUDIES

Air quality and noise

Objectives

- To determine the effects of the project on air quality and noise.
- To assist with project optimisation to comply with appropriate air quality and noise constraints.

Approach

- Establish existing background noise levels at sensitive receptors.
- Develop appropriate noise and air quality targets.
- Predict changes in noise levels and air quality due to project influences

People Involved

- Nigel Holmes and Associates, Australia


Shallow Water Sediment Traps

Aquatic biota and sediment quality

Objectives

- To establish a baseline describing the range of background conditions in sediment and aquatic biota (particularly with respect to trace metal concentrations).
- To provide a baseline against which future conditions can be compared.

Approach

- Collect and analyse fish tissue and sediment samples.

People Involved

- Coffey Natural Systems, Australia
- Hydrobiology, Australia

Aquatic fauna biodiversity and conservation

Objectives

- To characterise aquatic fauna in project area streams and rivers, particularly in areas likely to be directly affected by construction and operation of the process plant, and with an emphasis on species of conservation significance and/or resource value.
- To determine whether the project will adversely disturb aquatic fauna populations, affect species diversity and composition or significantly affect the ability of the local community to exploit aquatic resources

Approach

- Desktop study using existing literature and databases to identify aquatic fauna thought to be in the project area. Field survey to record fauna, water conditions, collect tissue samples and talk to local field staff.

People Involved

- Hydrobiology, Australia


Stream Gauge

Archaeology and Material Culture

Objectives

- Determine whether the project area contains sites of archaeological or cultural significance.

Approach

- Review existing information, consult with relevant authorities to locate known sites of significance.
- Undertake field surveys.

People Involved

- John Muke, Australia


Weather Station

Hydrology and meteorology

Objectives

- To characterise stream flow in any significant streams which may be affected by the project
- To build a suitable hydrological database for use in planning the project's water supply and the mine's water management scheme.
- To estimate the downstream dilution of processing contaminants that may enter the river system.
- To obtain site-specific meteorological data

Approach

- Install stream gauging and meteorological stations

People Involved

- Coffey Natural Systems, Australia

4.5 Exploration Equipment

4.5.1 Description of the Exploration Equipment

Pursuant to § 970.202(b)(1), please find below a description of the exploration equipment proposed to be used in the SeaX Exploration Plan. Additional information regarding the exploration equipment is provided in Section 6.1.

Exploration Vessel

As is common in the industry, a tender process will likely be carried out for the different cruises during the SeaX Exploration Plan to ensure that the best available vessel is chosen that suits the specific work program at the time.

The Exploration Vessel will support survey, mapping, sampling and environmental assessment and monitoring of polymetallic nodule fields in the License Area. Outfitted with advanced marine technology and modular scientific labs, the vessel will serve as a floating operations centre for all aspects of the exploration program.

The particular vessel chosen for each exploration mission will depend on the nature of the specific cruise, the equipment required, and the availability of the vessel at the time.

Some of the key features of exploration vessels commonly include:
- Dynamic Positioning System (DPS): Maintains the vessel's position with high precision, enabling stable deployment of subsea equipment;
- Autonomous Underwater Vehicles (AUVs) & Remotely Operated Vehicles (ROVs): Equipped with high-resolution sonar, video, and sampling tools;
- Geophysical Survey Systems: Multibeam echosounders, sub-bottom profilers, and magnetometers provide detailed bathymetric and geological data essential for identifying nodule-rich zones and areas suitable for future harvesting;
- Sample Handling and Analysis Labs: Onboard laboratories allow for immediate analysis of collected nodules, sediment cores, biological and water samples, supporting geochemical characterization and environmental research and impact assessment;
- Data Integration and Processing Center: A central hub for real-time data analysis, integrating inputs from subsea vehicles and geophysical instruments to inform exploration strategies;
- Environmental Monitoring Systems: Monitoring systems to support sustainable exploration practices and baseline ecosystem studies; and
- Crew Accommodations: Designed for extended missions, the vessel will include accommodations for environmental scientists, researchers, geologists, geophysicists, engineers, and crew.

Box Core Sampler

A Box Core Sampler is a robust, stainless-steel instrument designed to collect undisturbed samples of seafloor sediments and polymetallic nodules from the ocean floor. Commonly used in marine geology, environmental baseline studies, and deep-sea mineral exploration, it provides a reliable means of retrieving a representative section of the upper seafloor layers. It is an ideal piece of equipment for nodule sampling, baseline environmental studies, benthic habitat assessments, and geochemical characterization of nodule-bearing sediments.

Key Features and Functionality:
- Sample Integrity: The box corer captures a block of sediment—typically up to 50 cm deep—preserving the stratigraphy and in-situ structure, which is important for analyzing sediment composition, biological content, and nodule distribution.
- Hydraulically Dampened Drop Mechanism: The corer is lowered to the seafloor via a winch and cable system. Upon contact with the bottom, a trigger mechanism releases the sampling box to penetrate the substrate gently, minimizing disturbance.
- Sample Box and Cutting Edge: The device features a sharp-edged stainless-steel box that slices cleanly through soft sediments while collecting nodules, organic material, and pore water for multi-disciplinary analysis.
- Top and Bottom Sealing Doors: Once the core is collected, mechanical doors seal both ends of the sample box, preventing sediment loss and contamination during recovery.

Multibeam Echosounder

A Multibeam Echosounder (MBES) is an advanced sonar-based mapping system used to produce high-resolution, three-dimensional images of the seafloor. Used for deep-sea mineral exploration, environmental studies, and marine navigation, the MBES provides accurate bathymetric data over wide swaths of the ocean floor, producing detailed topographical maps.

In addition to mapping polymetallic nodule fields and identifying optimal exploration targets, MBES is used to characterize benthic habitats and assess environmental baselines, as well as enhance geological and geophysical interpretations of the seafloor.

Key Features and Capabilities:

- Wide Swath Coverage: Unlike single-beam echosounders, multibeam systems emit multiple sound beams in a fan-shaped pattern perpendicular to the vessel's path, covering a wide area of the seabed in a single pass.
- High-Resolution Bathymetry: MBES delivers detailed topographic maps of the seafloor, capable of detecting small-scale features such as sediment ripples, nodule fields, hydrothermal mounds, and tectonic structures.
- Water Column and Backscatter Data: In addition to depth measurements, the system captures backscatter intensity data, which provides insights into seafloor composition, helping differentiate between hard nodules, soft sediment, and biological habitats.
- Depth Capability: Deepwater multibeam systems are capable of operating at depths exceeding 6,000 meters, making them suitable for exploration of nodule-rich zones like the Clarion Clipperton Zone.
- Motion Compensation: Integrated with GPS, motion sensors, and inertial navigation systems, MBES compensates for vessel pitch, roll, and heave, ensuring accurate data collection even in rough sea conditions.
- Real-Time Data Visualization: Data is processed onboard and visualized in real-time, allowing researchers to make informed decisions about sampling sites, navigation routes, and environmental assessments during ongoing missions.

Deep Tow Sled

A Deep Tow Sled is a towed instrument platform designed for deep-sea exploration, enabling the close-range collection of geophysical, geochemical, and visual data from the ocean floor. Deployed from an exploration vessel and towed via a reinforced cable, the sled operates just above the seabed, offering a stable and reliable method for detailed surveys in deep marine environments. The Deep Tow Sled provides:

- Detailed mapping and imaging of polymetallic nodule fields;
- High-resolution surveys for mineral resource assessment;
- Benthic habitat characterization and ecological baseline studies;
- Seafloor geological and sedimentological investigations; and
- Ground-truthing MBES and AUV data with direct visual and sonar observations.

Key Features and Capabilities:

- Modular Design: Built with a heavy-duty frame, the Deep Tow Sled accommodates a wide range of scientific instruments, tailored to specific study needs. This includes high-resolution sonar systems, cameras, sampling tools, and environmental sensors.
- Sensor Payload Options:
    - Side-scan sonar for imaging seafloor texture and geological features;
    - Sub-bottom profilers for mapping sediment layers beneath the seafloor;
    - Multibeam bathymetric systems for high-precision topographic mapping;
    - HD still and video cameras with lighting for visual documentation; and
    - Environmental sensors to measure water chemistry, temperature, and turbidity.
- Close Proximity Operation: Unlike AUVs or surface-based systems, the Deep Tow Sled is designed to operate at altitudes as low as 5–20 meters above the seafloor, delivering ultra-high-resolution data crucial for identifying polymetallic nodule fields, benthic habitats, and microtopographic features.
- Real-Time Data Transmission: Through the tow cable, power and data are continuously transmitted between the sled and the control room onboard the vessel, allowing scientists to monitor and adjust the survey in real time.
- Depth Capability: Engineered for deep-sea operations, most sleds are rated to depths of 6,000 meters or more, enabling exploration of remote areas like the Clarion Clipperton Zone.

Small-Scale Epibenthic Dredge

An Epibenthic Sled is a specialized towed instrument used to collect samples of polymetallic nodules and associated seafloor materials. Designed to operate along the sediment-water interface, the sled allows for the collection of nodules for geochemical and metallurgical analysis.

Key Features and Capabilities:

- Robust Frame and Skids: The sled features a durable metal frame with wide skids or runners that allow it to glide smoothly over soft deep-sea sediments without digging too deeply or causing excessive disturbance to the benthic environment.
- Nodule Collection Basket or Chamber: Positioned at the rear or center of the sled, a collection bin or mesh basket gathers polymetallic nodules as the sled moves along the seafloor. The design ensures that nodules are retained while allowing finer sediments to fall through, reducing sample contamination.
- Sampling Width and Depth Control: The sled is often equipped with adjustable skids and a defined sampling width, allowing for controlled collection over a known area, which supports quantitative analysis of nodule density and distribution.
- Towed by Ship: Deployed and recovered via winch from a surface vessel, the epibenthic sled is towed along a predetermined transect at a slow speed, enabling it to collect nodules and surface sediment effectively across large sampling areas.
- Optional Instrumentation: In some configurations, the sled may be outfitted with cameras, sensors, or sediment traps to gather supplementary environmental data or provide visual confirmation of sampling conditions.

Freefall Grab Sampler

A Free-Fall Grab Sampler is a gravity-driven sampling device designed to collect surface materials from the seafloor, including polymetallic nodules as well as small benthic organisms. Its main functions are to:

- Collect polymetallic nodules for mineralogical and geochemical analysis;
- Ground-truth remote sensing or acoustic survey data;
- Assess nodule size, abundance, and distribution;
- Support environmental baseline studies and impact assessments; and
- Sample surface sediments in conjunction with nodule collection to evaluate ecological context.

Key Features and Capabilities:

- Gravity-Driven Deployment: The sampler is released from a vessel and descends through the water column under its own weight. Upon impact with the seafloor, the device triggers a mechanical closing mechanism that collects nodules and upper-layer sediments.
- Specialized Bucket or Jaw Design: For nodule collection, the grab is typically equipped with wide-opening jaws or a reinforced bucket that can capture nodules lying on or just embedded in the seafloor surface. The design minimizes sediment uptake while maximizing nodule recovery.
- Simple and Reliable Operation: With few moving parts and no active propulsion or power requirements, the free-fall grab is highly reliable, cost-effective, and suitable for repeated deployments in remote ocean environments.
- Sample Integrity and Coverage: While it provides less spatial control compared to sleds or ROVs, the grab sampler yields representative physical samples of nodules and surrounding substrate, making it ideal for initial site characterization or supplementing broader survey campaigns.

4.5.2 Description of the Environmental Monitoring Equipment

In accordance with § 970.202 of the regulations, included below is a description of the environmental monitoring equipment to be used in monitoring the environmental effects of the exploration program. A further description of environmental equipment and techniques proposed to be used is contained in Sections 7.2, 7.3 and 7.4.

As detailed in Section 7.4, for Potentially Impactful Activities, SeaX will carry out a monitoring program during and after the Potentially Impactful Activity to determine the effects of the activity on the biological activities, including the recolonization of the disturbed areas.

The exact details of the monitoring program for Potentially Impactful Activities will be provided to NOAA at least one year prior to the Potentially Impactful Activitiesbeing carried out, to allow time for the Supplemental EIS to be prepared.

In general terms, and in the case that a Harvesting Test is carried out in the License Area, SeaX would carry out a comprehensive Environmental Monitoring Program to monitor how the environment is impacted by the Harvesting Test, which would include, amongst other things, monitoring in real time, with simultaneous sampling, with data captured from an array of different instruments, for example with AUV's, ROV's and CTD's, in order to measure and investigate the environmental impacts of the Harvesting Test, in particular the Seafloor Harvesting Vehicle.

The Activity Specific EIS that would be submitted to the Administrator at least 12 months prior to carrying out a Harvesting Test would contain all of the details of the Harvesting Test Environmental Monitoring Program, which would be tailored to the Harvesting Test and the specific equipment and technique selected.

A Plume Monitoring Study would also form part of such Harvesting Test Environmental Monitoring Program, and would be carried out to understand how the benthic plume is formed and behaves.

Plume monitoring stations would be established in and around the Harvesting Test site to collect data on all aspects of plume dynamics, concentration and dispersal.

The Plume Monitoring Study would deploy a range of sensors to assess the characteristics of the benthic plume generated during the Harvesting Test. Key parameters to be monitored would include plume density, particle size, particle settling velocity, sedimentation rates, and the extent of the sedimentation footprint.

Planned Sensor Deployments May Include:

- LISST Sensors mounted on a remotely operated vehicle (ROV) to measure the size, concentration, and settling speed of suspended particles.
- Acoustic Doppler Current Profilers (ADCPs) installed on the seafloor and attached to stationary moorings to record current velocities at multiple depths and distances from the Collector Test site.
- Conductivity, Temperature, and Depth (CTD) Sensors placed throughout the water column to gather water quality data at various depths and to collect measurements within the benthic plume.
- Sediment Trays positioned at multiple distances from the Harvesting Test site to evaluate the spread and deposition of disturbed sediment.
- ROV-Mounted Sampling Bottles to collect water samples directly from within the benthic plume.

Additional Equipment for Environmental Monitoring During the Harvesting Test may include:

- Autonomous Underwater Vehicles (AUVs) to capture video footage and collect samples across the Harvesting Test area during operations.
- Fixed Moorings equipped with ADCPs for continuous current monitoring.
- Seafloor Instruments to measure sediment deposition rates and suspended sediment concentrations.
- ROV and AUV-Mounted Instruments for reconstructing a three-dimensional model of the plume.
- ADCPs to assess particle density and water column dynamics.
- Sediment Trays placed at varying distances from the test site to quantify sediment deposition as a function of distance from the source.

Predictive models would be developed to simulate plume behavior during full-scale production. These models would incorporate variables such as plume density, dynamics, particle size, ocean currents, and water temperature.

The Environmental Monitoring Program would include a Post Disturbance Monitoring Program, which would take place approximately one year after a Harvesting Test. This effort would aim to evaluate the recovery and response of the environment over time.

To support this assessment, box corers and multi-corers would be used to collect sediment and polymetallic nodule samples from the seabed. These samples would undergo analysis to determine biological, geochemical, and geological properties.

A remotely operated vehicle equipped with specialized cameras would observe sessile megafauna and assess their condition after exposure to different sedimentation levels.

Additionally, oxygen fluxes on the seafloor would be measured to enhance understanding of oxygen exchange rates among benthic organisms in the ecosystem.

Moorings equipped with various instruments would be deployed to monitor currents, temperature, salinity, sedimentation rates, noise levels, and other physical parameters in the water column.

Autonomous underwater vehicles (AUVs) would be used to map the seafloor, capturing detailed images to determine the extent of the sedimentation footprint and assess megafaunal communities across different zones of influence.

A description of equipment for environmental monitoring is included below:

Autonomous Underwater Vehicle (AUV)

An Autonomous Underwater Vehicle (AUV) is a self-guided, untethered robotic system designed to perform precise and efficient underwater surveys without real-time human control. Used extensively in oceanographic research, seafloor mapping, and deep-sea mineral exploration, AUVs operate at great depths and collect high-resolution data critical for understanding the marine environment. AUV's are used to:

- Map and identify polymetallic nodule fields
- Conduct environmental baseline, impact assessments and monitoring
- Support habitat classification and biodiversity studies
- Assist in pipeline and subsea infrastructure inspections
- Enhance geophysical and geochemical exploration workflows

Key Features and Capabilities:

- Fully Autonomous Operation: Once programmed and launched from a support vessel, the AUV follows a pre-defined mission plan, navigating through the water column and along the seafloor using onboard guidance systems.
- High-Precision Navigation: Equipped with inertial navigation systems (INS), Doppler velocity logs (DVL), and ultra-short baseline (USBL) tracking, AUVs can maintain accurate positioning over complex terrain, even thousands of meters below the surface.
- Advanced Sensor Suite: AUVs carry a range of scientific instruments, including:
    - Multibeam echosounders for high-resolution bathymetric mapping
    - Side-scan sonars for seafloor texture and object detection
    - Sub-bottom profilers for imaging sediment layers
    - Environmental sensors to measure temperature, salinity, turbidity, and dissolved oxygen
    - High-definition cameras for visual surveys and habitat assessments
- Long Endurance and Depth Rating: Depending on the model, AUVs can operate for 24+ hours and reach depths of over 6,000 meters, making them ideal for remote, deep-sea environments like the Clarion Clipperton Zone.

Remotely Operated Vehicle (ROV)

Remotely Operated Vehicles (ROVs) are tethered, unmanned submersibles used to explore, observe, and interact with underwater environments in real time. Controlled from the surface vessel via an umbilical cable, ROVs are equipped with high-resolution cameras, environmental sensors, and manipulator arms, making them powerful tools for environmental monitoring and targeted sample collection. These tethered vehicles are deployed for durations of 6 to 12 hours per mission.

Applications in Environmental Monitoring include seafloor habitat mapping and biodiversity surveys, baseline and impact assessments, and detection of sediment plumes and other impacts.

Key Features and Capabilities:

- Real-Time Operation: ROVs are piloted from the surface, allowing operators to observe and respond to conditions in real time. This is particularly valuable for targeted sampling, habitat assessment, and responsive investigation of observed features or events.
- Advanced Imaging Systems: Equipped with HD or 4K video cameras, still-image systems, and lighting arrays, ROVs provide detailed visual documentation of marine habitats, species, and seafloor conditions.
- Modular Sensor Payloads: ROVs can carry a variety of scientific instruments, such as:
    - CTDs (Conductivity, Temperature, Depth)
    - pH, oxygen, and turbidity sensors
    - Hydrocarbon or heavy metal detectors
    - Water and sediment samplers
    - Acoustic sensors or sonar systems for mapping and navigation
- Manipulator Arms and Sampling Tools: Robotic arms allow ROVs to collect biological specimens, core sediment samples, deploy instruments, or conduct in-situ experiments with precision and minimal disturbance.

Oceanographic Mooring

Oceanographic moorings provide a Long-Term Monitoring System for environmental studies and data collection. They are anchored, vertically suspended instrument arrays deployed in the ocean to collect continuous time-series data on physical, chemical, and biological conditions over extended periods. These moorings are essential tools for studying ocean dynamics and environmental changes across the water column, from surface to seafloor.

This includes monitoring impacts, ocean temperature and salinity, tracking ocean currents, internal waves, and mixing processes, assessing biogeochemical cycles, and providing baseline data.

Key Components and Features:

- Anchor and Buoyancy System: A heavy anchor secures the mooring to the seafloor, while syntactic foam floats, glass spheres, or subsurface buoys provide lift, keeping the line taut and the instruments properly spaced.
- Sensor Payloads: Instruments are attached at various depths along the mooring line, allowing for simultaneous data collection throughout the water column. Common sensors include:
    - CTDs (Conductivity, Temperature, Depth) for profiling water properties
    - Acoustic Doppler Current Profilers (ADCPs) for measuring current velocity and direction
    - Oxygen, pH, and nutrient sensors for chemical oceanography
    - Sediment traps for collecting particulate matter
    - Hydrophones for passive acoustic monitoring of marine life or seismic activity
- Data Logging and Telemetry: Data can be stored onboard for later recovery or transmitted via satellite (for surface moorings) or acoustic modems (for subsurface moorings), enabling remote monitoring in real time.
- Types of Moorings:
    - Surface Moorings: Include a surface buoy with solar panels, antennas, and real-time data telemetry systems.
    - Subsurface Moorings: Entirely submerged to avoid interference from ships, storms, or ice, with data retrieved during periodic recovery missions.
    - Profiling Moorings: Feature mobile sensor packages that move up and down the line, capturing high-resolution vertical profiles.

Lowered Acoustic Doppler Current Profiler (ADCP)

A Lowered Acoustic Doppler Current Profiler (ADCP) is a high-resolution oceanographic instrument used to measure vertical profiles of water current velocity throughout the water column. Deployed on a rosette frame or similar platform during CTD (Conductivity, Temperature, Depth) casts, the lowered ADCP collects current data from the surface to the seafloor during descent and ascent, making it a vital tool for understanding deep-sea circulation and water mass movement.

They are used to map current structure across the water column, investigate internal waves, eddies, and thermohaline circulation, enhance models of nutrient transport and biological productivity, and collect baseline current data for environmental impact assessments.

Key Features and Functionality:

- Doppler-Based Velocity Measurement: The ADCP emits sound pulses at a specific frequency and listens for the Doppler shift in the backscattered signal from particles suspended in the water. This shift is used to calculate the speed and direction of water currents at different depths.
- Vertical Profiling During Casts: Unlike moored or vessel-mounted ADCPs, the lowered ADCP provides detailed current profiles as it is lowered and raised through the water column, offering high-resolution snapshots of the vertical structure of ocean currents.
- Multiple Frequency Options: Available in a range of frequencies (typically 75–600 kHz), with lower frequencies suitable for deep water (up to 1,000+ meters range) and higher frequencies offering finer resolution in shallower depths.
- Four-Beam Configuration: Typically equipped with four transducers arranged in a Janus configuration, allowing it to measure horizontal and vertical components of current velocity with high accuracy.
- Integration with CTD Rosette Systems: Often deployed alongside CTD sensors, oxygen sensors, and water samplers, the lowered ADCP complements physical and chemical oceanographic measurements, providing a comprehensive vertical profile.

Multi-Core Sampling

Multi-core sampling is a widely used method in ocean science for collecting multiple, undisturbed sediment cores from the seafloor in a single deployment. The technique allows the study of the physical, chemical, and biological characteristics of sediments with preserved layering (stratigraphy), essential for understanding depositional processes, benthic ecosystems, and historical environmental changes.
They are used to study sediment stratigraphy, composition, and depositional history, as well as analyze pore water chemistry, organic carbon content, and microbial communities. They also play an important role investigating bioturbation, sedimentation rates, and contaminant levels, as well as in establishing environmental baselines.

Key Features and Capabilities:

- Simultaneous Collection: The multi-core sampler is equipped with an array of core tubes (typically 4 to 12), enabling the retrieval of several sediment cores in one deployment. This allows for replication, comparative analysis, and multiple subsampling needs (e.g., geochemistry, microbiology, grain size).
- Undisturbed Surface Interface: One of the key advantages of multi-core sampling is the ability to recover intact sediment-water interfaces, crucial for analyzing surface processes, benthic-pelagic interactions, and biogeochemical fluxes.
- Hydraulically Damped Deployment: The system is lowered slowly to the seafloor using a winch and cable system. A damping mechanism reduces impact force, allowing the core tubes to penetrate the sediment gently, minimizing disturbance to stratification.
- Core Tube Configuration: Core barrels are made of transparent polycarbonate or acrylic, allowing visual inspection of sediment layers prior to processing. Core lengths typically range from 30 to 60 cm.
- Compact and Versatile: Multi-core samplers are relatively compact and easy to deploy from various research vessels, making them ideal for both deep-sea and coastal sediment studies.

Box Core Sampler

Refer Section 4.5.1.

Moored Hydrophones

Moored hydrophones are underwater acoustic sensors deployed on anchored mooring systems to passively monitor and record sound in the ocean over extended periods. These instruments enable the detection and analysis of natural and anthropogenic underwater sounds, including those from marine mammals, seismic activity, and deep sea mineral activities and equipment. Moored hydrophones are used to monitor marine mammal vocalizations for population and behavioral studies.

Key Features and Capabilities:

- Passive Acoustic Monitoring (PAM): Moored hydrophones continuously record ambient sound in the ocean without emitting any signal, making them ideal for non-intrusive, long-term acoustic observation.
- Deployment Configurations: Typically attached to subsurface moorings at specific depths, hydrophones can be positioned singly or as part of arrays for spatial coverage. They may be deployed near the seabed, mid-water, or at varying intervals along the mooring line to capture sound profiles at different depths.
- Wide Frequency Range: Designed to capture a broad spectrum of underwater sounds—from low-frequency whale calls and seismic events to high-frequency dolphin echolocation clicks and anthropogenic noise.
- Data Logging and Storage: Hydrophones are equipped with onboard data loggers and long-life batteries, enabling autonomous operation for months to over a year, depending on recording schedules and memory capacity.
- Real-Time or Delayed Data Retrieval: Some systems offer real-time acoustic telemetry via surface buoys and satellite uplinks, while others are recovered periodically to retrieve stored data for post-processing.

Drifting Hydrophones

Drifting hydrophones are autonomous underwater listening devices designed to float freely with ocean currents while recording ambient underwater sound. Unlike moored hydrophones that remain fixed in one location. They offer spatially dynamic acoustic monitoring, making them ideal for tracking sound sources over wide areas and studying oceanic acoustic environments across different regions.

Key Features and Capabilities:

- Free-Drifting Operation: Drifting hydrophones are deployed at the ocean surface or mid-water and descend to a pre-programmed depth where they drift with prevailing currents. After a designated recording period, they return to the surface for data recovery, either by telemetry or physical retrieval.
- Passive Acoustic Monitoring: These hydrophones detect and record a wide range of underwater sounds, including:
    - Marine mammal vocalizations (e.g., whales, dolphins)
    - Natural sounds (e.g., seismic activity, wave-generated noise)
    - Anthropogenic noise (e.g., ship traffic, sonar, industrial activities)
- Compact and Deployable: Drifting hydrophones are lightweight and easy to deploy from small vessels or even aircraft in remote areas, making them highly versatile for short- or medium-term missions.
- Data Recovery: Data can be recovered after surfacing via direct retrieval or, in some systems, transmitted through satellite or radio communication.

Pelagic Net Trawls

Pelagic net trawls are specialized sampling systems designed to collect organisms living in the water column, often

from near-surface waters down to several thousand meters depth. Pelagic trawls capture a wide variety of midwater organisms, including plankton, small fish, squid, and gelatinous species, providing essential data on biodiversity, biomass, and ecosystem dynamics.

They are used for surveying midwater fish, plankton, and invertebrate populations, assessing species diversity, abundance, and biomass in different ocean layers, as well as investigating life cycles, feeding habits, and migration patterns of pelagic species.

Key Features and Functionality:
- Net Design: Pelagic trawls typically feature a large, conical or rectangular net made of fine mesh, designed to funnel organisms into a cod-end collection bag at the rear. Net mesh sizes are selected based on the target species, from very fine (e.g., 200 microns for plankton) to larger mesh for fish and squid.
- Deployment and Towing: The net is deployed from a research vessel using a winch and towed horizontally or obliquely through the water column at specific depths or along vertical profiles. Trawl duration, speed, and depth are carefully controlled to optimize sampling efficiency and minimize damage to fragile organisms.
- Opening and Closing Mechanisms: Advanced pelagic trawls may be equipped with opening and closing devices (such as Multiple Opening/Closing Net and Environmental Sensing System – MOCNESS) that allow targeted sampling at discrete depth layers, preserving vertical distribution information critical for ecological studies.
- Environmental Monitoring Integration: Many trawl systems are outfitted with sensors that measure depth, temperature, salinity, and tow speed, ensuring accurate data correlation with environmental conditions during each sampling event.

Baited Time-Lapse Cameras

A Baited Time-Lapse Camera is an autonomous underwater imaging system designed to capture periodic images or video footage of marine life attracted to a bait source. Deployed on the seafloor for a period of time these cameras provide valuable visual data on species presence, abundance, behavior, and interactions in deep and remote marine environments where direct observation is challenging.

They are used for assessing species diversity and relative abundance in benthic habitats, observing feeding behavior, species interactions, and scavenging dynamics, monitoring environmental impacts and conducting biodiversity surveys.

Key Features and Capabilities:
- Bait Attraction: A fixed bait source (usually fish or squid) is mounted in the camera's field of view to attract scavengers and predatory species, allowing researchers to observe otherwise elusive or rare organisms.
- Time-Lapse Imaging: The camera is pre-programmed to take images or video clips at regular intervals, capturing a sequence of events over time. This time-series data provides insights into species arrival times, feeding behaviors, and community dynamics.
- Robust, Pressure-Resistant Housing: Encased in a durable pressure housing, the camera system can operate at significant depths—often down to 6,000 meters—making it suitable for deep-sea studies.
- Lighting and Visibility: Equipped with LED lighting systems optimized for low-light, deep-sea environments to ensure clear imagery without disturbing wildlife.
- Autonomous and Long-Duration Deployment: Battery-powered and self-contained, baited camera systems can operate unattended for extended periods, making them ideal for baseline biodiversity assessments and long-term ecological monitoring.

Moored Time-Lapse Cameras

Moored Time-Lapse Cameras are autonomous imaging systems mounted on stationary oceanographic moorings, designed to capture still images or video footage at set intervals over extended periods. These systems are used to monitor changes in marine ecosystems, species behavior, and environmental conditions at fixed locations—from shallow coastal waters to the deep sea.

They are used for monitoring benthic habitats for biological and ecological changes over time, studying the behavior and seasonal patterns of marine organisms, and observing sediment movement. They also provide visual data for validation of environmental models and remote sensing tools.

Key Features and Capabilities:
- Time-Series Imaging: Cameras are programmed to capture images or short video clips at regular intervals (e.g., every few minutes to several hours), enabling long-term visual observation of dynamic ocean processes and habitats.
- Fixed-Point Monitoring: Positioned on a mooring line or frame secured to the seafloor, the camera maintains a stable field of view for consistent observation of a specific site, such as coral reefs, hydrothermal vents, or cold seep environments.
- Durable and Depth-Rated: Encased in pressure-resistant housings, moored time-lapse cameras are capable of

functioning at depths exceeding 6,000 meters, depending on design, and are built to withstand harsh ocean conditions.
- Lighting Systems: Equipped with low-power LED lights for use in low-light or deep-sea environments, ensuring high-quality images without disturbing marine life.
- Power and Data Storage: Powered by internal batteries and equipped with large-capacity data storage, these systems can operate autonomously for weeks to months, depending on the image capture interval and mission requirements.

Small-Scale Epibenthic Dredge Sampling

An Epibenthic Dredge is a specialized device designed for collecting benthic organisms and surface sediment from the seafloor, specifically targeting epibenthic species—those that live on or near the seafloor surface. Commonly used in marine biological research, environmental monitoring, and biodiversity surveys, the epibenthic dredge enables the collection of both living organisms and substrate materials from a specific area, offering valuable insight into ecosystem health and species composition.

Key Features and Capabilities:
- Targeted Collection of Epibenthic Fauna: The dredge is designed with a sturdy, often basket-like or box-shaped frame that skims the surface of the seafloor, collecting organisms such as crustaceans, mollusks, fish, and various invertebrates that live on or near the substrate.
- Mesh Size and Flexibility: Equipped with a net or mesh bag of varying mesh sizes, the epibenthic dredge allows for the capture of organisms of different sizes, from small invertebrates to larger benthic fish. The size of the mesh is chosen to match the target fauna, optimizing catch efficiency while minimizing damage to delicate species.
- Seafloor Interaction: The dredge is towed along the seafloor at a controlled speed, allowing it to collect organisms and sediments from a fixed area. The dredge typically includes a weighted opening to maintain contact with the seafloor, ensuring consistent sampling across a targeted area.
- Sediment Collection: In addition to collecting live organisms, the epibenthic dredge can also gather surface sediments, providing information on sediment composition, organic content, and potential contaminants in the habitat.
- Durability and Depth Rating: Built for harsh seafloor conditions, epibenthic dredges are typically made of durable materials such as stainless steel and can be adapted for use at various depths, from shallow coastal zones to deeper offshore environments.

Landers

Landers are free-falling, self-contained instrument platforms used to carry out long-duration observations, environmental monitoring, and sample collection on the seafloor. Deployed from a surface vessel, landers are designed to operate independently and monitor deep-sea ecosystems and benthic community behavior, as well as conduct geochemical flux experiments and sediment-water interface studies. They also capture biological activity in nodule fields and support environmental baseline assessments.

Key Features and Capabilities:
- Free-Fall Deployment and Recovery: Landers are released overboard and descend to the seafloor under their own weight. After completing their mission—ranging from hours to months—they return to the surface via an acoustic release system that drops ballast weights, allowing onboard flotation to bring them back up for recovery.
- Modular Instrument Payloads: Landers can be equipped with a wide array of scientific instruments tailored to specific research goals, such as:
  - Cameras and strobes for time-lapse photography or video of deep-sea life and processes
  - Sediment traps to collect sinking particulate matter
  - Water samplers for analyzing deep-ocean chemistry
  - Acoustic recorders for monitoring marine life or seismic activity
  - Oxygen, pH, temperature, and pressure sensors for real-time environmental data
  - Benthic chambers for in-situ experiments on sediment-water interactions
- Long-Term Monitoring: Capable of remaining on the seafloor for extended periods, landers provide valuable time-series data in areas where moorings or manned submersibles are impractical or too costly.
- Adaptable Configurations: Landers come in various sizes and designs—from compact single-instrument platforms to large multi-instrumented frames—suited to applications in deep-sea biology, geochemistry, geology, and physical oceanography.

4.5.3 Experience Using the Equipment

The American Metal team and its consultants have many years of world leading experience successfully carrying out deep sea exploration and environmental studies, including using all of the equipment listed above in Sections 4.5.1 and 4.5.2. This experience has been detailed in Sections 4.1 to 4.4 above.

5.0 Description of Exploration Area

The SeaX application area ("**Application Area**") is situated in the Clarion-Clipperton Fracture Zone ("**CCZ**") of the East Pacific Ocean.

The CCZ is believed to contain the largest known deposit on the planet of Nickel, Cobalt, Copper and Manganese.

This region has been the focal point for deep-sea mineral interest over the past 50 years, and contains the historic licenses USA-1 and USA-4, which are still current under the Act.

The CCZ was extensively explored by groups in the 1970's, including by major U.S. companies. Following that work, the CCZ was explored by government research institutes from countries such as Germany, Russia, France, Japan, Korea and China.

American Metal's founders re-ignited private sector commercial interest in the CCZ when they created Nauru Ocean Resources Inc. and Tonga Offshore Mining Limited, which were the first private sector companies to be granted exploration licenses by the International Seabed Authority.

The CCZ stretches approximately 4,500 kilometers between the Clarion Fracture Zone and the Clipperton Fracture Zone. It covers approximately 6 million square kilometers, making it one of the largest continuous regions of the deep ocean floor. It lies at depths ranging from 4,000 to 6,000 meters, with a relatively flat terrain interspersed with seamounts and sediment-covered hills.

The Application Area covers a total area of 149,695 km2.

In this area we believe that SeaX will be able to identify potentially economic harvesting sites where:

(i) the nodule grade and abundance are sufficiently high to permit economic recovery; and

(ii) the slope of the seafloor is sufficiently low and consistent to permit safe and reliable manoeuvring of the Seafloor Harvesting Vehicle.

Pursuant to the SeaX Exploration Plan detailed in Section 6 of this Application, the program has been designed such that:

(i) SeaX initially focuses its detailed exploration and environmental studies in the First Metal Harvesting Site, which will be the site for the Harvesting Test and Environmental Impact Study, and which will be the area over which it is anticipated that future Commercial Recovery operations will initially commence, subject to future regulatory approval; and

(ii) In parallel to (i) above, SeaX will continue to carry out exploration activities across the rest of the License Area in order to delineate the Second Metal Harvesting Site and Third Metal Harvesting Site, where sequential Commercial Recovery is anticipated to occur after operations in the First Metal Harvesting Site, subject to future regulatory approval.

If a traditional plan of work is carried out, then after environmental and technical studies have been completed, SeaX would apply for a Commercial Recovery Permit over the First Metal Harvesting Site in Year 8. Subsequently, the parallel exploration would position SeaX to apply for a Commercial Recovery Permit over the Second Metal Harvesting Site and Third Metal Harvesting Site in Year 10.

Should SeaX pursue an accelerated program, it would apply for the Commercial Recovery Permits at an earlier date.

As such, the Exploration Area complies with the logical mining unit principles as established in the Regulations, taking into account SeaX's additional environmental management goals, including the allocation of preservation reference areas.

We also note that some of the SeaX Application area is contiguous to the USA-1 and USA-4 license areas. Efforts have been made to ensure that the coordinates used for the SeaX Appliaction do not cross over in to or interfere with the USA-1 and USA-4 license areas. The intention is that the SeaX Application area is to be next to and outside of the USA-1 and USA-4 license areas, and no part of the SeaX Application area is intended to cross over into the USA-1 and USA-4 license areas.

The CCZ is considered to contain a single vast deposit of seafloor polymetallic nodules. As part of the Exploration Plan SeaX will identify the areas within the license area where the polymetallic nodule concentrations are high. These high abundance areas will form the "future harvesting sites". As such, while SeaX is confident that the application license areas contain polymetallic nodules (as the areas are within the greater CCZ single vast nodule deposit), **SeaX confirms that it is not currently aware of where the high-abundance mineral deposits are located within the application area**.

As detailed in Sections 6.1 and 6.2, the initial objective for the offshore exploration campaign will be to identify the high-abundance mineral deposits within the exploration area.

The initial exploration will also focus on mapping the seabed topography.

For example, the following is detailed in Year 1 of the Exploration Plan contained in Section 6.2:

> Cruise #1: At-Sea Survey & Resource Cruise
> Geophysical survey, bathymetric mapping, geological sampling and geotechnical studies in the license area to:
> **(i)** Map seafloor configuration and topography;
> **(ii)** Identify and define the location, abundance and mineral grade of nodule fields;
> **(iii)** Study physical characteristics of the seafloor (including those factors that will influence future Commercial Recovery and will feed into engineering and technical studies);
> **(iv)** Locate prospective sites for future Commercial Recovery where the abundance and grade of nodules is high enough to be economic and sustain a commercial operating life, and where the seafloor gradient permits safe and reliable manoeuvring of the Seafloor Harvesting Vehicle (other considerations may include, for example, strength of the seafloor, and geo-hazards such as grabens and fault lines); and
> **(v)** Collection of nodules.
>
> This cruise will involve using multibeam sonar survey to map seafloor topography and identify nodule-rich regions, box core sampling to measure nodule abundance and metal grades, and dredge or epibenthic sled to collect nodules.

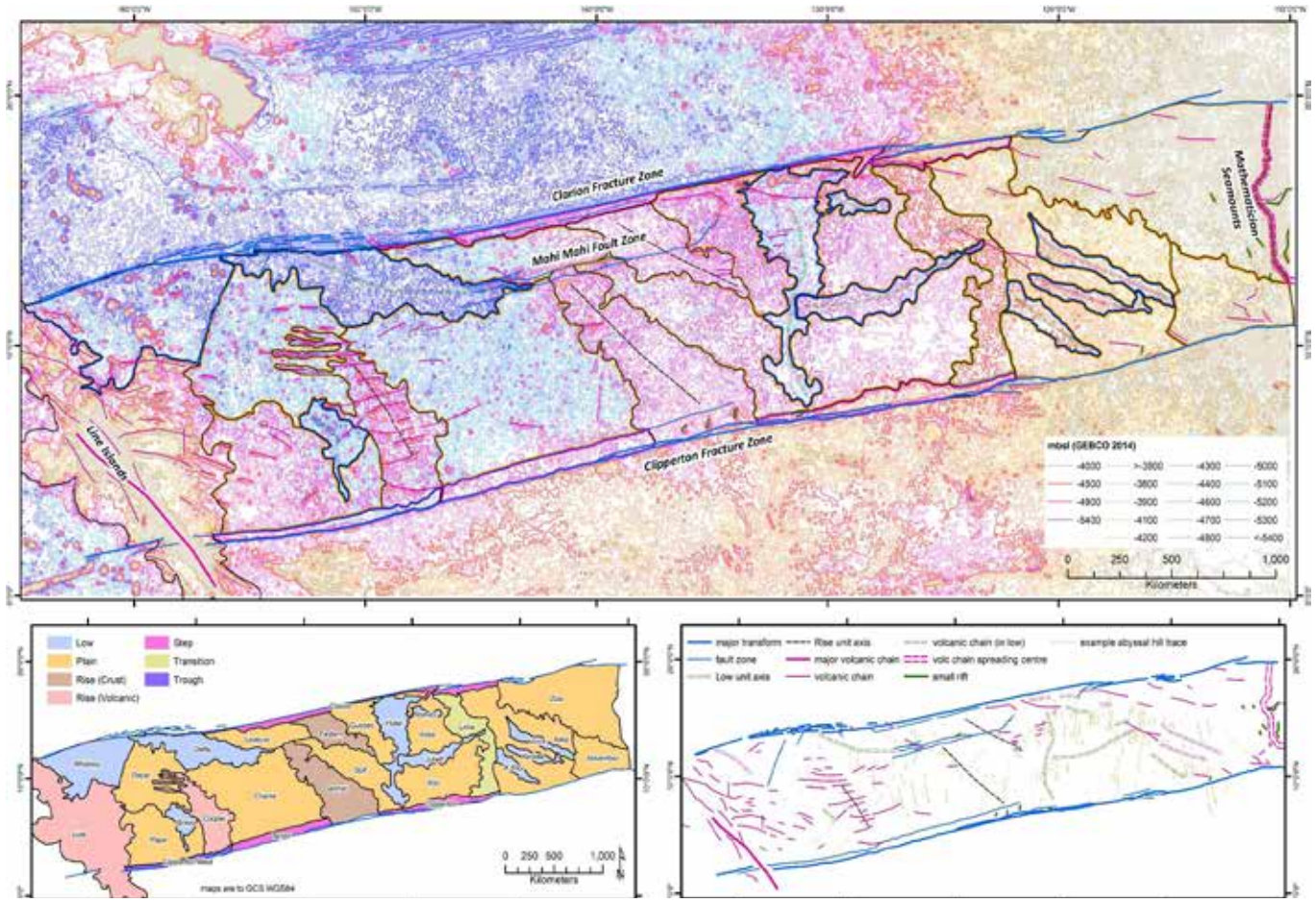
In terms of general topography, Parianos (2021) interprets GEBCO1 bathymetry to describe the regional setting and geomorphology of the CCZ as abridged below:

> *The CCZ is a segment of the Pacific Oceanic Plate extending between the East Pacific Rise and the Line Islands. The northern and southern boundaries of this segment are marked by the two major seabed fractures (transforms) referred to as the Clarion and the Clipperton Fracture Zones respectively.*
>
> *The seabed in the CCZ is mostly composed of basaltic abyssal hills, covered in a variety of siliceous and calcareous sediment; specifically thin and often poorly consolidated siliceous clays and oozes which overly thicker calcareous nannofossil chalk that formed when the crust was located further south in the equatorial region.*
>
> *The majority of abyssal hills are interpreted to have formed via normal faulting (i.e. horst and graben) in turn resulting from shrinking and subsiding driven by progressive plate cooling. Abyssal hills are not apparent in most of the GEBCO grid and can only be seen in 12kHz multibeam and some ship-track MBES. Within the CCZ both east facing and west facing fault scarps are common. The hills are typically: around 100-300 m high (trough to crest); have a frequency of 1-5 km; and strike for ten to several hundred kilometres. In the central and eastern CCZ the Abyssal hills mostly strike 350° (perpendicular to the direction of current plate spreading) in the western CCZ however the hills seem to strike mostly to 360° (Figure 2-8). Interspersed hills with a secondary strike are found in some areas, most commonly to ±010° (i.e., roughly perpendicular to the direction of plate motion).*
>
> *While the abyssal hills show generally consistent trends and forms, they can vary in orientation, prominence, and relative elevation. Some of these changes in relative elevation seem to relate to some of the larger scale geomorphological units.*

A range of other morphological features are present. These include:

- *volcanic knolls from 50 m or less in height up to seamounts that are 4 kilometres above the surrounding seabed;*
- *outcropping dyke/fissure lavas and sheet flows that are interpreted to have formed in relatively recent times (i.e., post much of the sediment record); and*
- *potholes in the Marquesas Formation carbonate strata.*

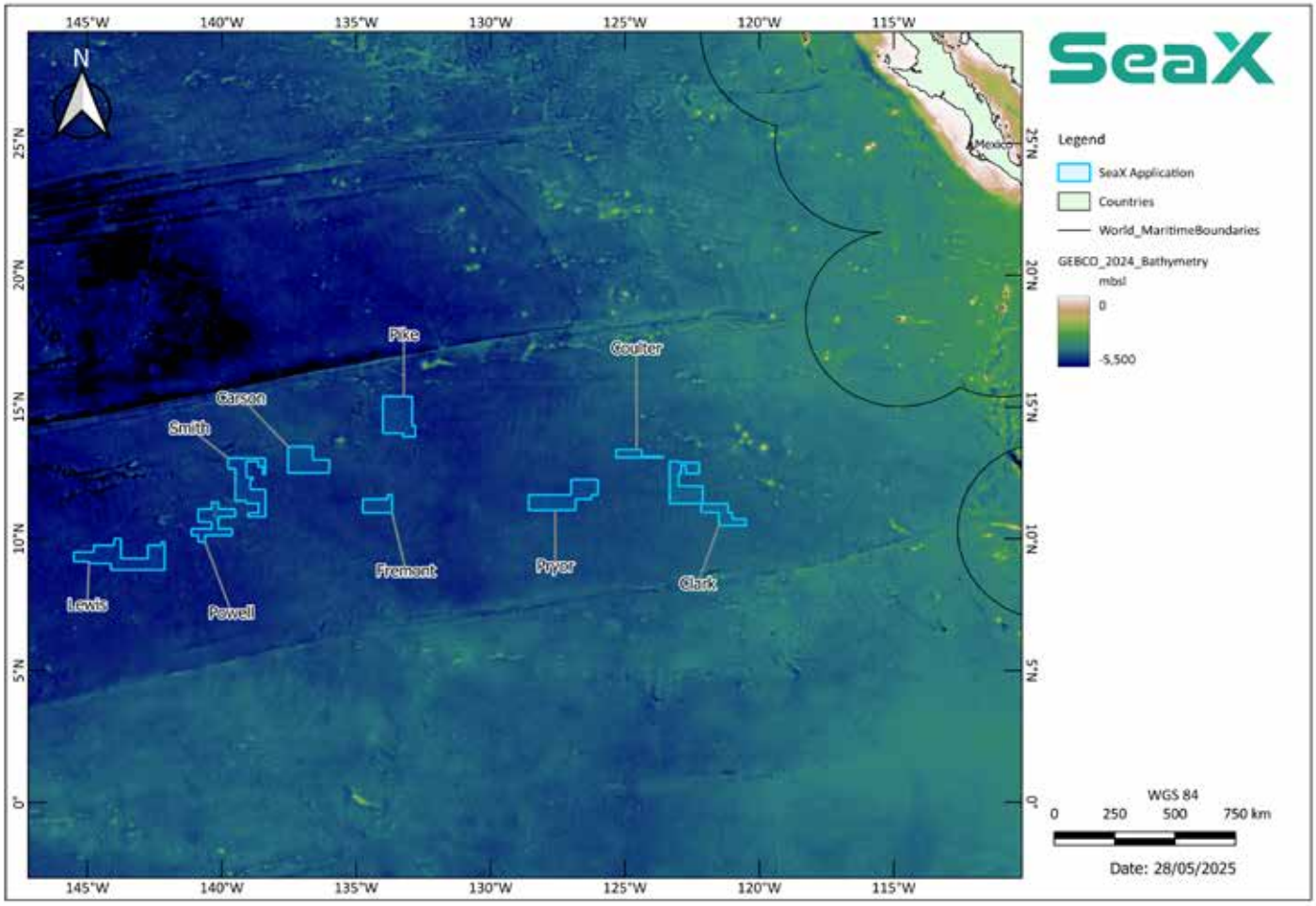
Source: Geology of the Clarion-Clipperton Zone: Fundamental Attributes in Polymetallic Nodule Resource Development, John Michael Parianos, 2021 **("Parianos, 2021")**



Bathymetry interpretation showing Interpreted geomorphological units and structural elements (Parianos, 2021)

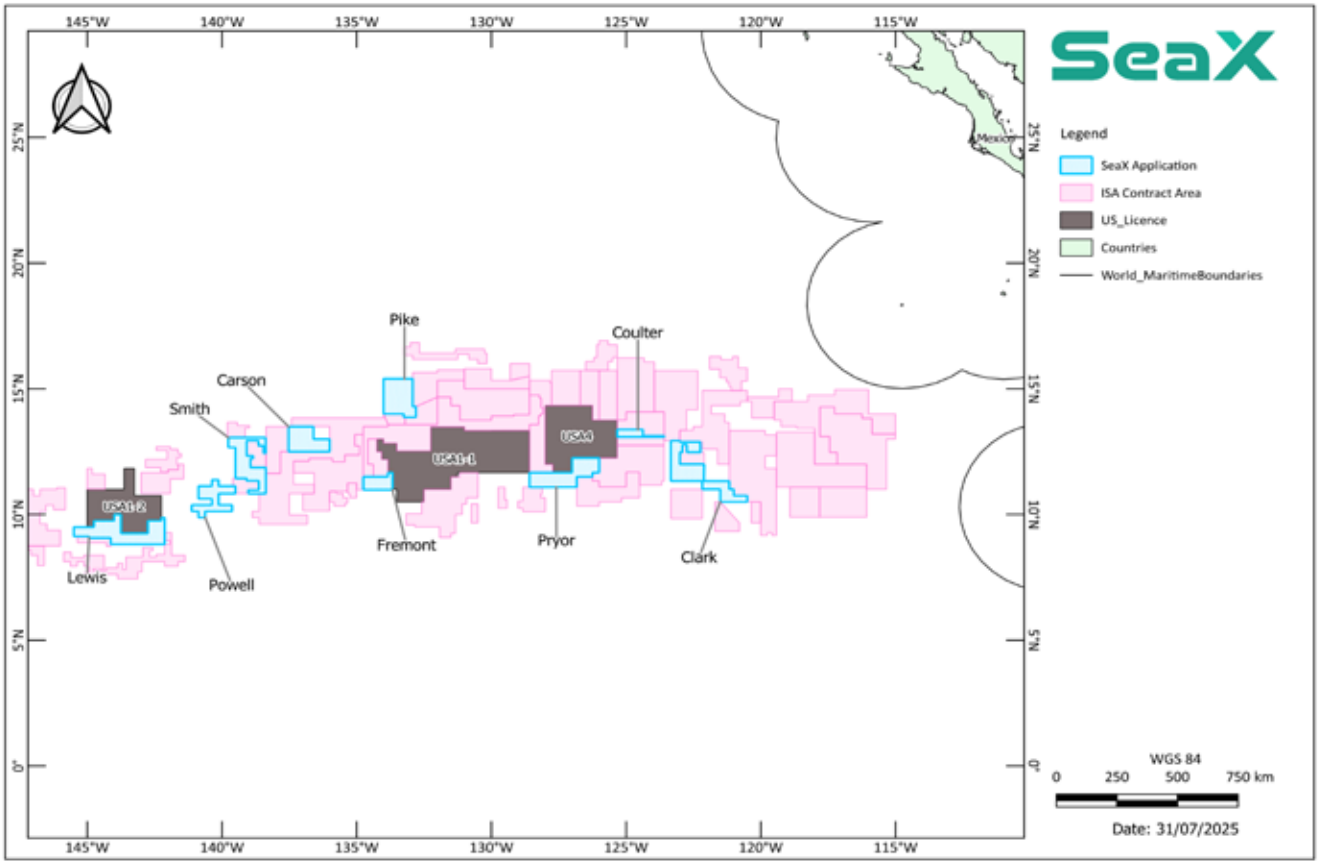
Application Area and Size

SeaX's application area covers a total area of 149,695 km2, and comprises 9 separate blocks in the CCZ. These 9 blocks have been named "Clark", "Coulter", "Pryor", "Pike", "Fremont", "Carson", "Smith", "Powell" and "Lewis".

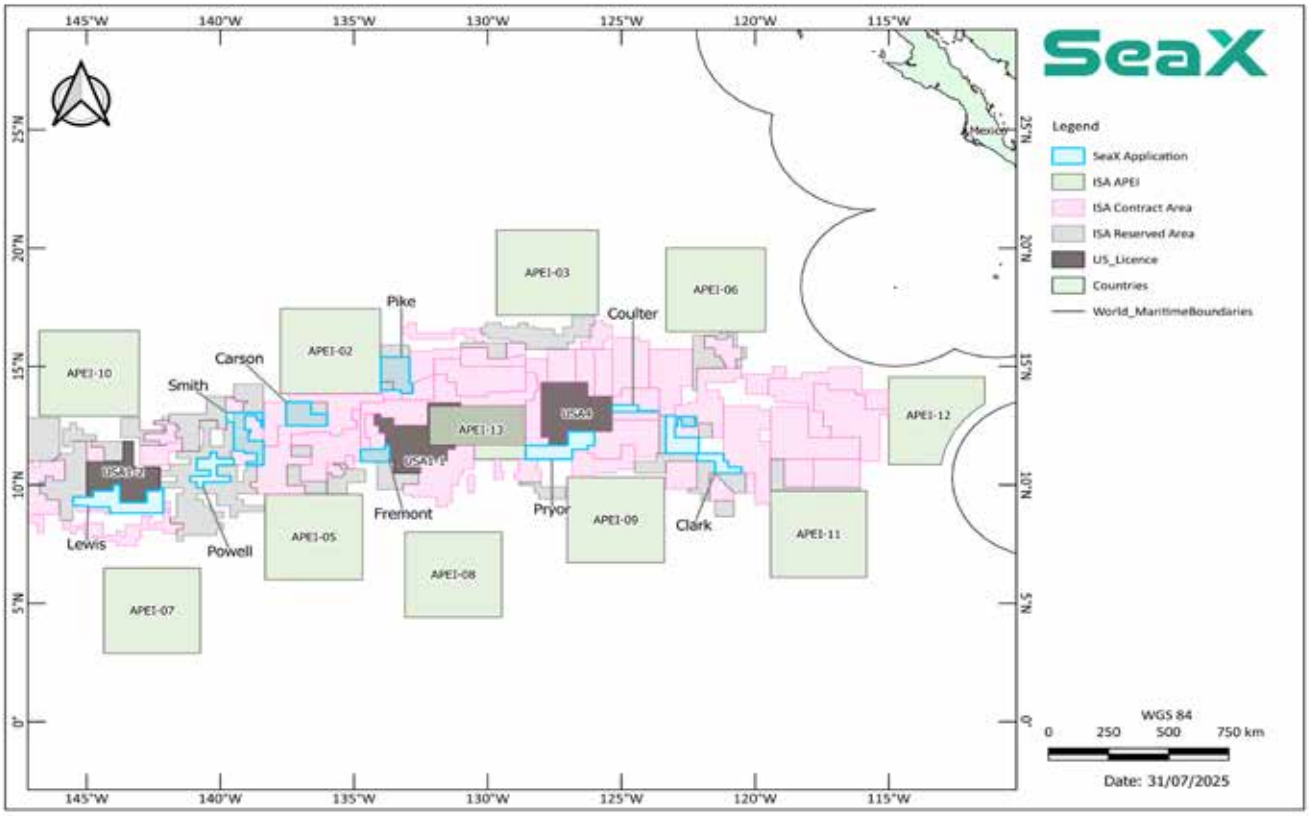


Map showing location of SeaX Application Area

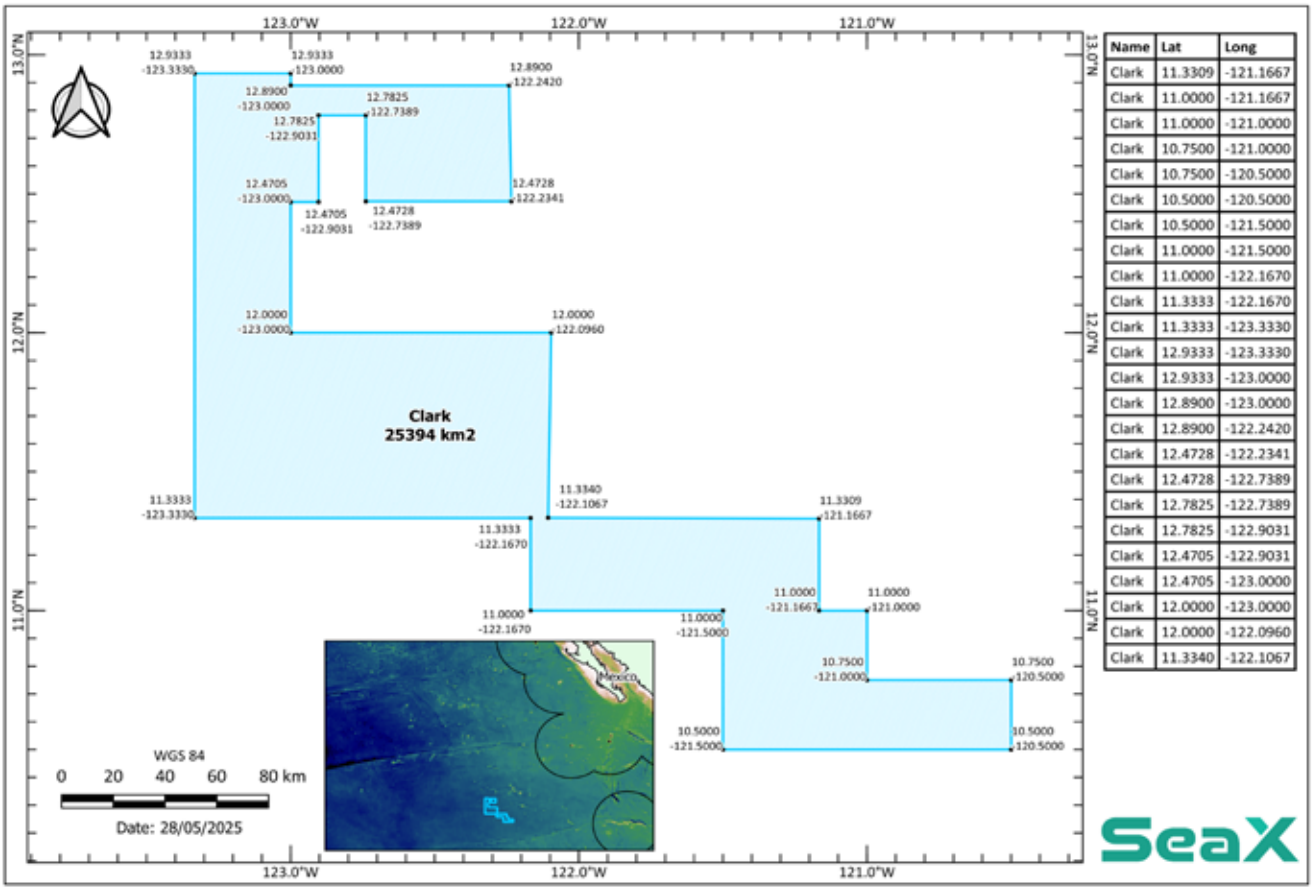
Area Name	Area (km2)
Clark	25,394
Coulter	3,733
Pryor	20,505
Pike	19,196
Fremont	7,134
Carson	14,724
Smith	19,005
Powell	13,543
Lewis	26,461
TOTAL	**149,695**



Map showing SeaX Application Area with USA-1, USA-4 and ISA Contractors

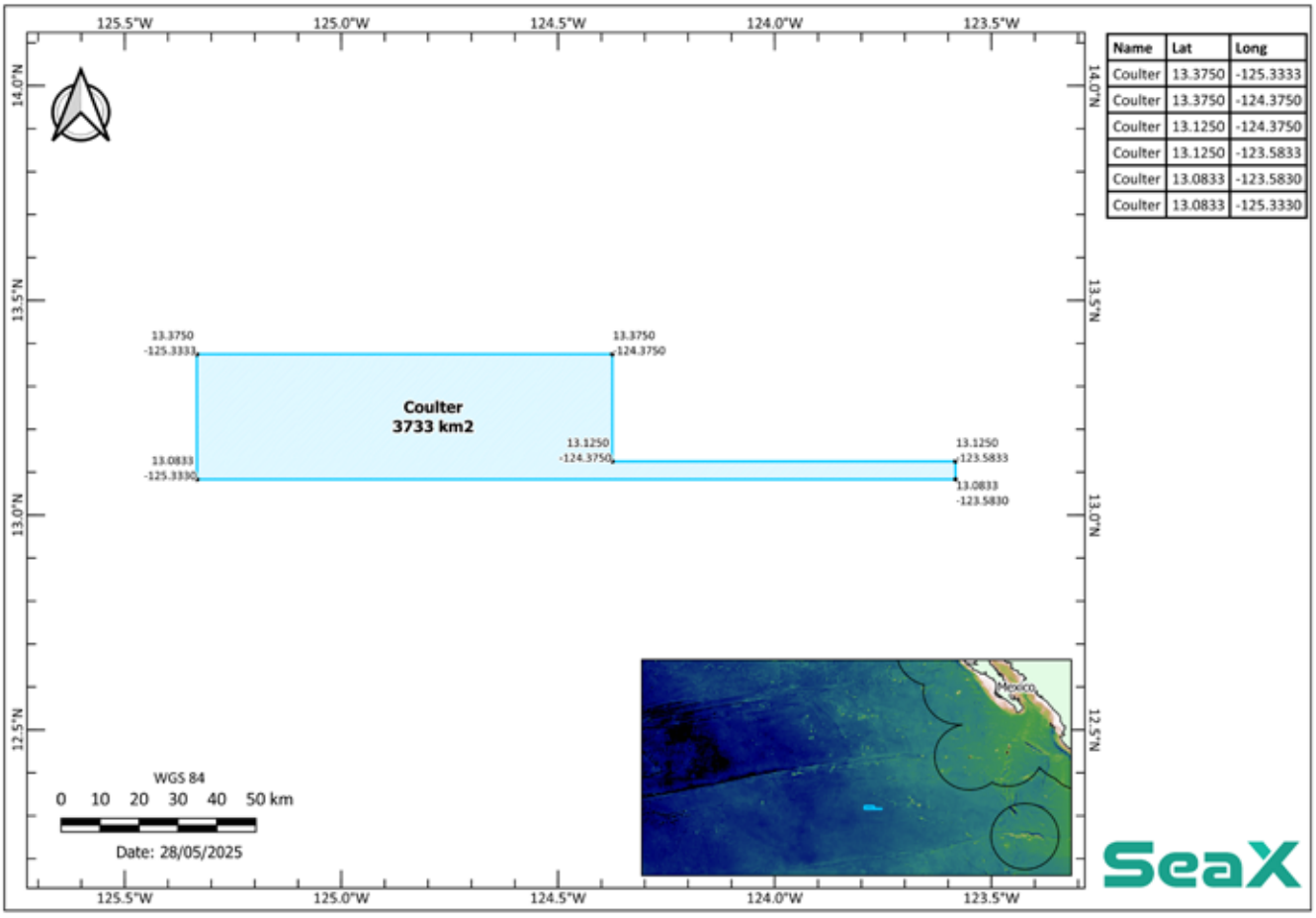


Map showing SeaX Application Area with USA-1, USA-4, APEI's, ISA Contractors and Reserved Area



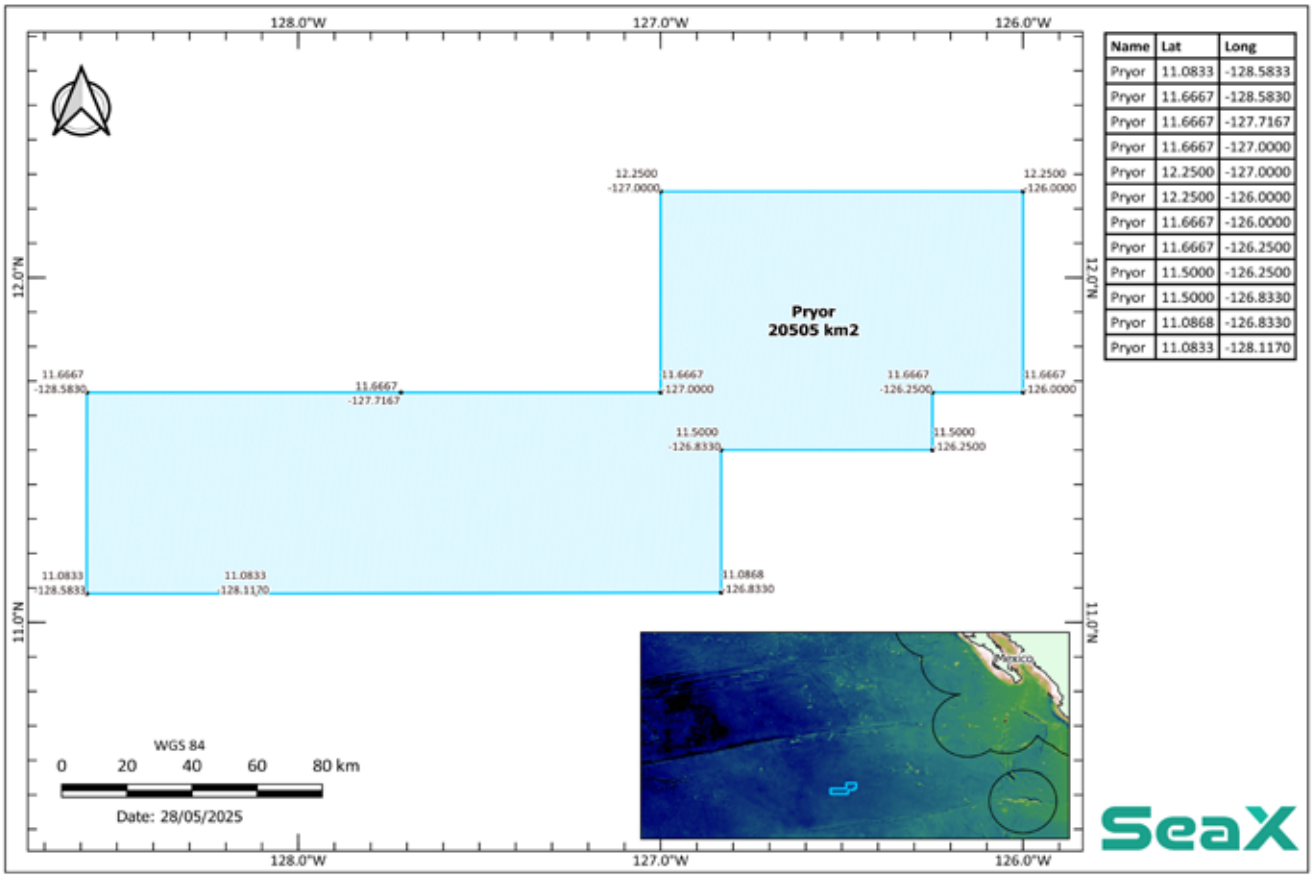
Name	Lat	Long
Clark	11.3309	-121.1667
Clark	11.0000	-121.1667
Clark	11.0000	-121.0000
Clark	10.7500	-121.0000
Clark	10.7500	-120.5000
Clark	10.5000	-120.5000
Clark	10.5000	-121.5000
Clark	11.0000	-121.5000
Clark	11.0000	-122.1670
Clark	11.3333	-122.1670
Clark	11.3333	-123.3330
Clark	12.9333	-123.3330
Clark	12.9333	-123.0000
Clark	12.8900	-123.0000
Clark	12.8900	-122.2420
Clark	12.4728	-122.2341
Clark	12.4728	-122.7389
Clark	12.7825	-122.7389
Clark	12.7825	-122.9031
Clark	12.4705	-122.9031
Clark	12.4705	-123.0000
Clark	12.0000	-123.0000
Clark	12.0000	-122.0960
Clark	11.3340	-122.1067

Map showing location and coordinates of Clark Area



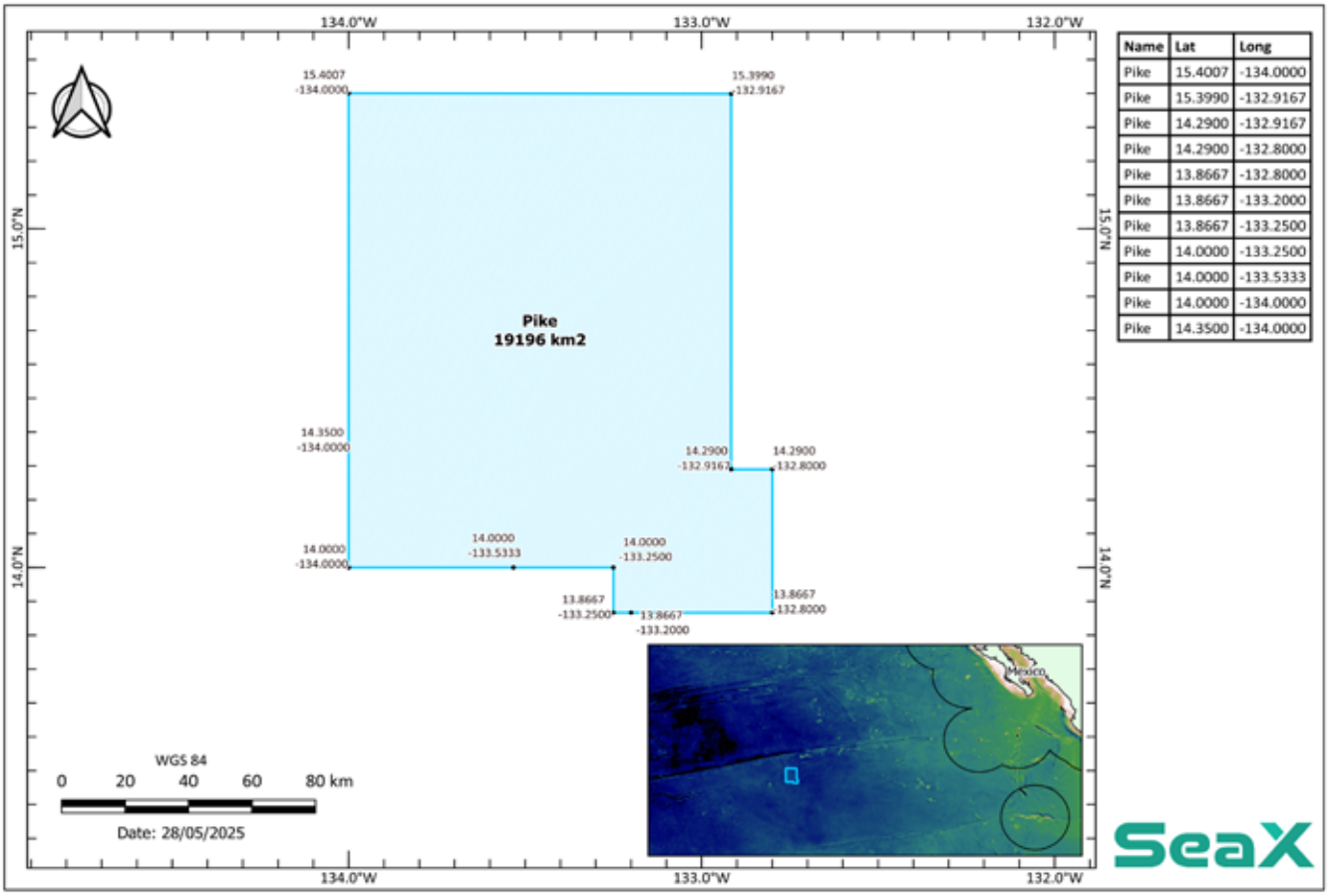
Name	Lat	Long
Coulter	13.3750	-125.3333
Coulter	13.3750	-124.3750
Coulter	13.1250	-124.3750
Coulter	13.1250	-123.5833
Coulter	13.0833	-123.5830
Coulter	13.0833	-125.3330

Map showing location and coordinates of Coulter Area



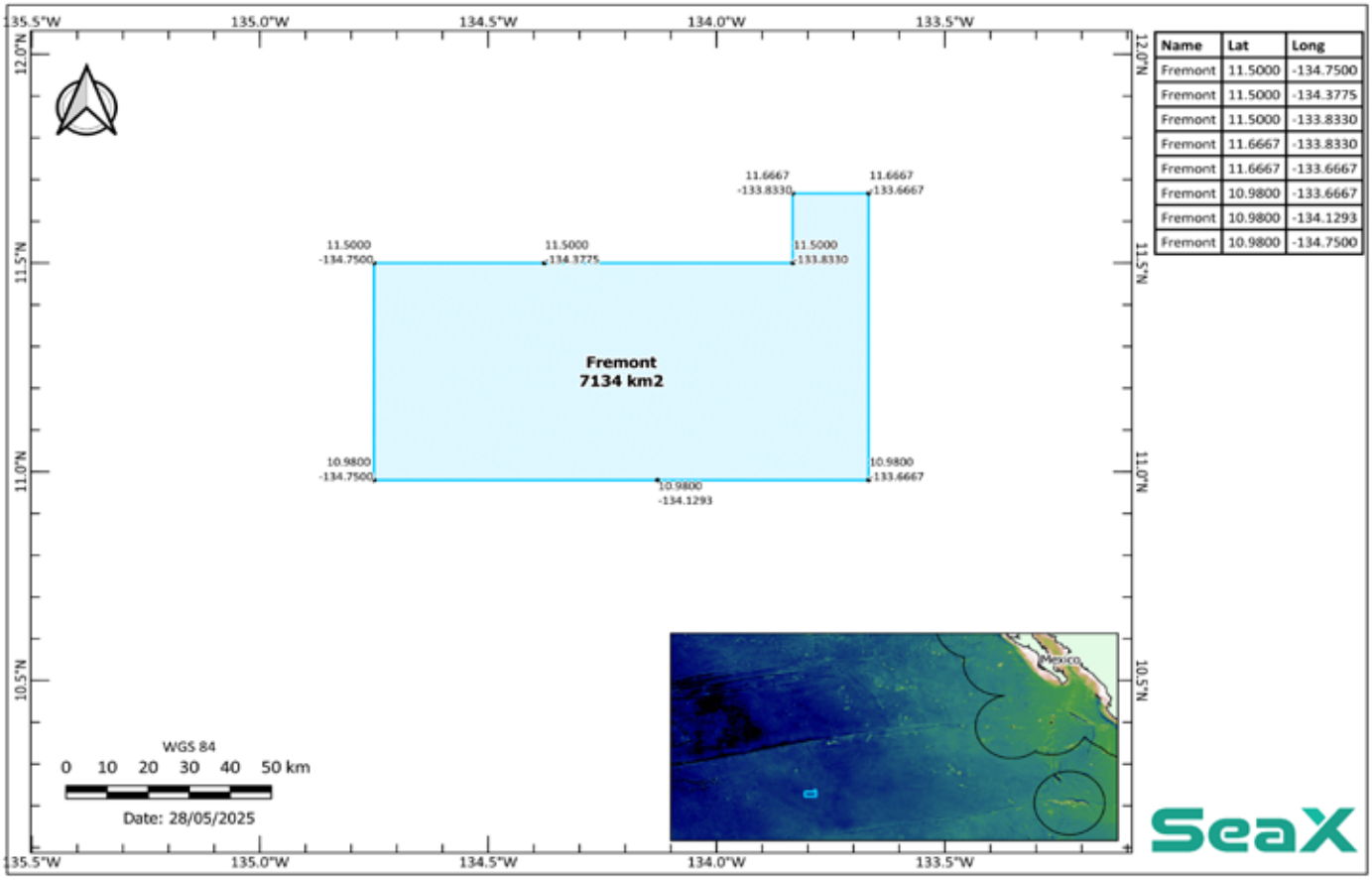
Name	Lat	Long
Pryor	11.0833	-128.5833
Pryor	11.6667	-128.5830
Pryor	11.6667	-127.7167
Pryor	11.6667	-127.0000
Pryor	12.2500	-127.0000
Pryor	12.2500	-126.0000
Pryor	11.6667	-126.0000
Pryor	11.6667	-126.2500
Pryor	11.5000	-126.2500
Pryor	11.5000	-126.8330
Pryor	11.0868	-126.8330
Pryor	11.0833	-128.1170

Map showing location and coordinates of Pryor Area



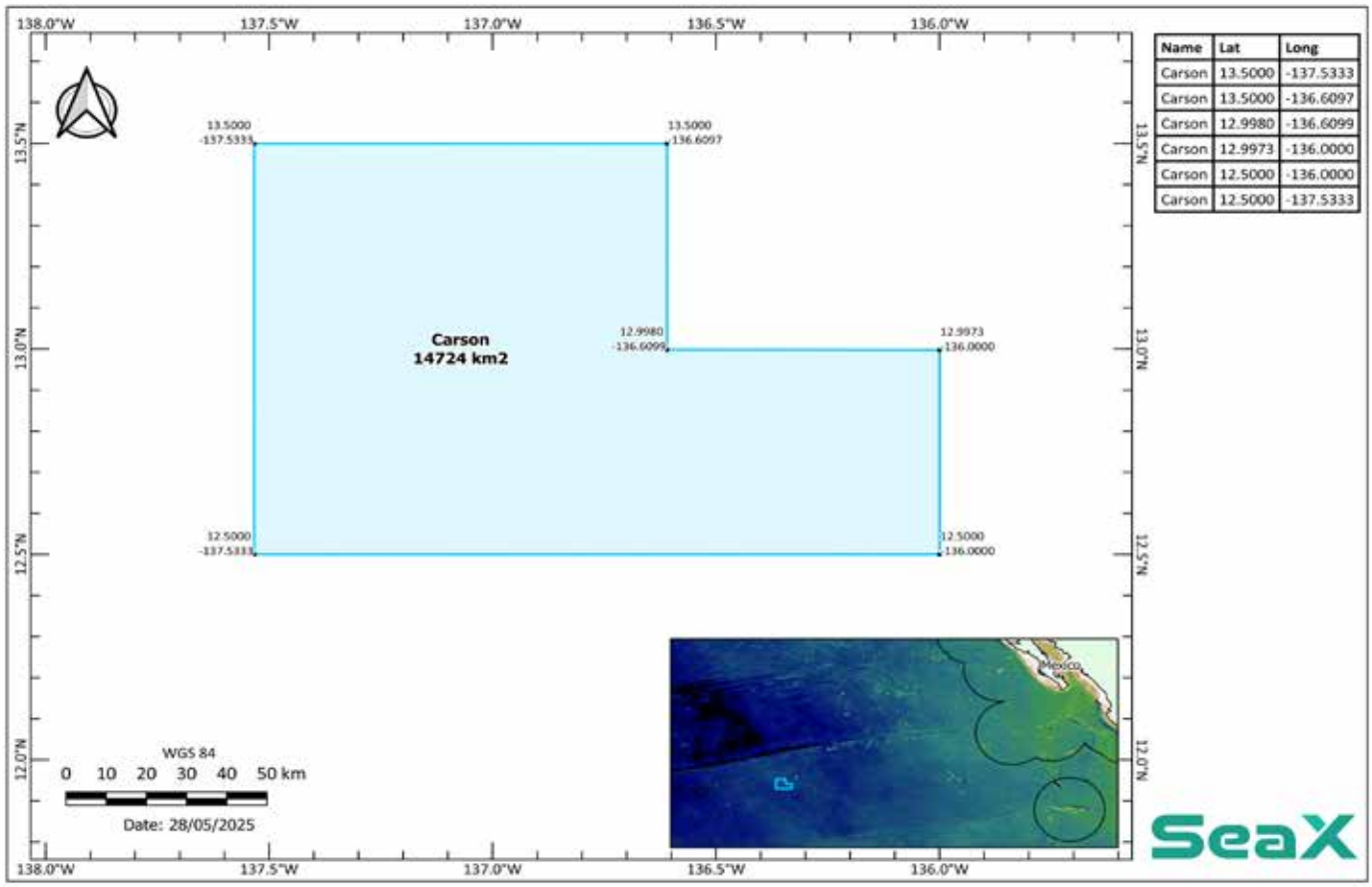
Name	Lat	Long
Pike	15.4007	-134.0000
Pike	15.3990	-132.9167
Pike	14.2900	-132.9167
Pike	14.2900	-132.8000
Pike	13.8667	-132.8000
Pike	13.8667	-133.2000
Pike	13.8667	-133.2500
Pike	14.0000	-133.2500
Pike	14.0000	-133.5333
Pike	14.0000	-134.0000
Pike	14.3500	-134.0000

Map showing location and coordinates of Pike Area



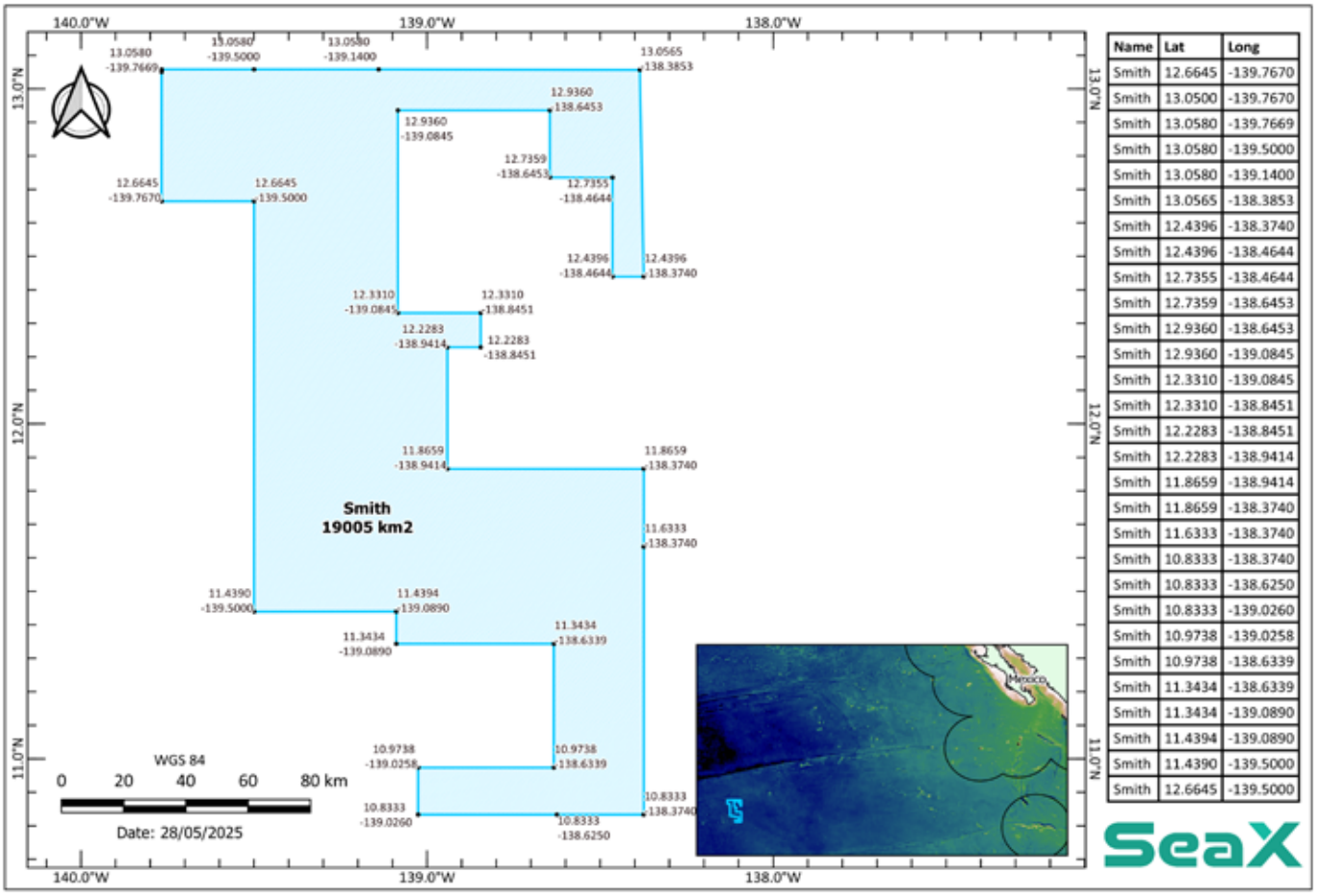
Name	Lat	Long
Fremont	11.5000	-134.7500
Fremont	11.5000	-134.3775
Fremont	11.5000	-133.8330
Fremont	11.6667	-133.8330
Fremont	11.6667	-133.6667
Fremont	10.9800	-133.6667
Fremont	10.9800	-134.1293
Fremont	10.9800	-134.7500

Map showing location and coordinates of Fremont Area



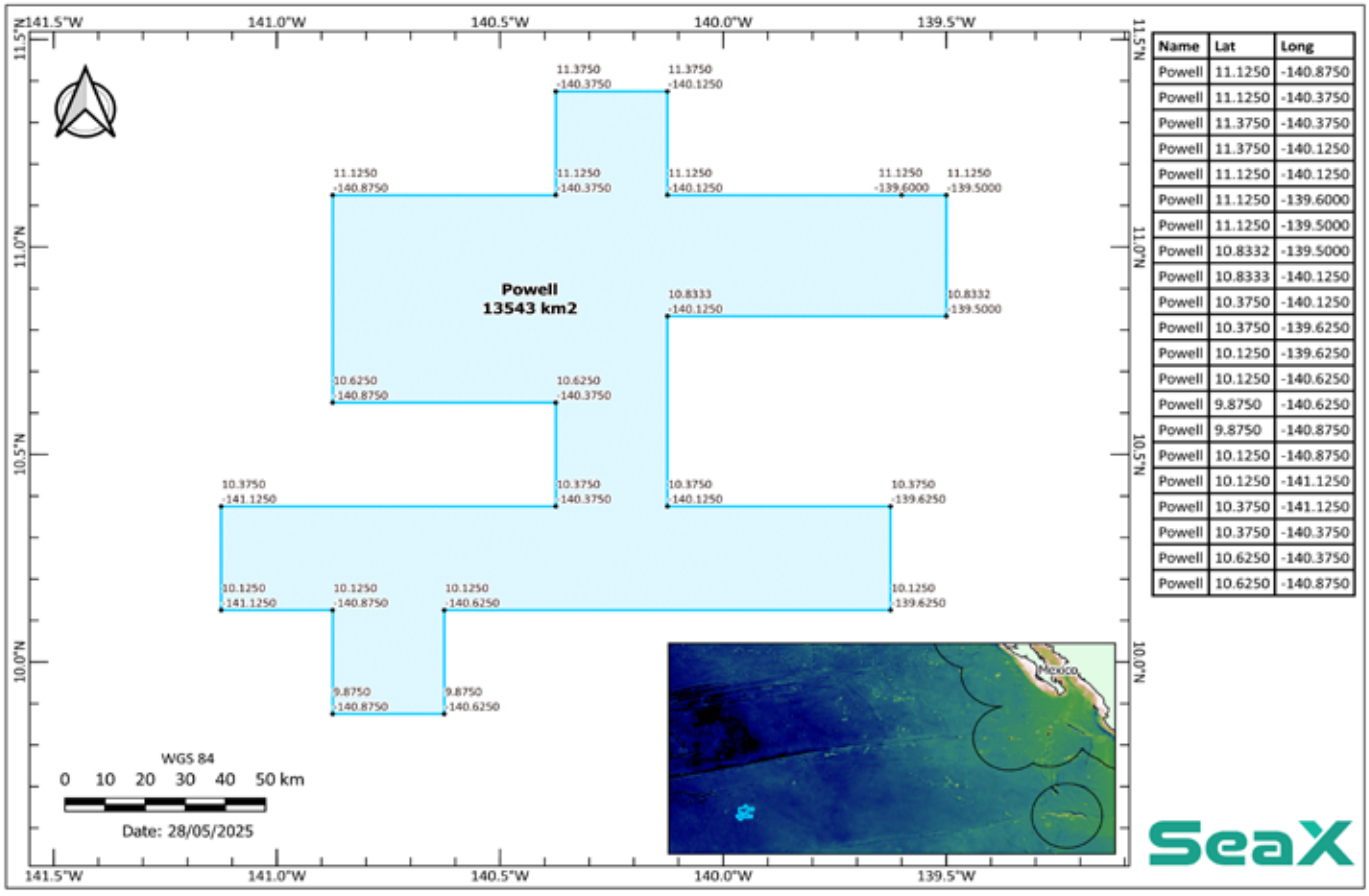
Name	Lat	Long
Carson	13.5000	-137.5333
Carson	13.5000	-136.6097
Carson	12.9980	-136.6099
Carson	12.9973	-136.0000
Carson	12.5000	-136.0000
Carson	12.5000	-137.5333

Map showing location and coordinates of Carson Area



Name	Lat	Long
Smith	12.6645	-139.7670
Smith	13.0500	-139.7670
Smith	13.0580	-139.7669
Smith	13.0580	-139.5000
Smith	13.0580	-139.1400
Smith	13.0565	-138.3853
Smith	12.4396	-138.3740
Smith	12.4396	-138.4644
Smith	12.7355	-138.4644
Smith	12.7359	-138.6453
Smith	12.9360	-138.6453
Smith	12.9360	-139.0845
Smith	12.3310	-139.0845
Smith	12.3310	-138.8451
Smith	12.2283	-138.8451
Smith	12.2283	-138.9414
Smith	11.8659	-138.9414
Smith	11.8659	-138.3740
Smith	11.6333	-138.3740
Smith	10.8333	-138.3740
Smith	10.8333	-138.6250
Smith	10.8333	-139.0260
Smith	10.9738	-139.0258
Smith	10.9738	-138.6339
Smith	11.3434	-138.6339
Smith	11.3434	-139.0890
Smith	11.4394	-139.0890
Smith	11.4390	-139.5000
Smith	12.6645	-139.5000

Map showing location and coordinates of Smith Area



Name	Lat	Long
Powell	11.1250	-140.8750
Powell	11.1250	-140.3750
Powell	11.3750	-140.3750
Powell	11.3750	-140.1250
Powell	11.1250	-140.1250
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Powell	10.3750	-140.1250
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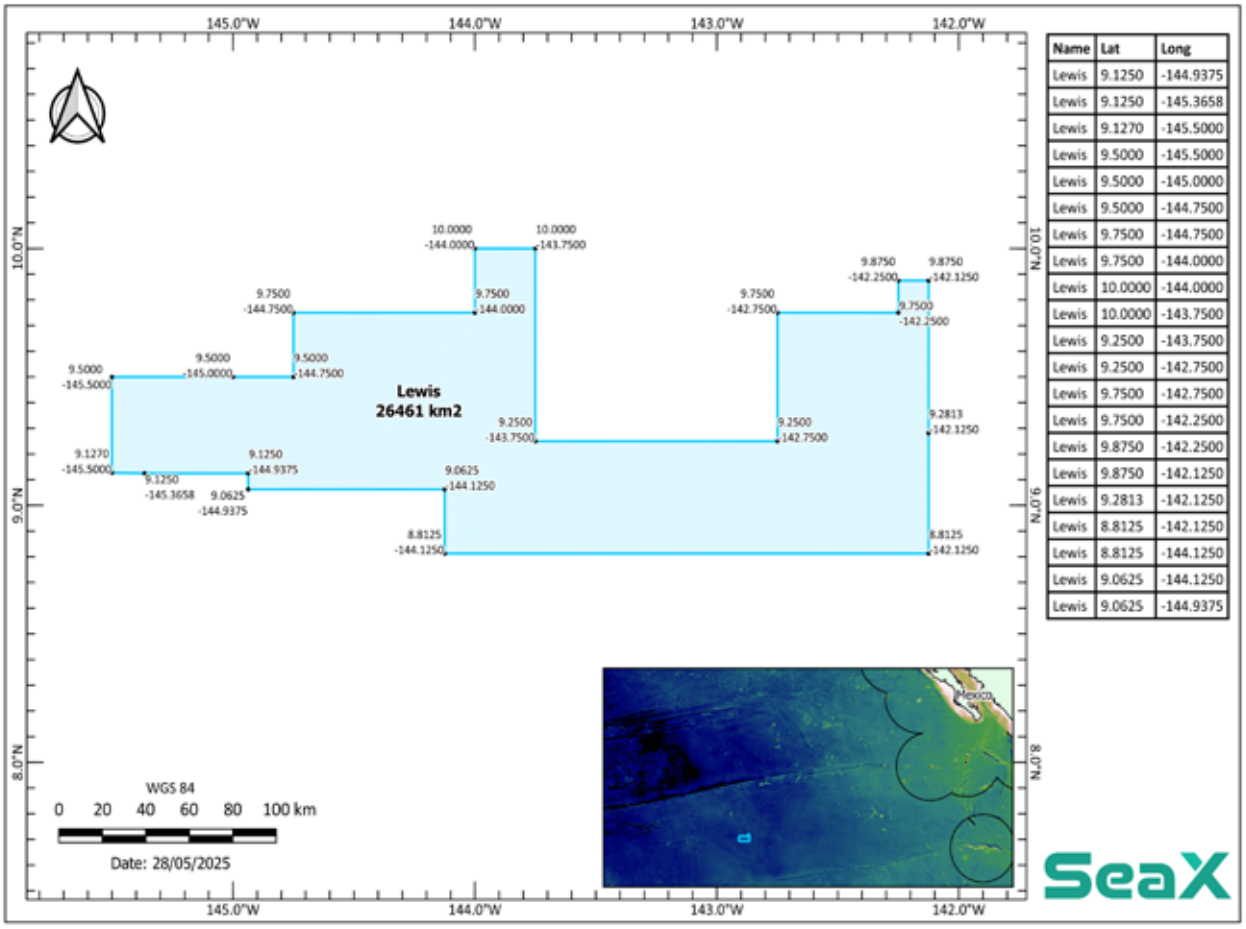
Powell	10.1250	-139.6250
Powell	10.1250	-140.6250
Powell	9.8750	-140.6250
Powell	9.8750	-140.8750
Powell	10.1250	-140.8750
Powell	10.1250	-141.1250
Powell	10.3750	-141.1250
Powell	10.3750	-140.3750
Powell	10.6250	-140.3750
Powell	10.6250	-140.8750

Map showing location and coordinates of Powell Area



Name	Lat	Long
Lewis	9.1250	-144.9375
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Lewis	9.1270	-145.5000
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Lewis	9.5000	-145.0000
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Lewis	9.7500	-144.0000
Lewis	10.0000	-144.0000
Lewis	10.0000	-143.7500
Lewis	9.2500	-143.7500
Lewis	9.2500	-142.7500
Lewis	9.7500	-142.7500
Lewis	9.7500	-142.2500
Lewis	9.8750	-142.2500
Lewis	9.8750	-142.1250
Lewis	9.2813	-142.1250
Lewis	8.8125	-142.1250
Lewis	8.8125	-144.1250
Lewis	9.0625	-144.1250
Lewis	9.0625	-144.9375

Map showing location and coordinates of Lewis Area

Coordinates of Application Area

Name	Lat_7dp	Long_7dp	Lat	Long
Clark	11.3308713	-121.1666670	11.3309	-121.1667
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Coulter	13.3750000	-125.3333000	13.3750	-125.3333
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Coulter	13.0833000	-125.3330000	13.0833	-125.3330
Pike	15.4006918	-134.0000425	15.4007	-134.0000
Pike	15.3990000	-132.9166667	15.3990	-132.9167
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Pike	14.0000000	-133.2500000	14.0000	-133.2500
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Name	Lat_7dp	Long_7dp	Lat	Long
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Fremont	11.6666670	-133.8330000	11.6667	-133.8330
Fremont	11.6666670	-133.6666718	11.6667	-133.6667
Fremont	10.9800000	-133.6666720	10.9800	-133.6667
Fremont	10.9800000	-134.1293000	10.9800	-134.1293
Fremont	10.9800000	-134.7500000	10.9800	-134.7500
Carson	13.5000000	-137.5333333	13.5000	-137.5333
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Smith	11.8659000	-138.3740000	11.8659	-138.3740
Smith	11.6333000	-138.3740000	11.6333	-138.3740
Smith	10.8333000	-138.3740000	10.8333	-138.3740
Smith	10.8333000	-138.6250000	10.8333	-138.6250
Smith	10.8333000	-139.0260000	10.8333	-139.0260
Smith	10.9738000	-139.0258000	10.9738	-139.0258
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Name	Lat_7dp	Long_7dp	Lat	Long
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Powell	11.1250000	-139.6000000	11.1250	-139.6000
Powell	11.1250000	-139.5000000	11.1250	-139.5000
Powell	10.8332000	-139.5000000	10.8332	-139.5000
Powell	10.8333000	-140.1250000	10.8333	-140.1250
Powell	10.3750000	-140.1250000	10.3750	-140.1250
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Powell	10.3750000	-141.1250000	10.3750	-141.1250
Powell	10.3750000	-140.3750000	10.3750	-140.3750
Powell	10.6250000	-140.3750000	10.6250	-140.3750
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Pryor	11.6666670	-127.0000000	11.6667	-127.0000
Pryor	12.2500000	-127.0000000	12.2500	-127.0000
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Pryor	11.6667000	-126.0000000	11.6667	-126.0000
Pryor	11.6667000	-126.2500000	11.6667	-126.2500
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Pryor	11.0833000	-128.1170000	11.0833	-128.1170

Name	Lat_7dp	Long_7dp	Lat	Long
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Lewis	9.1250000	-145.3658000	9.1250	-145.3658
Lewis	9.1269605	-145.5000000	9.1270	-145.5000
Lewis	9.5000000	-145.5000000	9.5000	-145.5000
Lewis	9.5000000	-145.0000000	9.5000	-145.0000
Lewis	9.5000000	-144.7500000	9.5000	-144.7500
Lewis	9.7500000	-144.7500000	9.7500	-144.7500
Lewis	9.7500000	-144.0000000	9.7500	-144.0000
Lewis	10.0000000	-144.0000000	10.0000	-144.0000
Lewis	10.0000000	-143.7500000	10.0000	-143.7500
Lewis	9.2500000	-143.7500000	9.2500	-143.7500
Lewis	9.2500000	-142.7500000	9.2500	-142.7500
Lewis	9.7500000	-142.7500000	9.7500	-142.7500
Lewis	9.7500000	-142.2500000	9.7500	-142.2500
Lewis	9.8750000	-142.2500000	9.8750	-142.2500
Lewis	9.8750000	-142.1250000	9.8750	-142.1250
Lewis	9.2813000	-142.1250000	9.2813	-142.1250
Lewis	8.8125000	-142.1250000	8.8125	-142.1250
Lewis	8.8125000	-144.1249896	8.8125	-144.1250
Lewis	9.0625000	-144.1250000	9.0625	-144.1250
Lewis	9.0625000	-144.9375000	9.0625	-144.9375

6. Exploration Plan

6.1 Summary of Exploration Plan

In accordance with § 970.203 (including § 970.203(a) and § 970.203(b)(1) and (3)), SeaX is pleased to provide in this section a summary of the Exploration Plan, containing activities proposed to be carried out during the license period.

A description of the exploration equipment to be used is also included, with further details regarding the equipment provided in Sections 4.5.2 and 7.3.

The project will be developed according to customary and proven offshore and mining engineering processes. A sequence of project development phases are planned and defined:

The objective of the SeaX Exploration Plan is to ensure that the Company is in a position to have the requisite data to produce a Definitive Feasibility Study ("**DFS**"), which will support an application to obtain a Commercial Recovery Permit in the future.

If a traditional development program is pursued, then it would be anticipated that an application for a Permit in the First Metal Harvesting Site would be made in Year 8 of the Exploration Plan. This traditional program would involve:

(i) Delineation of the nodule resource in the license area;
(ii) Environmental Baseline Studies and Monitoring Program;
(iii) Design of an offshore polymetallic nodule harvesting system, as well as an off-loading and maritime transport solution;
(iv) Onshore processing flow sheet development and demonstration; and
(v) Related Economic and Technical Studies.

SeaX may streamline the program so as an application for a Permit can be made in a much shorter timeframe, as detailed below.

SeaX's program will leverage off the past experience of American Metal's management, as well as the decades of engineering and environmental work that has already taken place in the CCZ for polymetallic nodules.

SeaX can also benefit from collaborating with American Metal Resources LLC. This collaboration can allow SeaX to access significant cost savings through joint exploration programs, data sharing, operational synergies, and joint asset utilization.

For example, significant cost savings may be made through coordination of at-sea surveys and sharing mobilization and demobilization costs. There may also be significant cost savings with respect to joint engineering and metallurgical studies.

At least 1 year prior to carrying out a Harvesting Test, SeaX will submit to the Administrator the relevant information to enable the Administrator to carry out the Supplemental EIS as required by the Regulations, including baseline and equipment data and system test plans.

SeaX also confirms that it will **NOT** carry out a Harvesting Test, or any other Potentially Impactful Activities, unless and until it obtains prior consent from the Administrator.

SeaX's program will leverage off the past experience of its management, as well as the decades of engineering and environmental work that has already taken place in the CCZ for polymetallic nodules by a number of entities, and which has greatly advanced society's knowledge of seafloor polymetallic nodule harvesting and its environmental impacts.

As such, whilst SeaX has presented in this application a 10 year program to coincide with the length of the Exploration License (and as per the Regulations), the Company anticipates that it can fast-track this work in order to meet the short term critical mineral needs of the U.S.

In this respect, and in light of the recent Offshore Critical Minerals EO, SeaX will look to accelerate this program as fast as regulatory approvals will permit.

For example, SeaX is already in discussions with U.S. engineering and offshore service providers regarding the provision of solutions for the harvesting system spread. SeaX confirms that it is ***not*** dependent upon any competitors for this technology or equipment. Rather, SeaX has already commenced discussions with leading subsea engineers and manufacturers in the United States who are interested in developing and providing this technology.

In this respect, successful trial harvesting in the CCZ has already demonstrated the technical viability of polymetallic nodule harvesting.

Importantly, we are now looking to bring together offshore equipment and service providers based in the United States. These engineering groups and manufacturers have extensive experience with offshore oil and gas, and are able to apply their deep sea experience and knowledge to seafloor polymetallic nodule production.

Similarly, SeaX can utilize existing processing facilities for its initial Commercial Recovery operations, and SeaX's environmental program is aimed at collecting the data necessary to bridge knowledge gaps. As such, where the data already exists, SeaX will utilize past work. Where such data does not exist, SeaX's program will be designed to bridge knowledge gaps. This approach will enable SeaX to move swiftly into operational phases by integrating existing solutions into our framework, subject to obtaining a future Commercial Recovery Permit. By capitalizing on prior advancements and engaging with industry leaders who have demonstrated the effectiveness of their technology in real-world conditions, particularly those U.S. groups who have expertise in offshore oil and gas, SeaX can mitigate risk and streamline the pathway to applying for a Permit for Commercial Recovery. This approach will allow us to fast-track development while maintaining confidence in the reliability and efficiency of the equipment and processes we deploy.

6.2 Description & Schedule of Proposed Exploration Activities

In accordance with § 970.203 (including § 970.203(a) and § 970.203(b)(1) and (3)), a description and schedule of the proposed exploration activities is provided in this Section 6.2 below.

Year 1

Program Area	Proposed Activities
Geological Program	Satellite Imaging Review of publicly available data for the License Area Planning and contracting for Cruise #1 Cruise #1: At-Sea Survey & Resource Cruise Geophysical survey, bathymetric mapping, geological sampling and geotechnical studies in the license area to: **(i)** Map seafloor configuration and topography; **(ii)** Identify and define the location, abundance and mineral grade of nodule fields; **(iii)** Study physical characteristics of the seafloor (including those factors that will influence future Commercial Recovery and will feed into engineering and technical studies); **(iv)** Locate prospective sites for future Commercial Recovery where the abundance and grade of nodules is high enough to be economic and sustain a commercial operating life, and where the seafloor gradient permits safe and reliable manoeuvring of the Seafloor Harvesting Vehicle (other considerations may include, for example, strength of the seafloor, and geo-hazards such as grabens and fault lines); and **(v)** Collection of nodules. This cruise will involve using multibeam sonar survey to map seafloor topography and identify nodule-rich regions, box core sampling to measure nodule abundance and metal grades, and dredge or epibenthic sled to collect nodules. The nodule samples will be analysed for a range of chemical characteristics, for example: • Moisture determination • Loss on Ignition determination • Major elements by fusion XRF • Minor and trace elements by fusion ICP – MS analysis • Specific deleterious elements by Mixed acid digest • Specific deleterious elements by trace level ICP – MS analysis

Program Area	Proposed Activities
Metallurgical Program	Patent and Literature Review Review international patents pertaining to polymetallic nodule processing and publicly available data to leverage off lessons learned and to improve on already established processing routes. Site Selection Study Commence initial studies to locate an appropriate site in the United States to build the Processing Plant or Metal Refinery to be used during Commercial Recovery (the site will inform costings and permitting requirements). Commence initial discussions with Government agencies regarding preferred location of Processing Plant. Development of Flowsheet Develop process options to efficiently treat seafloor polymetallic nodules that maximizes recovery of high value metals that are required in the United States, and limits any environmental waste. Analyse the flow sheet options to identify the most efficient and cost-effective process solution to produce metals for domestic use in the United States. Testwork Commence laboratory research and testwork (bench scale) to test flowsheet options. Testwork will also be carried out to demonstrate leaching extent/reagent consumption, as well as to demonstrate impurity removal. Existing Facilities Study SeaX is also committed to working with the Administrator and the U.S. Government to expedite production to meet U.S. critical mineral needs, and as such, the Company will also commence studies to identify existing facilities that may be suitable for First Generation polymetallic nodule metal production.
Economic Studies	An initial Economic Assessment will be carried out to evaluate the broad economic parameters required for Commercial Recovery. The results of this study will be used in conjunction with the data obtained from Cruise #1 to inform the selection of the First Metal Harvesting Site. This study will provide an indication of the polymetallic nodule grade and abundance that will likely be required for economic recovery and will assist SeaX's selection of the First Metal Harvesting Site, to enable more detailed exploration and environmental studies to commence in Year 2 in the selected area.

Program Area	Proposed Activities
Environmental Program	Comprehensive review of publicly available environmental data pertaining to the CCZ. Identify where knowledge gaps exist in the current data, so as the Environmental Plan can be focused on answering the outstanding questions. Based on the knowledge gap analysis, preparation of an Environmental Scoping Report, including terms of reference for an EIA Scoping Study. Expert workshop to gather feedback and recommendations for the Environmental Scoping Report. Carry out stakeholder mapping and develop a stakeholder engagement and communication plan for the exploration program. Finalization of environmental baseline study cruise plan designed to fill knowledge gaps, including designing study methodologies, planning the oceanography program, and acquiring vendor quotes for necessary equipment. Cruise #1 Commence environmental program, including oceanographic data collection, as well as data to assist in scoping later detailed environmental surveys.
Engineering Program	Review of publicly available data Review publicly available data and international patents pertaining to offshore harvesting systems. Commence engineering design for the Offshore Harvesting System Engineering Scoping Study for Offshore Harvesting System Carry out a Scoping Study of the most efficient options to recover polymetallic nodules in an economic manner that has the least environmental impact. The Scoping Study will assess initial technical viability of the options for an Offshore Harvesting System, transfer of ore from the production vessel to transport vessel, transporting the ore to port, and an initial financial analysis to ascertain preliminary estimates for Capital and Operating costs. Partnerships with U.S. Based Subsea Technology & Equipment Providers SeaX has already started discussions with U.S. based engineering groups and subsea equipment manufacturers who have offshore oil and gas technologies and solutions that may be able to be adapted for deep sea polymetallic nodule harvesting. SeaX will continue these discussions.

Year 2

Program Area	Proposed Activities
Geological Program	Cruise #1B In the case that Cruise #1 does not identify a prospective metal harvesting site, a similar cruise will be carried out in Year 2 across a different part of the License Area (Cruise #1B). Selection of First Metal Harvesting Site Using data collected in Cruise #1 (and/or Cruise #1B), coupled with the outcome of the initial Economic Assessment, SeaX will select the First Metal Harvesting Site, where polymetallic nodule grade and abundance are anticipated to be sufficiently high to permit future economic recovery. Selection of Site for Harvesting Test Within the First Metal Harvesting Site, SeaX will select a location for the Harvesting Test, which will be a location that is representative of future harvesting areas with respect to such parameters as water depth, nodule abundance, bathymetry, slope and environment. Selection of sites for the Environmental Baseline Studies, as well as Preservation Reference Zone Once the site for the Harvesting Test has been identified, SeaX will select sites to carry out the Environmental Baseline Studies. Cruise #2 SeaX will carry out more detailed surveys (high resolution mapping) of the First Metal Harvesting Site in order to ascertain nodule coverage, estimate nodule abundance and produce a comprehensive bathymetric map. This work will also help determine operational suitability, particularly regarding defining small scale topographic features and confirming appropriate geological substrate required for effective harvesting operations. The high-resolution imagery and bathymetry of the seafloor will also be used to support engineering studies. This may be carried out through the use of an Autonomous Underwater Vehicle, a deep-towed side scan sonar system, or similar technologies that enable detection of small-scale features, and variations of nodule abundance, for example by measuring backscatter of acoustic energy correlated with reference to seafloor photographs. In this respect, bathymetric traverses may be completed across identified areas, followed by low altitude traverses with combined optical and side scan acquisition to confirm nodule abundances and determine that there are not obvious topographic features which would render the areas unsuitable for future harvesting. More detailed geological sampling (using box cores) will also be carried out to better define the nodule resource in the First Metal Harvesting Site. The aim will be to move the resource from an “Inferred” status to “Indicated”.

Program Area	Proposed Activities
Geological Program (Cont.)	High resolution imagery may also be collected from the seafloor from box core deployment. Geochemical analysis will be carried out to analyze sediment characteristics and properties. Geotechnical studies will be carried out in the First Metal Harvesting Site (including shear strength measurements). Data collected from this work is anticipated to likely include: • High resolution MBES data (bathymetry and Backscatter data); • Side Scan Sonar imagery; and • Photographic imagery of the seafloor. Further assaying of nodule samples will be done using X-ray Fluorescence (XRF), Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES or ICP-AES) and/or Atomic Absorption Spectroscopy (AAS). Geological Model SeaX will produce a Geological Model focused on the License Area in order to predict nodule distribution across the seabed, estimate metal grades, identify high-concentration areas for detailed exploration and future Commercial Recovery, assess sediment characteristics and understand the seafloor conditions for efficient exploration and determination of harvesting viability. This model will assist SeaX to focus its exploration campaigns on the most prospective areas with environmental and geological conditions suitable for harvesting, design efficient harvesting equipment, and to make investment decisions. The Geological Model will be built from the data obtained from the at-sea exploration cruises. For example, the model will integrate bathymetry data to show broad structures and variations in abyssal plain features, as well as classify seafloor sediment types (which affect nodule formation and influence seafloor mining operations and environmental impacts). Resource Statement SeaX will produce a Resource Statement that uses geostatistical techniques to estimate the size and grade of the resource in the License Area. The Resource Statement will estimate the average nodule abundance (kg/m^2) across different zones, metal concentrations based on chemical analysis, and the overall tonnage of nodules recoverable in the license area at an appropriate cut-off grade and abundance that would be economically viable.

Program Area	Proposed Activities
Metallurgical Program	Engineering Scoping Study for Metallurgical Processing A Scoping Study will be carried out for the different metallurgical processing options to assess technical feasibility and obtain Capital and Operating cost estimates of the different options, as well as cashflows from potential products. The Scoping Study will outline the project and conceptual costs to an accuracy of ±35%. This study will entail the following key deliverables: • Block Flow Diagram: Flowchart showing major plant areas. • Block Layout: Plant layout to illustrate the footprint of individual areas of plant. • Preliminary Process Design Criteria: Indicative from other projects/pilot plants. • Process Model: Simplified process model, with preliminary Mass and Energy Balance (MEB) to define the chemical changes and the split of feed materials to waste and products. • Equipment List: Major equipment summary with approximate sizing. • Capital Costs: Factored capex using database projects. • Operating Costs: Opex from database project unit costs. Discussions with Existing Facilities SeaX will continue discussions with existing processing facilities to identify suitability and availability for use in a First Generation nodule production operation.
Economic Studies	SeaX will update its Financial Model and Economic Studies as more data is obtained from the respective study areas, including the processing and engineering programs. The Financial Model and Economic Studies will also assist SeaX to determine which options to select for the Offshore Harvesting System and Onshore Processing Plant to reduce capital and operating costs, enhance revenues, and minimise environmental impact.
Environmental Program	Cruise#2 Continue Oceanographic data collection and commence Environmental Baseline Studies at the First Metal Harvesting Site. The studies will be aimed at filling the identified knowledge gaps. Refer Section 7.2 for more details regarding the Environmental Baseline Study Program. In the case that the Harvesting Test area and Preservation Reference Zone (PRZ) have been identified, low altitude optical mapping and side scan traverses of the seafloor in the PRZ will also be done to confirm similarity to the Harvesting Test area. Design of Environmental Monitoring Digital Twin SeaX will commence design of a virtual replica of the physical environment that can be used during Commercial Production to provide real-time data from sensors and other monitoring systems and allow for comprehensive analysis, prediction, and management of the key environmental factors, which will enhance decision-making to mitigate environmental impacts.

Program Area	Proposed Activities
Engineering Program	Carry out more detailed engineering studies to design prototype systems intended to be used in Commercial Recovery operations: **A.** Design of the system components, including Seafloor Harvesting Vehicle and Riser and Lifting Systems (RALS); **B.** Design of the production process, including with respect to nodule collection at the seafloor, retrieval to surface production vessel, transfer to transport ship at sea, environmental monitoring, transport to onshore processing facility, any waste disposal, and compliance with applicable regulations and standards; **C.** Design of the harvesting plan, including with respect to the intended annual rate of production and areas intended to be harvested; **D.** Select preferred Offshore Harvesting System for more comprehensive studies. Alternatively, discussions will be progressed with service providers and subsea equipment manufacturers with a view to acquiring the use of existing technology and equipment that has already been proven in the deep sea environment, including in offshore oil and gas. SeaX is already in discussions with groups based in the United States, and confirms that it is not dependent upon any equipment or technology from a deep sea mineral competitor.

Year 3

Program Area	Proposed Activities
Geological Program	Cruise #2B In the event that Cruise #2 did not identify a sufficient area suitable for the Harvesting Test, then Cruise #2B will be carried out to further map the First Metal Harvesting Site and locate zones of high nodule abundance and sufficiently smooth seafloor conducive to Seafloor Harvesting Vehicle design constraints. Additional geological and geotechnical data will be obtained to feed in to the design of the Offshore Harvesting System. For example, the following tests will be conducted: • Soil classification and description; • Moisture content and unit weight / bulk density measurements; • Miniature vane (MV) tests on undisturbed and remolded specimens; • Atterberg limits; • Hydrometer; • Carbonate content (gasometric method); and • Organic content. Geological Model and Resource Statement The Geological Model and Resource Statement will be updated based on cruise data. Assaying of nodule samples will be done using X-ray Fluorescence (XRF), Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES or ICP-AES) and/or Atomic Absorption Spectroscopy (AAS).
Metallurgical Program	Extensive bench-scale testwork Extensive bench-scale testwork will be carried out on nodules from the License area. This work will assist in selecting the flowsheet and designing the pilot plant. Specifically, the bench-scale testwork will be done in order to demonstrate and optimise at bench-scale: **(i)** leaching extent/reagent consumption; **(ii)** impurity removal/reagent consumption; and **(iii)** primary product recovery and reagent consumption, for each product In addition, SeaX will carry out: **(i)** comprehensive bench-scale SX (Solvent extraction) and/or IX (Ion exchange) tests for impurity separation or product purification; and **(ii)** Solid-liquid separation testwork for leach feed, leach discharge, impurity precipitation steps, and product precipitation steps Alternatively, finalise the selection of an existing processing facility in the case that SeaX decides to acquire the use of existing processing technology and facilities for First Generation production.

Program Area	Proposed Activities
Environmental Program	Based on the results of Cruise #2 and/or Cruise #2B, SeaX will select suitable environmental monitoring sites, as well as environmental baseline reference zones. Cruise #3 Continue Oceanographic data collection and Environmental Baseline Studies at the First Metal Harvesting Site. The studies will be aimed at filling the identified knowledge gaps. Refer Section 7.2 for more details regarding the Environmental Baseline Studies Program. Continue development of Environmental Monitoring Digital Twin
Engineering Program	Pre-Feasibility Study to comprehensively assess the technical and economic viability of the preferred Offshore Harvesting System, which may be a system designed by SeaX, or a system that is procured or hired from an offshore equipment manufacturer or deep sea service provider (e.g. U.S. based subsea engineering and equipment manufacturers that sell or hire technology to the Offshore Oil and Gas industry). This phase will assess all reasonable value-creating alternatives. In consequence it will serve to select the optimal investment solution taking into account net present value (NPV), risk, uncertainty, environmental and social externalities and embedded option value.

Year 4

Program Area	Proposed Activities
Geological Program	Cruise #4 A sample of nodules will be recovered for the purpose of supporting metallurgical and engineering studies, including Pilot Plant as well as to assist with design and testing the Offshore Harvesting System on land and in test tanks.
Metallurgical Program	Preliminary Economic Assessment A Preliminary Economic Assessment will be produced based on the most prospective flowsheet, or on the selected existing processing facility. Further refine the flowsheet options – to feed in to the engineering design of the Pilot Plant, and to assist in determining the scale (and run time) of the Pilot Plant to provide representative data for the Feasibility Study as well as the quantity of product to be produced for market acceptance trials by the market for the final plant's product. Design Pilot Plant Design Pilot Plant in the case that the Company does not select an existing facility.
Environmental Program	Cruise #4 Continue Oceanographic data collection and Environmental Baseline Studies at the First Metal Harvesting Site. The studies will be aimed at filling the identified knowledge gaps. Refer Section 7.2 for more details regarding the Environmental Baseline Studies Program. Continue development of Environmental Monitoring Digital Twin
Engineering Program	Where required, and in the case that SeaX does not acquire the use of existing technology and equipment, laboratory and realistic field demonstrations will be conducted to confirm performance predictions for a scaled down version of the selected Offshore Harvesting System ("**Prototype Integrated Offshore Harvesting System**"). This phase therefore locks in the technical and commercial viability of the selected investment prior to further study and optimization to take place in the definition phase.

Year 5

Program Area	Proposed Activities
Geological Program	Cruise #5 Additional resource delineation work to improve resource category. Assaying of nodule samples will be done using X-ray Fluorescence (XRF), Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES or ICP-AES) and/or Atomic Absorption Spectroscopy (AAS).
Metallurgical Program	Build And Operate Pilot Plant In the case that new processing technology is developed, a Pilot Plant will be built and operated in order to: • Verify the process at a larger scale and on a semi continuous basis; • Confirm selected process flowsheet; • Confirm technical feasibility of the flowsheet and design; • Produce metals and metallic compounds for marketing studies; and • Confirm environmental sustainability outcomes The Pilot Plant will be operated with all internal recycles in place, precipitation processes with seed recycle, and solid-liquid separation steps reflecting commercial scale. Vendor testing will be carried out for sizing of solid-liquid separation equipment. Material handling testwork will be carried out for ore, dry tailings and bulk solid products. Tailings (if any) environmental testing will be carried out. The Design Criteria that will be confirmed will include: • Leach extractions and lixiviant consumption; • Impurity removal steps and reagent consumptions; • Key product recovery steps and reagent consumptions; • Shake-out tests for recovery/rejection in SX/IX applications; and • Solid-liquid separation tests conducted on live pilot plant slurries using specialised dynamic test rigs. Analyse Pilot Plant data Finalise Flowsheet selection Commence Environmental and Permitting study for selected processing plant site Engagement with applicable regulatory bodies for the Onshore Processing Plant or Metal Refinery

Program Area	Proposed Activities
Environmental Program	Cruise #5 Continue Oceanographic data collection and Environmental Baseline Studies at the First Metal Harvesting Site. The studies will be aimed at filling the identified knowledge gaps. Refer Section 7.2 for more details regarding the Environmental Baseline Studies Program. Plume modelling Submit baseline and equipment data and system test plans for the proposed Harvesting Test If a Harvesting Test is to be carried out in the license area, then at least 1 year prior to carrying out the Harvesting Test, SeaX will submit to the Administrator the relevant information to enable the Administrator to carry out the Supplemental EIS as required by the Regulations, including baseline and equipment data and system test plans. Submit EIS data for the proposed onshore Demonstration Processing Test At least 1 year prior to carrying out the onshore Demonstration Processing Test, SeaX will submit to the Administrator (and/or other applicable regulatory authority) the relevant information to enable the Administrator to carry out the Supplemental EIS as required by the Regulations. Carry out Public Consultations for the Environmental Impact Statements
Engineering Program	Construction of the Prototype Offshore Harvesting System for testing in the License Area, in the case that SeaX builds the system itself. Alternatively, SeaX may contract this service (there are a number of groups who are able to develop and provide this technology, including in the United States, and SeaX is not dependent upon any equipment or technology from a deep sea mineral competitor). The exact details of the technology and equipment will be submitted to the Administrator at least 1 year prior to carrying out the test.

Year 6

Program Area	Proposed Activities
Geological	Update Geological Model based on Harvesting Test. Refer "Engineering Program" below for details of the Harvesting Test.
Metallurgical Program	Produce Pre-feasibility Study ("PFS") Carry out a PFS for building a processing plant in the U.S. on the basis of the flowsheet selected – and further refine CAPEX/OPEX to an accuracy of ±25%, looking for efficiencies, cost reductions and improvements of the flowsheet. The PFS will entail the following key deliverables: • Process Flow Diagram: For the entire process plant showing all plant equipment and process streams. • Layouts: Detailed layout based on preliminary sizing of equipment and major packages. Overall layout and individual area layouts for key facilities. • Electrical: Preliminary electrical drawings. • Process Design Criteria: As much data as possible from bench scale testwork, technical resources and vendor data. Supplemented by data from operations, other projects and/or pilot plants. • Process Model: Detailed model and Mass Energy Balance (MEB), including all process steps and preliminary steam, water and cooling water flows. • Equipment List: All equipment items listed either individually or as part of a vendor package. Calculated sizings of all major items and preliminary sizings for tanks, agitators and pumps. Option Studies: Preliminary design and costing of options to select preferred plant design. For example: **(i)** Plant location. **(ii)** Tailings disposal options (if any tailings). **(iii)** Energy source/s. **(iv)** Reagent purchase vs on site production **(v)** Water balance/recycle/etc. **(vi)** Product type and value - SeaX will produce metals or metal compounds specifically designed to suit the requirements of industrial users in the United States. Preliminary Environmental Study Preliminary summary of environmental, community and social aspects, introducing all elements that will be addressed by detailed environmental, community and social studies at Definitive Feasibility Study stage for the onshore processing plant.

Program Area	Proposed Activities
	Commencement of product acceptance activities It is anticipated that the plant output will be specifically designed to suit the requirements of industrial users in the United States. **Capital Costs** Factored capex by individual equipment item. Quotations for items above a determined value. Accuracy ±25%. Vendor quotes will be obtained for major equipment and packages, or if not possible, will use vendor quotations and priced equipment from other projects, factored for scale. Database costs will be used for minor equipment. **Operating Costs** Opex from preliminary calculations and single source vendor quotes. Inputs will include • Estimated manning numbers and database or HR consultant rates. • General & Admin expenses based on database for similar projects. • Maintenance costs built up as % of capex by plant area. • Reagents from MEB and vendor budget pricing. • Fuel, power calculated and costed. Preliminary Financial Analysis: Assessment based on PFS CAPEX and OPEX. Sufficiently detailed to support a decision to proceed to Definitive Feasibility Study. The Company will carry out an Environmental Monitoring Program to monitor how the environment is impacted by the Harvesting Test. The Environmental Monitoring of the Harvesting Test will be carried out in real time, with simultaneous mapping and sampling with AUV's, ROV's and CTD's, in order to measure and investigate the environmental impacts of the proposed Harvesting System, in particular the Seafloor Harvesting Vehicle. The impacts to be studied would include, for example, plumes, noise, ecotoxicity, biodiversity and CO2. Refer Section 7.4 for further information.

Program Area	Proposed Activities
Engineering Program	Harvesting Test The Harvesting Test is currently scheduled for Year 6, however this may be fast tracked if possible. The Harvesting Test may entail a test of just the Seafloor Harvesting Vehicle ("SHV") or a test of the Prototype Integrated Offshore Harvesting System. The Harvesting Test will only be carried out after approval has been received. At least 1 year prior to carrying out the Harvesting Test, SeaX will submit to the Administrator the relevant information to enable the Administrator to carry out the Supplemental EIS as required by the Regulations, including baseline and equipment data and system test plans. Subject to regulatory approval, SeaX may conduct an at-sea Harvesting Test to trial the technical performance and reliability of the SHV or the Prototype Integrated Offshore Harvesting System in order to, where applicable: **(i)** simulate commercial recovery of collecting nodules from the seafloor and lifting them to the surface; **(ii)** analyse the performance of the integrated system and sub-systems to verify technical feasibility and reliability in the deep sea environment; **(iii)** demonstrate the technical, environmental and economic feasibility of the system; **(iv)** obtain enough data to extrapolate from the integrated system to a full scale Commercial Recovery system, including with respect to geotechnical, technical, economic and environmental impact parameters; **(v)** incorporate lessons learnt and improve the design of the full-scale commercial recovery system to achieve optimal technical and environmental performance; and **(vi)** obtain enough bulk sampling for the onshore metallurgical Demonstration Processing Plant and for product acceptance trials. The Prototype Integrated Offshore Harvesting System may undergo the following trials in the license area: • Deployment from the surface vessel to the seabed; • Connection of the riser pipe and umbilical to the SHV; • Navigation and manoeuvrability testing of the SHV on the seafloor; • Collection of polymetallic nodules; • Transport of polymetallic nodules through the riser pipe to the surface vessel; • Separation and retention of nodules from entrained water and sediment aboard the surface vessel; • Discharge of entrained seawater and sediment through a return pipe at depth; • Retrieval of the riser pipe and SHV back to the surface vessel. However, as detailed above, SeaX will only carry out the Harvesting Test after it has obtained future permission from the Administrator following a Supplemental EIS.

Year 7

Program Area	Proposed Activities
Geological Program	Carry out at-sea resource exploration and assessment (geological, geophysical and geotechnical) to locate other prospective regions in the license area to identify and study a Second Metal Harvesting Site and Third Metal Harvesting Site.
Metallurgical Program	Finalise Site Selection Carry out comprehensive regulatory and permitting verification assessment for the Onshore Processing Plant or Metal Refinery, including identification and review of all of the permits that will be required prior to constructing and operating the full scale Onshore Processing Plant or Metal Refinery. Assess the environmental and social impact of building and operating the Onshore Processing Plant or Metal Refinery to be used during Commercial Recovery. Assess the environmental and social impact of transporting nodules from port to processing facility. Build and Operate Demonstration Processing Plant In the case that a new flowsheet is selected, it will be tested in a Demonstration Processing Plant using nodules obtained from the Harvesting Test, to verify the technical and economic feasibility of the flowsheet and equipment on a continuous basis and at a higher confidence level, and produce products for market acceptance trials. Finalise Environmental and Permitting for the selected site
Environmental Program	Cruise #8 Environmental Monitoring of the Harvesting Test one year after the operations, to assess how the environment has responded to the Test after that time has passed. Refer Section 7.4 for more details of the Environmental Monitoring Program. Based upon the Environmental Monitoring of the Harvesting Test, carry out predictive studies to predict and detail the anticipated impacts associated with a full-scale Commercial Recovery operation. Study the environmental impacts of polymetallic nodule harvesting to inform monitoring and mitigation measures, as well as the development of management plans for full-scale operations. The environmental data and information will feed into the Definitive Feasibility Study and environmental assessment that will form part of the submission to obtain a Commercial Recovery Permit.
Engineering Program	Commence Definitive Feasibility Study (DFS) for the offshore harvesting system based on the results of the Harvesting Test. The DFS will be carried out as part of the Permit application, and will study commercial scale operations based on technical, economic, legal, and environmental considerations.

Year 8

Program Area	Proposed Activities
Geological Program	Continue to carry out at-sea resource exploration and assessment (geological, geophysical and geotechnical) to locate other prospective regions in the license area to identify and study a Second Metal Harvesting Site and Third Metal Harvesting Site, as well as associated environmental studies.
Metallurgical Program	Definitive Feasibility Study ("DFS") Produce a DFS based on the results of the Demonstration Processing Plant. This study will include the following: • Process Flow Diagram for the entire process plant showing all plant equipment and process and utility streams; • P&IDs: Full set of Piping and Instrumentation Diagrams showing all equipment, line sizing, piping materials, instrumentation, control system inputs, etc.; • Layouts: Detailed layouts based on accurate sizing of equipment and major packages; • 3-D Model: Detailed 3-D model for a significant portion of the facilities, including full details of equipment, structures, piping, etc.; • Electrical: Detailed electrical drawings, including single line diagrams for all areas; • Process Design Criteria: Comprehensive PDC document, minimal assumed or database data; • Process Model: Comprehensive detailed model and MEB. Variability models, including all process steps and optimised steam, water and cooling water flows; • Equipment List. Complete equipment list and electrical load list. Detailed vendor proposals for package plant. All equipment items listed either individually or as part of a vendor package. Calculated sizings of every equipment item. Detailed electrical load based on individual equipment load contributions; • Option Studies: Finalised option studies based on advanced process design to confirm selection of preferred plant option. This study will include the options of transport of nodules to site, availability of reagents and access to markets for the final products; • Comprehensive Environmental Study: Complete detailed community and social impact study; and • Advanced product acceptance. Capital Costs: Comprehensive costing by individual equipment item. Multiple vendor proposals for items and vendor packages at ±10% budget pricing. Operating Costs: Opex from detailed consumption rates and calculations using multi-source vendor quotations, including the following inputs: • Detailed manning numbers and real or HR consultant rates. • General & Admin expenses based build up by line item. • Maintenance costs built up as % of capex by equipment item. • Reagents and water from MEB and vendor pricing. • Fuel, power calculated and costed. Indicative contract pricing. Detailed Financial Analysis: Assessment based on market information and DFS capex and opex. Comprehensive Environmental Study: Complete detailed community and social impact study.

Program Area	Proposed Activities
Environmental Program	Produce environmental impact assessment for the offshore harvesting based on the results of the Harvesting Test and associated environmental monitoring program. Stakeholder Engagement Produce environmental impact assessment for onshore transportation and onshore processing of polymetallic nodules.
Engineering Program	Produce Definitive Feasibility Study (DFS) for the offshore harvesting system based on the results of the Harvesting Test. The DFS will be carried out as part of the Permit application, and will study commercial scale operations based on technical, economic, legal, and environmental considerations.
Regulatory	Submit Definitive Feasibility Study and environmental impact assessment to enable the Administrator to assess and make a decision on SeaX's application for a Commercial Recovery Permit in accordance with the Deep Seabed Hard Mineral Resources Act and Part 971 of the Deep Seabed Mining Regulations for Commercial Recovery Permits. This will include submission of all the information required to be submitted at the time of applying for a Commercial Recovery Permit to enable the Administrator to make a determination that the activities are commercially viable, and that the commercial recovery will not reasonably be expected to result in a significant adverse environmental effect. Such information will include, inter alia: **(i)** The detailed harvesting plan for Commercial Recovery, the intended schedule of Commercial Recovery, production and operational plans and procedures, environmental management and monitoring plan, health and safety plan, emergency response plan, and mine closure plan; **(ii)** The financial, technical and environmental information required by the Administrator, including the information specified in the Mining Regulations; **(iii)** Details of the areas proposed for Commercial Recovery, including resource assessment; **(iv)** Description of the technology and equipment to be used; and **(v)** Sufficient information for the Administrator and stakeholders to comprehensively assess the anticipated Environmental Impact and make an informed determination in accordance with world's best environmental practice.
Year 9 & Year 10	**In Year 9 and Year 10, after SeaX has submitted its application for a Commercial Recovery Permit in respect of the First Metal Harvesting Site, the Company will continue to carry out at-sea exploration and Environmental Studies in the Second Metal Harvesting Site and Third Metal Harvesting Site, to enable the Company to apply for Commercial Recovery Permits over those two areas in Year 10 of the Exploration License, so as to ensure a smooth transition across the License Area during Commercial Recovery.**

In line with standard industry practice, SeaX's 10 Year Exploration Plan detailed above is designed to be dynamic and adaptable, allowing for modifications based on evolving circumstances, including exploration results, process development, engineering studies, market conditions, regulatory developments, and operational considerations. As such, the scope, scale, and timing of exploration and development activities may be adjusted to reflect the most efficient allocation of resources, maximize potential value creation and most effectively develop the project.

The timing and advancement of the Exploration Plan will be contingent upon the results of ongoing geological assessments, geophysical and geochemical surveys, environmental studies, as well as technical solutions as SeaX moves through the project phases. Should initial or intermediate findings indicate the need for further investigation or a shift in focus, the Company will modify, expand, or reduce specific work programs to ensure optimal project development.

Market conditions, including commodity prices, investor sentiment, and overall economic climate, will also play a role in determining the extent and pace of exploration activities. The Company will continuously evaluate financial and capital market conditions to ensure that exploration expenditures are aligned with prudent fiscal management.

Additionally, the Company may adjust the program's timeline, scope, or methodologies in response to the regulatory framework, government policies and initiatives, regulatory certainty, and the feasibility of compliance requirements. Furthermore, the exploration program will be subject to logistical and operational factors, such as the availability of vessels and equipment.

SeaX may also adjust the Exploration Plan in the case that it is possible to acquire the use of existing offshore technologies and equipment, or in the case that the Company determines that it is prudent to utilize existing processing facilities for its first stage future Commercial Recovery operations. For example, this may mean that the Company does not need to go through traditional offshore and metallurgical processing engineering phases of designing and testing new technologies.

Similarly, SeaX's program has been designed to bridge knowledge gaps with respect to environmental data. As such, the program may be adjusted in the case that data acquired by others in the CCZ is able to assist fill those gaps.

Given these considerations, the Company retains the discretion to modify, defer, or accelerate its exploration program as necessary to align with strategic objectives and prevailing conditions.

SeaX can also benefit from collaborating with American Metal Resources LLC. This collaboration can allow SeaX to access significant cost savings through joint exploration programs, data sharing, operational synergies, and joint asset utilization.

For example, significant cost savings may be made through coordination of at-sea surveys and sharing mobilization and demobilization costs. There may also be significant cost savings with respect to joint engineering and metallurgical studies.

SeaX Inc. may also collaborate with other entities on the Harvesting Test.

SeaX is committed to working with the Administrator and the U.S. Government to expedite the program as fast as is sustainable and practical in order to meet short term critical mineral needs.

Stakeholders will be informed of material developments as they arise, ensuring transparency in decision-making and program execution.

6.3 Estimated Schedule of Expenditures

In accordance with § 970.203(6), please find below an estimated schedule of expenditures.

The estimated expenditure is based on our team's experience developing a number of deep-sea mineral projects, including polymetallic nodule projects in the CCZ.

The estimated expenditure may change in the event that SeaX collaborates with American Metal Resources LLC. This collaboration would allow SeaX to access significant cost savings through joint exploration programs, data sharing, operational synergies, and joint asset utilization.

For example, significant cost savings would be made through coordination of at-sea surveys and sharing mobilization and demobilization costs. There will also be significant cost savings with respect to joint engineering and metallurgical studies.

Year	Estimated Budget (USD)
1	$4,000,000
2	$5,000,000
3	$6,000,000
4	$6,000,000
5	$15,000,000
6	$30,000,000
7	$15,000,000
8	$12,000,000
9	$10,000,000
10	$10,000,000

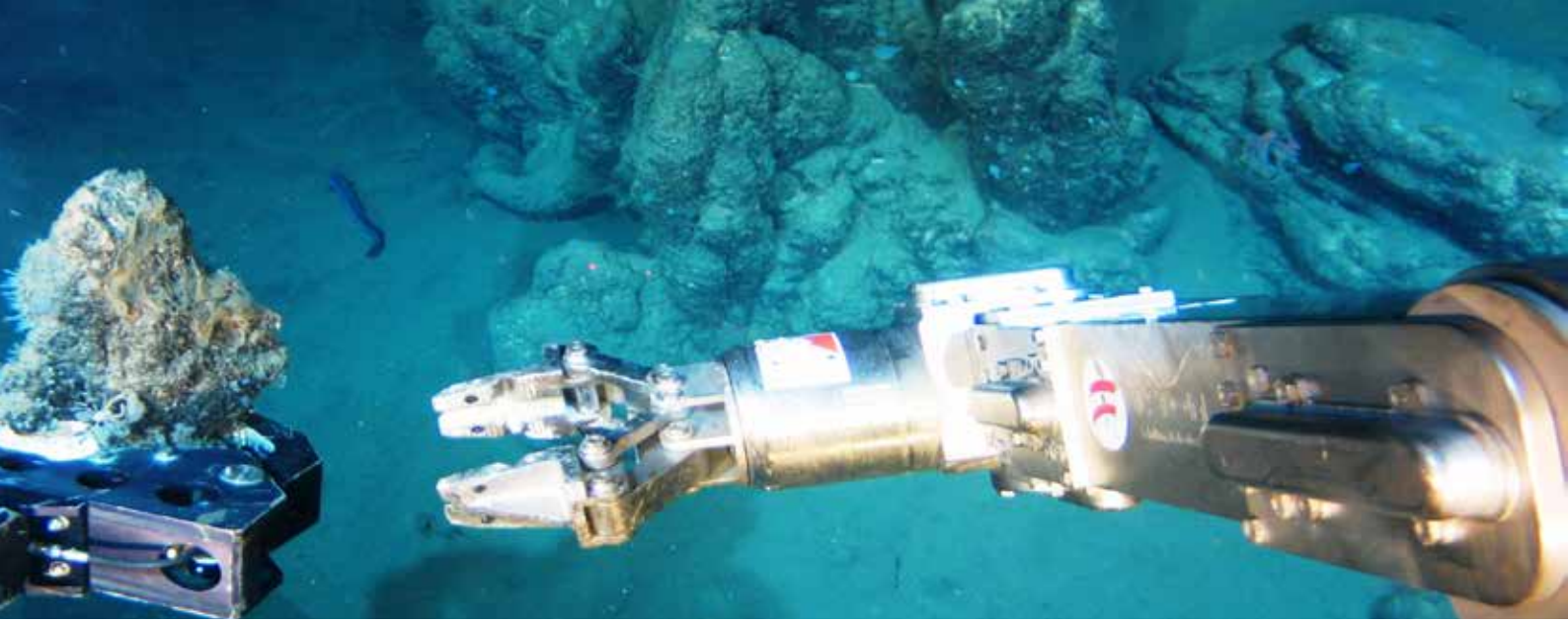
6.4 Description of Prior Relevant Activities

As detailed in this application, SeaX Inc., and its parent American Metal Inc., are special purpose vehicles that have been formed in 2025 to source critical minerals exclusively for the U.S. from seafloor polymetallic nodules.

Establishing new entities within the U.S. has allowed the company to bring our team's world leading deep sea mineral expertise and knowledge to the U.S., and assist the U.S. to secure critical minerals from seafloor polymetallic nodules.

Because these entities are newly formed special purpose vehicles, they have not yet completed exploration activities. However, and as detailed throughout this application, the American Metal team have completed many years of deep sea mineral exploration and development prior to the formation of SeaX Inc. and its parent American Metal Inc.

A study has been commissioned to assess target estimates of potential resource. The results of this study can be provided to NOAA upon completion.



7.0 Environmental Information

7.1 Summary of Environmental Information

SeaX is committed to carrying out the Exploration Plan in adherence with the environmental requirements contained in DSHMRA, the Regulations, the exploration license conditions, as well as other applicable rules and regulations.

Based on similar exploration that has been conducted in the CCZ, we do not anticipate any significant effects to be caused to the environment under the Exploration Plan.

A summary of SeaX's proposed Oceanographic Environmental Baseline Studies program is contained in Section 7.2.

SeaX has provided an assessment of the expected environmental impacts of its exploration activities in Section 7.3. As detailed in that section, the activities are considered to not pose risk to the environment.

It can be noted that the proposed exploration activities are similar to exploration work that has been approved by the ISA and successfully carried out in the CCZ over the past 25 years by ISA Contractors, and which has **not** resulted in significant adverse impacts on the marine environment.

SeaX's exploration activities are mainly focuses on collecting data through research, surveying, sampling and studying. Up until the time that SeaX may carry out the Harvesting Test, its activities will be comparable to those routinely performed by Marine Scientific Research ("MSR") groups and other government and environmental agencies.

Activities that are considered to have potential for environmental impact include (referred to in this Application as "**Potentially Impactful Activities**"):
(i) The Harvesting Test;
(ii) Large scale bulk sampling; and
(iii) Testing of the metallurgical flowsheet on land using large scale demonstration processing facilities.

At least 1 year prior to carrying out a Potentially Impactful Activity, SeaX will submit to the Administrator the relevant information to enable the Administrator to carry out the Supplemental EIS as required by the Regulations, including baseline and equipment data and system test plans.

Potentially Impactful Activities will only be carried out once the Administrator deems it appropriate based on the Supplemental EIS.

This will be tailored to the technology and equipment being used in the proposed activity at the time. As such, once the details of that technology are known, SeaX will submit this to the Administrator.

SeaX will also monitor the environmental effects of its exploration activities, and a summary of SeaX's proposed monitoring program is contained in Section 7.4.

These baseline, monitoring and impact assessment studies will then become the primary inputs to the EIS for Commercial Recovery.

The environmental research funded by SeaX, and the environmental data that the Company obtains, will help bridge

essential knowledge gaps regarding the deep sea environment.

SeaX will ensure that its environmental research, studies and results become part of an open-source scientific dataset, freely accessible to and beneficial for the U.S. Government and the scientific community.

Given that SeaX's exploration plan is aimed at bridging knowledge gaps, and contributing to society's understanding of the deep sea environment, it will be important to first identify where the knowledge gaps exist.

With respect to polymetallic nodules in the CCZ, few other industries have undergone such an extensive period of environmental studies and research prior to full scale production actually taking place. It is estimated that there has been over 200 well-resourced research cruises, over more than 50 years, focused on studying the environment in the CCZ.

As a result, there is a significant database of environmental work that SeaX can build upon.

This includes extensive environmental studies and monitoring programs that have been carried out in the CCZ over the past 20 years under the ISA administration.

For example, a number of environmental impact assessments and statements are available on the ISA's website at the following link: https://www.isa.org.jm/protection-of-the-marine-environment/environmental-impact-assessments/

It can also be noted that American Metal's management initiated the NORI environmental program, which has now gone on to become the most comprehensive environmental study of the CCZ.

This has also involved environmental monitoring of trial mining in the CCZ, as well as studies to verify mitigation techniques and strategies.

As such, where the public data already exists, SeaX will utilize this past work to streamline its environmental program based on current knowledge. Where the data does not currently exist, SeaX's program will be designed to bridge those knowledge gaps. In this way, repetition will be reduced, and SeaX can focus on answering the key outstanding questions.

SeaX's first task will therefore involve carrying out a comprehensive analysis of environmental work in the CCZ to identify the knowledge gaps that remain.

Appropriate environmental baseline studies (refer Section 7.2), environmental impact assessments, and monitoring programs (refer Section 7.4) will be carried out, including through collaboration.

Additional measures to protect the environment are also set out in Section 7.5.

7.2 Oceanographic and Environmental Baseline Studies

The objective of SeaX's environmental program is to collect the data necessary for the Company to apply for a Permit to carry out Commercial Recovery operations in the future.

To achieve this aim, SeaX will leverage off the past experience of American Metal's management, as well as the decades of environmental studies and research that have already taken place in the CCZ.

As such, where the data public already exists, SeaX will utilize this past work to streamline its environmental program based off current knowledge. Where the data does not currently exist, SeaX's environmental baseline studies will be carried out to fill the existing knowledge gaps.

SeaX proposes to use the exploration recommendations of the International Seabed Authority ("**ISA Recommendations**") as guidelines where work is needed to be carried out to bridge the knowledge gaps, as well as the rules of the Administrator and other applicable U.S. regulations.

The ISA Recommendations detailed below are sourced from ISBA/25/LTC/6/Rev.3 which can be located at: https://www.isa.org.jm/wp-content/uploads/2023/08/2315256E.pdf

American Metal's management are familiar with carrying out exploration in accordance with the ISA Recommendations.

The ISA Recommendations are generally considered to be far more involved for exploration activities than most other extractive industries.

SeaX therefore presents these recommendations below in its program, however, notes that there will be opportunities to streamline this program due to data that is already publicly available as a result of previous research and studies in the CCZ.

As such, the content presented below is designed to be consistent with the ISA Recommendations, however the actual studies (and equipment and methodologies) may be modified in the case that SeaX is able to utilize existing public data from work that has already been carried out in the CCZ. Some of the studies will also not be needed given existing data.

Techniques and methods may also change as new technologies and knowledge is developed, and the plan may be revised taking into account advancements in science and technology.

SeaX will use clear and common methods of environmental characterization based on established scientific principles and taking into account oceanographic constraints.

The aim will be to obtain sufficient information to document the natural conditions that exist prior to any Harvesting Test and Commercial Recovery to gain insight into natural processes such as dispersion and settling of particles and benthic faunal succession, and to gather other data that should make it possible to acquire the capability necessary to make accurate environmental impact predictions, including with respect to the seabed disturbance plume, discharge plume, potential toxicity, noise and intensity of light.

Baseline data documenting natural conditions prior to any Harvesting Test will be important to monitor changes resulting from a Harvesting Test and to predict impacts of Commercial Recovery operations, or to ensure that the natural conditions are similar to areas where Harvesting Tests have been carried out.

As such, the natural responses of sea-surface, mid-water, near-bottom and seabed communities to natural environmental variability will be studied to the extent that knowledge gaps still remain.

As detailed below, SeaXI's baseline studies will characterize the environments likely to be impacted, and will include the following six categories:

(i) Physical Oceanography;
(ii) Chemical Oceanography;
(iii) Geological Properties;
(iv) Biological Communities;
(v) Bioturbation; and
(vi) Fluxes to the Sediment.

Specifically, SeaX will carry out the following studies to the extent that a knowledge gap exists in each of the areas:

Physical Oceanography:

In order to assess natural background conditions and estimate the potential influence of the operational and discharge plumes, physical oceanographic data will be collected, together with information on the geomorphology of the sea floor, to predict the potential distribution of species.

Information on water characteristics will also be collected, including pressure, currents, temperature, salinity, turbidity, oxygen, optical properties (e.g. light intensity, backscatter, attenuation, etc.) and particulate matter, as appropriate for the habitat.

The measurement program will be adapted to the geomorphology of the seabed and the regional hydrodynamic processes at the sea surface, in the water column and at the seafloor.

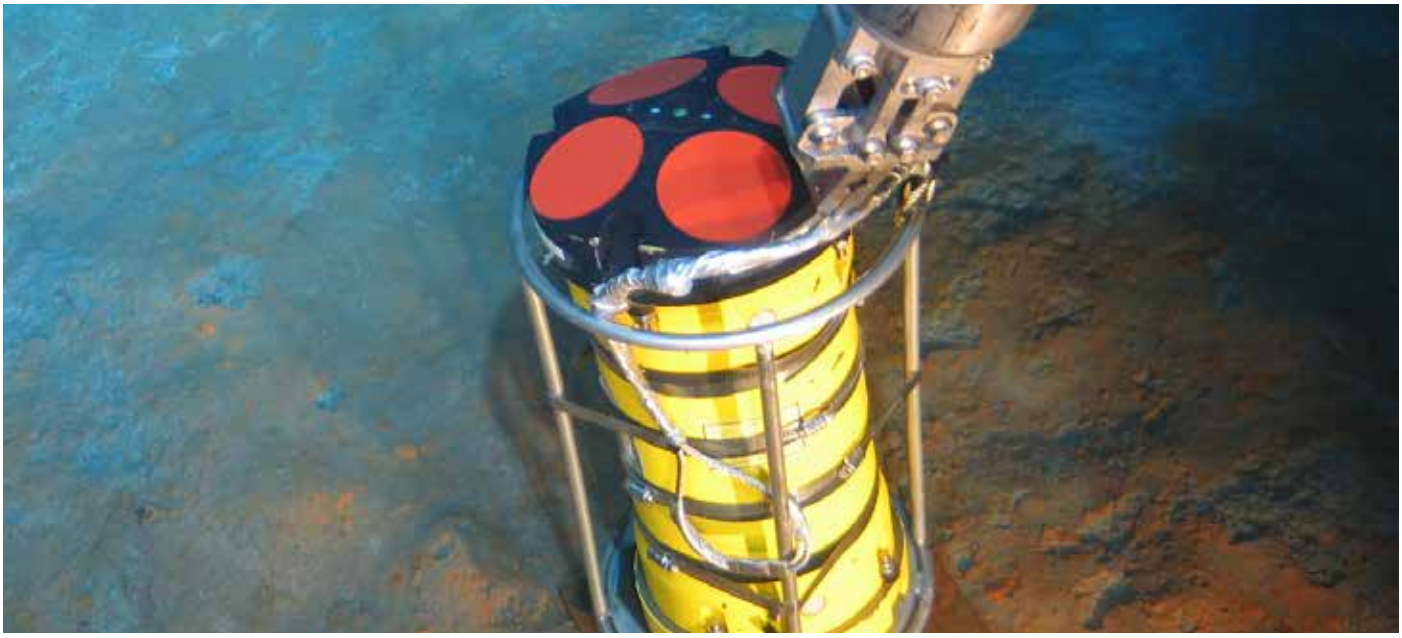
Information will be collected on the oceanographic conditions, including pressure, current direction and velocity, temperature, salinity and turbidity regimes, at intervals down the entire water column and, in particular, near the sea floor.

Physical oceanographic parameters will be measured at the depths likely to be impacted by plumes caused by the processing discharge and seabed-disturbance plumes.

Physical parameters will be measured with sufficient temporal and spatial resolution to adequately characterize the oceanographic environment.

Natural particle concentrations and composition will be measured to record distribution throughout the water column.

The oceanographic structure (both spatial and temporal) of the water column will be characterized, with profiles and sections performed that provide the stratification of the entire water column. The methodology used will provide sufficient resolution to properly characterize spatial and temporal variability. Such studies may be undertaken using a range of equipment; for example, conductivity-temperature-depth probes with additional sensors, expendable bathythermographs and expendable conductivity-temperature-depth probes, mooring and buoy systems, floats and drifters, autonomous underwater vehicles and gliders with appropriate sensors. To measure (intra- and inter-annual) temporal variation, moorings/buoys and/or floats/drifters with appropriate sensors may be necessary. Spatial variability will also be determined, using for example a network of conductivity-temperature-depth stations or a range of autonomous underwater vehicles, gliders or floats and drifters, or similar equipment. Satellite data may also be used for sea surface measurements.



Measurements of currents may also be undertaken using acoustic Doppler current profilers (including vessel-mounted acoustic Doppler current profilers and lowered acoustic Doppler current profilers), other current meters or floats/drifters. Moorings and buoys (with acoustic Doppler current profilers or with other current meters) and/or floats/drifters may be used to measure temporal variation.

The number and location of the moorings will be appropriate for the size of the area to adequately characterize the current regime.

The number of current meters on a mooring will be dependent upon the characteristic scales of topography of the area studied. Current measurements will be taken from the bottom boundary layer up to 200m above the sea floor. Analysis of currents and temperature, salinity and density field structures on the basis of obtained data will be carried out.

Data on turbulence intensity will be collected during baseline studies, and will be used for plume modeling. Turbulence intensity may be measured using a turbulence profiler, or inferred from vertical profiles of conductivity, temperature and depth.

The water column structure will be defined either by continuous profiling or by water column samples.

To understand the temporal and spatial fluctuations of current velocity and direction, physical oceanographic parameters will be measured.

In order to predict sediment and plume dispersal, a numerical circulation model coupled with an adequate sediment transport model will be developed and validated.

Chemical Oceanography:

Chemical oceanography data will be collected to assess the possible influence of nodule harvesting, including test-harvesting or component testing, on the composition of the water and on ecosystem processes. Samples will be collected at the same locations as the physical oceanography measurements. The water overlying the mineral deposits and the pore water in the sediments will be characterized chemically, where possible, to evaluate processes of chemical exchange between the sediment and the water column. The chemical parameters to be measured may include phosphate, nitrate, nitrite, silicate, carbonate alkalinity, oxygen, zinc, cadmium, lead, copper, mercury and total organic carbon.

Information will be collected on water column chemistry, including water overlying the resource, in particular on metals and other elements that may be released during the harvesting process, including interactions that may occur through crushing processes, leaks in the riser pipe, dewatering on the surface vessel and the consequent discharge plume.

Information will be provided on potential additional chemicals that may be released, if any, in the discharge plume following dewatering of the ore.

Oxygen concentration will be measured, generating profiles in the water column, as far as possible near and across the sediment-water interface into the sediment column.

The depth range of the oxygen - minimum layer will be determined by studying oxygen profiles (and their temporal variability) at intervals throughout the water column. pH and other components of the carbonate system will be measured where appropriate (e.g. carbon dioxide, alkalinity);

Organic matter (e.g. particulate organic matter and dissolved organic matter) will be measured to assess the horizontal and vertical advective and eddy-diffusive dispersal potential of dissolved and particulate matter.

Vertical profiles and temporal variation will also be addressed.

SeaX will assess the dispersal potential for particles and for dissolved substances.

Geological Properties:

Geological properties will be studied to determine the heterogeneity of the environment and assist in the placement of suitable sampling locations to characterize the distribution and composition of faunal communities.

High-resolution, multibeam bathymetric data (including backscatter) or similar data will be collected, along with small scale resolution data using for example autonomous underwater vehicles.

Geographic Information System regional maps will be produced with high-resolution bathymetry and sea floor bottom type showing major geological and geomorphological features to reflect the heterogeneity of the environment.

Baseline levels of heavy metal and trace element content will be recorded of the resource that may be released during hearvesting.

As part of the high-resolution baseline survey, a suite of representative pre-harvesting cores of the sea floor sediment, where appropriate, will be collected and stored in a suitable repository.

Sampling devices that collect undisturbed samples of the top few centimetres (e.g. a multiple corer or a push corer on a remotely operated vehicle) will be used.

The basic properties of the substrata will be determined to characterize the surficial deposits which are the potential source of seabed-disturbance plumes.

Sediment properties, including pore water chemistry, will be targeted to predict the behaviour of the discharge plume and the effect of test-harvesting activity on sediment composition.

This will include the properties of settled plume particles. In this context, the following parameters may be measured: specific gravity, bulk density, grain size, composition (carbonate percentage, total organic matter) as well as the sediment depth of change from oxic to suboxic (absence of oxygen and hydrogen sulphide), or suboxic to oxic conditions. Measurements may include dissolved and particulate organic and inorganic carbon in the sediment, metals and other chemicals that may be harmful in some forms, nutrients (phosphate, nitrate, nitrite and silicate), carbonate (alkalinity) and the redox system (Eh and pH) in pore waters.

The substratum will be sampled taking into account the variability of the seabed.

Biological Communities:

Communities and their ecosystem functions will be studied, including their natural spatial and temporal variability, so as to evaluate the potential effects of the activities on the benthic, demersal and pelagic fauna.

The characterization of pelagic and benthic communities will be carried out within all subhabitats that may be impacted by harvesting operations and to determine the regional distributions and patterns of connectivity for the creation of preservation reference zones and for mitigation strategies to promote the natural recolonization of areas affected by harvesting activities.

High-resolution bathymetric maps will be used to plan the biological sampling strategy, taking into account variability in the environment.

Data will be collected on biological communities, taking samples of fauna representative of variability of habitats, bottom topography, depth, seabed and sediment characteristics, the water column and mineral resource being targeted.

Data will be collected on the near-bottom and seafloor protozoan and metazoan communities specifically relating to megafauna, macrofauna, meiofauna, microbial communities, demersal fishes and scavengers and biota associated

directly with the resource. This assessment will cover both the exploration area and regions potentially impacted by operations, such as areas affected by discharge and seabed-disturbance plumes

Pelagic communities will be assessed in the water column and near-bottom (in the benthic boundary layer) that may be impacted by operations (e.g. noise and discharge plumes).

Sightings of marine mammals will be recorded, as well as other near-surface large animals (such as turtles and fish schools) and bird aggregations, identifying the relevant species where possible. Details will be recorded in transit to and from areas of exploration and on passage between stations.

Time series stations will be established to evaluate temporal variations in water column and seabed communities.

Regional distribution of species and communities/assemblages will be assessed as well as genetic connectivity of key and representative species.

Where practical, collections will be photo-documented (and indexed to video imaging) in situ to provide an archive of context/setting information.

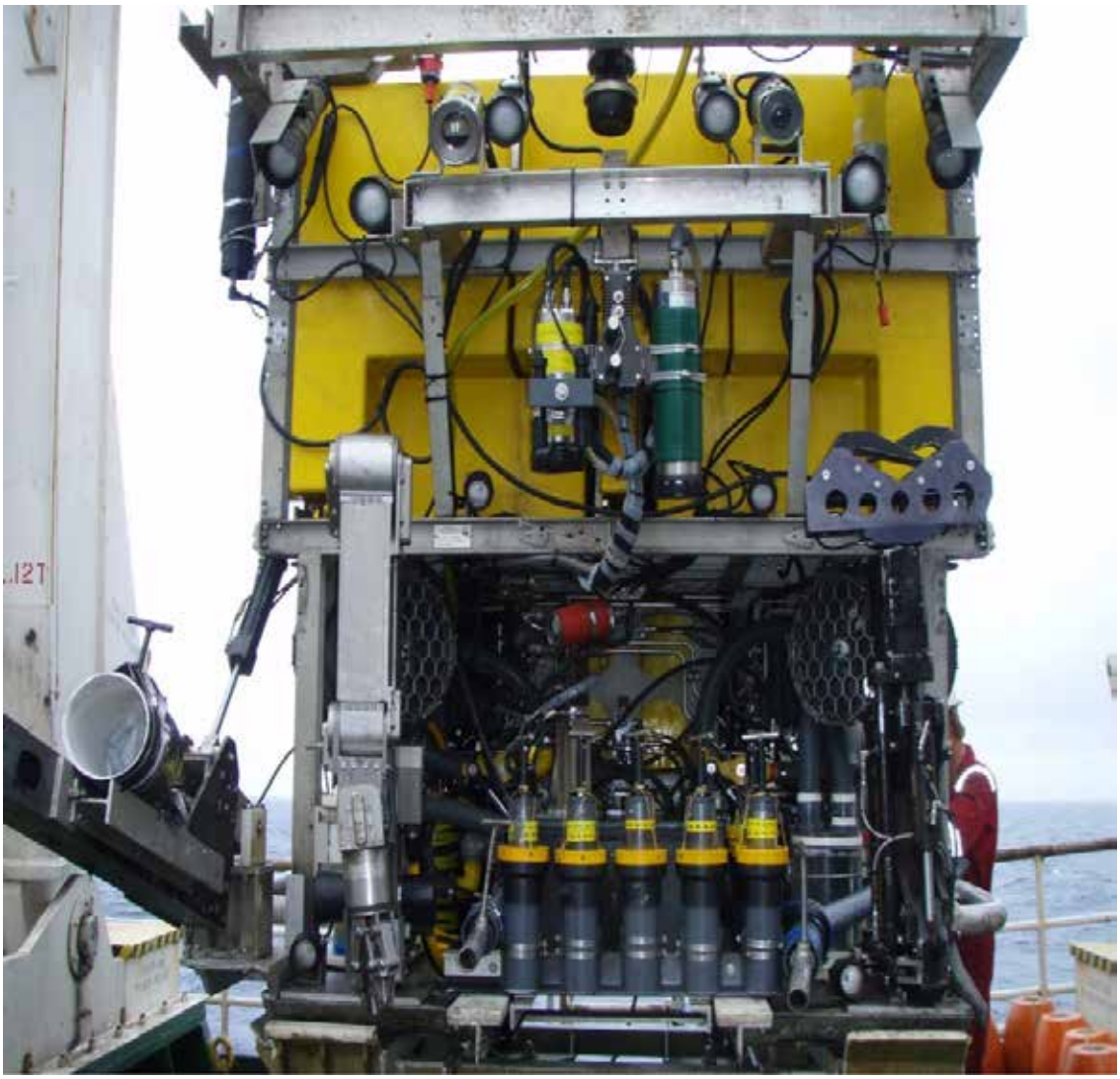
Bioturbation activity and mixing of sediments will be recorded and described.

Linkages between pelagic and benthic habitats will be evaluated, including fluxes to the sediment.

Time series data will be gathered on the sinking flux and composition of materials (including particulate organic matter) from the upper water column to the seabed.

Sediment community oxygen consumption will be measured as a metric of whole community (largely microbial) function.

The food web structure of the pelagic and benthic habitats will be evaluated.



Standard practices for the fixation and preservation of organisms will be followed.

Multiple preservation methods will be used depending on taxon and study objectives, including freezing or preservation in molecular grade ethanol for molecular studies; preservation in ethanol or formaldehyde for morphological taxonomic studies; or the immediate freezing of whole animals and/or selected tissues for stable isotope, trace metal and biochemical analysis.

With regard to the processing and preservation of megafauna and macrofauna samples, molecular studies will be undertaken in conjunction with morphological taxonomic analyses. Samples destined for molecular studies will be sorted live and photographed before further processing. Specimens will then be preserved in molecular grade ethanol.

With regard to the processing and preservation of Meiofauna samples, sieved meiofaunal samples will be preserved with a solution containing dimethyl sulphoxide, disodium ethylenediamine tetra-acetic acid and saturated salt (DESS), and samples will be held in solution for further processing, including for the preparation of temporary slides, video capture for morphological taxonomic study and DNA sequencing. With regard to the processing and preservation of Microeukaryotes samples, foraminifera will be dried (hard-shelled) for morphological analysis or preserved in an appropriate stabilizer of nucleic acids such as RNA later for molecular analysis.

With regard to the processing and preservation of Microbiology (including microorganisms, bacteria, archaea, fungi, viruses, microeukaryotes), these will be collected using sterile devices.

For biodiversity monitoring, samples for eDNA will be collected from water and sediment. The DNA will be extracted and purified from preserved samples in land-based laboratories to prevent cross-contamination.

Colour photographic documentation of organisms, together with clear labels, will be obtained whenever possible. The photographs will be archived digitally.

All samples and sample derivatives (e.g. photographs, preserved material, gene sequences) will be linked to relevant collection information (including date, time, method of sampling, latitude, longitude, depth and cruise identifier).

Identification and enumeration of samples at sea and in the laboratory will be complemented by molecular and isotopic analyses to determine food-web linkages.

Specimens will be archived for comparison with taxonomic identifications from other sites and to understand the details of changes in the composition of species over time.

Spatial variation in the composition of the biological community and levels of connectivity will be evaluated. Different kinds of sampling equipment may be used depending upon the water column and seabed characteristics and the size of the biota to be collected.

With respect to megafauna, data on the abundance, biomass, species structure and diversity of megafauna, including protists (xenophyophores), will be collected using video and photographic transects.

Species identification will be confirmed by collection of specimens at the site.

Data on macrofauna (300 µm sieve mesh size1) abundance, species structure, biomass and diversity will be obtained through a quantitative analysis of samples. In soft sediments, vertical profiles with a suitable depth distribution will be obtained from box cores (0.25 m2). The fauna on the surface and crevices of nodules will be retained and appropriately preserved.

Data on metazoan meiofaunal (32 µm sieve mesh size) abundance, biomass and species structure will be obtained through a quantitative analysis of samples. Where possible a multiple corer with 10 -cm tubes will be deployed to sample meiofauna in sediment systems. At least one (complete) core from each deployment will be dedicated to metazoan meiofauna and at least one core allocated for molecular meiofauna.

Data on foraminiferal meiofauna abundance, biomass and species structure will be obtained through a quantitative analysis of samples from corers. A sieve mesh size of 125 µm is likely to be used. A foraminiferal community may be analyzed either through specimen sorting and microscopic identification or through eDNA analysis of sediments.

Microbial biodiversity may be assessed using molecular methodologies based on environmental DNA sequencing. Samples from sediment habitats may be obtained using standard sampling equipment (e.g. a multiple corer or a push corer on a remotely operated vehicle). Samples will then be sliced on board and frozen or preserved in an adequate DNA preservation buffer, with extraction of gene material being carried out in the home laboratory. High throughput methods (e.g. Illumina sequencing) may be used for sequencing of the molecular material.

The biota living on and within the nodules will also be sampled and characterized from selected nodules taken from the tops of box corers. Large nodules with complex morphologies will be broken up and any biota living within the structures will be sorted, extracted and analyzed.

Demersal fishes will be sampled by the use of multiple sampling techniques to provide information on the composition and relative abundance of fish species. Photographic surveys in combination with baited lander deployments or remotely operated vehicle transects may be used. Where applicable, direct capture by small trawl or sled may be possible. Benthic landers may be used for short-term deployments of both cameras and baited traps to characterize the community species composition.

The pelagic community structure (including fishes) around the depth of the discharge plume, and at depths below, will be assessed prior to test-harvesting. In addition, the pelagic community in the benthic boundary layer will be characterized using near-bottom opening/closing mid-water nets, moored plankton pumps, sediment traps, and/or remotely operated vehicle sampling or remotely operated vehicle techniques.

Measurements will be made of phytoplankton composition, biomass and production, and bacterial plankton biomass and productivity.

Zooplankton sampling will be carried out with nets or, in deeper waters, with plankton pumps, and gelatinous zooplankton will be surveyed using optical tools (e.g. underwater video profilers) or autonomous underwater vehicle/ remotely operated vehicle transects.

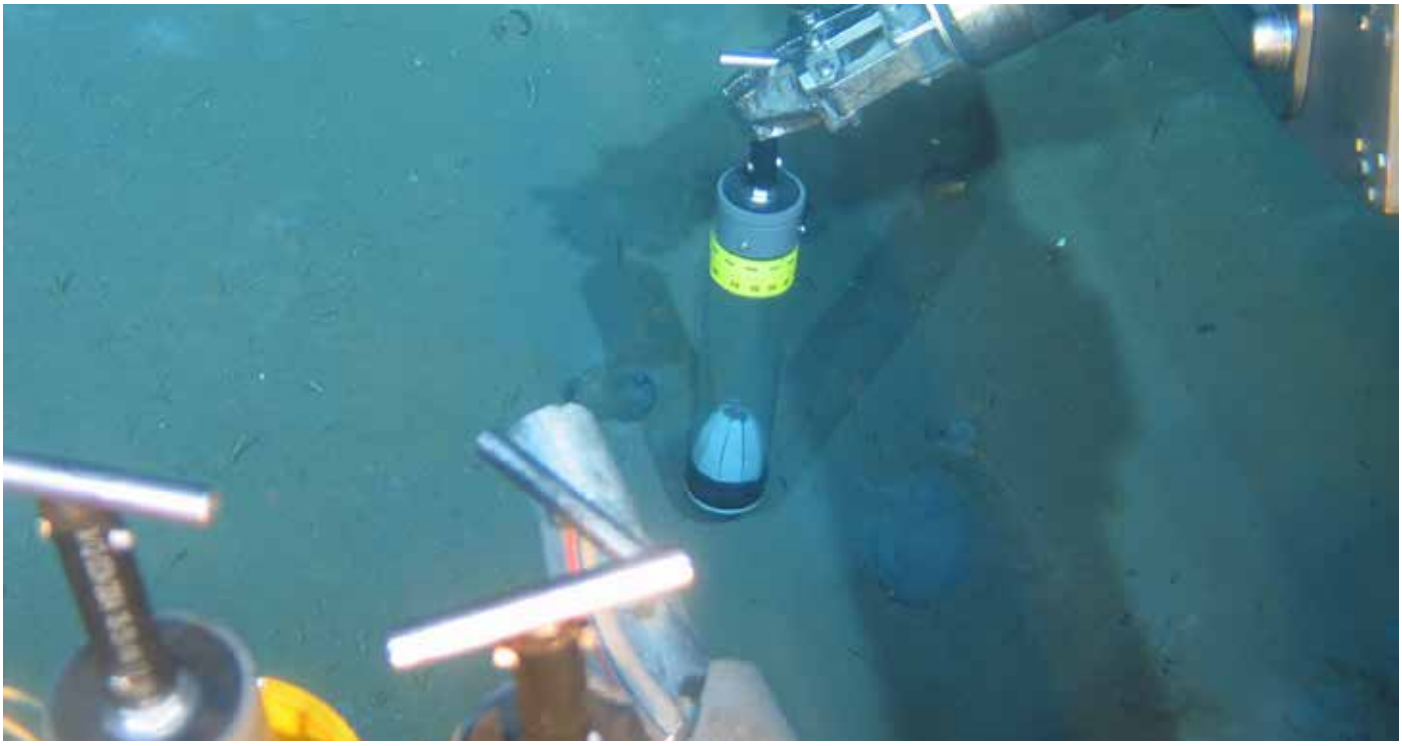
Nekton may be surveyed using fisheries acoustics or trawl sampling equipment, and mesopelagic micronekton may be detected using relatively high-frequency acoustic transducers or collected in larger zooplankton sampling gear.

Larger mesopelagic taxa may be sampled with towed mid-water trawls or acoustical sampling, including hull-mounted mid-frequency transducers.

Larger-bodied fishes that live in close proximity to the sea floor may be identified using photographic surveys.

Baseline surveys will be used to determine background noise levels in vertical profiles through the water column from the sea surface to the seabed, and may include using instruments attached to conductivity- temperature-depth systems.

Trace metals and potential toxic elements may be assessed in muscle and target organs of dominant demersal fishes and invertebrate species.



The temporal duration of environmental studies will also be relative to the setting, and will be long enough, with regular sampling, to understand seasonal and inter-annual variation and other relevant, potentially episodic and extreme, events. Studies of temporal variation at the seabed will be based on video and/or photographic surveys as well as current-meter studies.

Marine mammals, birds, turtles and sharks will also be observed.

Bioturbation

The collection of data on bioturbation will be targeted at collecting the background "natural" rates of sedimentary processes, including "natural spatial and temporal variability", in order to model and evaluate the effects of harvesting activities on such processes. Rates and depths of bioturbation (i.e. the mixing of sediments by organisms) will be measured to analyze the importance of biological activity prior to a harvesting disturbance and may be evaluated from profiles of excess Pb-210 activity from cores, taking into account the variability in the sediment.

Fluxes to the Sediment

With regard to fluxes to the sediment, baseline data will be collected to model and evaluate the effects of the discharge plume. In this respect, moorings with sediment traps will be deployed, with one trap below 2,000 m to characterize the particulate flux from the euphotic zone, one trap approximately 500 m above the sea floor and one trap at 10 m above the sea floor within the benthic boundary layer to characterize the baseline fluxes of materials in the water column and reaching the sea floor.

Data Collection, Handling and Reporting

Data collection, frequency of collection and the analytical techniques will follow best practice methodology and the use of quality system and certified operations and laboratories.

Standardization of sampling will include instruments and equipment; quality assurance in general; sample collection protocols; treatment and preservation techniques; determination methods and quality control on board vessels; analytical methods and quality control in laboratories; and data processing and reporting.

Within one year of the completion of each cruise, SeaX will submit to the Administrator a cruise report with station list, list of activities and other relevant metadata.

SeaX will provide the Administrator with all relevant data, data standards and inventories, including raw environmental data in the format agreed with the Administrator.

Subject to proprietary restrictions or confidentiality constraints with third parties, environmental data will be made freely available for scientific analysis.

SeaX will take all reasonable efforts to ensure that representative examples of any remaining good-quality biological, mineral and molecular samples are offered to relevant research institutes to be archived in an appropriate long-term storage facility when studies are completed.

7.3 Assessment of Potential Impacts of the Exploration Plan

This section provides a preliminary assessment of the possible impacts of the proposed exploration activities on the environment.

Further assessment of potential impacts is also provided in section 5 of the ERIAS Environmental Report, which is attached to this Application as Appendix A. The relevant tables from that section in the ERIAS Environmental Report are also included at the end of this Section 7.3.

SeaX is committed to ensuring that its exploration does not have any significant impact on the marine environment.

The Company will also implement strict procedures and controls to prevent pollution and will take proactive measures to avoid incidents such as spills, improper waste disposal, and pollution resulting from lost equipment at sea.

SeaX's deep-sea research and sampling techniques will be designed to minimize environmental disturbances. While some localized effects on marine life and seabed conditions are inevitable, they are negligible when compared to the vastness of the deep-sea ecosystem. Continued adherence to environmental best practices and the regulatory guidelines will also ensure that the impact remains as low as possible while enabling valuable scientific exploration to be carried out of the deep-sea environment in the SeaX Exploration Area.

It is noted that continuous and extensive exploration activities have occurred throughout the CCZ for over 50 years.

Consequently, the impact of polymetallic nodule exploration activities is well understood, and the potential threat of harm is generally considered to be very minor in nature.

SeaX's Exploration Plan cannot reasonably be expected to result in a significant adverse effect on the quality of the environment because:
(a) SeaX's Exploration Plan is comparable to Marine Scientific Research and exploration activities that have already been carried out in the CCZ for decades; and
(b)Those activities in (a) have not had any significant impact on the quality of the environment.

Specifically, SeaX's exploration is not expected to cause any significant adverse environmental effect, and will not result in any adverse changes in ecosystem diversity, productivity, or stability of the biological communities within the environment.

Moreover, it is noted that pursuant to § 970.701 of the Regulations it has been determined that the following exploration activities will "**have no potential for significant environmental impact, and will require no further environmental assessment**":

1. Gravity and magnetometric observations and measurements;
2. Bottom and sub-bottom acoustic profiling or imaging without the use of explosives;
3. Mineral sampling of a limited nature such as those using either core, grab or basket samplers;
4. Water and biotic sampling, if the sampling does not adversely affect shellfish beds, marine mammals, or an endangered species, or if permitted by the National Marine Fisheries Service or another Federal agency;
5. Meteorological observations and measurements, including the setting of instruments;
6. Hydrographic and oceanographic observations and measurements, including the setting of instruments;
7. Sampling by box core, small diameter core or grab sampler, to determine seabed geological or geotechnical properties;
8. Television and still photographic observation and measurements;
9. Shipboard mineral assaying and analysis; and
10. Positioning systems, including bottom transponders and surface and subsurface buoys filed in Notices to Mariners.

In addition, and as detailed in NOAA's Report to Congress in 1981:
"When deep sea mining was first proposed, NOAA recognized the importance of acquiring an environmental data base against which the impacts of manganese nodule recovery could be measured. NOAA began the Deep Ocean Mining Environmental Study (DOMES) program in 1975 as a comprehensive five-year research effort to gather this data. DOMES had two phases. The objectives of DOMES were to establish environmental baselines at three sites typical of the environmental conditions likely to be encountered during mining, to develop a first-order predictive capability for determining potential environmental effects of nodule recovery, and to help develop an information base for the preparation of environmental regulations for industry and government. DOMES II involved the monitoring of industrial, at-sea, pilot-scale mining tests conducted in 1978. The objectives here were to observe actual environmental effects to improve the ability to predict impacts, and to refine or modify the information base on which subsequent environmental regulations would be based."

The NOAA Report to Congress goes on to state "**The DOMES project showed that many of the activities that initially raised concerns about deep seabed mining were unlikely to have a significant adverse environmental impact"** and stated "**Mapping and sampling will have no adverse effect on the environment**."

Furthermore, the ISA Recommendations provide a list of "**Activities not requiring environmental impact assessment during exploration**".

As stipulated in the ISA Recommendations:
"On the basis of available information, a variety of technologies currently used in exploration are considered to have **no potential for causing serious harm to the marine environment** and thus do not require environmental impact assessment. These include:

(a) Gravity and magnetometric observations and measurements;
(b) Bottom and sub-bottom acoustic or electromagnetic profiling of resistivity, self-potential or induced polarization, or imaging without the use of explosives or frequencies known to significantly affect marine life;
(c) Water, biotic, sediment and rock sampling for environmental baseline study, including:
  (i) Sampling of small quantities of water, sediment and biota (e.g. from remotely operated vehicles);
  (ii) Mineral and rock sampling of a limited nature, such as that using small grab or bucket samplers;
  (iii) Sediment sampling by box corers and other corers;
(d) Meteorological observations and measurements, including the setting of instruments (e.g. limited number of moorings);
(e) Oceanographic, including hydrographic, observations and measurements, including the setting of instruments (e.g. moorings, benthic landers);
(f) Video/film and still photographic observations and measurements from non-bottom contact gear (e.g. towed camera platforms, remotely operated vehicles and autonomous underwater vehicles);
(g) Shipboard mineral assaying and analysis;
(h) Positioning systems, including bottom transponders and surface and subsurface buoys filed in notices to mariners;
(i) Towed plume-sensor measurements (chemical analysis, nephelometers, fluorometers, etc.);
(j) In situ faunal metabolic measurements (e.g. sediment community oxygen consumption);
(k) DNA screening of biological samples;
(l) Dye release or tracer studies, unless an environmental impact assessment is required under national or international laws for certain potentially harmful dyes/ tracers.

The ISA Recommendations are generally considered to be far more involved for exploration activities than any other extractive industry.

Activities that are considered to have some potential for significant environmental impacts include (referred to in this Application as "**Potentially Impactful Activities**"):

(i) The Harvesting Test;
(ii) Large scale bulk sampling; and
(iii) Testing of the metallurgical flowsheet on land using large scale demonstration processing facilities.

Although it is noted that pursuant to Section 970.701 of the Regulations, "**the impact of demonstration-scale mining tests during exploration is expected to be insignificant**".

It is further noted that recent polymetallic nodule trial mining activities in the CCZ by other operators has also shown that the impacts of such trials are **not** significant.

Indeed, recent results from trial harvesting in the CCZ indicate less environmental impact than originally predicted.

For example, the results indicate that the sediment plume is spreading across a much smaller area on the seabed than anticipated, due to the creation of a localized turbidity current at the extraction interface. This is indicating that the sediment is not being passively carried away by the background ocean current, thus impacting a much smaller area.

Importantly, SeaX is only proposing to carry out exploration activities that have already been carried out in the CCZ, and have already been shown to NOT cause any significant environmental impacts.

Consequently, the exploration proposed in this application cannot reasonably be expected to result in a significant adverse effect on the quality of the environment.

Notwithstanding the impact of the Exploration Plan is expected to be insignificant, SeaX will still **NOT** carry out any Potentially Impactful Activities unless and until it obtains prior consent from the Administrator. In this regard, at least 1 year prior to carrying out a Potentially Impactful Activity, SeaX will submit to the Administrator the relevant information to enable the Administrator to carry out the Supplemental EIS as required by the Regulations, including baseline and equipment data and system test plans.

This information will also document the parameters of the Potentially Impactful Activity and the predicted impacts of the activity, proposed measures for mitigation, the significance of residual effects and the uncertainties that affect the predictions and how to address them, as well as concerns raised in consultations and how they have been addressed.

SeaX will ensure that these activities are carried out in such a way as to minimize the impact on the marine environment.

If a Harvesting Test is carried out, it is noted that there have been a number of recent tests carried out in the CCZ to demonstrate and monitor the impact of such activities on the environment.

The information submitted to allow the Administrator to carry out the Supplemental EIS will also address impacts on benthic, benthic boundary layer and pelagic environments. The information will also be specific to the technology and equipment being used in the proposed activity at the time. It can be noted that the actual potential impacts will be dependent on the final equipment and technique that will be used.

SeaX will also monitor the environmental effects of any Harvesting Test, and a summary of SeaX's proposed monitoring program is contained in Section 7.4.

Prior to carrying out any Harvesting Test, SeaX will also delineate an impact reference zone and a preservation reference zone. The impact reference zone will be the site where the test-harvesting and related direct impacts are to occur. The preservation reference zone will be carefully located and far enough away not to be affected by testing activities, including effects from seabed-disturbance and discharge plumes.

SeaX anticipates running a demonstration processing plant on land, and will comply with all applicable regulations pertaining to such testing of the demonstration processing plant on land. Once SeaX has identified an appropriate site to locate the demonstration processing plant on land, the Company will then be able to provide information for an environmental impact assessment prior to carrying out the demonstration processing plant.

The environmental impact associated with the remainder of SeaX's exploration activities is assessed as negligible to low. The equipment and methodologies employed are designed to interact minimally with seafloor and water column habitats.

These activities are comparable to those routinely performed by Marine Scientific Research (MSR) organizations as well as Government and environmental agencies. When viewed in the context of the vast spatial scale of the Clarion-Clipperton Fracture Zone (CCZ) and its deep-sea environments, the scale and intensity of these operations is minimal.

A summary of the equipment and methodologies, as well as the anticipated impact, is detailed below:

Vessel Operations

Vessel operations will adhere to strict environmental guidelines to minimize ecological disturbances. Given the vast expanse of the Clarion-Clipperton Zone (CCZ) and the specific License Area, coupled with the 'light touch' exploration activities, the potential environmental footprint of research vessels is considered minimal. Minor underwater noise emissions could affect marine animal communication, albeit on a very limited scale. Additionally, minor discharges of operational by-products may introduce trace amounts of contaminants into the marine ecosystem. There is always the risk that research operations at sea risk introducing microplastics, fuel residues, and trace chemicals, however all necessary precautions will be taken to minimise this risk. There is also the potential, albeit small, of the rare occurrence of marine animal collisions. And of course, there will be the emission of a small amount of greenhouse gases. However, these impacts remain significantly lower than those associated with commercial Pacific Ocean shipping. Interactions with other maritime activities, such as commercial fishing and shipping, are also expected to be negligible due to the remote nature of the exploration area.

Box Core Sampling

Box core sampling is specifically engineered to collect seafloor samples with minimal sediment disruption. These devices, commonly outfitted with altimeters, conductivity-temperature-depth sensors (CTDs), and penetrometers, impact an area of approximately 1 m^2 per deployment. The penetration depth can reach up to 0.65 m, extracting a sediment volume of less than 1 m^3 per sample. Compared to the immense abyssal ecosystem, this level of disturbance is insignificant. The removal of benthic organisms is minimal, and the sealed design of the box core prevents sediment

dispersion during retrieval, further mitigating environmental effects.

Multibeam Echosounding

Multibeam echosounding employs high-frequency sonar beams to generate detailed topographical maps of the seafloor. While the emission of acoustic energy has the potential to interfere with planktonic and nektonic species, as well as disrupt marine animal communication or migration patterns, these impacts are minor due to the system's low-energy output. There is no documented evidence of lethal effects associated with multibeam echosounding, and the technology is widely accepted for marine research with minimal environmental concerns.

Deep Tow / Autonomous Underwater Vehicle (AUV)

The use of Deep Tow sleds and Autonomous Underwater Vehicles (AUVs) is well-established in marine research and environmental monitoring. Operating several meters above the seabed, these systems utilize fiber-optic cables and low-energy sonar for seafloor mapping. Because they do not make direct contact with the seabed and produce sound levels low enough to avoid harming marine life, their environmental impact is considered negligible. Artificial lighting from AUVs has the potential risk of disrupting deep-sea species that may be close by and rely on bioluminescence for communication and predation avoidance.

Oceanographic Mooring Installation and Operation

Oceanographic moorings serve as anchored platforms for long-term data collection. These structures consist of an anchored cable equipped with instruments such as current meters, Acoustic Doppler Current Profilers (ADCPs), sediment traps, and CTDs. The physical footprint of these installations is small (less than 5 m^2 per anchor), and efforts are made to mitigate potential entanglement risks for fishing gear. ADCPs emit low-energy acoustic pulses intermittently, which are unlikely to have adverse effects on marine life. If sacrificial anchors are left on the seabed post-recovery, their impact remains insignificant due to their non-toxic composition.

Lowered Acoustic Doppler Current Profiler (ADCP)

Tethered to research vessels, lowered ADCPs measure water column currents during vertical deployments without making contact with the seabed. Emitting only low-energy acoustic pulses, these devices have negligible environmental impact.

Multi-Core Sampling

Multi-core sampling is a standard MSR technique used to collect seabed sediment for chemical, geochemical, and biological analyses. Multi-corers, equipped with multiple coring tubes, penetrate the seabed upon deployment, affecting an area of approximately 5 m^2 per sampling event. While minor sediment removal occurs, the volume extracted (less than 5 m^3) is minuscule compared to the vast abyssal environment. The impact on benthic organisms is negligible due to their sparse distribution. Additionally, any sediment plume generated is minor and well-contained within the sealed corers during retrieval.

Small-Scale Epibenthic Dredge Sampling

This sampling method interacts directly with the seabed, extracting sediments, nodules, and benthic fauna. While it generates localized sediment plumes, the overall area affected is minimal relative to the Exploration Area. The ecological impact of nodule removal and sediment disruption is low due to the sparse distribution of benthic organisms. The sediment plume produced is limited in scale and volume.

Remote Operated Vehicle (ROV)

Remotely Operated Vehicles (ROVs) are extensively used for seafloor surveys and targeted sample collection. These tethered vehicles are deployed for durations of 6 to 12 hours per mission. Their direct environmental impact is limited to the occasional removal of individual organisms, with physical seabed contact being minimal. Artificial lighting from ROVs also have the potential risk of disrupting deep-sea species that may be close by and rely on bioluminescence for communication and predation avoidance.

Seabed Imaging

Seabed imaging may be performed using an ROV, AUV, or Towed Camera System. These platforms introduce light, sound, and low-energy acoustic signals, but have negligible environmental impact due to their non-contact operation. Because these systems operate without direct seafloor contact, their environmental impact is negligible. The slow movement of imaging equipment ensures that any potential disruption to animal communication or migration is minimal.

Moored and Baited Time-Lapse Cameras

Deployed during ROV operations, these time-lapse cameras monitor deep-sea scavengers with minimal disturbance. Their physical footprint is confined to a small area (less than 4 m^2), where the anchor is placed.

Freefall Grab Sampling
A widely accepted MSR sampling method historically, freefall grab sampling minimally disturbs the seabed, typically impacting less than 1 m^2 per deployment. Small quantities of sediment and nodules are removed, with negligible effects on benthic fauna. The localized sediment plume disperses quickly, and any sacrificial weights left behind cover less than 0.5 m^2, making their environmental impact negligible in the context of the available habitat.

Landers
Landers are utilized to assess sediment-water nutrient exchange by deploying chambers over the seabed. With a footprint of approximately 2 m x 2 m, they cause minimal disturbance to the marine environment.

Moored and Drifting Hydrophones
Moored and drifting hydrophones record underwater sounds with minimal ecological impact. Moored hydrophones make limited contact with the seafloor (0.5 to 1 m^2), while drifting hydrophones remain in the water column without disturbing benthic habitats.

Pelagic Sampling
Pelagic net trawls and water sampling extract small biological and water samples from the water column. The volumes collected are negligible compared to the total habitat, ensuring minimal disturbance to planktonic and nektonic species. Additionally, the sensors used operate at low power, reducing their environmental influence.

Table: Assessment of Potential Impacts

The following pages contain a table providing an assessment of potential impacts, as detailed in section 5 of the ERIAS Environmental Report, which is attached to this Application as Appendix A.

The sources referenced in the table can also be found in Appendix A.

Table: Assessment of Potential Impacts

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
Gravity and magnetometric observations and measurements	Gravity and magnetometric surveys measure natural variations in the Earth's gravitational and magnetic fields caused by differences in rock density (gravity) and magnetic mineral content (magnetometry). The surveys target geological structures, subsurface density contrasts, and magnetic anomalies, which help to map seafloor features and mineral deposits. The surveys use instruments like shipborne gravimeters and towed magnetometers, which are passive sensing methods. There are no significant potential impacts associated with this activity under normal operations as sensors are passive and will not touch the seafloor. Tow cables and vessel operations will occur but are not expected to have any significant effects.	NOAA DSMR (2025): Section 970.701, paragraph a (1) ISA (2015): Section IV, paragraph 18 (a)

Bottom and sub-bottom acoustic profiling or imaging without the use of explosives
 	
Electromagnetic profiling of resistivity, self-potential or induced polarization, or imaging without the use of explosives or frequencies known to significantly affect marine life
	Bottom and sub-bottom acoustic profiling or imaging (without the use of explosives) may be include:
	
	• Single-beam Echo Sounders: Acoustic devices sending sound pulses downward to measure water depth by timing the echoes from the seabed.
	• Multibeam Echo Sounders (MBES): Advanced systems emitting multiple acoustic beams to generate detailed bathymetric maps of the seafloor.
	• Side-scan Sonar: Acoustic imaging providing detailed images of the seafloor texture and features by emitting fan-shaped pulses across the seabed.
	• Sub-bottom Profilers (SBP): Systems that transmit sound waves penetrating below the seafloor to reveal sediment layers and geological structures beneath the seabed without disturbing them. Types of SBP include:
	  • Pinger systems: High-frequency, high-resolution, shallow penetration imaging.
	  • Chirp systems: Multi-frequency pulses with moderate penetration and high resolution.
	  • Boomer systems: Lower frequency, deeper penetration but less resolution.
	  • Sparker systems: Use electrical sparks to generate pressure waves for deep sediment penetration.
	
	• Deep-towed Sonar Systems: Towed devices provide detailed acoustic imaging closer to the seabed to enhance resolution for nodule size and coverage assessment.
	
	These methods utilize acoustic energy to create detailed underwater maps and images of the seabed surface and subsurface. Importantly, these techniques avoid the use of explosives, reducing disturbance to marine life and habitats. While the emission of acoustic energy has the potential to interfere with planktonic and nektonic species, as well as disrupt marine animal communication or migration patterns, these potential impacts are minor due to the system's low-energy output. Several environmental reviews and studies highlight that the frequency and amplitude of acoustic energy in typical sub-bottom profiling operations fall well below thresholds known to cause significant harm to marine organisms, especially when compared to seismic airguns or other high-energy sources (Richardson et al., 2013; Popper et al., 2014; Merchant et al., 2016; Hermannsen et al., 2019; NOAA, 2021).
	
	Electromagnetic profiling methods used in deep-sea mineral exploration include measurements of resistivity, self-potential, and induced polarization. These geophysical techniques involve generating and detecting electromagnetic fields to infer the electrical conductivity and charge properties of subsurface materials, which help identify mineral deposits such as polymetallic nodules. These methods can be deployed using seafloor instruments, towed marine arrays, or autonomous underwater vehicles, allowing detailed mapping of mineral-rich zones without physical disturbance. Since electromagnetic profiling relies on low-intensity electromagnetic fields rather than mechanical or explosive means, it is generally considered to have minimal impact. Further, these methods are typically non-invasive and do not involve direct contact or sediment disturbance (Wedding et al., 2018; CSIRO,2025).
		NOAA DSMR (2025): Section 970.701, paragraph a (2) (without specific mention of electromagnetic profiling techniques)
		
		ISA (2015): Section IV, paragraph 18 (b)

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
Multi-corer, box corer, freefall grab sampler (or similar) are commonly used methods that collect seabed sediment for chemical, geochemical, and biological analyses. These devices may be outfitted with altimeters, CTD sensors, and penetrometers.	Deployment of these sampling devices results in small quantities of sediment (and more often than not nodules) being removed, which includes the removal of associated benthic fauna. Sediment sampling in deep-sea environments causes highly localized physical disturbance in the area where the core or grab is collected. However, the level of disturbance associated with sediment sampling is spatially insignificant and the removal of benthic organisms is minimal, given the volume of sediment collected is minuscule compared to the vast abyssal environment. As a result, the potential for significant environmental impacts is considered to be low (Volz et al., 2020; Khripounoff et al., 2006). Further information about each device is provided below: • **Box Corers:** These are designed to take relatively large, undisturbed blocks of sediment typically with a square or rectangular opening (e.g., 50 cm × 50 cm up to 75 cm × 75 cm). Box corers typically penetrate 40 to 65 cm into seafloor sediments and have mechanisms such as spades or flaps to seal the sediment block during retrieval to minimize disturbance. They provide fairly intact sediment structure and overlying water for quantitative analysis. However, they are heavy, can cause some mechanical disturbance on the sediment surface during deployment, and require stable conditions to avoid tilting or sample loss. Their footprint is about 0.25 to 1.0 m^2, disturbing a volume up to about 0.37 m^3 for large models. • **Multicorers:** These devices use multiple narrow tubes (e.g., 56 to 100 mm diameter) attached to a frame that is lowered to the seabed, allowing simultaneous retrieval of multiple sediment cores. Multicorers cause very localized, minimal disturbance restricted to the combined area of the tubes and instrument frame feet, typically less than 0.1 m^2 total footprint, disturbing a small sediment volume in the upper 15 to 60 cm. They are prized for collecting undisturbed cores suitable for detailed sediment and biological analysis. • **Freefall Grab Samplers (e.g., bottom grabs):** These are simpler devices with jaws that clamp onto the seafloor sediment to sample the surface layer. While they are effective for qualitative sampling, they tend to cause mechanical disturbance and mixing of sediment layers, with less intact sediment structure. Such grabs are also susceptible to sample washout during retrieval and have less quantitative reliability compared to corers. Their footprint is generally small but the sediment is disturbed more extensively within that zone due to the grabbing action. These are used more for resource assessment than for environmental studies. Any sediment plume generated from seafloor sampling these devices is minor and limited to the initial period when the instrument makes contact with the seabed. Some small plumes may be formed as the sampling devices start to be recovered to the surface as sediments that may have stuck to the outside of the samples is washed off. Freefall grabs use sacrificial weights (typically made of steel) which are left behind on the seafloor and cover less than 0.5 m^2, making their environmental impact negligible in the context of the available habitat.	NOAA DSMR (2025): Section 970.701, paragraph a (3 & 7) ISA (2015): Section IV, paragraph 18 (c)
Water and biotic sampling, pelagic net trawls and water sampling devices. It is expected that nets such as bongo or a Multiple Opening/ Closing Net and Environmental Sensing System (MOCNESS) will be used for pelagic and nekton sampling.	A variety of pelagic net trawls may be used to sample the water column. Larger arrays such as those associated with a MOCNESS setup are conservatively described here, however, smaller net systems (such as a bongo system) may be used. MOCNESS arrays typically consist of between five to twenty nets with mesh sizes often ranging from 64 µm to 3 mm, with one net being open at one time, resulting in a collection area of around 1 m2. The nets are computer-controlled to allow the net to be opened and closed at the desired depth. Additionally, sensors are used to measure physicochemical parameters. However, the sensors operate at low power, reducing their environmental influence. As reported by Washburn et al. (2021), the potential for significant impacts to	NOAA DSMR (2025): Section 970.701, paragraph a (4) ISA (2015): Section IV, paragraph 18 (c), and 18 (k) for DNA screening

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
Water sampling may include a combination of techniques, such as deployment of CTD rosettes equipped with Niskin bottles. Samples will be analysed for chemical and physicochemical properties and may also include eDNA analysis.	occur as a result of plankton, nekton and water quality sampling is negligible given the small volume of the samples compared to overall habitat extent. The small sample volumes also suggest that the potential for significant impacts on larger species, such as marine mammals and endangered species, is negligible. Further, there is no potential for impacts on shellfish beds (or other benthic habitats and taxa) as these sampling arrays do not interact with the seabed. As outlined by NOAA (2023), a CTD rosette system is awn essential, minimally invasive tool for oceanographic sampling. It collects discrete water samples using Niskin bottles without contacting the seafloor or disturbing benthic habitats. Other biotic sampling (such as macrofauna and meiofauna sampling) are described methods for sediment sampling (see multi-corer, box corer, freefall grab sampler).	NOAA DSMR (2025): Section 970.701, paragraph a (3 & 7) ISA (2015): Section IV, paragraph 18 (c)
Meteorological observations and measurements, including the setting of instruments. Oceanographic moorings serve as anchored platforms for long-term data collection. These consist of an anchored cable equipped with instruments such as current meters, Acoustic Doppler Current Profilers (ADCPs), sediment traps, and CTDs. Due to their similarity with the above methods, moored and drifting hydrophones have been assessed under oceanographic equipment. Moored hydrophones would be part of a larger oceanographic mooring deployment, while drifting hydrophones remain at/near the surface in the water column.	Meteorological observations are typically made from exploration vessels via shipboard weather stations or from satellite imagery. Due to the water depths across the Application Area, it is not envisaged to deployed moorings that have a surface float that would host meteorological sensors. Oceanographic mooring mounted ADCPs emit intermittent, low-energy, high-frequency acoustic pulses that are above the audible range of many marine mammals and dissipate quickly. As such, ADCPs are unlikely to have adverse effects on marine life as the acoustic emissions are too brief and low intensity to mask communications or cause hearing impairment in marine animals (Wood's Hole Oceanographic Institute, 2019; NOAA, 2021). Other sensors on oceanographic moorings are passive (e.g., sediment traps and CTDs) and therefore will not interfere with marine life other than being a physical presence in the water column). Typical oceanographic moorings in the CCZ are designed and deployed such that they extend from the seafloor upward to the surface, with the shallowest part of the longest moorings being around 500 m below the surface. The physical seafloor footprint of oceanographic moorings is small (less than 5 m^2 per anchor), and efforts are made to mitigate potential entanglement risks for fishing gear. If sacrificial anchors are left on the seabed post-recovery, their impact remains insignificant due to their non-toxic composition (e.g., steel train wheels). Lowered ADCPs are typically installed on CTD rosette systems and measure water column currents during vertical deployments. Lowered ADCPs do not make contact with the seabed; as such, there is no physical footprint associated with this sampling method; however, the acoustic pulses are equivalent to those described for seabed-mounted ADCPs above. CTDs are widely used oceanographic instruments typically deployed on CTD rosettes by lowering them through the water column on cables (which are around 10 mm in diameter). CTDs are non-invasive passive sensors that have a very small physical footprint, are compact and lightweight, and the act of lowering or retrieving them creates negligible noise or turbulence that would not significantly impact marine organisms (Wood's Hole Oceanographic Institute, 2019; NOAA, 2021). Landers are utilized to assess sediment-water nutrient exchange by deploying chambers over the seabed. Landers have a footprint of approximately 4 m2. The small-scale disturbances create a limited, localized footprint on the seabed which results in minimal physical disturbance on benthic habitats (Cecchetto et al., 2023; Kononets et al., 2021). Moored and drifting hydrophones do not emit noise and represent a passive acoustic monitoring tool that records ambient noise and biological sounds. They are widely accepted as having minimal environmental disturbance (Lillis et al., 2018; Hermannsen et al., 2019; Polagye et al., 2020).	NOAA DSMR (2025): Section 970.701, paragraph a (5) NOAA DSMR (2025): Section 970.701, paragraph a (6) ISA (2015): Section IV, paragraph 18 (d) ISA (2015): Section IV, paragraph 18 (e)

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
Seabed imaging may be performed using a Remotely Operated Vehicles (ROVs), Autonomous Underwater Vehicles (AUVs), or Towed Camera System. Moored and baited time-lapse cameras may also be deployed to monitor deep-sea scavengers.	The use of these systems is well-established in marine research and environmental monitoring. Operating several meters above the seabed, these systems utilize umbilicals (for ROVs and towed systems) and low-energy sonar for seafloor mapping. The systems can be deployed for many hours per mission. Towed camera systems, ROVs and AUVs are non-invasive sampling techniques that do not make direct contact with the seabed. They also produce sound levels low enough to avoid harming marine life, and therefore their environmental impact is considered negligible. Artificial lighting from these systems has the potential risk of disrupting deep-sea species that rely on bioluminescence for communication and predation avoidance. However, the potential effects are limited to the footprint of the light spill area in the vicinity of the camera system (Morris et al., 2014; Simon-Lledó et al., 2019). In addition, NOAA Ocean Exploration Sampling Procedures Manual (2023), identifies that ROVs can be used to collect limited biological, geological, and water samples in a way that minimizes negative impacts on the local environment and marine life. This manual is the authoritative resource guiding NOAA's deep-sea sampling operations with detailed impact assessments and protocols for exploration-phase activities. ROV and AUV may also be used for targeted water and sediment sample collection. Potential effects associated with sample collection are discussed under the relevant sections. For moored and baited time-lapse cameras, the physical footprint is confined to a small area (less than 4 m²), where a sacrificial anchor is placed and has no mechanical intrusion (Drazen et al., 2020; Jones et al., 2017; Leitner et al., 2017). As such, the potential for significant impacts to occurs are considered unlikely.	NOAA DSMR (2025): Section 970.701, paragraph a (8) ISA (2015): Section IV, paragraph 18 (f)
Shipboard mineral assaying and analysis	Shipboard mineral assaying and analysis in deep-sea exploration typically involve non-destructive geochemical and mineralogical methods conducted onboard research vessels to quickly characterize mineral samples such as polymetallic nodules or sediment cores. Shipboard assaying analyzes only small quantities of mineral samples, typically recovered by sediment corers or nodules collected during exploration cruises. Since the analysis occurs entirely on collected samples within the ship's laboratory, it does not disturb the marine environment further. As such, there is no potential for significant environmental impacts associated with this activity (CSIRO, 2025).	NOAA DSMR (2025): Section 970.701, paragraph a (9) ISA (2015): Section IV, paragraph 18 (g)
Positioning systems, including bottom transponders and surface and subsurface buoys used to determine and communicate the location of vessels, underwater vehicles, or fixed points in marine environments.	These systems are crucial for safely guiding and monitoring exploration vessels, ROVs, AUVs, or subsea infrastructure. Typical types include: • Bottom transponders: Acoustic devices placed on the seafloor that respond to signals from ships or underwater vehicles, enabling accurate tracking using techniques like ultra-short baseline (USBL), short baseline (SBL) and long baseline (LBL) acoustic positioning. • Surface and subsurface buoys: Floating or moored platforms equipped with GPS and acoustic systems that assist in navigation and tracking of underwater operations. The filing of Notices to Mariners ensures that these fixed acoustic or buoy positions are officially recognized to avoid navigational hazards and coordinate marine activities.	NOAA DSMR (2025): Section 970.701, paragraph a (10) ISA (2015): Section IV, paragraph 18 (h)
Towed plume-sensor measurements involve towing a suite of sensors behind a research vessel or an	Towed plume sensor measurements are typically associated with hydrothermal vent/seafloor massive sulfide exploration rather than polymetallic nodule exploration. Methods used are considered to pose a low risk of significant environmental	NOAA DSMR (2025): Not specifically listed, but likely to be similar to low-level impacts covered

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
underwater vehicle to detect and analyze physical and chemical properties of water plumes.	impact because they involve passive, non-invasive monitoring of water column properties without physically disturbing the seabed or marine organisms (Muñoz-Royo et al., 2021; Gazis et al., 2025). Furthermore, these approaches typically use small, low-energy equipment that can be carefully controlled and targeted, limiting spatial footprints and allowing for repeated monitoring without cumulative harm.	under Section 970.701, paragraph a (5) and/or (6) ISA (2015): Section IV, paragraph 18 (i)
Tracer dyes to study water current and dispersion patterns. Only non-harmful tracers would be employed	Marine dye tracers used in environmental studies are generally not toxic, especially when used at typical concentrations for oceanographic purposes. However, toxicity depends on the specific dye used, its concentration, and the local environment. Rhodamine WT, the most common dye, is non-carcinogenic, non-mutagenic, and does not bioaccumulate.	ISA (2015): Section IV, paragraph 18 (l)
In situ faunal metabolic measurements (e.g. sediment oxygen consumption)	The purpose of in situ faunal metabolic measurements like sediment community oxygen consumption, is primarily to characterize baseline benthic ecosystem functioning and to assess the biological activity (SCOC), including microbial and faunal respiration, within the sediment. SCOC serves as an indicator of organic matter processing, sediment health, and ecosystem metabolic rates, providing data on how benthic communities sustain themselves and the overall ecosystem function. SCOC can be measured using sediment cores. As such, the potential effects associated with these assessments are assessed as part of the sediment sampling methods.	NOAA DSMR (2025): Not specifically listed, but likely to be similar to low-level impacts covered under Section 970.701, paragraph a (7) ISA (2015): Section IV, paragraph 18 (j)
Small-Scale Epibenthic Dredge Sampling This sampling method interacts directly with the seabed, extracting sediments, nodules, and benthic fauna.	Epibenthic dredging is a small-scale seabed sampling method used to collect benthic organisms, sediment, and polymetallic nodules from the seafloor surface. It involves dragging or towing a dredge device just above or along the seabed to gather biological and mineralogical samples. Epibenthic dredging disturbs the seabed by physically removing benthic organisms and the sediment surface, leading to habitat alteration or loss in the dredged footprint. Impacts include removal of benthic fauna, alteration of seabed physical structure, near-bottom sediment resuspension, and changes in sediment chemistry in the disturbance zone. Studies on impacts of benthic sleds indicate that while sleds are used to collect benthic organisms, they exert far less physical impact than heavy bottom trawling gears that gouge and resuspend sediments extensively. Further, while biological recovery varies by taxa, many meio- and macrofaunal groups show signs of recolonization within several years after disturbance and although some sediment chemistry changes persist long term, overall ecological impacts are considered moderate given the limited spatial scale of the dredge footprints (Paul et al., 2020). Epibenthic sled, dredge or trawl, or similar technique, in nodule fields, will not exceed 10,000 m2.	Under the ISA document Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area, issued by the Legal and Technical Commission in 2023 (ISBA/25/LTC/6/Rev.3), sampling with an epibenthic sled, dredge or trawl, or similar technique, in nodule fields, that does not exceed 10,000 m2 does not require an EIS to be prepared.
Vessel operations play a crucial role in facilitating exploration activities, providing the platform from which exploration occurs and essential logistical, safety, communication, and operational	A range of potential effects may be associated with vessel operations, including: • Underwater noise: Vessel engines, thrusters, dynamic positioning systems, and operations such as winching or deploying equipment create continuous and intermittent underwater noise that can disturb marine mammals, fish, and invertebrates by interfering with communication, navigation, and feeding behaviors. Of these taxa, cetaceans, and in particular whales, are likely to be the most sensitive. However, given the small-scale nature of the exploration activities, the effects are likely to be minor (Erbe et al., 2019).	NOAA's Final Environmental Impact Statement for Ocean Minerals Company exploration license (USA-4) states that all exploration activities, including vessel operations, are considered to have no

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
functions with minimal environmental risk in deep-sea exploration.	• Minor discharges of operational by-products: Minor discharges of by-products, such as lubricants, hydraulic fluids, and oily mixtures, may introduce small amounts of contaminants into the marine environment. Discharges of by-products, if required, will be in accordance with the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I (Prevention of Pollution by Oil) to ensure the volume and concentrations are minimal to prevent the potential for significant effects. • Discharge of sewage and other regulated waste will be in accordance with MARPOL Annex IV (Prevention of Pollution by Sewage from Ships) and Annex V (Prevention of Pollution by Garbage from Ships) to minimise the potential for impacts on the environment. • Greenhouse gas emissions: Greenhouse gas emissions from a survey vessel are generally considered minor due to the limited scale and duration of vessel operations. Survey vessels typically operate at relatively low speeds, resulting in lower fuel consumption and consequently reduced greenhouse gas emissions. • User conflicts: Interactions with other maritime activities, such as commercial fishing and shipping, are expected to be negligible due to the remote nature of the exploration area.	potential for significant environmental impact

7.4 Environmental Monitoring

SeaX will carry out an Environmental Monitoring Program (EMP) to ensure that its exploration activities do not deviate significantly from the approved Exploration Plan. The EMP will be carried out in accordance with guidelines issued by the Administrator, as well as such other terms, conditions and restrictions as may be imposed by the Administrator.

7.4.1 EMP for Low-Impact Activities

An overview of the proposed Environmental Monitoring Plan for low-impact exploration activities is provided in Section 6 of the ERIAS Environmental Report (refer Appendix A). The tables from that section are copied here below:

Environmental Monitoring Plan for Low Impact Activities

Monitoring Element	Survey Methods	Purpose of Monitoring	Timing / Frequency	Proposed Monitoring of Impacts
Geophysical surveys for seafloor mapping	• Gravity and magnetometric observations and measurements • Bottom and sub-bottom acoustic profiling or imaging, w/out explosives • Electromagnetic profiling, w/out explosives or significantly harmful frequencies)	High-resolution mapping of nodule fields, seabed morphology for baseline data collection and resource estimates	During initial survey(s) and periodically as needed	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all geophysical surveys as part of exploration activities.
Water column sampling	• Pelagic nets • Niskin bottle	Baseline data collection on water chemistry, physico-chemical properties, and pelagic taxa	As required, for physical and chemical data. Periodically, for biological data, to capture potential temporal variability. Consider inter-annual sampling to capture longer temporal scales.	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all water sampling activities as part of exploration activities.
Meteorological & oceanographic measurements	• Oceanographic moorings (seabed-mounted and lowered ADCP) • CTD arrays • Landers	Monitoring of physical ocean conditions, including currents, sediment-water nutrient exchange	Continuous or periodic throughout exploration	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all mooring deployments and measurements as part of exploration activities.
	• Passive acoustic monitoring (moored and drifting hydrophones)	Recording ambient and operational noise, and presence of cetaceans to characterize baseline acoustic environment	Continuous or periodic throughout exploration	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all mooring deployments and measurements as part of exploration activities.
Sediment sampling	• Box corer • Multicore • Freefall grab • Push cores (deployed from ROV/AUV)	Characterisation of physical, chemical and biological benthic environments	As required, for physical and chemical data. Periodically, for biological data, to capture potential temporal variability. Consider inter-annual sampling to capture longer temporal scales.	No potential for significant impact. However, paired seabed imaging will record observations of the seafloor during sampling. Positional and temporal data will be collected on sampling as part of exploration activities.

Monitoring Element	Survey Methods	Purpose of Monitoring	Timing / Frequency	Proposed Monitoring of Impacts
Seabed imaging	• Remotely Operated Vehicle (ROV) • Autonomous Underwater Vehicle (AUV) • Towed camera system • Moored and baited time-lapse cameras	Benthic habitat classification; analysis of nodule abundance, and size distribution; and baseline data observations to characterise benthic and pelagic taxa	During initial survey(s) and periodically as needed	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all seabed imagery surveying as part of exploration activities.
Shipboard mineral assaying	• Onboard preliminary assessment of polymetallic nodule samples to characterize mineral content.	Characterize mineral content for resource estimation	As required	No potential for significant impact. Monitoring of impacts is not proposed. Data will be kept on all shipboard mineral assaying that may occur.
Use of positioning systems	• Bottom transponders • Surface and subsurface buoys	Precise navigation and position referencing of vessels, instruments, and deployed systems	Throughout the exploration phase	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all positioning system deployments as part of exploration activities.
Towed plume-sensor measurements	• Towed plume sensor measurements are typically associated with hydrothermal vent/seafloor massive sulfide exploration rather than polymetallic nodule exploration therefore n/a	n/a	n/a	n/a
Dye release or tracer studies	• Tracer dyes to study water current and dispersion patterns. Only non-harmful tracers would be employed (e.g., Rhodamine WT)	Understand water movements and dispersal of potential plumes	Limited use	No potential for significant impact. Monitoring of impacts is not proposed. Selection of dye tracers to be used with consider toxicity. Positional and temporal data will be collected on all dye release/trace as part of exploration activities.

Monitoring Element	Survey Methods	Purpose of Monitoring	Timing / Frequency	Proposed Monitoring of Impacts
Small-scale epibenthic dredge	• Dredge sampling over small seabed areas	Physical collection of samples for biological and mineralogical assessment	May be comprised of a single event, or a number of smaller events	Potential for small-scale, localized impacts that are unlikely to be significant. Seafloor mapping and seafloor imagery will be collected before dredging occurs to confirm the assessment of low potential for significant impacts is appropriate.
Vessel operations	• Vessel movements	Impact mitigation	During vessel transit	Observe for marine mammals to spot cetaceans and implement avoidance protocols prior to deploying sampling equipment/undertaking exploration activities that may interact with cetaceans. Other routine vessel operations are managed under standard maritime regulations (MARPOL) and do not require additional monitoring measures

7.4.2 EMP for Potentially Impactful Activities

For Potentially Impactful Activities, SeaX will carry out a monitoring program during and after the Potentially Impactful Activity to determine the effects of the activity on the biological activities, including the recolonization of the disturbed areas.

The exact details of the monitoring program will be described in the information that will be submitted to the Administrator at least 12 months prior to carrying out the Potentially Impactful Activity. An indicative high level summary is included here below.

With respect to the Harvesting Test, an Impact Reference Zone and Preservation Reference Zone will be established to monitor impacts. The Preservation Reference Zone will be selected according to its environmental characteristics and biotic composition.

SeaX will carry out a comprehensive Environmental Monitoring Program to monitor how the environment is impacted by the Harvesting Test ("**Harvesting Test Environmental Monitoring Program**"), which will include, amongst other things:

- Monitoring in real time, with simultaneous mapping and sampling, with data captured from an array of different instruments, for example with AUV's, ROV's and CTD's, in order to measure and investigate the environmental impacts of the Harvesting Test, in particular the Seafloor Harvesting Machine (impacts to be studied will include, for example, plumes, noise, ecotoxicity, biodiversity and CO2);
- Detection of impacts in time and space and to provide statistically defensible data;
- Monitoring of impacts at the Impact Reference Zone as well as the Preservation Reference Zone;
- Monitoring of impacts beyond the Impact Reference Zone;
- A Post Disturbance Monitoring Program one year after the Harvesting Test, to assess how the environment has responded to the test after that time has passed.

It is anticipated that the Harvesting Test Environmental Monitoring Program will assess:

- Thickness of redeposited sediment and rock rubble over the area affected by the operational plume caused by the testing activity and by the discharge plume and changes in substrate heterogeneity;
- Changes in species composition, diversity and abundance of pelagic (where applicable) and benthic communities, including microbes and protozoa, including recolonization, changes in foundation species, three-dimensional-habitat- forming species, ecosystem engineers, bioturbation rates, chemical effects and changes in behaviour of key species (subjected to impacts such as smothering by sedimentation);
- Possible changes in communities, including microbes and protozoa, in adjacent areas not expected to be perturbed by the activity, including discharge and seabed-disturbance plumes and food web structure;
- Changes in the characteristics of the water at the level of the discharge plume during the Harvesting Test, and changes in the behaviour of the biota at and below the discharge plume;
- Changes in geomorphology;

- Levels of metals found in key and representative benthic biota subjected to sediment from the operational and discharge plumes;
- Evaluation of environmental impacts; and
- Changes in water currents and the response of organisms to changes in circulation.

Assessed and interpreted results of the monitoring will be periodically reported to the Administrator together with the raw data where requested.

The Harvesting Test Environmental Monitoring Program will inform:
- Predictive studies to predict and detail the anticipated impacts associated with a full-scale Commercial Recovery operation; and
- A study of mitigation measures, as well as the development of management plans for full-scale operations.

The environmental data obtained from the Harvesting Test Environmental Monitoring Program will feed into the Feasibility Study and Environmental Impact Statement that will form part of SeaX's submission to obtain a Commercial Recovery Permit.

The information that SeaX will submit to the Administrator at least 12 months prior to carrying out the Harvesting Test will contain all of the details of the Harvesting Test Environmental Monitoring Program, which will be tailored to the Harvesting Test and the specific equipment and technique selected for carrying out the Harvesting Test.

A Plume Monitoring Study will also form part of the Harvesting Test Environmental Monitoring Program, and will be carried out to understand how the benthic plume is formed and behaves.

Plume monitoring stations will be established in and around the Harvesting Test site to collect data on all aspects of plume dynamics, concentration and dispersal.

The Plume Monitoring Study will involve the deployment of a variety of sensors to monitor the characteristic of the benthic plume during the Harvesting Test, including plume density, particle size, particle settling rate, sedimentation rates, and the sedimentation footprint dispersal.

The types of sensors that will be deployed may include:
- LISST sensors mounted on an ROV (to measure the size, density and settling velocity of suspended particles);
- Acoustic Doppler Current Profilers (ADCP's) mounted both on the sea floor and attached to the static moorings to collect current data, and measure current movements at various horizontal and vertical distances away from the Collector Test site;
- Conductivity Temperature and Depth sensors (CTD's) in the water column to collect water quality data at various depths, as well as collect samples and data from within the benthic plume;
- Sediment trays located at various distances away from the direct Harvesting Test site to measure how far sediment particles could spread away from the area from which they were mobilized; and
- ROV mounted bottles (to collect water samples from the benthic plume).

Other equipment that may be used to carry out the Harvesting Test Environmental Monitoring Program include:
- AUV's to collect video footage and samples across the Harvesting Test site during the operations;
- Fixed moorings with ADCP's attached to them;
- Instruments on the seafloor to collect data on sediment deposition, and measure the amount of suspended sediment;
- Instruments on ROV's and AUV's to reconstruct a 3D picture of the plume;
- ADCP's measuring particle density in the water column; and
- Sediment trays located at various distances from the direct Harvesting Test Site in order to measure the levels of sediment deposition with distance away from the point of mobilization.

Predictive models will be developed to model plumes which can then be scaled up to simulate full scale production, including plume density, plume dynamics, particle size, current rates and water temperature.

An important part of SeaX's Harvesting Test Environmental Monitoring Program will be the Post Disturbance Monitoring Program. This will be carried out approximately one year after the Harvesting Test, to assess how the environment has responded to the test after that time has passed.

In the Post Disturbance Monitoring Program, SeaX will examine various zones of influence where sediment from the Harvesting Test has settled, with a particular focus on determining the extent of its impact on benthic communities in the region.

The company will study signs of ecosystem recovery to evaluate whether community structures and ecological

functions have adapted or changed since the Harvesting Test.

To gather data, box core and multi-core instruments will be used to collect sediment and nodule samples from the seabed, which will be analyzed for biological, geochemical, and geological properties.

A remotely operated vehicle equipped with specialized cameras will observe sessile megafauna and assess their condition after exposure to different sedimentation levels.

Additionally, SeaX will measure oxygen fluxes on the seafloor to enhance understanding of oxygen exchange rates among benthic organisms in the ecosystem.

Moorings equipped with various instruments will be deployed to monitor currents, temperature, salinity, sedimentation rates, noise levels, and other physical parameters in the water column.

Autonomous underwater vehicles (AUVs) will be used to map the seafloor, capturing detailed images to determine the extent of the sedimentation footprint and assess megafaunal communities across different zones of influence.

7.5 Mitigation of Environmental Impacts

The activities proposed in SeaX's Exploration Plan are not anticipated to pose a serious threat to the environment.

SeaX's deep-sea research and sampling techniques will be designed to minimize environmental disturbances. While some localized effects on marine life and seabed conditions are inevitable, they are negligible when compared to the vastness of the deep-sea ecosystem. Continued adherence to environmental best practices and the regulatory guidelines will also ensure that the impact remains as low as possible while enabling valuable scientific exploration to be carried out of the deep-sea environment in the SeaX Exploration Area.

For any Potentially Impactful Activities, the Company will submit a comprehensive risk assessment to the Administrator prior to carrying out the activity, as well as mitigation strategies tailored to the specific activity.

A comprehensive Risk Assessment will be carried out before each cruise. This assessment will evaluate the specific risks associated with the planned activities, focusing on both environmental and safety considerations. Potential risks such as spills, leaks, hazardous chemicals, and interactions with marine life, will be identified and addressed.

SeaX is committed to conducting offshore exploration activities responsibly, with a focus on minimizing environmental impacts and safeguarding marine ecosystems. The Company's approach to environmental management during exploration at sea will integrate industry best practices, U.S. and international regulatory requirements, and proactive measures to avoid, minimize, and manage potential environmental risks. Continuous monitoring, adaptive management, and a commitment to ongoing improvement will be central to our environmental stewardship at sea.

1. Marine Wildlife Protection and Monitoring
Vigilant Observation
SeaX will maintain visual monitoring for cetaceans and other marine wildlife during vessel transit and operational activities.

Dedicated marine fauna observers will be appointed to conduct systematic watches, particularly during critical phases such as equipment deployment and vessel movement.

Cetacean Avoidance Protocols
In line with standard cetacean protection procedures, vessels will implement avoidance protocols. These include altering course and speed as needed to prevent harmful interactions with marine mammals. A minimum safe distance will be maintained from all observed wildlife, with vessel speed reduced in areas of known or observed cetacean activity.

Pre-Deployment Scans
Prior to deploying equipment overboard, the surrounding area will be carefully scanned for the presence of marine fauna. If marine animals are detected within a designated safety zone, deployment will be delayed until they have moved a safe distance away.

Interaction Reporting
All interactions with marine species, whether direct or incidental, will be recorded and reported in accordance with regulatory requirements. These reports will contribute to ongoing monitoring and adaptive management processes.

2. Pollution Prevention and Hazardous Material Management
Secure Storage of Hazardous Materials
Hazardous chemicals and substances used on board will be securely stored in designated containment areas. These storage systems will be designed to prevent accidental releases and minimize exposure risks.

Routine Equipment Maintenance
Regular inspection and maintenance of all machinery and equipment will be conducted to prevent leaks, spills, or malfunctions. Maintenance schedules will align with manufacturer guidelines and industry standards, with records kept to ensure accountability.

Waste Management in Compliance with MARPOL
All offshore waste will be managed in strict compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL). Waste segregation, storage, and disposal procedures will be enforced to prevent any discharge of waste materials into the marine environment.

Ballast Water Management
Vessels will adhere to international best practices for ballast water management, including treatment and exchange protocols. This will minimize the risk of introducing non-native marine species to local ecosystems through ballast water discharge.

3. Invasive Species Prevention and Biosecurity Measures
Freight Handling and Customs Compliance
To prevent the introduction of invasive terrestrial species, SeaX will follow U.S. requirements for freight handling. This includes strict compliance with customs authority directives and inspections, ensuring that cargo and equipment are free from invasive species before deployment.

4. Emergency Preparedness and Environmental Training
Drills and Training
Regular emergency drills and training programs will be conducted to prepare personnel for environmental incidents such as spills or fires. These exercises will cover spill containment, fire prevention and response, and offshore material handling, ensuring readiness to act swiftly and effectively.

Personnel Induction and Education
Comprehensive environmental inductions will be provided to all crew members and contractors. These sessions will cover environmental policies, operational procedures, and individual responsibilities for protecting the marine environment.

5. Use of Advanced Technologies and Best-Practice Methodologies
SeaX is committed to employing advanced technologies and adhering to industry best practices throughout offshore exploration activities. This includes utilizing state-of-the-art monitoring equipment, environmentally friendly materials, and innovative solutions to minimize the environmental footprint of our operations.

6. General
In carrying out the plan of work, SeaX will act to prevent, reduce and control pollution and other impacts to the marine environment. The Company will ensure that third party contractors commit to similar mitigation and protection measures.

SeaX will take such immediate measures as are practical and reasonable in the circumstances to prevent, contain and minimize harm to the marine environment, and comply with emergency orders issued by the Administrator and the Coast Guard.

The Company will also have in place systems, procedures and stringent precautions to ensure environmental protection and pollution prevention.

The Company will implement systems to promptly identify and report environmental harm, ensuring the availability of necessary technology and equipment to detect and address any damage. This will enable the Company to effectively mitigate incidents and contribute to environmental restoration efforts.

Prior to commencing offshore activities, SeaX will submit to the Administrator a contingency plan to respond effectively to incidents that pose a threat of causing harm to the marine environment arising from its activities at sea in the License Area. This plan will establish special procedures and provide for adequate and appropriate equipment to deal with such incidents and, in particular, will include arrangements for:

A. the immediate raising of a general alarm in the area of the exploration activities;
B. immediate notification to the Administrator;
C. the warning of ships which might be about to enter the immediate vicinity;
D. a continuing flow of full information to the Administrator relating to particulars of the contingency measures already taken and further actions required;
E. the removal, as appropriate, of polluting substances;
F. the reduction and, so far as reasonably possible, prevention of harm to the marine environment, as well as mitigation of such effects; and
G. periodic emergency response exercises.

SeaX will promptly report to the Administrator any incident arising from its activities that has caused or is likely to cause harm to the marine environment. Each such report will contain the details of such incident, including, inter alia:

A. the coordinates of the area affected or which can reasonably be anticipated to be affected;
B. the description of the action being taken by Company to prevent, contain, minimize and repair the harm to the marine environment;
C. a description of the action being taken by Company to monitor the effects of the incident on the marine environment; and
D. such supplementary information as may be required by the Administrator.

7.6 Physical, Chemical and Biological Information

In accordance with § 970.204 SeaX has included in this Section details regarding the Physical, Chemical and Biological information pertaining to the exploration area.

Further information regarding the Physical, Chemical and Biological environment is also detailed in the ERIAS Environmental Report in Appendix A, which is reflected in Section 7.6.1 below.

That section in the ERIAS Environmental Report is titled “Description of the Environment”, and starts on page 3 of the ERIAS Environmental Report.

The exploration area is the Clarion Clipperton Zone (CCZ), and as such, SeaX has included in this Section links to 3 of the most recent Environmental Impact Statements for the exploration area; all of which are publicly available. To our knowledge, these three Environmental Impact Statements provide the best description of the environment in the area in which the Application Area falls, and contain the most up to date information on the Physical, Chemical and Biological Information pertaining to the applicable domain of the CCZ.

- BGR EIS: https://www.isa.org.jm/wp-content/uploads/2022/04/EIA_BGR_0.pdf
- GSR EIS: https://www.isa.org.jm/protection-of-the-marine-environment/environmental-impact-assessments/
- NORI EIS: https://metals.co/wp-content/uploads/dlm_uploads/2022/12/NORI-D-Collector-Test-EIS-September-2022.pdf

As demonstrated in the below regional maps as published by Morgan et al, the Application Area falls within the same abyssal plains and sediment type of the CCZ as the 3 Environmental Impact Statements referenced above.

In ISA Technical Study #6, Morgan et al delineate a siliceous ooze on the seafloor within the CCZ; it is bounded to the north by a domain of Pelagic Clay and to the south by calcareous sediments. There are localised volcanic outcrops within the CCZ but any such areas are to be avoided by the exploration work program, primarily because they are not considered prospective for polymetallic nodules.

Parianos (2021) describes the geomorphology of the CCZ in terms of being dominated by abyssal plains containing a number of abyssal lows and abyssal hills. It is the abyssal plains that are the focus of the the exploration, and the EIS’s referenced above.

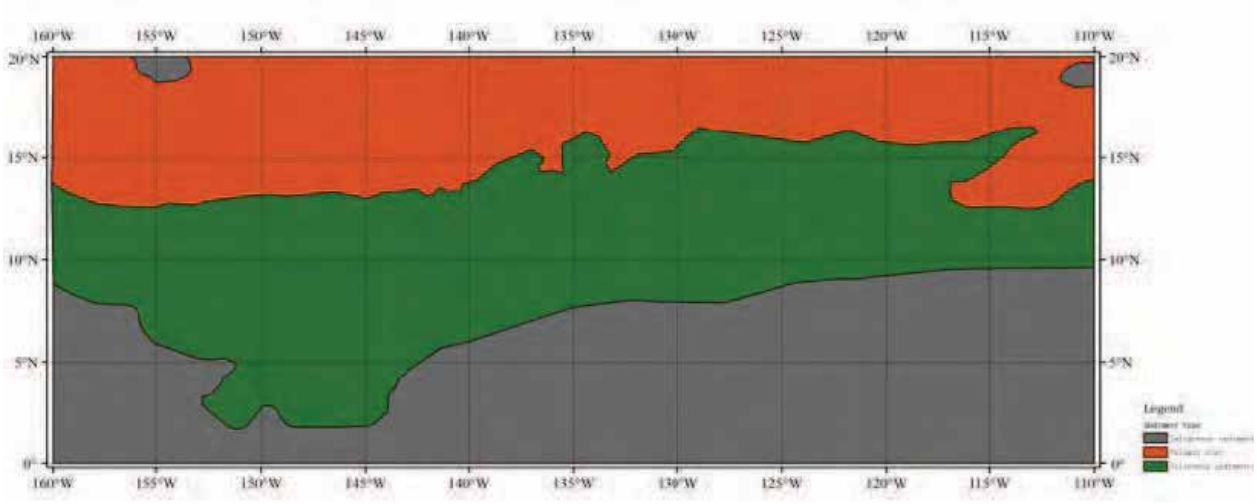
As such, the three EIS’s provide extensive information on the environment within the area that hosts SeaX’s application for an exploration license.These three EIS’s are referenced in their entirety for completeness and to ensure no gaps.

They also add to the tremendous legacy of work from well over 200 exploration cruises to the abyssal plains of the CCZ. A good summary of this work can be found in the respective ISA Technical Studies concerning the CCZ environment, which can be viewed at the following site: https://www.isa.org.jm/publications/

With respect to the GSR Environmental Impact Statement, a description of the existing Physio-Chemical environment is described in Section 4, and a description of the Biological Environment is described in Section 4.2.

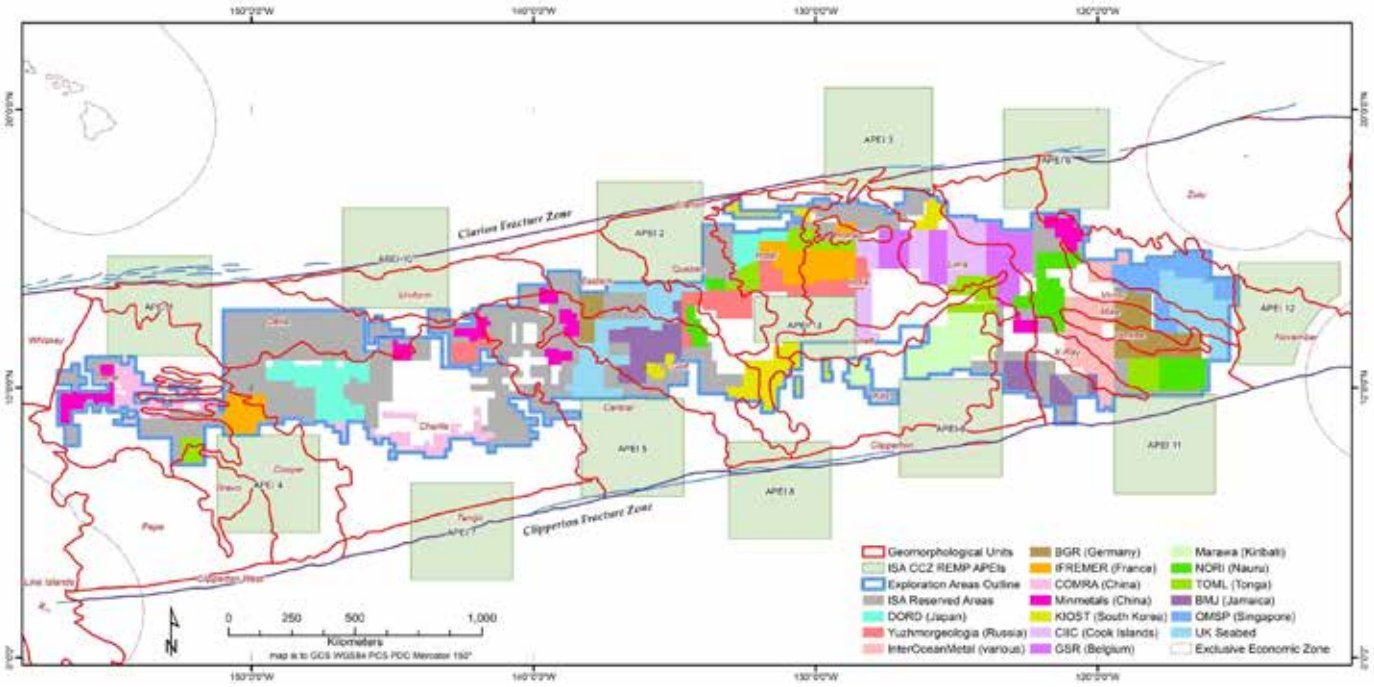
With respect to the Federal Institute for Geosciences and Natural Resources (BGR) Environmental Impact Assessment, a Description of the existing physico-chemical environment is provided in Section 5, and a description of the existing biological environment is provided in Section 6.

With respect to the NORI EIS, the Physiochemical Environment is described in Section 5, and the Biological Environment is described in Section 6.



Distribution of Seafloor Sediment Types in the CCZ (Modified from Kazmin, 2003 and Halbach et al., 1988).

Source: A Geological Model of Polymetallic Nodule Deposits in the Clarion- Clipperton Fracture Zone, ISA Technical Study: No. 6. International Seabed Authority, 2010.



Map showing Simplified geomorphological units over exploration and environmental areas in the CCZ

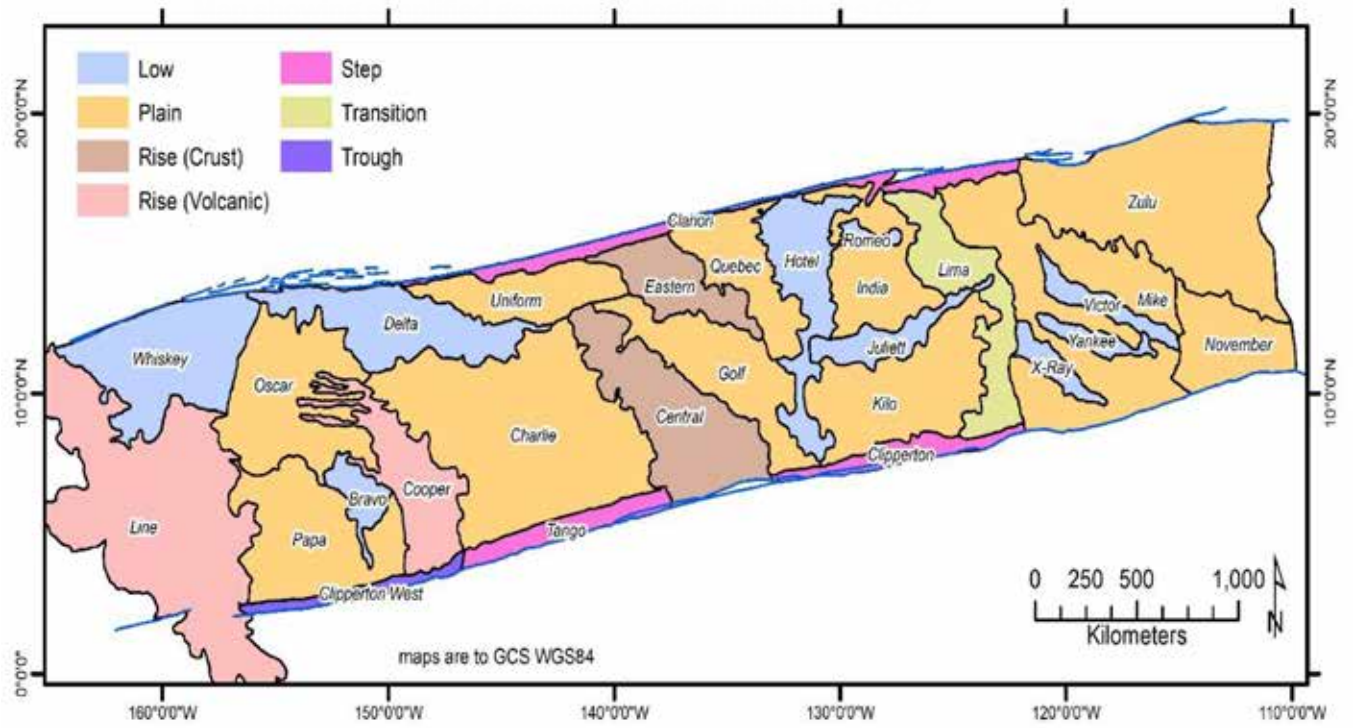
Source: Geology of the Clarion-Clipperton Zone: Fundamental Attributes in Polymetallic Nodule Resource Development, John Michael Parianos, 2021

7.6.1 Description of the Environment

This section 7.6.1 is taken from the ERIAS Environmental Report, which is contained in Appendix A. Please refer to the full report for further information and additional context.

Physical

The CCZ seabed is a vast, deep region of the central Pacific Ocean, spanning 6 million square kilometres and covering the abyssal plain at depths of 3,700 to 6,000 meters. Parianos (2021) describes the geomorphology of the CCZ as being dominated by abyssal plains containing abyssal lows and abyssal hills, as shown in the "**Distribution of Seafloor Sediment Types"** Figure on the previous page. There is minimal variation in temperature throughout the bottom waters, ranging between 1.3ºC and 2.0ºC (Washburn et al., 2021). The abyssal plains experience a complete absence of sunlight; however, the presence of bioluminescence from a range of taxa provides the ecosystem with low light (Christiansen et al., 2020; Haddock et al., 2010; Miller et al., 2018).



Map showing simplified geomorphological units in the CCZ (Parianos, 2021)

The highest nodule abundance is generally found on the abyssal plains of the central CCZ, with a decline near geological features such as seamounts, ridges, and within fracture zones due to sediment instability and varying sedimentation rates (ISA, 2010). For this reason, the abyssal plains are typically the focus of exploration programs, while areas of localized volcanic outcrops, if present, are likely to be avoided as they are not considered prospective for polymetallic nodules.

The flat, muddy abyssal plains are composed primarily of soft clays and sediments, interspersed with polymetallic nodules and occasional rocky outcrops (Dambacher et al., 2025). Polymetallic nodules are generally small (approximately <20 cm in diameter); however, nodule fields can extend over many hundreds of square kilometres (Kuhn et al., 2017).

Across the abyssal plains, broad-scale environmental gradients are present. The gradients run from east to west across the CCZ seabed and are influenced by organic matter supply, nodule abundance and coverage, water depths and sediment particle size distribution. As shown in Figure 5, the ISA Technical Study No. 6 (ISA, 2010), delineates seafloor sediments within the CCZ as siliceous ooze (green shading), which is bounded to the north by a domain of pelagic clay (red shading) and to the south by calcareous sediments (grey shading) (Morgan et al., 2010). The most common and extensive sediment types in the central and northern CCZ are siliceous clays and siliceous oozes. Studies and resource assessments identify the highest abundance and grade of polymetallic nodules as corresponding with the siliceous sediment areas (ISA, 2010). As such, most polymetallic nodule exploration areas are located within this sediment type, including for the three EISs referred to in Table 4-1, and the Application Area.

Chemical

Polymetallic nodules in the CCZ possess complex chemical composition, typically containing manganese, iron, nickel, copper, cobalt, titanium, lithium and additional rare earth elements (Wegorzewski & Kuhn, 2014). The presence and quantity of metals in polymetallic nodules correlate with sediment type. Clay-rich sediments with low organic content generally contain hydrogenetic nodules that are typically higher in cobalt and iron. While siliceous oozes generally contain diagenetic nodules that are typically higher in manganese, nickel and copper.

Variations in metal concentrations in polymetallic nodule sediments can influence the surrounding microbial community composition, as microbial taxa have varying tolerances and utilisation of specific metals (Zhang et al., 2023).

Biological

The abyssal seafloor of the CCZ is generally described as an oligotrophic environment where carrion and marine snow are the primary source of organic matter and energy (Dambacher et al., 2025). These energy sources convert to epibenthic detritus that sustains microbial communities and supports sessile and mobile fauna. Biomass and community dynamics are closely linked to surface ocean productivity and episodic enrichment events (Gooday et al., 2021). Areas that contain polymetallic nodules provide a mix of soft sediment and hard substratum, which increases habitat complexity across the abyssal plain. Nodule ecosystems support a highly diverse fauna of sessile and mobile species, and faunal communities and environmental parameters show a high variability even at small spatial scales. Polymetallic nodules provide hard substrate for sessile filter feeders that are prey to larger mobile epifaunal carnivores such as brittle stars, decapod crustaceans, amphipods and isopods. (Dambacher et al., 2025; Stoyanova, 2014).

Nodules also typically support distinct fauna from that of the sediments, and the presence of the nodules has been shown to influence benthic assemblages (Simon-Lledó et al., 2019). Meiofauna such as nematodes, tardigrades, harpacticoids, and foraminifera inhabit nodule crevices (Veillette et al., 2007; Miljutina et al., 2010 as cited in Simon-Lledó et al., 2019). In addition, sessile macrofauna and megafauna are commonly found attached to nodule surfaces. This includes polychaetes, sponges, cnidarians, and xenophyophores (Gooday et al., 2015; Amon et al., 2016 as cited in Simon-Lledó et al., 2019). The broad-scale environmental gradients that have been reported on abyssal plains across the CCZ are thought to influence benthic faunal community structure and function. Durden et al. (2021) found that xenophyophores dominate the assemblages and that megafauna were present at low densities but with high diversity, with many morphotypes being observed only once. The density and diversity of invertebrates were greater in areas with lower organic matter and greater nodule abundance.

In addition to benthic species, the CCZ hosts a range of other marine taxa, including fishes and cetaceans. Fish communities are reportedly dominated by a few common taxa adapted to the energetic scarcity and extreme conditions of the seabed in the CCZ. Previously observed species include Ipnops meadi, Abyssoberyx sp., Bassozetus nasus, Coryphaenoides armatus/yaquinae (rattails or grenadiers), Ophidiid sp., Ilyophis arx (a synaphobranchid eel), and Typhlonus nasus (Leitner et al., 2017; Drazen et al., 2020). These fish are generally opportunistic scavengers or predators, adapted to the abyssal plain habitat (Drazen et al., 2020).

In addition, at least 20 species of cetaceans (whales and dolphins) are thought to be present in the CCZ, including at least eight species of beaked whale, Kogia spp1., sperm whale (Physeter macrocephalus), Risso's dolphins (Grampus griseus) and common dolphins (Delphinus delphis) (Carwardine, 2019; McCullough et al., 2021; Young et al., 2025). An additional 70 dolphin groups were recorded by Young et al. (2025), although they were not identifiable to species level. Sperm whales are listed as vulnerable by the International Union for the Conservation of Nature (IUCN), whereas Risso's dolphin, the common dolphin and pygmy sperm whale are listed as least concerned (IUCN, 2025). The beaked whale species that may be present in the CCZ range from least concern to data deficient.

8.0 Use Conflict Information

In accordance with § 970.204(b), please find below "Use Conflict Information".

As stipulated in the Regulations, "exploration for hard mineral resources of the deep seabed is a freedom of the high seas". SeaX will exercise this right on the high seas with reasonable regard for the interests of other states in their exercise of the freedoms of the high seas. Indeed, SeaX will ensure that its activities do not cause unreasonable interference with other users of the high seas.

Coupled with the fact that the vast majority of SeaX's Exploration Plan is comparable to Marine Scientific Research, and that SeaX is requesting a license to invest money to carry out studies to fill essential knowledge gaps, SeaX's exploration will not conflict with any international obligation of the United States established by any treaty or international convention in force with respect to the United States.

As a result, and as further demonstrated in this Section 8 , SeaX's exploration will ***not*** create a situation which may reasonably be expected to lead to a breach of international peace and security involving armed conflict.

Importantly, at this stage SeaX is only seeking a License to carry out "exploration" activities, and ***not*** Commercial Recovery operations. As detailed in this Application, the majority of SeaX's at-sea exploration activities are comparable to Marine Scientific Research, and those activities will have negligible impact given the activities are very small-scale and "light-touch", particularly in the context of the size of the exploration area and the CCZ.

Moreover, at least one year prior to carrying out any Potentially Impactful Activities, SeaX will submit to the Administrator the relevant information to enable the Administrator to carry out a Supplemental EIS as required by the Regulations. That submission will also include additional Use Conflict Information.

We also note that one of the advantages of polymetallic nodules in the High Seas is that there are no landowners associated with that seafloor area. As such, this project can avoid a number of the common "use conflicts" that occur on land for many land-based mineral projects. By exploring for minerals in the High Seas, it is possible to take the pressure off the 30% of the planet (land) that is currently subject to virtually 100% of society's hard mineral extraction.

Indeed, mining on land can significantly impact human settlements, indigenous communities, and cultural heritage sites. This land-based mining often leads to conflicts over land use, disrupts agricultural activities, and threatens the livelihoods of farmers. Additionally, indigenous peoples and local inhabitants are frequently displaced from their traditional homes, forcing them to abandon their ancestral lands and way of life.

Exploration activities in the CCZ are also considered to cause extremely low-level impacts relative to the scale of the exploration area and the CCZ.

With respect to §§ 970.503, 970.505, and 970.520, and in terms of information known to SeaX with respect to other activities, the main anthropogenic activities in the CCZ include:

- Shipping;
- Fishing;
- Submarine Pipeline and Cable Laying;
- Marine Scientific Research;
- Deepsea Mineral Exploration;
- Tangible Cultural Heritage; and
- Intangible Cultural Heritage.

Further detailed assessment regarding these activities is included below. SeaX also notes that to its knowledge, there is no interest in Oil & Gas in the CCZ, and no interest in Alternative Energy activities in the CCZ at the current time.

Shipping

Usage conflicts with shipping appears very unlikely as the CCZ is not within major shipping lanes. As can be seen in the maps below, shipping in the CCZ is low level when compared to other shipping routes around the world.

Not only are shipping levels in the CCZ low, but SeaX's Exploration Plan does not require the Company to have its vessels in the Exploration Area on a continuous basis.

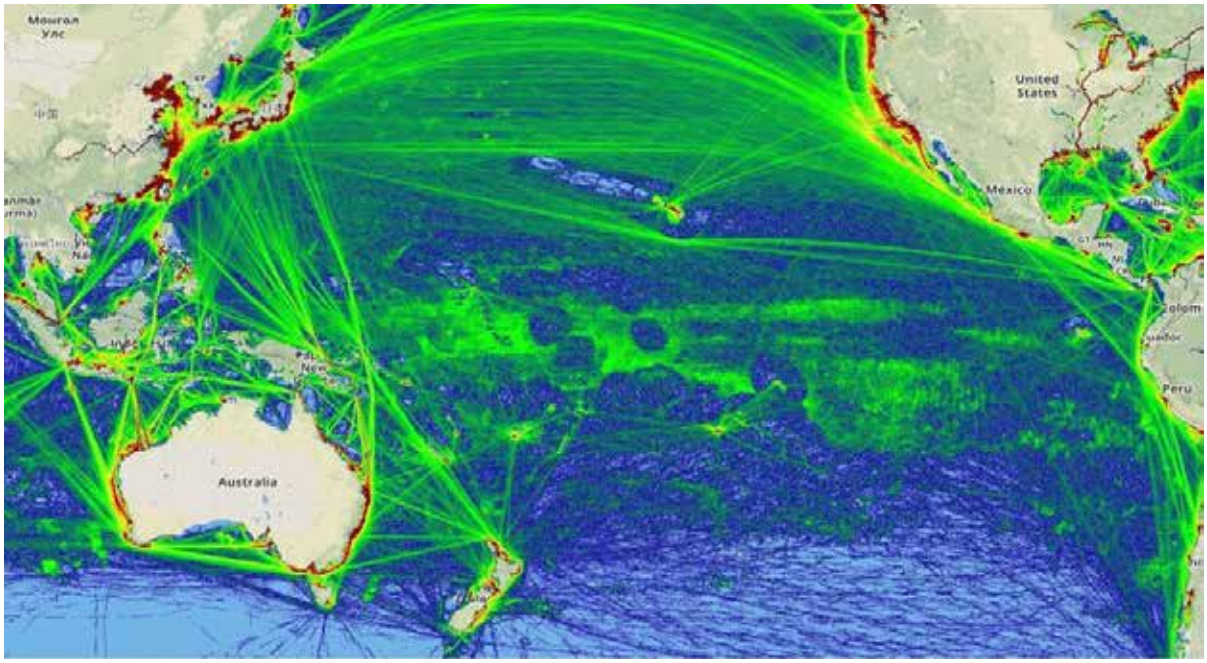
Indeed, the amount of vessel activity during SeaX's exploration program is negligible when compared to normal shipping traffic in the Pacific Ocean.

In addition, SeaX and its contractors will ensure that all measures are taken to prevent any collisions in line with the International Regulations for Preventing Collisions at Sea 1972 and other applicable rules and conventions.

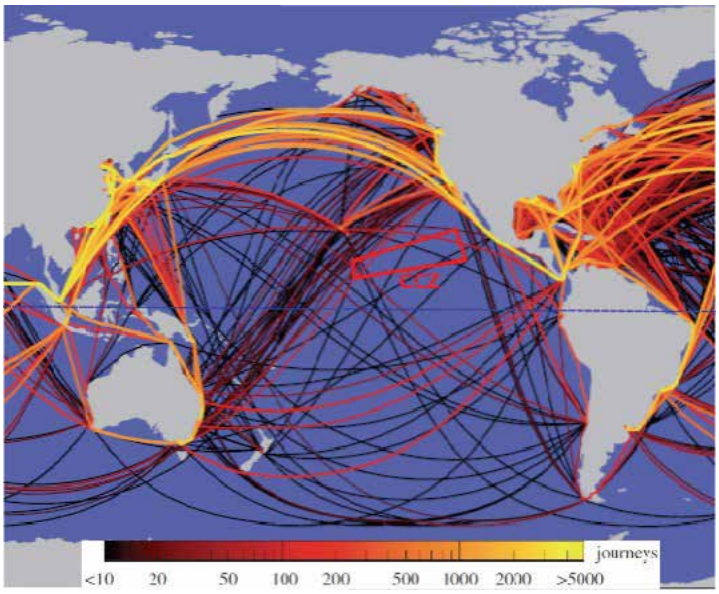
Due to SeaX's exploration activities being of such a small scale and non-impactful nature, the Company's exploration will not unreasonably interfere with the exercise of the freedoms of the high seas by shipping groups.

In exercising its right to carry out mineral exploration, SeaX will at all times act with reasonable regard for the interests of other nations in their exercise of the freedoms of the high seas with respect to shipping.

Map showing maritime traffic in the Pacific Ocean. Source: https://www.researchgate.net



Map showing intensity of shipping lanes and movements
Source: Modified from: Kaluza et al., (2010), TOML NI 43-101 Technical Report, 4 July 2016.



Fisheries

Commercial fisheries in the Clarion-Clipperton Zone (CCZ) primarily target three main pelagic tuna species: bigeye tuna (Thunnus obesus), skipjack tuna (Katsuwonus pelamis), and yellowfin tuna (Thunnus albacares). These species are managed under two regional fisheries management organizations (RFMOs), the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC), reflecting the CCZ's location in the eastern and central Pacific Ocean (United Nations. Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks).

These fisheries are economically significant, with global catches of these tuna species reaching millions of tonnes annually and catches in and around the CCZ averaging tens of thousands of tonnes per year. These tunas are highly migratory pelagic fish that inhabit the upper layers of the ocean, typically concentrated in the upper 50 to 125 meters of the water column, well above the abyssal plains of the seafloor, which range from approximately 4,000 to 5,500 meters deep (van der Grient, J. M. A. & Drazen, J. C. Potential spatial intersection between high-seas fisheries and deep-sea mining in international waters. Mar. Policy 129, 104564 (2021).

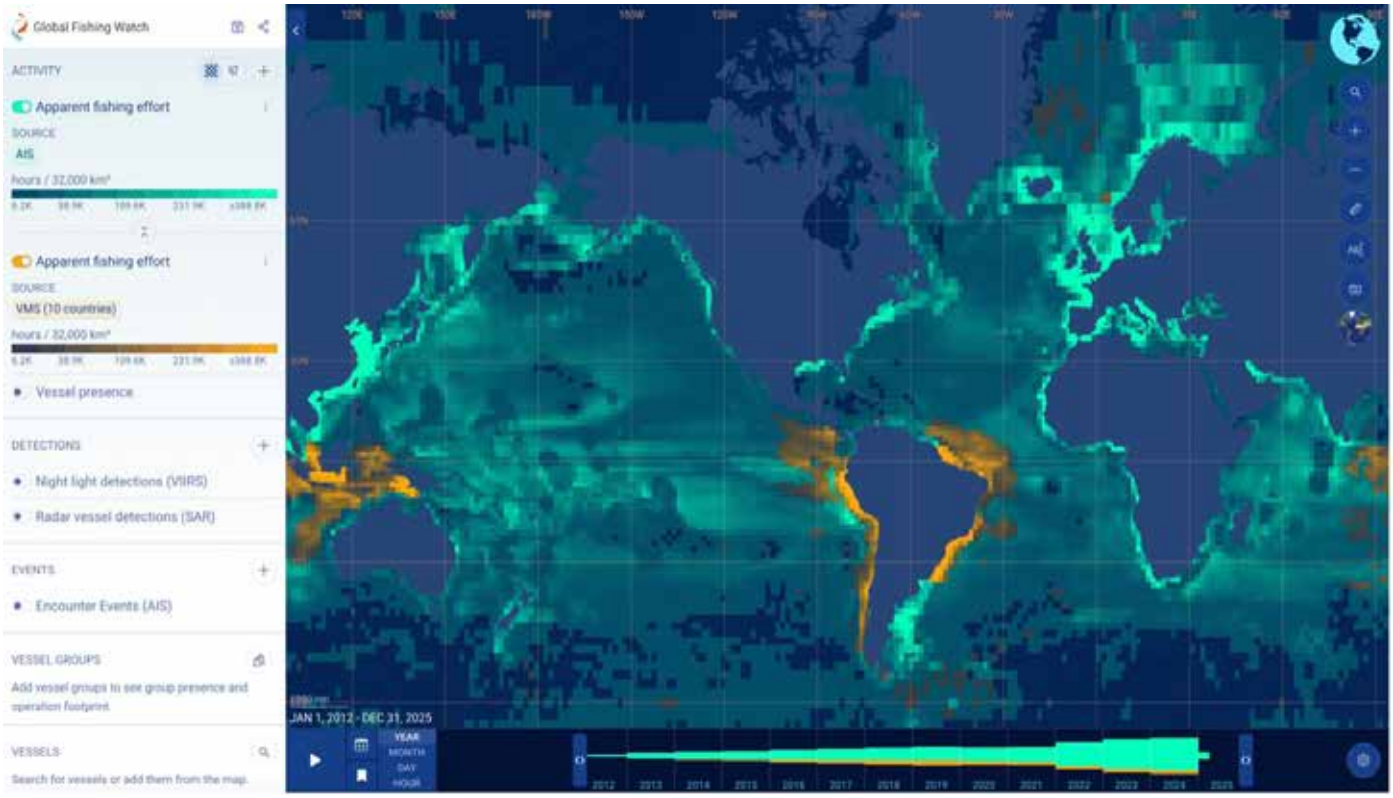
The CCZ's vast area and extreme depth create a clear vertical and spatial separation between commercial fishing activity in the upper ocean and the deep-sea ecosystem on the abyssal plains.

Fishing is a mobile and adaptive industry, and fishing locations move with the distribution of fish stocks.

Fisheries areas do not typically overlap intensively with polymetallic nodule exploration areas.

The map below shows apparent fishing effort over the course of a year. As pictured, fishing is widespread across the oceans of the world, and there is already a very large industry that exists in the Pacific Ocean, harvesting a large amount of biomass.

Map showing apparent fishing effort over the course of a year (Source, Global Fishing Watch - https://globalfishingwatch.org/).



Due to SeaX's exploration activities being of such a small scale and non-impactful nature, the Company's exploration will not unreasonably interfere with the exercise of the freedoms of the high seas by fishing groups.

In exercising its right to carry out mineral exploration, SeaX will at all times act with reasonable regard for the interests of other nations in their exercise of the freedoms of the high seas with respect to fisheries.

As part of SeaX's environmental program, it will study the potential impact of Commercial Recovery on tuna in the vicinity of specific harvesting sites.

However, when it comes to carrying out exploration activities, there is no expectation that the Exploration Plan will have any impact on fisheries.

Tuna species are seldom found deeper than 400 meters beneath the ocean's surface, although some species can to dive to 1,000 meters for occasional foraging.

Polymetallic nodules in the CCZ lie on the seafloor below 4,000 meters below sea level.

Any discharges from the vessel as part of normal ship operations (e.g. macerated food waste, discharge from the vessel's sewage treatment plant) will be governed by International Convention for the Prevention of Pollution from Ships (MARPOL).

As with any ship, these discharges occur at the surface and could provide a localized food source for marine life, including tuna.

Noise and vibration from the vessel, as well as lights at night, could result in the vessel acting like a fish aggregating device. However, there are number of measures that can be taken to mitigate the effect such as reducing light levels at night. While some fish might congregate around the vessel, this will be a negligible effect during exploration.

The sampling and retrieval of polymetallic nodules will also not pose a toxicity threat to tuna fisheries.

As part of SeaX's environmental program, it will study the potential impact of Commercial Recovery on tuna in the vicinity of specific harvesting sites.

The following table contains exploration activities assessed for the potential effect on commercial fisheries species within the Application Area:

Activity	Potential Effects to Commercial Fisheries
Gravity and magnetometric observations and measurements	The surveys use instruments like shipborne gravimeters and towed magnetometers, which are passive sensing methods. As such, no significant impacts to commercial fisheries species are anticipated to be associated with this exploration activity.
Bottom and sub-bottom acoustic profiling or imaging	While the emission of acoustic energy has the potential to interfere with fish species and may disrupt marine animal communication or migration patterns, these potential impacts are minor due to the system's low-energy output. Several environmental reviews and studies highlight that the frequency and amplitude of acoustic energy in typical sub-bottom profiling operations fall well below thresholds known to cause significant harm to marine organisms (Richardson et al., 2013; Popper et al., 2014; Merchant et al., 2016; Hermannsen et al., 2019; NOAA, 2021).
Multi-corer, box corer, freefall grab sampler and similar	These sampling devices interact with the seafloor. As such, there is no potential for significant impacts on commercial fisheries from this exploration activity, given the key fisheries in the CCZ target pelagic species that live and are harvested in the upper layers of the water column, hundreds to thousands of meters above the seafloor, where this exploration activity will occur.
Water and biotic sampling, pelagic net trawls and water sampling devices.	As reported by Washburn et al. (2021), the potential for significant impacts to occur as a result of plankton, nekton and water quality sampling is negligible given the small volume of the samples compared to the overall habitat extent. Further, the potential for interactions with commercially targeted species will be negligible given the size of the sampling devices, the infrequent nature of the exploration surveys, and the relatively shallow depths that these species inhabit compared to the majority of the sampling effort. As such, significant impacts to commercial fisheries from this exploration activity are unlikely to occur.

Activity	Potential Effects to Commercial Fisheries
Meteorological observations, oceanographic moorings, and hydrophones, including the setting of instruments.	Meteorological observations are typically made from exploration vessels via shipboard weather stations or from satellite imagery. Due to the water depths across the Application Area, it is not envisaged that meteorological sensors would be deployed on moorings. As such, there is no potential for significant impacts to commercial fisheries from these activities. Oceanographic instruments (such ADCPs) are unlikely to have adverse effects on marine life as the acoustic emissions are too brief and low intensity to mask communications or cause hearing impairment in marine animals (Wood's Hole Oceanographic Institute, 2019; NOAA, 2021). Other oceanographic instruments (such CTDs and landers) are widely considered to pose a low risk of creating impacts due to their small physical footprint on the seafloor, and small volume of sample that is collected. Therefore, the potential for significant impacts on fisheries species is negligible. Moored and drifting hydrophones do not emit noise and represent a passive acoustic monitoring tool. They are widely accepted as having minimal environmental disturbance (Lillis et al., 2018; Hermannsen et al., 2019; Polagye et al., 2020).
Remotely Operated Vehicles (ROVs), Autonomous Underwater Vehicles (AUVs), or Towed Camera System.	Towed camera systems, ROVs and AUVs are non-invasive sampling techniques that do not make direct contact with the seabed. They also produce sound levels low enough to avoid harming marine life. Further, the majority of the ROV/AUV and towed camera survey work will be closer to the seafloor, and therefore, there is a low potential for interactions with fisheries species. As such, no significant impacts to commercial fishery species are anticipated to be associated with this exploration activity.
Use of Positioning systems	The filing of Notices to Mariners ensures that these fixed acoustic or buoy positions are officially recognized to avoid navigational hazards and coordinate marine activities. As such, no significant impacts to commercial fisheries are anticipated to be associated with this exploration activity.
Dye release or tracer studies	Marine dye tracers used in environmental studies are generally not toxic, especially when used at typical concentrations for oceanographic purposes. However, toxicity depends on the specific dye used, its concentration, and the local environment. Rhodamine WT, the most common dye, is non-carcinogenic, non-mutagenic, and does not bioaccumulate. As such, no significant impacts to commercial fishery species are anticipated to be associated with this exploration activity.
Small-scale epibenthic dredge	Epibenthic dredging is a small-scale seabed sampling method used to collect benthic organisms, sediment, and polymetallic nodules from the seafloor surface. As such, there is no potential for significant impacts on commercial fisheries from this exploration activity, given the key fisheries in the CCZ target pelagic species that live and are harvested in the upper layers of the water column, hundreds to thousands of meters above the seafloor, where this exploration activity will occur.
Vessel operations	The presence of a vessel during exploration surveys in the vast Clarion-Clipperton Zone is unlikely to have any significant impact on commercial fisheries because the CCZ spans millions of square kilometers, making the chance of direct interaction between a single survey vessel and commercial fishing operations extremely low. Notwithstanding, SeaX will at all times act with reasonable regard for the interests of other nations in their exercise of the freedoms of the high seas with respect to fisheries.

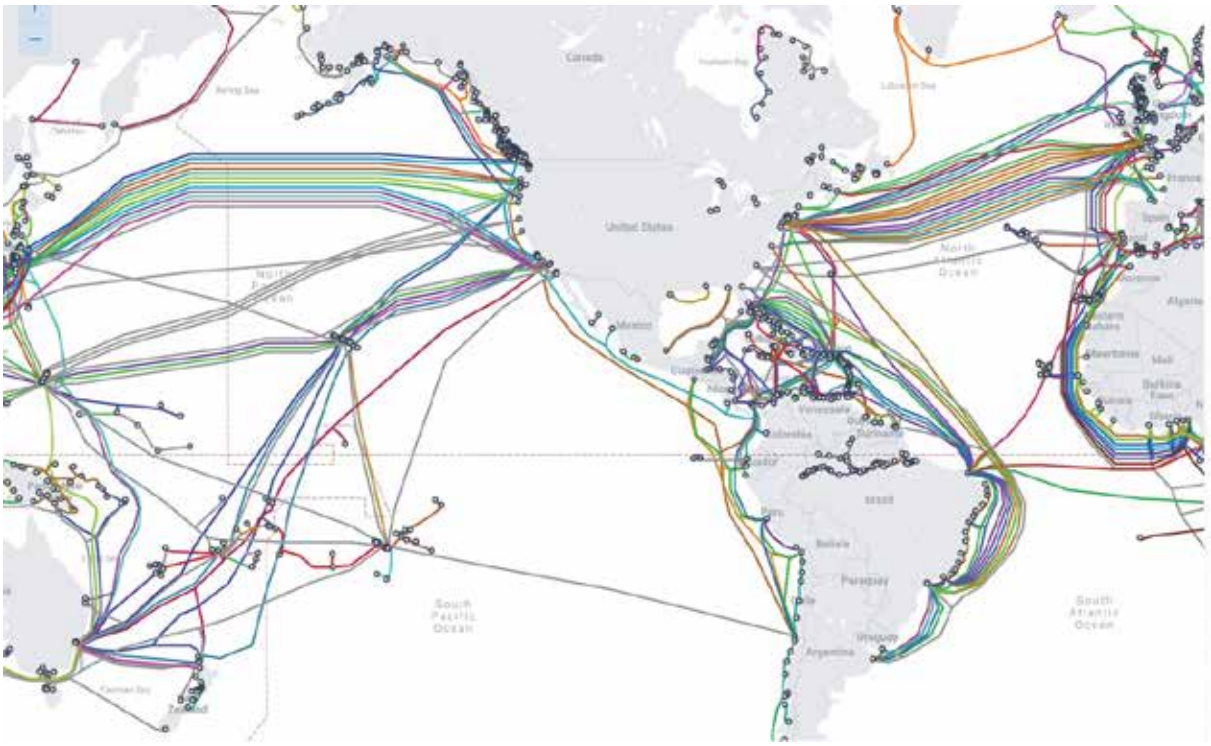
Submarine Cables and Deep-Sea Infrastructure

As shown in the maps below, the CCZ is not a primary hub for undersea communication cables. There are only a few transoceanic cables that cross parts of the region.

The Submarine Cable Maps presented in this section are from TeleGeography. https://www.submarinecablemap.com/

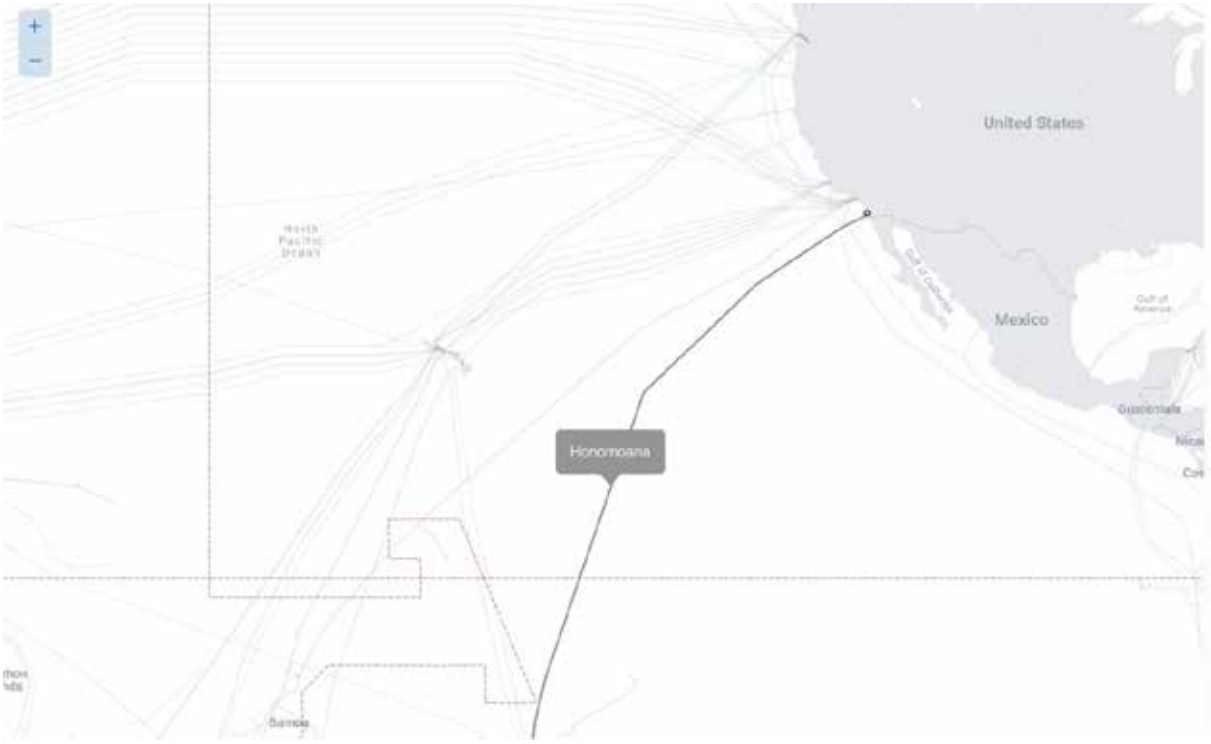
A useful reference source for information pertaining to submarine cables and deep sea minerals can be found in ISA Technical Study No. 14, which is titled “Submarine Cables and Deep Seabed Mining”.

That publication can be found at the following site:
https://www.isa.org.jm/wp-content/uploads/2022/06/techstudy14_web_27july.pdf



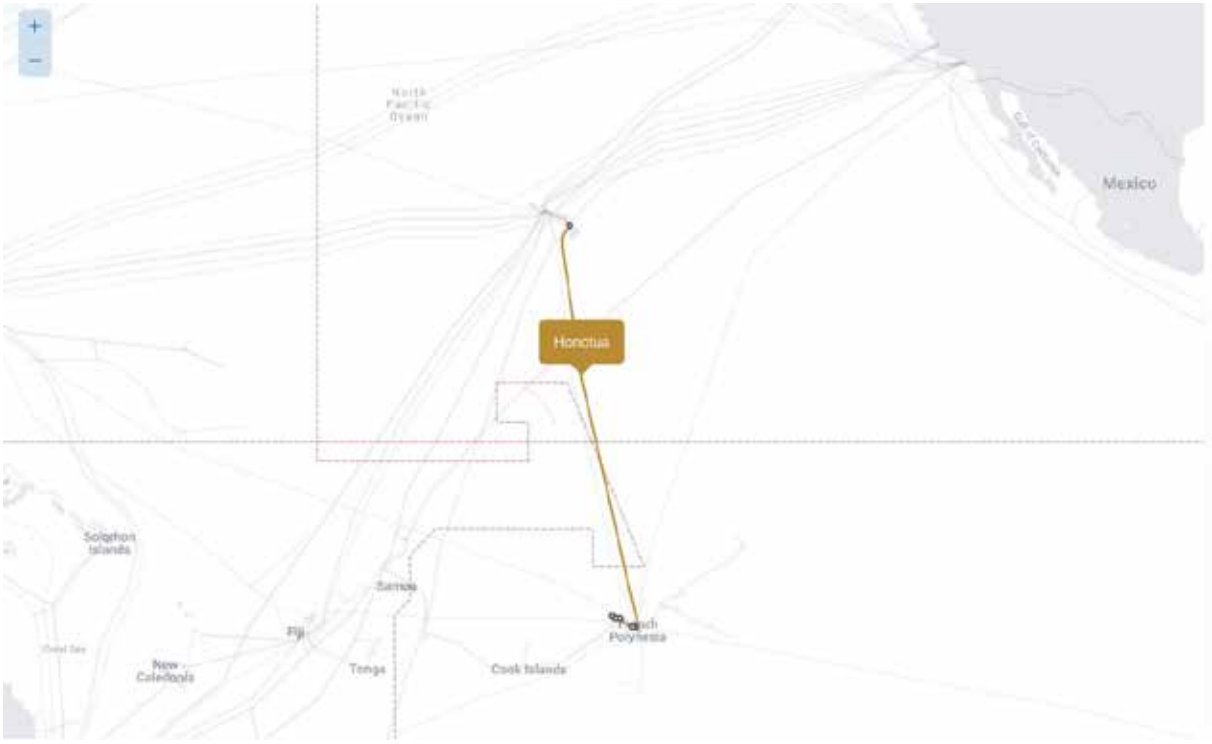
Map showing submarine cables. Source: https://www.submarinecablemap.com/

Hononoana
There is a 15,215km cable named Hononoana which runs from San Diego through the CCZ to Australia.



Southern Cross NEXT
Runing to the north of the CCZ is the Southern Cross NEXT cable, which is owned by the Southern Cross Cable Network, and runs 13,700km from Hermosa Beach, California, through to Australia.

Honotua
In the far Western part of the CCZ there is also a 4,634 km cable named Honotua, which is owned by OPT French Polynesia. This cable links Hawaii with French Polynesia and crosses a portion of the CCZ in the very far west.



There is always the potential for a future submarine cable to be placed down in another part of the CCZ. However, it is not anticipated that there will be any impact or conflict during the Exploration phase of SeaX's program.

In the extremely unlikely event that a new submarine cable were to be placed across SeaX's exploration area, the Company would simply ensure that the Harvesting Test was not carried out near such a cable.

Due to SeaX's exploration activities being of such a small scale and non-impactful nature, the Company's exploration will not unreasonably interfere with the exercise of the freedoms of the high seas by Submarine pipeline and cable laying groups.

In exercising its right to carry out mineral exploration, SeaX will at all times act with reasonable regard for the interests of other nations in their exercise of the freedoms of the high seas with respect to Submarine pipeline and cable laying groups.

For example, SeaX's President, Robert Heydon, was part of an expert panel at the first Virtual Plenary of the International Cable Protection Committee ("ICPC"), and is familiar with the interaction of the two industries.

The ICPA is a non-profit organization dedicated to the protection and security of international submarine cables, including telecommunication, power and scientific cables.

SeaX will continue open dialogue with the ICPC throughout its Exploration to avoid potential conflicts between the laying and maintaining of submarine cables and SeaX's exploration plan.

There are a number of mechanisms to ensure that there is no interference with a submarine cable, and vice versa.

Marine Scientific Research

Marine Scientific Research (MSR) activities have been carried out in the CCZ for decades.

This MSR has been aimed at expanding scientific knowledge of the marine environment and its processes, and has been carried out by a number of Government bodies from numerous countries, NGO's, as well as academic organizations and research institutes.

MSR involves activities such as ship based environmental studies, as well as deploying oceanographic research installations.

Numerous scientific missions have explored the CCZ, deploying seafloor observatories, sensors, and sediment coring equipment to study its ecosystem and mineral deposits.

Much of SeaX's Exploration Plan is comparable to MSR activities, and as such, there is very little chance of SeaX's Exploration Plan conflicting with MSR activities, as the impact of both are negligible.

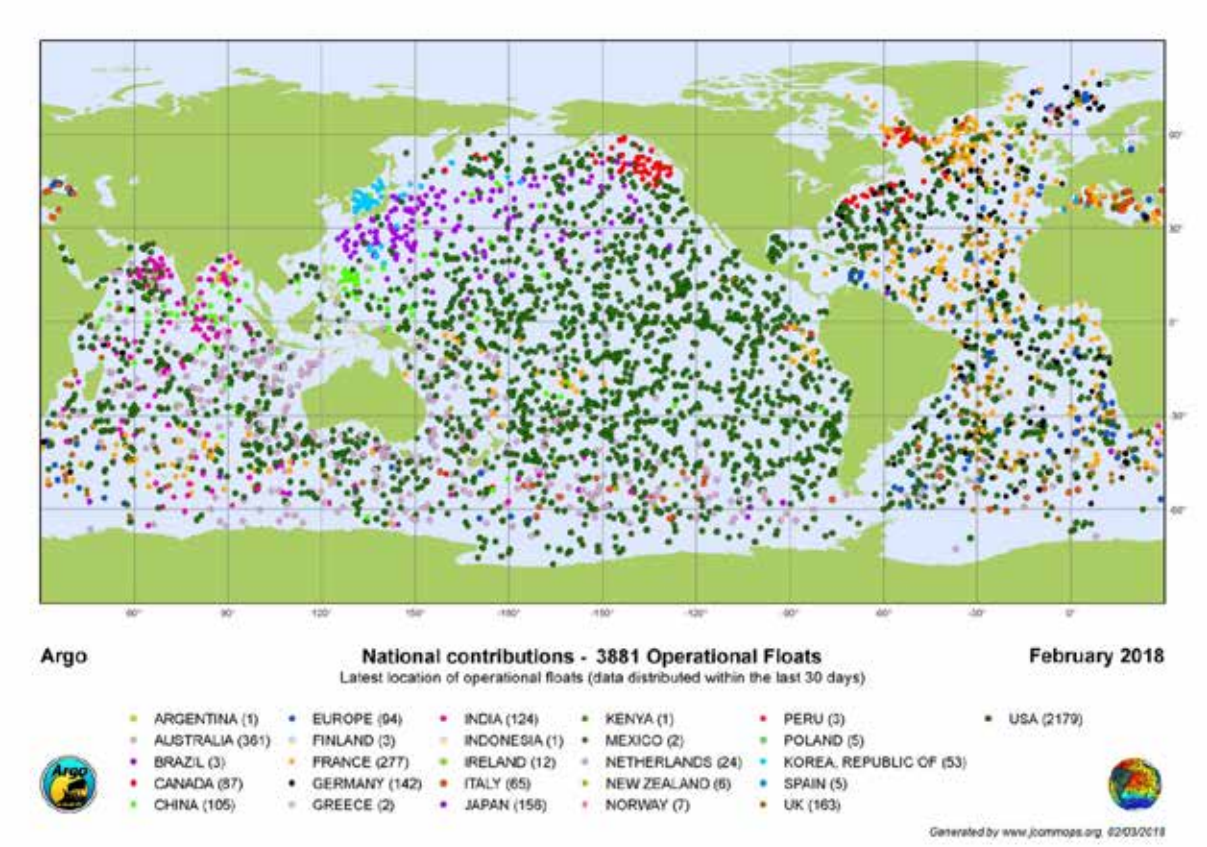
Due to SeaX's exploration activities being of such a small scale and non-impactful nature, the Company's exploration will not unreasonably interfere with the exercise of the freedoms of the high seas by MSR groups.

In exercising its right to carry out mineral exploration, SeaX will at all times act with reasonable regard for the interests of other nations in their exercise of the freedoms of the high seas with respect to MSR groups.

In addition, the Argo fleet is present in the CCZ. Argo is a global program dedicated to ocean research, utilizing profiling floats to monitor temperature, salinity, and ocean currents.

Operating since the early 2000s, Argo provides real-time data that supports climate studies and oceanographic research, with a particular focus on quantifying ocean heat content (OHC).

The Argo fleet consists of nearly 4,000 drifting "Argo floats" deployed worldwide, each weighing between 20 and 30 kg. Typically, these floats remain at a depth of 1,000 meters. Every 10 days, they adjust their buoyancy to descend to 2,000 meters before surfacing. During this cycle, they collect data on conductivity, temperature, and pressure, which scientists use to calculate salinity and density. These measurements are used for understanding large-scale oceanic movements.



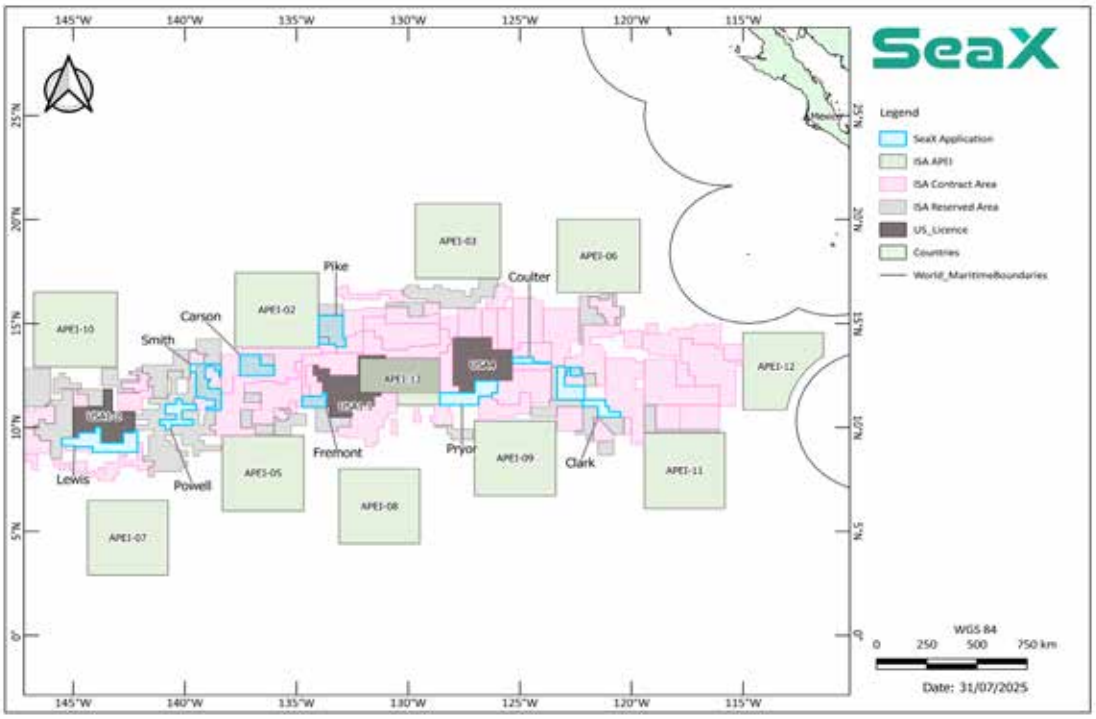
Deepsea Mineral Exploration in the CCZ

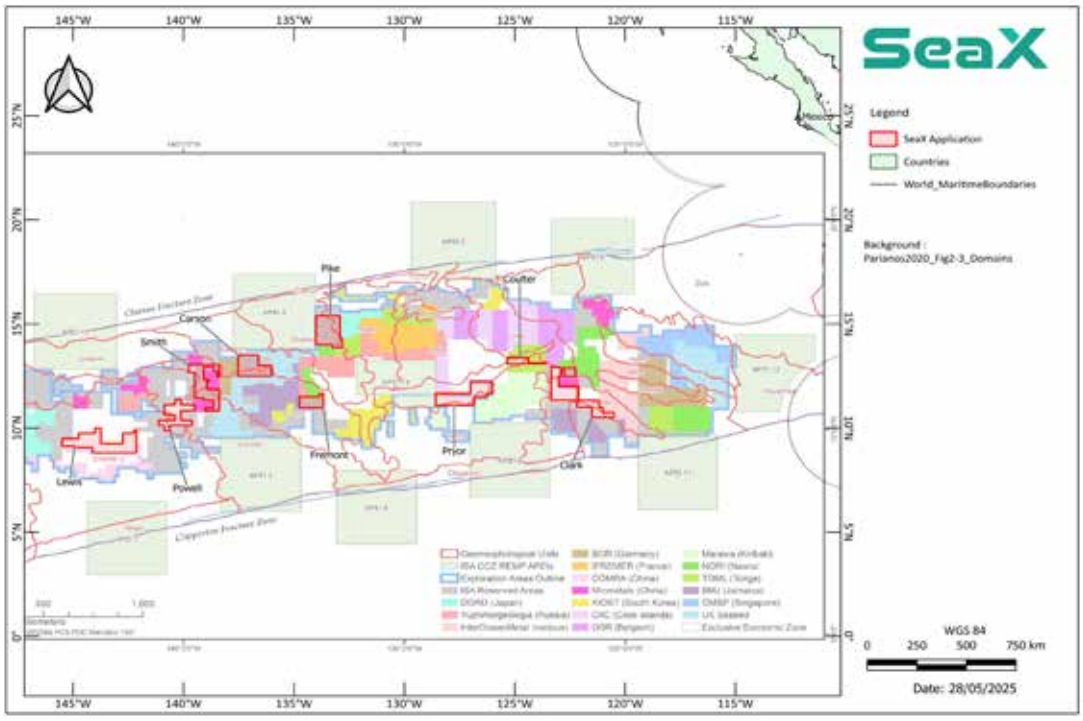
Within the CCZ, and as shown on the maps below, seabed mineral exploration rights have been granted under both the U.S. Deep Seabed Hard Mineral Resources Act (DSHMRA) and the regulatory framework of the International Seabed Authority (ISA).

While no current at-sea exploration activities are being conducted under DSHMRA, this situation may soon change.

As demonstrated in the map below, SeaX does not intend to overlap with any part of the Lockheed USA-1 and USA-4 license areas.

Separately, exploration activities are being carried out in the CCZ under contracts issued by the ISA.





The ISA is an autonomous international organization established under the 1982 United Nations Convention on the Law

of the Sea (UNCLOS). Since its formation in 1994, the ISA has been mandated to administer the mineral resources of the international seabed area on behalf of its Member States.

It is noted that the United States is not a party to UNCLOS and is not a member of the ISA.

As stated in a recent publication by James Kraska titled "The U.S. Executive Order on Seabed Mining is Consistent with International Law" (106 INT'L L. STUD. 499 (2025)):
"The United States is not a party to UNCLOS, however, and has opposed Part XI on seabed mining since its adoption. Consistent with this longstanding position, the new executive order authorizes U.S. deep seabed mining under a 1980 statute that replaced any multilateral framework that did not meet U.S. strategic goals."

As stated in DSHMRA "it is the legal opinion of the United States that exploration for and commercial recovery of hard mineral resources of the deep seabed are freedoms of the high seas".

To the best of SeaX's knowledge, the proposed exploration area does not overlap with any of the following:
1. Areas covered by an exploration contract granted by the ISA to a registered contractor under UNCLOS;
2. Areas of Particular Environmental Interest (APEIs), or other regions designated for environmental protection under ISA regulations;
3. Areas claimed by other national authorities or under the domestic law of a foreign state.

SeaX acknowledges that a portion of its proposed exploration area overlaps with ISA-designated "reserved areas." However, to the best of SeaX's knowledge, there is no active exploration currently being conducted in those overlapping areas.

Accordingly, and as further detailed below, SeaX does not anticipate any use conflicts with these "reserved areas".

Should a use conflict arise in the future, the Company will engage constructively and believes it will be able to resolve any potential conflict amicably.

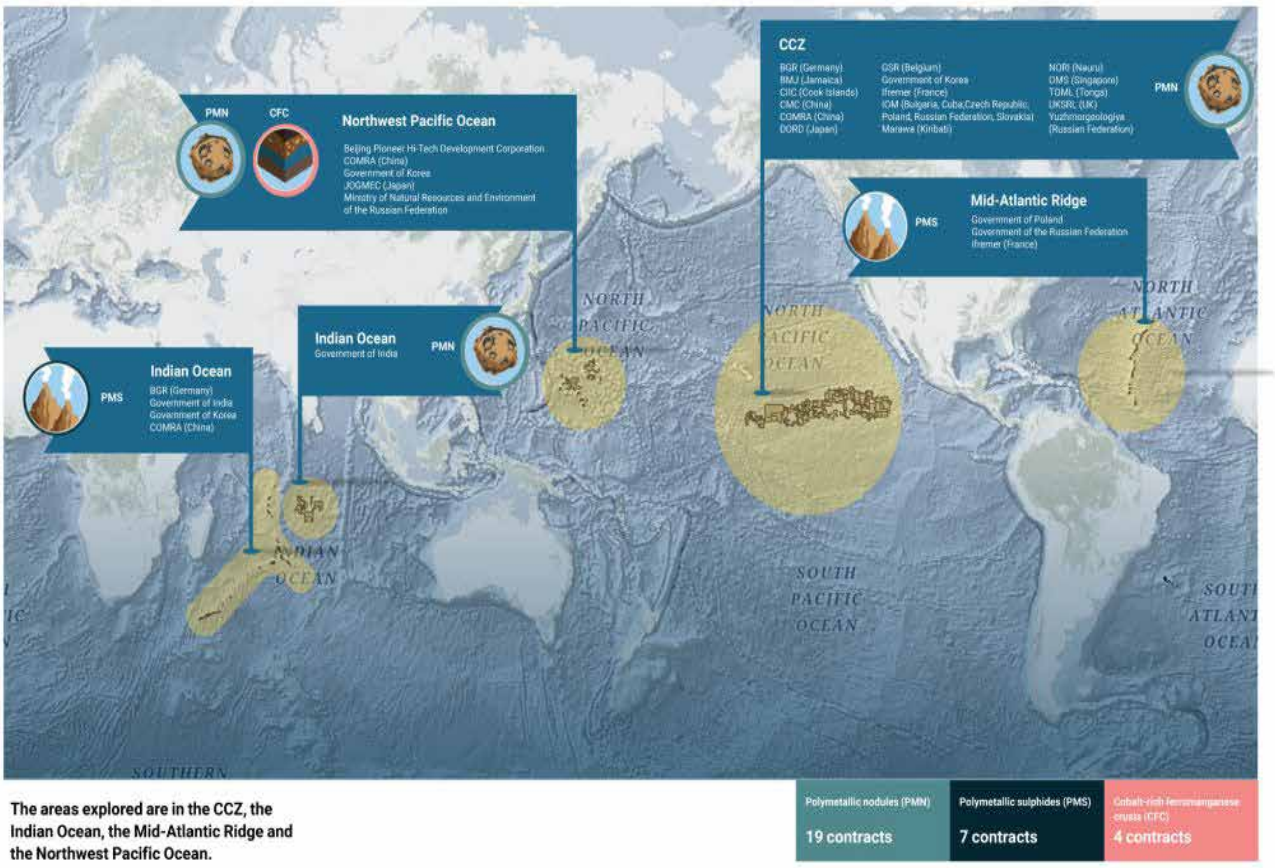
With respect to the U.S. Policy Context and Strategic Considerations, we note that Executive Order No. 14285, "Unleashing America's Offshore Critical Minerals and Resources," highlights the national importance of seabed mineral development. Key policy statements include:
a. "The United States has a core national security and economic interest in maintaining leadership in deep sea science and technology and seabed mineral resources";
b. Offshore resources "are key to strengthening our economy, securing our energy future, and reducing dependence on foreign suppliers for critical minerals";
c. "Our Nation must take immediate action to accelerate the responsible development of seabed mineral resources, quantify the Nation's endowment of seabed minerals, reinvigorate American leadership in associated extraction and processing technologies, and ensure secure supply chains for our defense, infrastructure, and energy sectors"; and
d. "It is the policy of the United States to advance United States leadership in seabed mineral development";

These policy declarations reflect the growing strategic value of seafloor minerals, particularly as terrestrial supplies become increasingly constrained.

The United States has fallen behind in seafloor mineral exploration, as shown in the below map of global seabed interests (refer map on following page).

In that context, we believe that it would not serve the United States' strategic interests for large portions of the CCZ to be designated as "reserved" areas and effectively used to prevent U.S. access to critical mineral resources. This concern is amplified given:
- DSHMRA predates UNCLOS;
- The CCZ is already significantly covered by ISA contracts, some of which have been granted over licenses previously held by U.S. companies;
- The presence of numerous large ISA-established APEIs, which further restrict available areas; and
- The uncertainty surrounding the commercial viability of private sector seabed mineral production under the ISA regime.

Recently proposed terms of the ISA Exploitation Regulations, as well as recent actions of the ISA, may mean that significant private sector investment to move to commercial production may not be viable under the ISA regime in the near term. Consequently, commercial production within these overlapping reserved areas is believed to be improbable during the term of SeaX's exploration license.



The areas explored are in the CCZ, the Indian Ocean, the Mid-Atlantic Ridge and the Northwest Pacific Ocean.

Map: Seafloor Mineral Exploration Areas. Source https://www.isa.org.jm/exploration-contracts/exploration-areas/

Importantly, SeaX's exploration will not create a situation which may reasonably be expected to lead to a breach of international peace and security involving armed conflict.

SeaX is committed to operating in accordance with U.S. legal obligations and the recognized principle of freedom of the high seas.

The continued absence of U.S. participation in seafloor mineral exploration may also pose a risk to the U.S., given the proximity of the CCZ to the United States and the importance of critical minerals to economic and national security.

It is worth recalling that U.S. companies pioneered early exploration in the CCZ during the 1970s, taking on significant financial risk.

Those U.S. companies could not proceed at the time as Part XI of UNCLOS contained uncommercial terms.

Part XI ran contrary to "free market practice", and there was a concern that the ISA system would give undue influence to certain nations.

One concern was that the uneconomic provisions of UNCLOS would unfairly prejudice U.S. companies who require a fair return on their investment. Those U.S. companies could not economically compete against other States who did not require a return on investment, but rather could operate at a loss and obtain the minerals for strategic reasons, and as such were not impacted in the same way by the uneconomic UNCLOS provisions.

Another concern that exists is that of mineral protectionism, through which certain countries that are net exporters of these minerals can potentially block and restrict the development of seafloor minerals in the international seabed area through their powers and influence at the ISA.

It is logical that countries that are net exporters of these minerals may want to prevent competition from seafloor minerals, in order to protect their own land-based mines and national mining companies.

However, this protectionist strategy may mean that net-importing countries, such as the U.S., may be deprived of supply of certain minerals and/or subject to paying higher prices for goods that contain minerals and metals.

This is particularly concerning during periods of high inflation. Nearly everything that society depends on is either made from minerals or relies on minerals for its production. As such, an increase in mineral prices or a cut off in supply may

affect the production of many of the items that society uses and relies on.

Such protectionist strategies may serve the interests of mineral-exporting states but could disadvantage net-importing countries like the U.S., which may face supply shortages and inflated prices. It can also ultimately hurt the most vulnerable people in society who cannot afford to buy basic goods and services when prices increase.

Highlighting U.S. vulnerability to mineral supply shocks, the Mineral Production EO Fact Sheet states “The United States is 100% import-reliant on at least 15 critical minerals, and imports of nonfuel mineral commodities make up more than half of U.S. consumption.”

It is arguably not in the national interest of the U.S. for resources in the CCZ to be potentially locked up so as those seafloor minerals do not compete with countries who are net-exporters of these minerals from their land-based mines.

If only a small number of exporting States can control critical mineral supply from their land-based mines, such mineral exports may potentially then be used as a geopolitical tool against U.S. interests.

The recent developments in Space Governance have also demonstrated that the world has recognised the need to move beyond the old way of thinking when it comes to resources beyond national jurisdictions.

This new way of thinking and governance, led by the U.S., has encouraged significant investment from the private sector, resulting in the realisation of the economic potential and commercialisation of outer space. This in turn has provided society with a wide a range of benefits that enhance daily life and drive global progress.

As noted by leading law firm Norton Rose Fullbright “The existing space governance framework established under the architecture of the five UN space treaties has, in this environment of rapid change and dynamic growth, become outdated.”

Notwithstanding that the mandate of the ISA is “the development of the resources of the Area”, in the 30 years since the ISA was established, the ISA has not achieved this mandate and has not succeeded in advancing a project to commercial production for the benefit of society.

This reality is reflected in recent actions. For example, it is noted that the parent company of two of the leading ISA Contractors, TMC The Metals Company, has now signalled its intent of looking outside of the ISA’s regulatory framework for its NORI and TOML polymetallic nodule projects in the CCZ.

It is now looking more likely that private sector commercial interest at the ISA will not invest in full scale production in the near term.

As a result of the above, SeaX does not foresee any material risk of operational conflict or interference related to the “reserved areas” included in this application.

Tangible Cultural Heritage

The tangible cultural heritage of the CCZ is limited due to its remote location in the deep Pacific Ocean, far from human settlements. However, there are several physical and material aspects that contribute to its cultural significance.

For example, due to the potential of historic shipwrecks or arial crashes, there is the possibility of human remains of an archaeological or historical nature, or an object or site of a similar nature. This includes, for example, shipwrecks and fossils.

With respect to shipwrecks and maritime artifacts, the CCZ may contain undiscovered shipwrecks and artifacts from historical maritime activities, including lost vessels from early oceanic exploration, naval operations, or modern industrial ventures. These wrecks may serve as underwater cultural heritage, offering insights into past navigation routes, technological advancements, and historical events.

While the CCZ does not have traditional cultural landmarks, its tangible cultural heritage is reflected in the remnants of exploration, scientific discovery, and deep-sea resource development, marking humanity's evolving relationship with the ocean depths.

The presence of shipwrecks and maritime artifacts will be the subject of further study throughout SeaX's exploration and environmental programs.

Intangible Cultural Heritage

The open ocean can play an integral part of traditional human belief systems, knowledge and cultural values.

The intangible cultural heritage of the CCZ is less documented compared to its ecological and geological significance, as it is a remote deep-sea region with no indigenous human populations. However, intangible cultural elements connected to the CCZ can be understood through the lens of maritime traditions, indigenous maritime knowledge, scientific exploration, and the broader cultural relationship between humanity and the deep ocean.

With respect to maritime traditions and exploration, The CCZ has been part of the cultural heritage of seafarers, ocean explorers, and deep-sea mining pioneers. Stories of deep-sea exploration, from early oceanographic missions to modern subsea mining trials, contribute to the collective knowledge and lore of ocean science. The region holds significance for marine researchers, reflecting humanity's curiosity about the unknown and the technological advancements that allow us to access the deep ocean.

With respect to indigenous oceanic knowledge and navigation, the CCZ itself is beyond traditional navigation routes. Nevertheless, Pacific Islander and Indigenous seafaring traditions offer a cultural connection to the broader Pacific Ocean. Polynesian, Micronesian, and Melanesian navigators have long maintained oral histories, celestial navigation techniques, and spiritual beliefs tied to the ocean. While they may not have directly explored the CCZ, their cultural perspectives on the sea as a living entity influence how oceanic spaces, including the deep sea, are perceived.

With respect to literature, mythology, and artistic influence, the mysteries of the deep sea, including regions like the CCZ, have inspired literature, film, and art. From science fiction stories about underwater worlds to documentaries that highlight the uncharted depths, the CCZ may be considered to play a role in shaping modern cultural narratives about exploration, resource use, and environmental responsibility.

9.0 Safety at Sea

SeaX's exploration will not pose an inordinate threat to the safety of life and property at sea.

SeaX confirms that, at this time, it has not yet committed to using a specific vessel for the exploration. As such, it is not possible at this time to state that SeaX knows which vessel will be used.

Upon a commitment being made for a specific vessel, SeaX will submit all required vessel certifications to NOAA prior to the commencement of any exploration cruise, in compliance with 15 CFR § 970.205(c)

As is typical in the industry, and as the American Metal founders have done many times in the past, a tender process will be carried out for vessels and equipment when the exact timing of exploration campaigns is known. This will allow vessel operators to lock in the work. Until the exploration license is granted, it would not be prudent to commit to a timing window for the charter and hire of vessels and equipment.

SeaX has held initial discussions with vessel operators who are interested in provided their vessels for this work. However, until a specific vessel charter agreement has been signed, including with respect to price and timing of the charter, it is not possible to confirm at this stage which vessel will be used for exploration.

SeaX hereby confirms that any United States flag vessel utilized in the exploration activities will possess a current valid Coast Guard Certificate of Inspection (COI).

Vessels documented under the laws of the United States and used in activities authorized under the license will comply with all applicable conditions regarding the design, construction, alteration, repair, equipment, operation, manning, and maintenance relating to vessel and crew safety and the promotion of safety of life and property at sea.

Likewise, in the case that any foreign flag vessel is utilized, SeaX will ensure that it meets the applicable requirements.

The particular vessel chosen for each cruise will depend on the nature of the specific cruise, the equipment required, and the availability of the vessel at the time.

SeaX will comply with, and will ensure that all vessels used in the exploration comply with, all applicable U.S. and international rules and standards concerning the safety of life at sea, and the prevention of collisions. This includes complying with all U.S. Coast Guard rules and regulations.

10.0 Statement of Ownership

SeaX Inc. is a corporation established in 2025 to supply critical minerals to the United States from seafloor polymetallic nodules.

SeaX Inc. was formed in Delaware on 27 January 2025, with company registration number 10079628.

The Registered Agent of SeaX Inc. is Harvard Business Services, Inc., located at 16192 Coastal Highway, Lewes, Delaware 19958, County of Sussex, USA.

SeaX Inc. is a 100% owned and controlled subsidiary of American Metal Inc., which is a Delaware corporation with File Number 10071241 and with address at 10050 Cash Rd, Stafford, TX 77477.

American Metal Inc.'s registered agent's office is located at 16192 Coastal Highway, Lewes, Delaware 19958, County of Sussex.

SeaX Inc. is subject to the exclusive jurisdiction of the United States, and is a United States citizen under the Act as it is a corporation that exists under the laws of the United States.

American Metal Inc. is subject to the exclusive jurisdiction of the United States, and is a United States citizen under the Act as it is a corporation that exists under the laws of the United States.

For the purpose of Regulation 970.206(b), notices and orders are to be delivered to SeaX Inc.'s authorised representative, Mr. Robert Heydon as follows:

Phone: +1 (737) 787-7169
Email: Office@SeaXinc.com
Address: SeaX Inc.
c/o Harvard Business Services, Inc.
16192 Coastal Highway, Lewes,
Delaware 19958,
County of Sussex, USA.

The Articles of Incorporation (By-laws) for both SeaX Inc. and American Metal Inc. have been provided in Appendix B.

11.0 Antitrust Information

11.1 Joint Venture Information

§ 970.207 (b)(1) requires the applicant to provide a copy of each agreement between any parties to any joint venture which is applying for a license, provided that said agreement relates to deep seabed hard mineral resource exploration or mining.

In this regard, SeaX Inc. confirms that neither it, or its parent American Metal Inc., are party to any such joint venture agreements with any other parties.

11.2 Identity of Affiliates

§ 970.207 (b)(2) requires the applicant to provide the identity of any affiliate of any person applying for a license.

The term “Affiliate” means any person:
(1) In which the applicant or licensee owns or controls more than 5% interest;
(2) Which owns or controls more than 5% interest in the applicant or licensee;
or
(3) Which is under common ownership or control with the applicant or licensee.

With respect to definition (1), SeaX Inc. does not own an interest in any other entities.

With respect to definition (2), American Metal Inc. owns 100% of SeaX Inc..

With respect to definition (3), SeaX Inc. is under the ownership and control of American Metal Inc.
American Metal Inc. also has 100% ownership and control of American Metal Resources LLC.

11.3 Entities engaged in the production, purchase or sale of minerals or metals

§ 970.207 (b)(3) requires “For each applicant, its affiliate, or parent or subsidiary of an affiliate which is engaged in production in, or the purchase or sale in or to, the United States of copper, nickel, cobalt or manganese minerals or any metals refined from these minerals:
(i) The annual tons and dollar value of any of these minerals and metals so purchased, sold or produced for the two preceding years;
(ii) Copies of the annual report, balance sheet and income statement for the two preceding years; and
(iii) Copies of each document submitted to the Securities and Exchange Commission.”

SeaX Inc. confirms that it and its parent are not engaged in such production, purchase or sale of minerals and metals, and confirms that it does not have any affiliations with any entity engaged in such production, purchase or sale.

12.0 Application Fee

SeaX Inc. confirms that the application fee has been paid, and that NOAA has confirmed that the application fee was received.

SeaX

Appendix A

ERIAS ENVIRONMENTAL REPORT

SeaX Inc.

Deep Sea Minerals Exploration

Environmental Support for Deep Sea Minerals Exploration Report

Report No., 01605A_1_v2

ERIAS

13–25 Church Street
Hawthorn, Victoria, 3124
Australia
E info@eriasgroup.com
W eriasgroup.com

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1 Introduction

ERIAS Group Pty Ltd (ERIAS) was engaged by SeaX Inc. (SeaX) to provide environmental information to support an application for a deep-sea minerals exploration licence in the Clarion Clipperton Zone (CCZ), located in international waters. The Application Area comprises several contract blocks (refer to Figure 1).

The exploration licence will be sought by SeaX Inc., which is a subsidiary of American Metal Inc. The application will be assessed by the National Oceanic and Atmospheric Administration (NOAA) under United States processes, as outlined in the Deep Seabed Hard Mineral Resource Act (DSHMRA) of 1980 (the Act) and the associated Deep Seabed Mining Regulations for Exploration Licenses of 1981 (the Regulations) (NOAA, 1981a). Further, the Deep Seabed Hard Mineral Resources Program outlines NOAA's role in regulating deep seabed mining activities under the Act.

ERIAS understands that at least 1 year prior to carrying out the Harvesting Test, SeaX will submit to NOAA the relevant information to enable NOAA to carry out the Supplemental EIS as required by the Regulations, including baseline and equipment data and system test plans. Therefore, the initial focus for the application is on exploration surveys and research activities, including environmental baseline studies and resource mapping.

Once received, the exploration licence will authorise SeaX to conduct surveys and research in the Application Area.

2 Scope Objectives

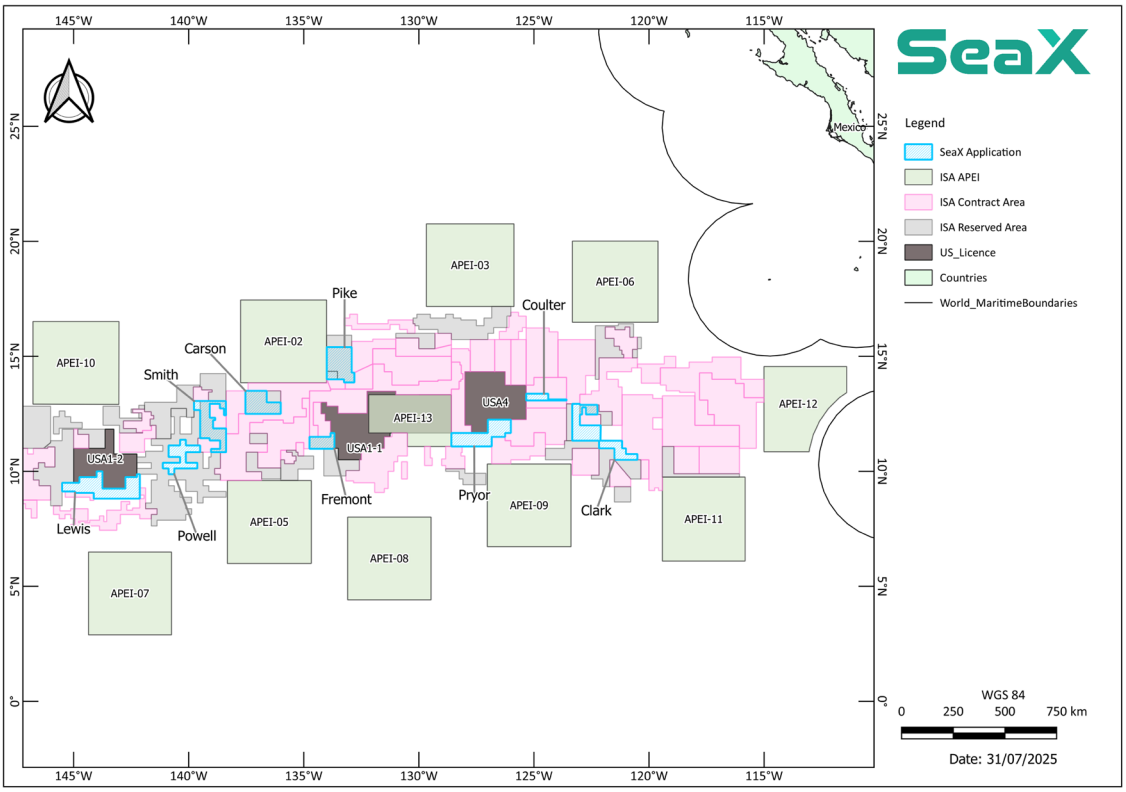
The objectives of this scope of work are to:

- Compile publicly available environmental information relating to the CCZ that can be provided to NOAA to assist the administration in developing an Environmental Assessment (EA) or Environmental Impact Statement (EIS) prior to the issuance of an exploration license. Information regarding the environmental conditions in the CCZ is provided in Section 4.
- Update and expand on an exploration activities impact assessment prepared by American Metal and already provided to NOAA. Information about the exploration activities and an updated assessment of potential impacts is provided in Section 5.
- Prepare a monitoring plan for all exploration activities, both those that will have an impact and those that will not have an impact. A monitoring plan to support the licence application is provided in Section 6.

3 Application Area

The Application Area is shown in Figure 1.

Figure 1: SeaX Application Area



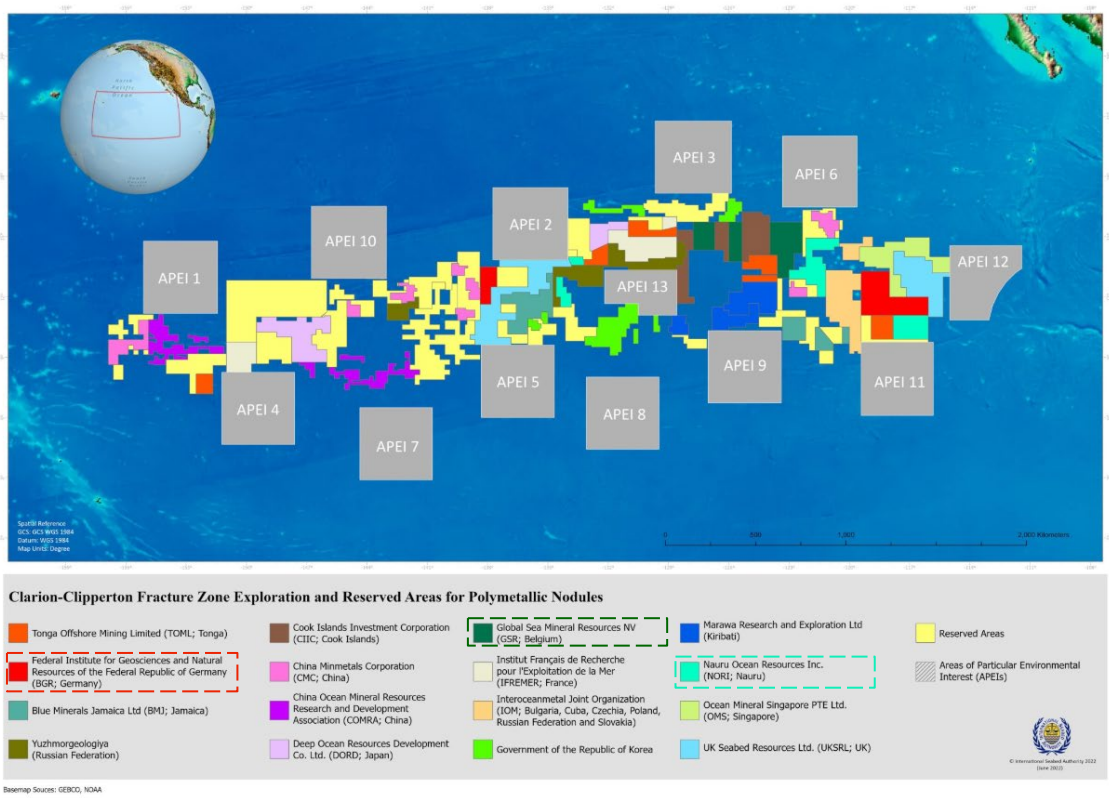
4 Description of the Environment

4.1 Overview

The Application Area is within the Clarion Clipperton Zone (CCZ). As such, it is expected that the information provided in Environmental Impact Statements (EISs) for other exploration areas within the CCZ provide detailed overviews of the existing environment. References for three EISs that are considered likely to be relevant have been provided in Table 4-1, with the three EIS project locations shown in Figure 2. These EISs add to work from over 200 exploration cruises to the abyssal plains of the CCZ. In addition, other relevant supporting literature has been cited in Table 4-1.

In addition to the links to the EISs, and in accordance with Section 970.204 of the Regulations, SeaX has provided summaries of the physical, chemical and biological information to support the application for an exploration licence (refer to Section 4.2 to 4.4).

Figure 2: Map showing exploration and environmental areas in the CCZ, with relevant EISs identified (see hatched boxes in legend)



Source: ISA, regional maps, 2025 (https://www.isa.org.jm/maps/clarion-clipperton-fracture-zone/)

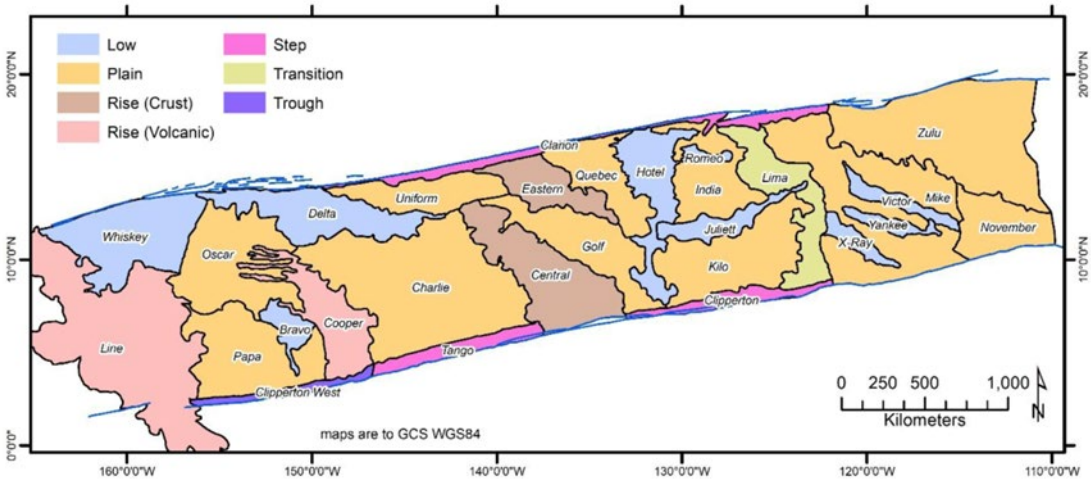
Table 4-1: References for supporting environmental information

Organisation/Author	Report titles	Relevant Information	Links	Year
Bundesanstal für Geowissenschaften und Rohstoffe/Federal institute for Geoscience and Natural Resources (BGR)	For the testing of a pre-prototype manganese nodule collector vehicle in the Eastern German license area (Clarion-Clipperton Zone) in the framework of the European JPI-O Mining Impact 2 research project	• Physicochemical: Section 5 • Biological: Section 6	BGR EIS: https://www.isa.org.jm/wp-content/uploads/2022/04/EIA_BGR_0.pdf	2018
Global Sea Mineral Resources (GSR)	Small-scale testing of nodule collector components on the seafloor for the Clarion-Clipperton Fracture Zone and its environmental impact	• Physicochemical: Section 4 • Biological: Section 4.2	GSR EIS: https://www.isa.org.jm/protection-of-the-marine-environment/environmental-impact-assessments/	2018
Nauru Ocean Resources Inc. (NORI)	Collector Test Study Environmental Impact Statement – Testing of polymetallic nodule collector system components in the NORI-D contract area, Clarion-Clipperton Zone, Pacific Ocean	• Physicochemical: Section 5 • Biological: Section 6	NORI EIS: https://metals.co/wp-content/uploads/dlm_uploads/2022/12/NORI-D-Collector-Test-EIS-September-2022.pdf	2021
International Seabed Authority (ISA)	Documents and resources < Publications	A summary of ISA Technical Studies concerning the CCZ environment.	ISA Technical Studies: https://www.isa.org.jm/publications/	Various
John Parianos	History of Development of the Clarion Clipperton Zone	Historical accounts of polymetallic nodule exploration, technological advancements	Paperback book published by Lulu	2017

4.2 Physical

The CCZ seabed is a vast, deep region of the central Pacific Ocean, spanning 6 million square kilometres and covering the abyssal plain at depths of 3,700 to 6,000 meters. Parianos (2021) describes the geomorphology of the CCZ as being dominated by abyssal plains containing abyssal lows and abyssal hills, as shown in Figure 4. There is minimal variation in temperature throughout the bottom waters, ranging between 1.3ºC and 2.0ºC (Washburn et al., 2021). The abyssal plains experience a complete absence of sunlight; however, the presence of bioluminescence from a range of taxa provides the ecosystem with low light (Christiansen et al., 2020; Haddock et al., 2010; Miller et al., 2018).

Figure 3: Map showing simplified geomorphological units in the CCZ



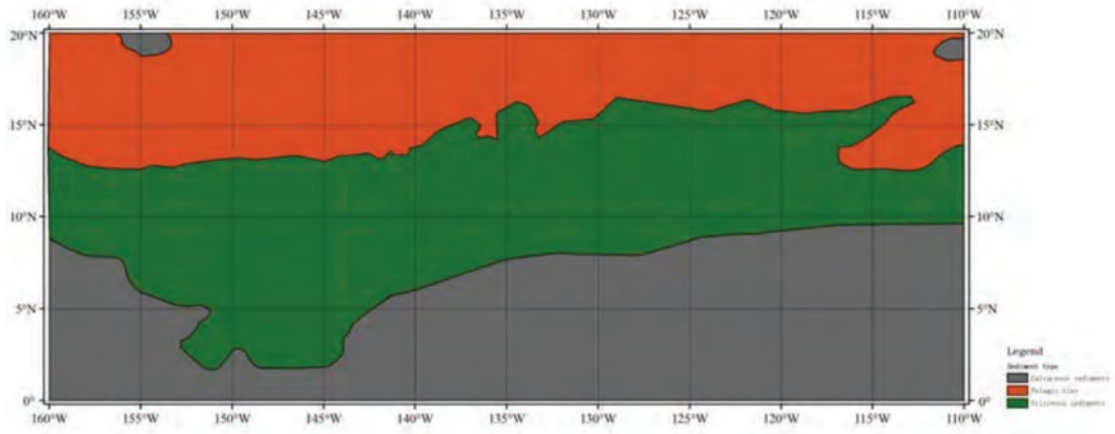
The highest nodule abundance is generally found on the abyssal plains of the central CCZ, with a decline near geological features such as seamounts, ridges, and within fracture zones due to sediment instability and varying sedimentation rates (ISA, 2010). For this reason, the abyssal plains are typically the focus of exploration programs, while areas of localized volcanic outcrops, if present, are likely to be avoided as they are not considered prospective for polymetallic nodules.

The flat, muddy abyssal plains are composed primarily of soft clays and sediments, interspersed with polymetallic nodules and occasional rocky outcrops (Dambacher et al., 2025). Polymetallic nodules are generally small (approximately <20 cm in diameter); however, nodule fields can extend over many hundreds of square kilometres (Kuhn et al., 2017).

Across the abyssal plains, broad-scale environmental gradients are present. The gradients run from east to west across the CCZ seabed and are influenced by organic matter supply, nodule abundance and coverage, water depths and sediment particle size distribution. As shown in Figure 5, the ISA Technical Study No. 6 (ISA, 2010), delineates seafloor sediments within the CCZ as siliceous ooze (green shading), which is bounded to the north by a domain of pelagic clay (red shading) and to the south by calcareous sediments (grey shading) (Morgan et al., 2010). The most common and extensive sediment types in the central and northern CCZ are siliceous clays

and siliceous oozes. Studies and resource assessments identify the highest abundance and grade of polymetallic nodules as corresponding with the siliceous sediment areas (ISA, 2010). As such, most polymetallic nodule exploration areas are located within this sediment type, including for the three EISs referred to in Table 4-1, and the Application Area.

Figure 4: Distribution of Seafloor Sediment Types in the CCZ (Modified from Kazmin, 2003 and Halbach et al., 1988)



Source: A Geological Model of Polymetallic Nodule Deposits in the Clarion-Clipperton Fracture Zone, ISA Technical Study: No. 6. International Seabed Authority, 2010.

4.3 Chemical

Polymetallic nodules in the CCZ possess complex chemical composition, typically containing manganese, iron, nickel, copper, cobalt, titanium, lithium and additional rare earth elements (Wegorzewski & Kuhn, 2014). The presence and quantity of metals in polymetallic nodules correlate with sediment type. Clay-rich sediments with low organic content generally contain hydrogenetic nodules that are typically higher in cobalt and iron. While siliceous oozes generally contain diagenetic nodules that are typically higher in manganese, nickel and copper.

Variations in metal concentrations in polymetallic nodule sediments can influence the surrounding microbial community composition, as microbial taxa have varying tolerances and utilisation of specific metals (Zhang et al., 2023).

4.4 Biological

The abyssal seafloor of the CCZ is generally described as an oligotrophic environment where carrion and marine snow are the primary source of organic matter and energy (Dambacher et al., 2025). These energy sources convert to epibenthic detritus that sustains microbial communities and supports sessile and mobile fauna. Biomass and community dynamics are closely linked to surface ocean productivity and episodic enrichment events (Gooday et al., 2021).

Areas that contain polymetallic nodules provide a mix of soft sediment and hard substratum, which increases habitat complexity across the abyssal plain. Nodule ecosystems support a highly diverse fauna of sessile and mobile species, and faunal communities and environmental parameters show a high variability even at small spatial scales. Polymetallic nodules provide hard substrate for sessile filter feeders that are prey to larger mobile epifaunal carnivores such as

brittle stars, decapod crustaceans, amphipods and isopods. (Dambacher et al., 2025; Stoyanova, 2014).

Nodules also typically support distinct fauna from that of the sediments, and the presence of the nodules has been shown to influence benthic assemblages (Simon-Lledó et al., 2019). Meiofauna such as nematodes, tardigrades, harpacticoids, and foraminifera inhabit nodule crevices (Veillette et al., 2007; Miljutina et al., 2010 as cited in Simon-Lledó et al., 2019). In addition, sessile macrofauna and megafauna are commonly found attached to nodule surfaces. This includes polychaetes, sponges, cnidarians, and xenophyophores (Gooday et al., 2015; Amon et al., 2016 as cited in Simon-Lledó et al., 2019). The broad-scale environmental gradients that have been reported on abyssal plains across the CCZ are thought to influence benthic faunal community structure and function. Durden et al. (2021) found that xenophyophores dominate the assemblages and that megafauna were present at low densities but with high diversity, with many morphotypes being observed only once. The density and diversity of invertebrates were greater in areas with lower organic matter and greater nodule abundance.

In addition to benthic species, the CCZ hosts a range of other marine taxa, including fishes and cetaceans. Fish communities are reportedly dominated by a few common taxa adapted to the energetic scarcity and extreme conditions of the seabed in the CCZ. Previously observed species include *Ipnops meadi*, *Abyssoberyx* sp., *Bassozetus nasus*, *Coryphaenoides armatus/yaquinae* (rattails or grenadiers), Ophidiid sp., *Ilyophis arx* (a synaphobranchid eel), and *Typhlonus nasus* (Leitner et al., 2017; Drazen et al., 2020). These fish are generally opportunistic scavengers or predators, adapted to the abyssal plain habitat (Drazen et al., 2020).

In addition, at least 20 species of cetaceans (whales and dolphins) are thought to be present in the CCZ, including at least eight species of beaked whale, *Kogia* spp[1]., sperm whale (*Physeter macrocephalus*), Risso's dolphins (*Grampus griseus*) and common dolphins (*Delphinus delphis*) (Carwardine, 2019; McCullough et al., 2021; Young et al., 2025). An additional 70 dolphin groups were recorded by Young et al. (2025), although they were not identifiable to species level. Sperm whales are listed as vulnerable by the International Union for the Conservation of Nature (IUCN), whereas Risso's dolphin, the common dolphin and pygmy sperm whale are listed as least concerned (IUCN, 2025). The beaked whale species that may be present in the CCZ range from least concern to data deficient.

5 Potential Impacts

5.1 Exploration Activities

Early exploration activities in the CCZ, which are the subject of this licence application, primarily involve non-invasive or low-impact methods. These include a range of exploration surveys and research activities, including environmental baseline studies and resource mapping. The data

[1] Inferred to be pygmy sperm whale (*Kogia breviceps*) based on habitat preference and recorded distributions.

collected is critical to inform impact mitigation strategies, should the exploration activities later progress to the commercial recovery stage.

The following list identifies the general activities that may be employed during the exploration phase, noting that at least 1 year prior to carrying out the Harvesting Test, SeaX will submit to NOAA the relevant information to enable NOAA to carry out the Supplemental EIS as required by the Regulations, including baseline and equipment data and system test plans.

The list of activities below aligns with those identified by NOAA (1981a and 1981b) and ISA (ISA, 2015) as having no potential for significant environmental impact. These are outlined in Table 5-1, as discussed further in Section 5.2.

Exploration activities will be performed from survey vessels that are capable of deploying and retrieving the sampling equipment. Depending on the availability of vessels and equipment at the time of the surveys, alternative but similar sampling methods to those outlined below may be used. Where this occurs, the approach and equipment may result in minor differences to the anticipated disturbance footprints, but these are expected to be equivalent to those described in Table 5-2.

- Geophysical surveys for seafloor mapping:
  - Gravity and magnetometric observations and measurements.
  - Bottom and sub-bottom acoustic profiling or imaging (without the use of explosives).
  - Electromagnetic profiling techniques such as resistivity, self-potential, and induced polarization (without the use of explosives or frequencies known to significantly affect marine life).
- Water column sampling:
  - Pelagic nets.
  - Niskin bottle.
- Meteorological and oceanographic measurements:
  - Oceanographic moorings,
  - Lowered ADCP.
  - Conductivity, Temperature, Depth (CTD) profiling.
  - Landers to assess sediment-water nutrient exchange.
  - Passive acoustic monitoring (moored and drifting hydrophones).
- Sediment sampling:
  - Box corer.
  - Multicore.
  - Freefall grab.
  - Push cores (deployed from ROV).

- Seabed imaging:
  - Remotely Operated Vehicle (ROV).
  - Autonomous Underwater Vehicle (AUV).
  - Towed Camera System.
  - Moored and baited time-lapse cameras.
- Shipboard mineral assaying and analysis.
- Use of positioning systems, including bottom transponders and surface and subsurface buoys.
- In situ faunal metabolic measurements (e.g., sediment community oxygen consumption).
- Dye release or tracer studies, unless an environmental impact assessment is required under national or international laws for certain potentially harmful dyes/ tracers.
- Small-scale epibenthic dredging.

5.2 Review of Potential Impacts

An analysis of potential environmental impacts is provided in Table 5-2 to support NOAA in its environmental review of the potential impacts associated with the exploration activities proposed as part of this licence application. Exploration activities have been considered in terms of their potential to result in adverse environmental effects, and published literature has been used to inform the assessment.

The analysis builds on NOAA's Programmatic Environmental Impact Statement (PEIS) (NOAA 1981b), which concluded that early exploration activities for deep-sea polymetallic nodule mining in the CCZ are not expected to cause significant adverse environmental impacts at the regional scale. While NOAA recognised that localized physical disturbance and sediment resuspension can occur, these effects were considered by NOAA to be limited in scope and intensity compared to full-scale mining. NOAA also recognised that knowledge gained during exploration is essential for informed decision-making and environmental stewardship of the ecosystem. The DSHMRA Regulations (NOAA, 1981a), published in 1981 shortly after the PEIS, establish the legal framework and administrative procedures by which NOAA issues licenses and permits consistent with environmental protections identified in the PEIS. 15 CFR Part 970 of the Regulations is the relevant regulation for exploration licenses.

Similarly, ISA (2015) has previously concluded that the potential environmental impacts associated with early exploration activities for deep-sea mining are generally localized, of low significance, and manageable under existing regulatory frameworks. Consideration has also been given to NOAA's more recent (2023) Ocean Exploration Sampling Procedures Manual, which provides a current classification of methods identified by NOAA as having low potential for significant impacts.

In consideration of the above, each of the activities identified by NOAA and ISA as having no potential for significant environmental harm are listed in Table 5-1, and indicated in Table 5-2 as part of the assessment of potential impacts. Notwithstanding the low potential for significant impacts to occur, all necessary precautions will be taken to minimise the risks associated with

exploration activities. These precautions have been considered as part of the review of potential effects in Table 5-2.

Table 5-1: Activities identified as having no potential for significant environmental impact

NOAA (1981a). Section 970.701, paragraph (a): Activities with no significant impact, items (1) to (10)	ISA (2015). Section IV.A: Activities not requiring environmental impact assessment during exploration, paragraphs 18(a) to (l)
(1) Gravity and magnetometric observations and measurements	(a) Gravity and magnetometric observations and measurements
(2) Bottom and sub-bottom acoustic profiling or imaging without the use of explosives	(b) Bottom and sub bottom acoustic or electromagnetic profiling of resistivity, self-potential or induced polarization, or imaging without the use of explosives or frequencies known to significantly affect marine life
(3) Mineral sampling of a limited nature such as those using either core, grab or basket samplers	(c) Water, biotic, sediment and rock sampling for environmental baseline study, including: (i) Sampling of small quantities of water, sediment and biota (e.g. from remotely operated vehicles) (ii) Mineral and rock sampling of a limited nature, such as that using small grab or bucket samplers (iii) Sediment sampling by box corer and small diameter corer
(4) Water and biotic sampling, if the sampling does not adversely affect shellfish beds, marine mammals, or an endangered species, or if permitted by the National Marine Fisheries Service or another Federal agency	
(5) Meteorological observations and measurements, including the setting of instruments	(d) Meteorological observations and measurements, including the setting of instruments (e.g. moorings)
(6) Hydrographic and oceanographic observations and measurements, including the setting of instruments	(e) Oceanographic, including hydrographic, observations and measurements, including the setting of instruments (e.g. moorings)
(7) Sampling by box core, small diameter core or grab sampler, to determine seabed geological or geotechnical properties	See (c)iii
(8) Television and still photographic observation and measurements	(f) Video/film and still photographic observations and measurements
(9) Shipboard mineral assaying and analysis	(g) Shipboard mineral assaying and analysis
(10) Positioning systems, including bottom transponders and surface and subsurface buoys filed in Notices to Mariners	(h) Positioning systems, including bottom transponders and surface and subsurface buoys filed in notices to mariners
Not specifically listed, but likely to be similar to low-level impacts covered under (5) and/or (6). *Note this is more relevant to hydrothermal vent/seafloor massive sulfide exploration*	(i) Towed plume-sensor measurements (chemical analysis, nephelometers, fluorometers, etc.)
Not specifically listed, but likely to be similar to low-level impacts covered under (7)	(j) In situ faunal metabolic measurements (e.g. sediment oxygen consumption)
Not specifically listed, but likely to be similar to low-level impacts covered under (4)	(k) DNA screening of biological samples
Not specifically listed, not likely to be similar to other low-level impacts listed above	(l) Dye release or tracer studies, unless required under national or international laws governing the activities of flagged vessels.

Table 5-2: Assessment of Potential Impacts

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
Gravity and magnetometric observations and measurements	Gravity and magnetometric surveys measure natural variations in the Earth's gravitational and magnetic fields caused by differences in rock density (gravity) and magnetic mineral content (magnetometry). The surveys target geological structures, subsurface density contrasts, and magnetic anomalies, which help to map seafloor features and mineral deposits. The surveys use instruments like shipborne gravimeters and towed magnetometers, which are passive sensing methods. There are no significant potential impacts associated with this activity under normal operations as sensors are passive and will not touch the seafloor. Tow cables and vessel operations will occur but are not expected to have any significant effects.	NOAA DSMR (2025): Section 970.701, paragraph a (1) ISA (2015): Section IV, paragraph 18 (a)
Bottom and sub-bottom acoustic profiling or imaging without the use of explosives Electromagnetic profiling of resistivity, self-potential or induced polarization, or imaging without the use of explosives or frequencies known to significantly affect marine life	Bottom and sub-bottom acoustic profiling or imaging (without the use of explosives) may be include: • Single-beam Echo Sounders: Acoustic devices sending sound pulses downward to measure water depth by timing the echoes from the seabed. • Multibeam Echo Sounders (MBES): Advanced systems emitting multiple acoustic beams to generate detailed bathymetric maps of the seafloor. • Side-scan Sonar: Acoustic imaging providing detailed images of the seafloor texture and features by emitting fan-shaped pulses across the seabed. • Sub-bottom Profilers (SBP): Systems that transmit sound waves penetrating below the seafloor to reveal sediment layers and geological structures beneath the seabed without disturbing them. Types of SBP include: – Pinger systems: High-frequency, high-resolution, shallow penetration imaging. – Chirp systems: Multi-frequency pulses with moderate penetration and high resolution. – Boomer systems: Lower frequency, deeper penetration but less resolution. – Sparker systems: Use electrical sparks to generate pressure waves for deep sediment penetration. • Deep-towed Sonar Systems: Towed devices provide detailed acoustic imaging closer to the seabed to enhance resolution for nodule size and coverage assessment. These methods utilize acoustic energy to create detailed underwater maps and images of the seabed surface and subsurface. Importantly, these techniques avoid the use of explosives, reducing disturbance to marine life and habitats. While the emission of acoustic energy has the	NOAA DSMR (2025): Section 970.701, paragraph a (2) (without specific mention of electromagnetic profiling techniques) ISA (2015): Section IV, paragraph 18 (b)

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
	potential to interfere with planktonic and nektonic species, as well as disrupt marine animal communication or migration patterns, these potential impacts are minor due to the system's low-energy output. Several environmental reviews and studies highlight that the frequency and amplitude of acoustic energy in typical sub-bottom profiling operations fall well below thresholds known to cause significant harm to marine organisms, especially when compared to seismic airguns or other high-energy sources (Richardson et al., 2013; Popper et al., 2014; Merchant et al., 2016; Hermannsen et al., 2019; NOAA, 2021). Electromagnetic profiling methods used in deep-sea mineral exploration include measurements of resistivity, self-potential, and induced polarization. These geophysical techniques involve generating and detecting electromagnetic fields to infer the electrical conductivity and charge properties of subsurface materials, which help identify mineral deposits such as polymetallic nodules. These methods can be deployed using seafloor instruments, towed marine arrays, or autonomous underwater vehicles, allowing detailed mapping of mineral-rich zones without physical disturbance. Since electromagnetic profiling relies on low-intensity electromagnetic fields rather than mechanical or explosive means, it is generally considered to have minimal impact. Further, these methods are typically non-invasive and do not involve direct contact or sediment disturbance (Wedding et al., 2018; CSIRO,2025).	
Multi-corer, box corer, freefall grab sampler (or similar) are commonly used methods that collect seabed sediment for chemical, geochemical, and biological analyses. These devices may be outfitted with altimeters, CTD sensors, and penetrometers.	Deployment of these sampling devices results in small quantities of sediment (and more often than not nodules) being removed, which includes the removal of associated benthic fauna. Sediment sampling in deep-sea environments causes highly localized physical disturbance in the area where the core or grab is collected. However, the level of disturbance associated with sediment sampling is spatially insignificant and the removal of benthic organisms is minimal, given the volume of sediment collected is minuscule compared to the vast abyssal environment. As a result, the potential for significant environmental impacts is considered to be low (Volz et al., 2020; Khripounoff et al., 2006). Further information about each device is provided below: • **Box Corers:** These are designed to take relatively large, undisturbed blocks of sediment typically with a square or rectangular opening (e.g., 50 cm × 50 cm up to 75 cm × 75 cm). Box corers typically penetrate 40 to 65 cm into seafloor sediments and have mechanisms such as spades or flaps to seal the sediment block during retrieval to minimize disturbance. They provide fairly intact sediment structure and overlying water for quantitative analysis. However, they are heavy, can cause some mechanical disturbance on the sediment surface during deployment, and require stable conditions to avoid tilting or sample loss. Their footprint is about 0.25 to 1.0 m^2, disturbing a volume up to about 0.37 m^3 for large models.	NOAA DSMR (2025): Section 970.701, paragraph a (3 & 7) ISA (2015): Section IV, paragraph 18 (c)

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
	• **Multicorers:** These devices use multiple narrow tubes (e.g., 56 to 100 mm diameter) attached to a frame that is lowered to the seabed, allowing simultaneous retrieval of multiple sediment cores. Multicorers cause very localized, minimal disturbance restricted to the combined area of the tubes and instrument frame feet, typically less than 0.1 m² total footprint, disturbing a small sediment volume in the upper 15 to 60 cm. They are prized for collecting undisturbed cores suitable for detailed sediment and biological analysis. • **Freefall Grab Samplers (e.g., bottom grabs):** These are simpler devices with jaws that clamp onto the seafloor sediment to sample the surface layer. While they are effective for qualitative sampling, they tend to cause mechanical disturbance and mixing of sediment layers, with less intact sediment structure. Such grabs are also susceptible to sample washout during retrieval and have less quantitative reliability compared to corers. Their footprint is generally small but the sediment is disturbed more extensively within that zone due to the grabbing action. These are used more for resource assessment than for environmental studies. Any sediment plume generated from seafloor sampling these devices is minor and limited to the initial period when the instrument makes contact with the seabed. Some small plumes may be formed as the sampling devices start to be recovered to the surface as sediments that may have stuck to the outside of the samples is washed off. Freefall grabs use sacrificial weights (typically made of steel) which are left behind on the seafloor and cover less than 0.5 m², making their environmental impact negligible in the context of the available habitat.	
Water and biotic sampling, pelagic net trawls and water sampling devices. It is expected that nets such as bongo or a Multiple Opening/Closing Net and Environmental Sensing System (MOCNESS) will be used for pelagic and nekton sampling. Water sampling may include a combination of techniques,	A variety of pelagic net trawls may be used to sample the water column. Larger arrays such as those associated with a MOCNESS setup are conservatively described here, however, smaller net systems (such as a bongo system) may be used. MOCNESS arrays typically consist of between five to twenty nets with mesh sizes often ranging from 64 µm to 3 mm, with one net being open at one time, resulting in a collection area of around 1 m^2. The nets are computer-controlled to allow the net to be opened and closed at the desired depth. Additionally, sensors are used to measure physicochemical parameters. However, the sensors operate at low power, reducing their environmental influence. As reported by Washburn et al. (2021), the potential for significant impacts to occur as a result of plankton, nekton and water quality sampling is negligible given the small volume of the samples compared to overall habitat extent. The small sample volumes also suggest that the potential for significant impacts on larger species, such as marine mammals and endangered species, is	NOAA DSMR (2025): Section 970.701, paragraph a (4) ISA (2015): Section IV, paragraph 18 (c), and 18 (k) for DNA screening

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
such as deployment of CTD rosettes equipped with Niskin bottles. Samples will be analysed for chemical and physicochemical properties and may also include eDNA analysis.	negligible. Further, there is no potential for impacts on shellfish beds (or other benthic habitats and taxa) as these sampling arrays do not interact with the seabed. As outlined by NOAA (2023), a CTD rosette system is an essential, minimally invasive tool for oceanographic sampling. It collects discrete water samples using Niskin bottles without contacting the seafloor or disturbing benthic habitats. Other biotic sampling (such as macrofauna and meiofauna sampling) are described methods for sediment sampling (see multi-corer, box corer, freefall grab sampler).	
Meteorological observations and measurements, including the setting of instruments. Oceanographic moorings serve as anchored platforms for long-term data collection. These consist of an anchored cable equipped with instruments such as current meters, Acoustic Doppler Current Profilers (ADCPs), sediment traps, and CTDs. Due to their similarity with the above methods, moored and drifting hydrophones have been assessed under oceanographic equipment. Moored hydrophones would be part of a larger oceanographic mooring deployment, while drifting hydrophones remain at/near the surface in the water column.	Meteorological observations are typically made from exploration vessels via shipboard weather stations or from satellite imagery. Due to the water depths across the Application Area, it is not envisaged to deployed moorings that have a surface float that would host meteorological sensors. Oceanographic mooring mounted ADCPs emit intermittent, low-energy, high-frequency acoustic pulses that are above the audible range of many marine mammals and dissipate quickly. As such, ADCPs are unlikely to have adverse effects on marine life as the acoustic emissions are too brief and low intensity to mask communications or cause hearing impairment in marine animals (Wood's Hole Oceanographic Institute, 2019; NOAA, 2021). Other sensors on oceanographic moorings are passive (e.g., sediment traps and CTDs) and therefore will not interfere with marine life other than being a physical presence in the water column). Typical oceanographic moorings in the CCZ are designed and deployed such that they extend from the seafloor upward to the surface, with the shallowest part of the longest moorings being around 500 m below the surface. The physical seafloor footprint of oceanographic moorings is small (less than 5 m² per anchor), and efforts are made to mitigate potential entanglement risks for fishing gear. If sacrificial anchors are left on the seabed post-recovery, their impact remains insignificant due to their non-toxic composition (e.g., steel train wheels). Lowered ADCPs are typically installed on CTD rosette systems and measure water column currents during vertical deployments. Lowered ADCPs do not make contact with the seabed; as such, there is no physical footprint associated with this sampling method; however, the acoustic pulses are equivalent to those described for seabed-mounted ADCPs above. CTDs are widely used oceanographic instruments typically deployed on CTD rosettes by lowering them through the water column on cables (which are around 10 mm in diameter). CTDs are non-invasive passive sensors that have a very small physical footprint, are compact and lightweight, and the act of lowering or retrieving them creates negligible noise or turbulence that would not significantly impact marine organisms (Wood's Hole Oceanographic Institute, 2019; NOAA, 2021).	NOAA DSMR (2025): Section 970.701, paragraph a (5) NOAA DSMR (2025): Section 970.701, paragraph a (6) ISA (2015): Section IV, paragraph 18 (d) ISA (2015): Section IV, paragraph 18 (e)

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
	Landers are utilized to assess sediment-water nutrient exchange by deploying chambers over the seabed. Landers have a footprint of approximately 4 m^2. The small-scale disturbances create a limited, localized footprint on the seabed which results in minimal physical disturbance on benthic habitats (Cecchetto et al., 2023; Kononets et al., 2021). Moored and drifting hydrophones do not emit noise and represent a passive acoustic monitoring tool that records ambient noise and biological sounds. They are widely accepted as having minimal environmental disturbance (Lillis et al., 2018; Hermannsen et al., 2019; Polagye et al., 2020).	
Seabed imaging may be performed using a Remotely Operated Vehicles (ROVs), Autonomous Underwater Vehicles (AUVs), or Towed Camera System. Moored and baited time-lapse cameras may also be deployed to monitor deep-sea scavengers.	The use of these systems is well-established in marine research and environmental monitoring. Operating several meters above the seabed, these systems utilize umbilicals (for ROVs and towed systems) and low-energy sonar for seafloor mapping. The systems can be deployed for many hours per mission. Towed camera systems, ROVs and AUVs are non-invasive sampling techniques that do not make direct contact with the seabed. They also produce sound levels low enough to avoid harming marine life, and therefore their environmental impact is considered negligible. Artificial lighting from these systems has the potential risk of disrupting deep-sea species that rely on bioluminescence for communication and predation avoidance. However, the potential effects are limited to the footprint of the light spill area in the vicinity of the camera system (Morris et al., 2014; Simon-Lledó et al., 2019). In addition, NOAA Ocean Exploration Sampling Procedures Manual (2023), identifies that ROVs can be used to collect limited biological, geological, and water samples in a way that minimizes negative impacts on the local environment and marine life. This manual is the authoritative resource guiding NOAA's deep-sea sampling operations with detailed impact assessments and protocols for exploration-phase activities. ROV and AUV may also be used for targeted water and sediment sample collection. Potential effects associated with sample collection are discussed under the relevant sections. For moored and baited time-lapse cameras, the physical footprint is confined to a small area (less than 4 m^2), where a sacrificial anchor is placed and has no mechanical intrusion (Drazen et al., 2020; Jones et al., 2017; Leitner et al., 2017). As such, the potential for significant impacts to occurs are considered unlikely.	NOAA DSMR (2025): Section 970.701, paragraph a (8) ISA (2015): Section IV, paragraph 18 (f)
Shipboard mineral assaying and analysis	Shipboard mineral assaying and analysis in deep-sea exploration typically involve non-destructive geochemical and mineralogical methods conducted onboard research vessels to quickly characterize mineral samples such as polymetallic nodules or sediment cores. Shipboard assaying analyzes only small quantities of mineral samples, typically recovered by sediment corers or nodules collected during exploration cruises. Since the analysis occurs entirely	NOAA DSMR (2025): Section 970.701, paragraph a (9)

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
	on collected samples within the ship's laboratory, it does not disturb the marine environment further. As such, there is no potential for significant environmental impacts associated with this activity (CSIRO, 2025).	ISA (2015): Section IV, paragraph 18 (g)
Positioning systems, including bottom transponders and surface and subsurface buoys used to determine and communicate the location of vessels, underwater vehicles, or fixed points in marine environments.	These systems are crucial for safely guiding and monitoring exploration vessels, ROVs, AUVs, or subsea infrastructure. Typical types include: • Bottom transponders: Acoustic devices placed on the seafloor that respond to signals from ships or underwater vehicles, enabling accurate tracking using techniques like ultra-short baseline (USBL), short baseline (SBL) and long baseline (LBL) acoustic positioning. • Surface and subsurface buoys: Floating or moored platforms equipped with GPS and acoustic systems that assist in navigation and tracking of underwater operations. The filing of Notices to Mariners ensures that these fixed acoustic or buoy positions are officially recognized to avoid navigational hazards and coordinate marine activities.	NOAA DSMR (2025): Section 970.701, paragraph a (10) ISA (2015): Section IV, paragraph 18 (h)
Towed plume-sensor measurements involve towing a suite of sensors behind a research vessel or an underwater vehicle to detect and analyze physical and chemical properties of water plumes.	Towed plume sensor measurements are typically associated with hydrothermal vent/seafloor massive sulfide exploration rather than polymetallic nodule exploration. Methods used are considered to pose a low risk of significant environmental impact because they involve passive, non-invasive monitoring of water column properties without physically disturbing the seabed or marine organisms (Muñoz-Royo et al., 2021; Gazis et al., 2025). Furthermore, these approaches typically use small, low-energy equipment that can be carefully controlled and targeted, limiting spatial footprints and allowing for repeated monitoring without cumulative harm.	NOAA DSMR (2025): Not specifically listed, but likely to be similar to low-level impacts covered under Section 970.701, paragraph a (5) and/or (6) ISA (2015): Section IV, paragraph 18 (i)
Tracer dyes to study water current and dispersion patterns. Only non-harmful tracers would be employed	Marine dye tracers used in environmental studies are generally not toxic, especially when used at typical concentrations for oceanographic purposes. However, toxicity depends on the specific dye used, its concentration, and the local environment. Rhodamine WT, the most common dye, is non-carcinogenic, non-mutagenic, and does not bioaccumulate.	ISA (2015): Section IV, paragraph 18 (l)
In situ faunal metabolic measurements (e.g. sediment oxygen consumption)	The purpose of in situ faunal metabolic measurements like sediment community oxygen consumption, is primarily to characterize baseline benthic ecosystem functioning and to assess the biological activity (SCOC), including microbial and faunal respiration, within the sediment. SCOC serves as an indicator of organic matter processing, sediment health, and ecosystem metabolic rates, providing data on how benthic communities sustain themselves and the overall ecosystem	NOAA DSMR (2025): Not specifically listed, but likely to be similar to low-level impacts covered under Section 970.701, paragraph a (7)

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
	function. SCOC can be measured using sediment cores. As such, the potential effects associated with these assessments are assessed as part of the sediment sampling methods.	ISA (2015): Section IV, paragraph 18 (j)
Small-Scale Epibenthic Dredge Sampling This sampling method interacts directly with the seabed, extracting sediments, nodules, and benthic fauna.	Epibenthic dredging is a small-scale seabed sampling method used to collect benthic organisms, sediment, and polymetallic nodules from the seafloor surface. It involves dragging or towing a dredge device just above or along the seabed to gather biological and mineralogical samples. Epibenthic dredging disturbs the seabed by physically removing benthic organisms and the sediment surface, leading to habitat alteration or loss in the dredged footprint. Impacts include removal of benthic fauna, alteration of seabed physical structure, near-bottom sediment resuspension, and changes in sediment chemistry in the disturbance zone. Studies on impacts of benthic sleds indicate that while sleds are used to collect benthic organisms, they exert far less physical impact than heavy bottom trawling gears that gouge and resuspend sediments extensively. Further, while biological recovery varies by taxa, many meio- and macrofaunal groups show signs of recolonization within several years after disturbance and although some sediment chemistry changes persist long term, overall ecological impacts are considered moderate given the limited spatial scale of the dredge footprints (Paul et al., 2020). Epibenthic sled, dredge or trawl, or similar technique, in nodule fields, will not exceed 10,000 m^2.	Under the ISA document *Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area*, issued by the Legal and Technical Commission in 2023 (ISBA/25/LTC/6/Rev.3), sampling with an epibenthic sled, dredge or trawl, or similar technique, in nodule fields, that does not exceed 10,000 m^2 does not require an EIS to be prepared.
Vessel operations play a crucial role in facilitating exploration activities, providing the platform from which exploration occurs and essential logistical, safety, communication, and operational functions with minimal environmental risk in deep-sea exploration.	A range of potential effects may be associated with vessel operations, including: • Underwater noise: Vessel engines, thrusters, dynamic positioning systems, and operations such as winching or deploying equipment create continuous and intermittent underwater noise that can disturb marine mammals, fish, and invertebrates by interfering with communication, navigation, and feeding behaviors. Of these taxa, cetaceans, and in particular whales, are likely to be the most sensitive. However, given the small-scale nature of the exploration activities, the effects are likely to be minor (Erbe et al., 2019). • Collision with marine fauna: Vessel collisions with marine fauna have the potential to occur; however, this is considered a low likelihood during exploration activities due to the generally slow speed of survey vessels during sampling activities (Young et al., 2025), and impacts are no different than normal vessel movements when transiting between sampling sites.	NOAA's Final Environmental Impact Statement for Ocean Minerals Company exploration license (USA-4) states that all exploration activities, including vessel operations, are considered to have no potential for significant environmental impact

Description of Proposed Exploration Activity	Potential Effects	Previous Finding of No Significant Effect
	• Minor discharges of operational by-products: Minor discharges of by-products, such as lubricants, hydraulic fluids, and oily mixtures, may introduce small amounts of contaminants into the marine environment. Discharges of by-products, if required, will be in accordance with the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I (Prevention of Pollution by Oil) to ensure the volume and concentrations are minimal to prevent the potential for significant effects. • Discharge of sewage and other regulated waste will be in accordance with MARPOL Annex IV (Prevention of Pollution by Sewage from Ships) and Annex V (Prevention of Pollution by Garbage from Ships) to minimise the potential for impacts on the environment. • Greenhouse gas emissions: Greenhouse gas emissions from a survey vessel are generally considered minor due to the limited scale and duration of vessel operations. Survey vessels typically operate at relatively low speeds, resulting in lower fuel consumption and consequently reduced greenhouse gas emissions. • User conflicts: Interactions with other maritime activities, such as commercial fishing and shipping, are expected to be negligible due to the remote nature of the exploration area.	

6 Environmental Monitoring Plan

This Environmental Monitoring Plan provides an overview of the proposed surveys and monitoring associated with low-impact polymetallic nodule exploration activities in the CCZ.

The Environmental Monitoring Plan is provided in Table 6-1.

Table 6-1: Environmental Monitoring Plan for Exploration Activities

Monitoring Element	Survey Methods	Purpose of Monitoring	Timing / Frequency	Proposed Monitoring of Impacts
Geophysical surveys for seafloor mapping	• Gravity and magnetometric observations and measurements • Bottom and sub-bottom acoustic profiling or imaging, w/out explosives • Electromagnetic profiling, w/out explosives or significantly harmful frequencies)	High-resolution mapping of nodule fields, seabed morphology for baseline data collection and resource estimates	During initial survey(s) and periodically as needed	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all geophysical surveys as part of exploration activities.
Water column sampling	• Pelagic nets • Niskin bottle	Baseline data collection on water chemistry, physico-chemical properties, and pelagic taxa	As required, for physical and chemical data. Periodically, for biological data, to capture potential temporal variability. Consider inter-annual sampling to capture longer temporal scales.	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all water sampling activities as part of exploration activities.
Meteorological & oceanographic measurements	• Oceanographic moorings (seabed-mounted and lowered ADCP) • CTD arrays • Landers	Monitoring of physical ocean conditions, including currents, sediment-water nutrient exchange	Continuous or periodic throughout exploration	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all mooring deployments and measurements as part of exploration activities.
	• Passive acoustic monitoring (moored and drifting hydrophones)	Recording ambient and operational noise, and presence of cetaceans to characterize baseline acoustic environment	Continuous or periodic throughout exploration	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all mooring deployments and measurements as part of exploration activities.
Sediment sampling	• Box corer • Multicore	Characterisation of physical, chemical and	As required, for physical and chemical data.	No potential for significant impact. However, paired seabed

Monitoring Element	Survey Methods	Purpose of Monitoring	Timing / Frequency	Proposed Monitoring of Impacts
	• Freefall grab • Push cores (deployed from ROV/AUV)	biological benthic environments	Periodically, for biological data, to capture potential temporal variability. Consider inter-annual sampling to capture longer temporal scales.	imaging will record observations of the seafloor during sampling. Positional and temporal data will be collected on all sampling as part of exploration activities.
Seabed imaging	• Remotely Operated Vehicle (ROV) • Autonomous Underwater Vehicle (AUV) • Towed camera system • Moored and baited time-lapse cameras	Benthic habitat classification; analysis of nodule abundance, and size distribution; and baseline data observations to characterise benthic and pelagic taxa	During initial survey(s) and periodically as needed	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all seabed imagery surveying as part of exploration activities.
Shipboard mineral assaying	• Onboard preliminary assessment of polymetallic nodule samples to characterize mineral content.	Characterize mineral content for resource estimation	As required	No potential for significant impact. Monitoring of impacts is not proposed. Data will be kept on all shipboard mineral assaying that may occur.
Use of positioning systems	• Bottom transponders • Surface and subsurface buoys	Precise navigation and position referencing of vessels, instruments, and deployed systems	Throughout the exploration phase	No potential for significant impact. Monitoring of impacts is not proposed. Positional and temporal data will be collected on all positioning system deployments as part of exploration activities.
Towed plume-sensor measurements	• Towed plume sensor measurements are typically associated with hydrothermal vent/seafloor massive sulfide exploration rather than polymetallic nodule exploration therefore n/a	n/a	n/a	n/a
Dye release or tracer studies	• Tracer dyes to study water current and dispersion patterns. Only non-	Understand water movements and dispersal of potential plumes	Limited use	No potential for significant impact. Monitoring of impacts is not proposed.

Monitoring Element	Survey Methods	Purpose of Monitoring	Timing / Frequency	Proposed Monitoring of Impacts
	harmful tracers would be employed (e.g., Rhodamine WT)			Selection of dye tracers to be used with consider toxicity. Positional and temporal data will be collected on all dye release/trace as part of exploration activities.
Small-scale epibenthic dredge	• Dredge sampling over small seabed areas	Physical collection of samples for biological and mineralogical assessment	May be comprised of a single event, or a number of smaller events	Potential for small-scale, localized impacts that are unlikely to be significant. Seafloor mapping and seafloor imagery will be collected before dredging occurs to confirm the assessment of low potential for significant impacts is appropriate.
Vessel operations	• Vessel movements	Impact mitigation	During vessel transit	Observe for marine mammals to spot cetaceans and implement avoidance protocols prior to deploying sampling equipment/undertaking exploration activities that may interact with cetaceans. Other routine vessel operations are managed under standard maritime regulations (MARPOL) and do not require additional monitoring measures

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Appendix B

COMPANY FORMATION DOCUMENTS

BY-LAWS

OF

SeaX Inc.

(herein, the "Corporation")

A DELAWARE CORPORATION

ARTICLE I
REGISTERED OFFICE AND REGISTERED AGENT

Section 1. Registered Office; Registered Agent. The registered agent and registered office of the Corporation in the State of Delaware shall be as set forth in the Certificate of Incorporation, as it may be amended.

Section 2. Principal Office; Other Offices. The Corporation's principal place of business shall be at such location in such state or other jurisdiction as the Board of Directors may determine, from time to time, in its discretion. The Board will provide the shareholders with notice of any such change in the Corporation's principle place of business. The Corporation may also have offices in such other States or jurisdictions as the Board of Directors may from time to time designate.

ARTICLE II – SEAL

Section 1. Corporate Seal: The Corporate Seal, if such a Seal is employed by the Corporation, shall have inscribed thereon the name of the Corporation, the year of its organization and the words "Corporate Seal, Delaware" or "Seal Delaware". The Board of Directors may define any additional features of the Seal or amend any features not required for such a Seal under the Delaware General Corporation Law (the "DGCL"), in its discretion. The Seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise, as may be prescribed by law or custom or by the Board of Directors.

ARTICLE III - STOCKHOLDERS MEETINGS

Section 1. Place of Meetings: Meetings of stockholders may be held at any place, either within or without the State of Delaware and the United States, as may be selected from time to time by the Board of Directors. In the discretion of the Board of Directors, meetings may also be held by means of telephonic, video, or other remote or virtual communication whereby each party can hear and be heard by the other parties as may be designated from time to time by a resolution of the Board of Directors and as set forth in the notice for the relevant meeting.

Section 2. Annual Meetings: The annual meeting of the stockholders for the election of members of the Board of Directors (each a "Director") and for the transaction of such other business as may properly come before the meeting shall be held at such date, time and place, if any, as shall be determined by the Board of Directors and stated in the notice of the meeting. If no date for the annual meeting is established or said meeting is not held on the date established as provided above, a special meeting in lieu thereof may be held or there may be action by written consent of the stockholders on matters to be voted on at the annual meeting, and such special

meeting or written consent shall have for the purposes of these By-Laws or otherwise all the force and effect of an annual meeting.

Section 3. Special Meetings: Special meetings of the stockholders may be called at any time by the President, a resolution of the Board of Directors, or by stockholders entitled to cast at least one-fifth (1/5) of the votes which all stockholders are entitled to cast. Upon written request to the Corporation of any person or persons who have duly called a special meeting, it shall be the duty of the Secretary to fix the date, place and time of the meeting, and to give due notice thereof to all the persons entitled to vote at the meeting. Business at all special meetings shall be confined to the objects stated in the notice of the meeting and the matters immediately germane thereto.

Section 4. Notice of Meetings: Notice of the place, if any, date, hour, the record date for determining the stockholders entitled to vote at the meeting or the specific details for accessing a meeting held through any remote means of communication, if any, of every meeting of stockholders shall be given by the Corporation not less than ten (10) days nor more than sixty (60) days before the meeting (unless a different time is specified by law) to every stockholder entitled to vote at the meeting as of the record date set forth such purpose. Notices of special meetings shall also specify the purpose or purposes for which the meeting has been called. Notices of meetings to stockholders may be given by mailing the same, addressed to the stockholder entitled thereto, at such stockholder's mailing address as it appears on the records of the Corporation and such notice shall be deemed to be given when deposited in the U.S. mail, postage prepaid. Without limiting the manner by which notices of meetings otherwise may be given effectively to stockholders, any such notice may also be effectively provided by means of an electronic transmission (meaning an "Electronic Transmission" as used in Section 232 of the DGCL. Notice of any meeting need not be given to any stockholder who shall, either before or after the meeting, submit a waiver of notice or who shall attend such meeting, except when the stockholder attends for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of the meeting shall be bound by the proceedings of the meeting in all respects as if due notice thereof had been given.

Section 5. Adjournment: Any meeting of the stockholders, annual or special, may be adjourned from time to time by a vote of the majority of the shares present to reconvene at the same or some other place, if any, and notice need not be given of any such adjourned meeting if the time, place, if any, thereof, and the means of remote communication, if any, are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the Corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If, after the adjournment, a new record date is fixed for stockholders entitled to vote at the adjourned meeting, the Board of Directors shall fix a new record date for notice of the adjourned meeting and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at the adjourned meeting as of the record date fixed for notice of the adjourned meeting.

Section 6. Quorum: A majority of the outstanding shares of the Corporation entitled to vote at a given meeting, represented in person or by proxy, shall constitute a quorum at such meeting of stockholders. If less than a majority of the outstanding shares entitled to vote at such meeting is represented at a meeting, a majority of the shares so represented may adjourn the meeting as set forth above in Section 5 at any time without further notice.

Section 7. Voting; Proxies: Unless otherwise required by law or the Certificate of Incorporation, the election of Directors shall be decided by a plurality of the votes cast at a

meeting of the stockholders by the holders of stock entitled to vote in the election. Unless otherwise required by law, the Certificate of Incorporation, or these By-Laws, any matter, other than the election of Directors, brought before any meeting of stockholders shall be decided by the affirmative vote of the majority of shares present in person or represented by proxy at the meeting and entitled to vote on the matter. Each stockholder entitled to vote at a meeting of stockholders or to express consent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by proxy or by a transmission permitted by Section 212(c) of the DGCL, but no such proxy shall be voted or acted upon after three (3) years from its date, unless the proxy provides for a longer period. A proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A stockholder may revoke any proxy which is not irrevocable by attending the meeting and voting in person or by delivering to the Secretary of the Corporation a revocation of the proxy or a new proxy bearing a later date. Voting at meetings of stockholders need not be by written ballot. The Corporation shall not directly or indirectly vote any share of its own stock; provided, however, that the Corporation may vote shares which it holds in a fiduciary capacity to the extent permitted by law.

Section 8. Consent In Lieu of Meetings: Any action required to be taken at any annual or special meeting of stockholders of a Corporation, or any action which may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent in writing (including one provided through Electronic Transmission), setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing.

Section 9. Setting the Record Date: In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than sixty (60) nor less than ten (10) days before the date of such meeting. If the Board of Directors so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board of Directors determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the determination of stockholders entitled to vote at the adjourned meeting and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for the determination of stockholders entitled to vote therewith at the adjourned meeting. In order that the Corporation may determine the stockholders entitled to consent to corporate action in writing without a meeting, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than ten (10) days after the date upon which the resolution fixing the record date is adopted by the Board of Directors. If no record date has been fixed by the Board of Directors, the record date for determining stockholders

entitled to consent to corporate action in writing without a meeting: (a) when no prior action by the Board of Directors is required by law, the record date for such purpose shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Corporation by delivery (by hand, or by certified or registered mail, return receipt requested) to its registered office in the State of Delaware, its principal place of business, or an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded and (b) if prior action by the Board of Directors is required by law, the record date for such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution taking such prior action.

Section 10. List of Stockholders: The Corporation shall prepare a complete list of the stockholders entitled to vote at any meeting of stockholders (provided, however, if the record date for determining the stockholders entitled to vote is less than ten (10) days before the date of the meeting, the list shall reflect the stockholders entitled to vote as of the tenth (10nth) day before the meeting date), arranged in alphabetical order, and showing the address of each stockholder and the number of shares of each class of capital stock of the Corporation registered in the name of each stockholder at least ten (10) days before any meeting of the stockholders. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, on a reasonably accessible electronic network if the information required to gain access to such list was provided with the notice of the meeting or during ordinary business hours, at the principal place of business of the Corporation for a period of at least ten (10) days before the meeting. If the meeting is to be held at a place, the list shall also be produced and kept at the time and place of the meeting the whole time thereof and may be inspected by any stockholder who is present. If the meeting is held solely by means of remote communication, the list shall also be open for inspection by any stockholder during the whole time of the meeting as provided by applicable law. Except as provided by applicable law, the stock ledger of the Corporation shall be the only evidence as to who are the stockholders entitled to examine the stock ledger and the list of stockholders or to vote in person or by proxy at any meeting of stockholders.

Section 11. Conduct of Meetings: The Board of Directors may adopt by resolution such rules and regulations for the conduct of the meeting of the stockholders as it shall deem appropriate. At every meeting of the stockholders, the President, or in his or her absence or inability to act, the person whom the President shall appoint, shall act as chairman of, and preside at, the meeting. The Secretary or, in his or her absence or inability to act, the person whom the chairman of the meeting shall appoint to serve as secretary of the meeting, shall act as secretary of the meeting and keep the minutes thereof. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the chairman of any meeting of the stockholders shall have the right and authority to prescribe such rules, regulations, and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations, or procedures, whether adopted by the Board of Directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (a) the establishment of an agenda or order of business for the meeting; (b) the determination of when the polls shall open and close for any given matter to be voted on at the meeting; (c) rules and procedures for maintaining order at the meeting and the safety of those present; (d) limitations on attendance at or participation in the meeting to stockholders of record of the Corporation, their duly authorized and constituted proxies or such other persons as the chairman of the meeting shall determine; (e) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (f) limitations on the time allotted to questions or comments by participants.

ARTICLE IV – DIRECTORS

Section 1. Board Management: The business and affairs of the Corporation shall be managed by or under the direction of its Board of Directors. The Board of Directors shall consist of such number of persons as the Board of Directors shall determine from time to time, in its discretion. Each Director shall hold office until a successor is duly elected and qualified or until the Director's earlier death, resignation, disqualification, or removal. Any Director may resign at any time by notice given in writing (including through Electronic Transmission) to the Corporation. Such resignation shall take effect at the date of receipt of such notice by the Corporation or at such later time as is therein specified. Verbal resignation shall not be deemed effective until confirmed by the Director in writing (including through Electronic Transmission) to the Corporation. Except as prohibited by applicable law or the Certificate of Incorporation, the stockholders entitled to vote in an election of Directors may remove any Director from office at any time, with or without cause, by the affirmative vote of a majority in voting power thereof.

Section 2. Regular Meetings: Regular meetings of the Board of Directors may be held without notice at such times and at such places as may be determined from time to time by the Board of Directors or its chairman.

Section 3. Special Meetings: Special meetings of the Board of Directors may be called by the Chairman of the Board of Directors on five (5) days' notice to all Directors, either personally or by mail, courier service, or through Electronic Transmission; special meetings may be called by the President or Secretary in like manner and on like notice by written request (including by request through Electronic Transmission) to the Chairman of the Board of Directors.

Section 4. Telephonic or Web Meetings: Board of Director's meetings or committee meetings, regular or special, may be held by means of telephone conference or other communications equipment by means of which all persons participating in the meeting can hear each other and be heard, as may be determined by the Board of Directors. Attendance by a Director in a meeting through the relevant media pursuant to this Section 4 shall constitute presence in person at such meeting.

Section 5. Quorum: A majority of the total number of Directors shall constitute a quorum of any regular or special meetings of the Directors for the transaction of business.

Section 6. Voting: Except as otherwise expressly required by these By-Laws, the Certificate of Incorporation, or by applicable law, the vote of a majority of the Directors present at a meeting at which a quorum is present shall be the act of the Board of Directors.

Section 7. Consent In Lieu of Meeting: Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting if all Directors or members of such committee, as the case may be, consent thereto in writing (including through Electronic Transmission), and the consents are filed with the minutes of proceedings of the Board of Directors or committee in accordance with the DGCL.

Section 8. Board Committees: The Board of Directors may designate one or more committees, each committee to consist of one or more of the Directors of the Corporation. The Board of Directors may designate one or more Directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. If a member of a committee shall be absent from any meeting, or disqualified from voting thereat, the

remaining member or members present at the meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent permitted by the DGCL, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation and may authorize the seal of the Corporation to be affixed to all papers that may require it to the extent so authorized by the Board of Directors. Unless the Board of Directors provides otherwise, at all meetings of such committee, a majority of the then authorized members of the committee shall constitute a quorum for the transaction of business, and the vote of a majority of the members of the committee present at any meeting at which there is a quorum shall be the act of the committee. Each committee shall keep regular minutes of its meetings. Unless the Board of Directors provides otherwise, each committee designated by the Board of Directors may make, alter, and repeal rules and procedures for the conduct of its business. In the absence of such rules and procedures each committee shall conduct its business in the same manner as the Board of Directors conducts its business pursuant to this Article IV.

Section 9. Compensation: Directors may receive equity compensation or such fees as the Board of Directors may determine from time to time. In addition, a fixed sum per Board of Directors or committee meeting and any expenses of attendance may be allowed for attendance at each regular or special meeting. Nothing herein contained shall be construed to preclude any director from serving the Corporation as an officer or employee and receiving compensation therefore.

Section 10. Board Vacancies: Any newly created Director positions resulting from an increase in the authorized number of directors and any vacancies occurring in the Board of Directors, may be filled by the affirmative votes of a majority of the remaining members of the Board of Directors, although less than a quorum, or by a sole remaining Director. A Director so elected shall be elected to hold office until the earlier of the expiration of the term of office of the Director whom he or she has replaced, a successor is duly elected and qualified, or the earlier of such Director's death, resignation or removal. When one or more Directors shall resign from the Board, effective at a future date, a majority of the Directors then in office, including those who have resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective.

ARTICLE V – OFFICERS

Section 1. Executive Officers: The executive officers of the Corporation shall be chosen by the Board of Directors. The initial officers shall be: President, Secretary, and Treasurer. The Board may choose one or more Vice Presidents and such other officers as the Board of Directors shall deem necessary, and may delegate the selection of lesser officers to one or more executive officers of the Corporation. The Board of Directors may also choose a Chairman from among its own members. Any number of offices may be held by the same person, including a Director.

Section 2. Salaries: Salaries of all officers and agents of the Corporation shall be determined and fixed by the Board of Directors. The primary terms of such officers' and agents' compensation, responsibilities, obligations and other terms of employment shall be set forth in an employment agreement between the officer and the Corporation.

Section 3. Term of Office: Subject to the terms of any employment agreement between the Corporation and the officers, the officers of the Corporation shall serve at the pleasure of the Board of Directors and shall hold office until their successors are chosen and have qualified. Any

officer or agent elected or appointed by the Board may be removed by the Board of Directors whenever, in its judgment, the best interest of the Corporation will be served thereby.

Section 4. President: The President shall be chief executive officer of the Corporation, shall preside at all meetings of the stockholders, and shall have general and active management of the business of the Corporation. He or she may be an *ex officio* member of all committees if provided for by the Board of Directors, and shall have the general power and duties of supervision and management, the scope of which shall be set by the Board of Directors.

Section 5. Secretary: The Secretary shall attend all sessions of the Board of Directors and all meetings of the stockholders and act as clerk thereof, and record all votes of the Corporation and the minutes of all its transactions in a book to be kept for that purpose, and shall perform like duties for all the committees of the Board of Directors when required. He or she shall give, or cause to be given, notice of all meetings of the stockholders and of the Board of Directors, and such other duties as may be prescribed by the Board of Directors or President, under whose supervision shall be. He or she shall keep in safe custody the Seal of the Corporation, and when authorized by the Board of Directors, affix the same to any instrument requiring it.

Section 6. Treasurer: The Treasurer shall have custody of the corporate funds and securities and shall keep full and accurate accounts of receipts and disbursements in books belonging to the Corporation and shall keep the moneys of the Corporation in a separate account to the credit of the Corporation. He or she shall disburse the funds of the Corporation as may be ordered by the Board, taking proper vouchers for such disbursements, and shall render to the President and Directors, at the regular meetings of the Board or whenever they may require it, an account of all his transactions as Treasurer and of the financial condition of the Corporation.

Section 7. Delegation; Customary Powers: In case any officer is absent, or for any other reason that the Board of Directors may deem sufficient, the President or the Board of Directors may delegate for the time being the powers or duties of such officer to any other officer or to any Director. Each officer of the Corporation shall have in addition to the duties and powers specifically set forth herein such duties and powers as are customarily incident to such officer's office, and such duties and powers as may be designated from time to time by the Board of Directors.

ARTICLE VI - CORPORATE RECORDS

Section 1. Maintenance of Records: Any records administered by or on behalf of the Corporation in the regular course of its business, including its stock ledger, books of account, and minute books, may be maintained on any information storage device, method, or one or more electronic networks or databases (including one or more distributed electronic networks or databases); provided that the records so kept can be converted into clearly legible paper form within a reasonable time, and, with respect to the stock ledger, the records so kept comply with Section 224 of the DGCL. The Corporation shall so convert any records so kept upon the request of any person entitled to inspect such records pursuant to applicable law.

Section 2. Inspection Rights: Any stockholder of record, in-person or by attorney or other agent, shall, upon written demand under oath stating the purpose thereof, have the right during the usual hours of business to inspect for any proper purpose the Corporation's stock ledger, a list of its stockholders, and its minute of Stockholder meetings for the past two (2) years. A proper purpose shall mean a purpose reasonably related to such person's interest as a stockholder. In

every instance where an attorney or other agent shall be the person who seeks the right to inspection, the demand under oath shall be accompanied by a power of attorney or such other writing which authorizes the attorney or other agent to so act on behalf of the stockholder. The demand under oath shall be directed to the Corporation at its registered office or at its principal place of business.

ARTICLE VII - STOCK CERTIFICATES, DIVIDENDS, ETC.

Section 1. Certification of Shares: The shares of stock of the Corporation may or may not be represented by certificates; the Board of Directors may provide by resolution or resolutions that some or all of any class or series shall be uncertificated shares that may be evidenced by a book-entry system maintained by the registrar of such stock. If shares are represented by certificates, such certificates shall be in the form, other than bearer form, approved by the Board of Directors. The certificates representing shares of stock of each class shall be signed by, or in the name of, the Corporation by any two authorized officers of the Corporation. Any or all such signatures may be facsimiles. Although any officer, transfer agent, or registrar whose manual or facsimile signature is affixed to such a certificate ceases to be such officer, transfer agent, or registrar before such certificate has been issued, it may nevertheless be issued by the Corporation with the same effect as if such officer, transfer agent, or registrar were still such at the date of its issue.

Section 2. Transfers: Stock of the Corporation shall be transferable in the manner prescribed by law and in these by-laws. Any transfer of stock by a stockholder must be made in compliance with the Securities Act of 1933, as amended, as well as similar state securities laws. Transfers of stock shall be made on the books of the Corporation only by the holder of record thereof, by such person's attorney lawfully constituted in writing and, in the case of certificated shares, upon the surrender of the certificate thereof, which shall be cancelled before a new certificate or uncertificated shares shall be issued. No transfer of stock shall be valid as against the Corporation for any purpose until it shall have been entered in the stock records of the Corporation by an entry showing from and to whom transferred. To the extent designated by the President or the Treasurer of the Corporation, the Corporation may recognize the transfer of fractional uncertificated shares, but shall not otherwise be required to recognize the transfer of fractional shares.

Section 3. Lost Certificate: The Board of Directors may direct a new certificate or uncertificated shares to be issued in place of any certificate theretofore issued by the Corporation alleged to have been lost, stolen, or destroyed upon the making of an affidavit of that fact by the owner of the allegedly lost, stolen, or destroyed certificate. When authorizing such issue of a new certificate or uncertificated shares, the Board of Directors may, in its discretion and as a condition precedent to the issuance thereof, require the owner of the lost, stolen, or destroyed certificate, or the owner's legal representative to give the Corporation a bond sufficient to indemnify it against any claim that may be made against the Corporation with respect to the certificate alleged to have been lost, stolen, or destroyed or the issuance of such new certificate or uncertificated shares.

Section 4. Dividends: Subject to applicable law and the Certificate of Incorporation, dividends upon the shares of capital stock of the Corporation may be declared by the Board of Directors at any regular or special meeting of the Board of Directors. Dividends may be paid in cash, in property, or in shares of the Corporation's capital stock, unless otherwise provided by applicable law or the Certificate of Incorporation.

Section 5. Reserves: Before payment of any dividend there may be set aside out of the net profits of the Corporation such sum or sums as the Directors, from time to time, in their absolute discretion, think proper as a reserve fund to meet contingencies, or for equalizing dividends, or for repairing or maintaining the property of the Corporation, or for such other purpose as the Directors shall think conducive to the interests of the Corporation, and the Directors may abolish any such reserve in the manner in which it was created.

ARTICLE VIII – INDEMNIFICATION AND ADVANCEMENT

Section 1. Definitions: Solely for purposes of this Article VIII, the following terms shall have the definition set forth below:

(a) "Disinterested Director" means, with respect to each Proceeding in respect of which indemnification is sought hereunder, a Director of the Corporation who is not and was not a party to such Proceeding.

(b) "Expenses" means all reasonable attorneys' fees, retainers, court costs, transcript costs, fees of expert witnesses, private investigators and professional advisors (including, without limitation, accountants and investment bankers), travel expenses, duplicating costs, printing and binding costs, costs of preparation of demonstrative evidence and other courtroom presentation aids and devices, costs incurred in connection with document review, organization, imaging and computerization, telephone charges, postage, delivery service fees, and all other disbursements, costs or expenses of the type customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, settling or otherwise participating in, a Proceeding.

(c) "Non-Officer Employee" means any person who serves or has served as an employee or agent of the Corporation, but who is not or was not a Director or Officer;

(d) "Officer" means any person who serves or has served the Corporation as an officer appointed by the Board of Directors of the Corporation;

(e) "Proceeding" means any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, inquiry, investigation, administrative hearing or other proceeding, whether civil, criminal, administrative, arbitrative or investigative.

Section 2. Indemnification of Directors and Officers: Subject to the operation of Section 4 of this Article VIII, each Director and Officer shall be indemnified and held harmless by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than such law permitted the Corporation to provide prior to such amendment) against any and all Expenses, judgments, penalties, fines and amounts reasonably paid in settlement that are incurred by such Director or Officer or on such Director's or Officer's behalf in connection with any threatened, pending or completed Proceeding or any claim, issue or matter therein, which such Director or Officer is, or is threatened to be made, a party to or participant in by reason of such Director's or Officer's status or conduct as such, if such Director or Officer acted in good faith and in a manner such Director or Officer reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The rights of indemnification provided by this Section 2 shall

continue as to a Director or Officer after he or she has ceased to be a Director or Officer and shall inure to the benefit of his or her heirs, executors, administrators and personal representatives.

Section 3. Indemnification of Non-Executive Employees: Subject to the operation of Section 4 of this Article VIII of these By-Laws, each Non-Officer Employee may, in the discretion of the Board of Directors of the Corporation, be indemnified by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended, against any or all Expenses, judgments, penalties, fines and amounts reasonably paid in settlement that are incurred by such Non-Officer Employee or on such Non-Officer Employee's behalf in connection with any threatened, pending or completed Proceeding, or any claim, issue or matter therein, which such Non-Officer Employee is, or is threatened to be made, a party to or participant in by reason of such Non-Officer Employee's status or conduct as such, if such Non-Officer Employee acted in good faith and in a manner such Non-Officer Employee reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The rights of indemnification provided by this Section 3 shall exist as to a Non-Officer Employee after he or she has ceased to be a Non-Officer Employee and shall inure to the benefit of his or her heirs, personal representatives, executors and administrators. Notwithstanding the foregoing, the Corporation may indemnify any Non-Officer Employee seeking indemnification in connection with a Proceeding initiated by such Non-Officer Employee only if such Proceeding was authorized by the Board of Directors of the Corporation.

Section 4. Good Faith: Unless ordered by a court, no indemnification shall be provided pursuant to this Article VIII to a Director, to an Officer or to a Non-Officer Employee unless a determination shall have been made that such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal Proceeding, such person had no reasonable cause to believe his or her conduct was unlawful. Such determination shall be made by (a) a majority vote of the Disinterested Directors, even though less than a quorum of the Board of Directors, (b) a committee comprised of Disinterested Directors, such committee having been designated by a majority vote of the Disinterested Directors (even though less than a quorum), (c) if there are no such Disinterested Directors, or if a majority of Disinterested Directors so directs, by independent legal counsel in a written opinion, or (d) by the stockholders of the Corporation.

Section 5. Advancement of Expenses to Directors Prior to Final Disposition:

(a) The Corporation shall advance all Expenses incurred by or on behalf of any Director in connection with any Proceeding in which such Director is involved by reason of such Director's Corporate Status within ten (10) days after the receipt by the Corporation of a written statement from such Director requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Director and shall be preceded or accompanied by an undertaking by or on behalf of such Director to repay any Expenses so advanced if it shall ultimately be determined that such Director is not entitled to be indemnified against such Expenses.

(b) If a claim for advancement of Expenses hereunder by a Director is not paid in full by the Corporation within ten (10) days after receipt by the Corporation of documentation of Expenses and the required undertaking, such Director may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim and if successful in whole or in part, such Director shall also be entitled to be paid the expenses of

prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such advancement of Expenses under this Article VIII shall not be a defense to the action and shall not create a presumption that such advancement is not permissible. The burden of proving that a Director is not entitled to an advancement of Expenses shall be on the Corporation.

(c) In any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that the Director has not met any applicable standard for indemnification set forth in the DGCL.

Section 6. Advancement of Expenses to Officers and Non-Officer Employees Prior to Final Disposition:

(a) The Corporation may, at the discretion of the Board of Directors of the Corporation, advance any or all Expenses incurred by or on behalf of any Officer and Non-Officer Employee in connection with any Proceeding in which such is involved by reason of such person's status and/or actions as such upon the receipt by the Corporation of a statement or statements from such Officer or Non-Officer Employee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Officer and Non-Officer Employee and shall be preceded or accompanied by an undertaking by or on behalf of such to repay any Expenses so advanced if it shall ultimately be determined that such Officer or Non-Officer Employee is not entitled to be indemnified against such Expenses.

(b) In any suit brought by the Corporation to recover an advancement of Expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such Expenses upon a final adjudication that the Officer or Non-Officer Employee has not met any applicable standard for indemnification set forth in the DGCL.

Section 7. Contractual Nature of Rights:

(a) The foregoing provisions of this Article VIII shall be deemed to be a contract between the Corporation and each Director and Officer entitled to the benefits hereof at any time while this Article VIII is in effect, and any repeal or modification thereof shall not affect any rights or obligations then existing with respect to any state of facts then or theretofore existing or any Proceeding theretofore or thereafter brought based in whole or in part upon any such state of facts.

(b) If a claim for indemnification hereunder by a Director or Officer is not paid in full by the Corporation within sixty (60) days after receipt by the Corporation of a written claim for indemnification, such Director or Officer may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim, and if successful in whole or in part, such Director or Officer shall also be entitled to be paid the expenses of prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such indemnification under this Article VIII shall not be a defense to the action and shall not create a presumption that such indemnification is not permissible. The burden of proving that a Director or Officer is not entitled to indemnification shall be on the Corporation.

ARTICLE IX – AMENDMENTS

Section 1. These By-Laws may be supplemented, amended, or repealed by the Board or by a vote of stockholders entitled to cast at least a majority of the votes which all stockholders are entitled to cast thereon, at any regular or special meeting of the stockholders, duly convened after notice to the stockholders of that purpose; provided, that (a) the Board of Directors may not alter, amend or repeal any provision of these By-Laws which under the DGCL, by the Certificate of Incorporation or by these By-Laws requires action by the stockholders and (b) any alteration, amendment or repeal of these By-Laws by the Board of Directors and any new By-Law adopted by the Board of Directors may be altered, amended or repealed by the stockholders as set forth in this Section.

ARTICLE X – BUSINESS

Section 1. The Corporation is a special purpose vehicle existing to carry out the following business : (a) Applying to the government of the United States of America ("U.S.") for a licence to explore for seafloor polymetallic nodules in the CCZ, (b) Exploring for seafloor polymetallic nodules in the CCZ, (c) Developing a metallurgical process to treat seafloor polymetallic nodule ore, (d) Subject to receiving a permit from the U.S government, carrying out commercial recovery of seafloor polymetallic nodules in the CCZ, processing the nodules, and selling the resultant metals and other products and (e) such activities that are related and connected to the above and necessary to pursue the above, and/or may be incidental, ancillary or consequential thereto. For certainty, the Corporation is restricted from exploring for any natural resource other than seafloor polymetallic nodules.

ARTICLE XI - MISCELLANEOUS PROVISIONS

Section 1. Checks: All checks or demands for money and notes of the Corporation shall be signed by such officer or officers as the Board of Directors may from time to time designate.

Section 2. Fiscal Year: The fiscal year of the Corporation shall be the calendar year, unless otherwise determined by the Board of Directors.

Section 3. Delaware Chancery Forum Selection: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall, to the fullest extent permitted by law, be the sole and exclusive forum for: (a) any derivative action or proceeding brought on behalf of the Corporation, (b) any action asserting a claim for breach of a fiduciary duty owed by any Director, officer, employee or agent of the Corporation to the Corporation or the Corporation's stockholders, (c) any action asserting a claim arising pursuant to any provision of the DGCL, the Certificate of Incorporation or these By-Laws or (d) any action asserting a claim governed by the internal affairs doctrine, in each case subject to said Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein.

Section 4. Notice: Whenever notice is required to be given to any person by these By-Laws, such notice shall be deemed given effectively if given in person, by mail addressed to such person at such person's address as it appears on the records of the Corporation, by facsimile, or by any means of Electronic Transmission.

Section 5. Waiver of Notice: Whenever any written notice is required by these by-laws, a waiver thereof in writing, signed by the person or persons entitled to such a notice, whether

before or after the time stated therein, including a communication sent by means of Electronic Transmission bearing the name of the person or persons entitled to notice, shall be deemed equivalent to the giving of such notice. Attendance of a person either in person or by proxy at any meeting shall constitute a waiver of notice of such meeting, except where a person attends a meeting for the express purpose of objecting to the transaction of any business because the meeting was unlawfully convened.

* * * * *

BY-LAWS

OF

American Metal Inc.

(herein, the "Corporation")

A DELAWARE CORPORATION

ARTICLE I
REGISTERED OFFICE AND REGISTERED AGENT

Section 1. Registered Office; Registered Agent. The registered agent and registered office of the Corporation in the State of Delaware shall be as set forth in the Certificate of Incorporation, as it may be amended.

Section 2. Principal Office; Other Offices. The Corporation's principal place of business shall be at such location in such state or other jurisdiction as the Board of Directors may determine, from time to time, in its discretion. The Board will provide the shareholders with notice of any such change in the Corporation's principle place of business. The Corporation may also have offices in such other States or jurisdictions as the Board of Directors may from time to time designate.

ARTICLE II – SEAL

Section 1. Corporate Seal: The Corporate Seal, if such a Seal is employed by the Corporation, shall have inscribed thereon the name of the Corporation, the year of its organization and the words "Corporate Seal, Delaware" or "Seal Delaware". The Board of Directors may define any additional features of the Seal or amend any features not required for such a Seal under the Delaware General Corporation Law (the "DGCL"), in its discretion. The Seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise, as may be prescribed by law or custom or by the Board of Directors.

ARTICLE III - STOCKHOLDERS MEETINGS

Section 1. Place of Meetings: Meetings of stockholders may be held at any place, either within or without the State of Delaware and the United States, as may be selected from time to time by the Board of Directors. In the discretion of the Board of Directors, meetings may also be held by means of telephonic, video, or other remote or virtual communication whereby each party can hear and be heard by the other parties as may be designated from time to time by a resolution of the Board of Directors and as set forth in the notice for the relevant meeting.

Section 2. Annual Meetings: The annual meeting of the stockholders for the election of members of the Board of Directors (each a "Director") and for the transaction of such other business as may properly come before the meeting shall be held at such date, time and place, if any, as shall be determined by the Board of Directors and stated in the notice of the meeting. If no date for the annual meeting is established or said meeting is not held on the date established as provided above, a special meeting in lieu thereof may be held or there may be action by written consent of the stockholders on matters to be voted on at the annual meeting, and such special

meeting or written consent shall have for the purposes of these By-Laws or otherwise all the force and effect of an annual meeting.

Section 3. Special Meetings: Special meetings of the stockholders may be called at any time by the President, a resolution of the Board of Directors, or by stockholders entitled to cast at least one-fifth (1/5) of the votes which all stockholders are entitled to cast. Upon written request to the Corporation of any person or persons who have duly called a special meeting, it shall be the duty of the Secretary to fix the date, place and time of the meeting, and to give due notice thereof to all the persons entitled to vote at the meeting. Business at all special meetings shall be confined to the objects stated in the notice of the meeting and the matters immediately germane thereto.

Section 4. Notice of Meetings: Notice of the place, if any, date, hour, the record date for determining the stockholders entitled to vote at the meeting or the specific details for accessing a meeting held through any remote means of communication, if any, of every meeting of stockholders shall be given by the Corporation not less than ten (10) days nor more than sixty (60) days before the meeting (unless a different time is specified by law) to every stockholder entitled to vote at the meeting as of the record date set forth such purpose. Notices of special meetings shall also specify the purpose or purposes for which the meeting has been called. Notices of meetings to stockholders may be given by mailing the same, addressed to the stockholder entitled thereto, at such stockholder's mailing address as it appears on the records of the Corporation and such notice shall be deemed to be given when deposited in the U.S. mail, postage prepaid. Without limiting the manner by which notices of meetings otherwise may be given effectively to stockholders, any such notice may also be effectively provided by means of an electronic transmission (meaning an "Electronic Transmission" as used in Section 232 of the DGCL. Notice of any meeting need not be given to any stockholder who shall, either before or after the meeting, submit a waiver of notice or who shall attend such meeting, except when the stockholder attends for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of the meeting shall be bound by the proceedings of the meeting in all respects as if due notice thereof had been given.

Section 5. Adjournment: Any meeting of the stockholders, annual or special, may be adjourned from time to time by a vote of the majority of the shares present to reconvene at the same or some other place, if any, and notice need not be given of any such adjourned meeting if the time, place, if any, thereof, and the means of remote communication, if any, are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the Corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If, after the adjournment, a new record date is fixed for stockholders entitled to vote at the adjourned meeting, the Board of Directors shall fix a new record date for notice of the adjourned meeting and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at the adjourned meeting as of the record date fixed for notice of the adjourned meeting.

Section 6. Quorum: A majority of the outstanding shares of the Corporation entitled to vote at a given meeting, represented in person or by proxy, shall constitute a quorum at such meeting of stockholders. If less than a majority of the outstanding shares entitled to vote at such meeting is represented at a meeting, a majority of the shares so represented may adjourn the meeting as set forth above in Section 5 at any time without further notice.

Section 7. Voting; Proxies: Unless otherwise required by law or the Certificate of Incorporation, the election of Directors shall be decided by a plurality of the votes cast at a

meeting of the stockholders by the holders of stock entitled to vote in the election. Unless otherwise required by law, the Certificate of Incorporation, or these By-Laws, any matter, other than the election of Directors, brought before any meeting of stockholders shall be decided by the affirmative vote of the majority of shares present in person or represented by proxy at the meeting and entitled to vote on the matter. Each stockholder entitled to vote at a meeting of stockholders or to express consent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by proxy or by a transmission permitted by Section 212(c) of the DGCL, but no such proxy shall be voted or acted upon after three (3) years from its date, unless the proxy provides for a longer period. A proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A stockholder may revoke any proxy which is not irrevocable by attending the meeting and voting in person or by delivering to the Secretary of the Corporation a revocation of the proxy or a new proxy bearing a later date. Voting at meetings of stockholders need not be by written ballot. The Corporation shall not directly or indirectly vote any share of its own stock; provided, however, that the Corporation may vote shares which it holds in a fiduciary capacity to the extent permitted by law.

Section 8. Consent In Lieu of Meetings: Any action required to be taken at any annual or special meeting of stockholders of a Corporation, or any action which may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent in writing (including one provided through Electronic Transmission), setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing.

Section 9. Setting the Record Date: In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than sixty (60) nor less than ten (10) days before the date of such meeting. If the Board of Directors so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board of Directors determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the determination of stockholders entitled to vote at the adjourned meeting and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for the determination of stockholders entitled to vote therewith at the adjourned meeting. In order that the Corporation may determine the stockholders entitled to consent to corporate action in writing without a meeting, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than ten (10) days after the date upon which the resolution fixing the record date is adopted by the Board of Directors. If no record date has been fixed by the Board of Directors, the record date for determining stockholders

entitled to consent to corporate action in writing without a meeting: (a) when no prior action by the Board of Directors is required by law, the record date for such purpose shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Corporation by delivery (by hand, or by certified or registered mail, return receipt requested) to its registered office in the State of Delaware, its principal place of business, or an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded and (b) if prior action by the Board of Directors is required by law, the record date for such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution taking such prior action.

Section 10. List of Stockholders: The Corporation shall prepare a complete list of the stockholders entitled to vote at any meeting of stockholders (provided, however, if the record date for determining the stockholders entitled to vote is less than ten (10) days before the date of the meeting, the list shall reflect the stockholders entitled to vote as of the tenth (10nth) day before the meeting date), arranged in alphabetical order, and showing the address of each stockholder and the number of shares of each class of capital stock of the Corporation registered in the name of each stockholder at least ten (10) days before any meeting of the stockholders. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, on a reasonably accessible electronic network if the information required to gain access to such list was provided with the notice of the meeting or during ordinary business hours, at the principal place of business of the Corporation for a period of at least ten (10) days before the meeting. If the meeting is to be held at a place, the list shall also be produced and kept at the time and place of the meeting the whole time thereof and may be inspected by any stockholder who is present. If the meeting is held solely by means of remote communication, the list shall also be open for inspection by any stockholder during the whole time of the meeting as provided by applicable law. Except as provided by applicable law, the stock ledger of the Corporation shall be the only evidence as to who are the stockholders entitled to examine the stock ledger and the list of stockholders or to vote in person or by proxy at any meeting of stockholders.

Section 11. Conduct of Meetings: The Board of Directors may adopt by resolution such rules and regulations for the conduct of the meeting of the stockholders as it shall deem appropriate. At every meeting of the stockholders, the President, or in his or her absence or inability to act, the person whom the President shall appoint, shall act as chairman of, and preside at, the meeting. The Secretary or, in his or her absence or inability to act, the person whom the chairman of the meeting shall appoint to serve as secretary of the meeting, shall act as secretary of the meeting and keep the minutes thereof. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the chairman of any meeting of the stockholders shall have the right and authority to prescribe such rules, regulations, and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations, or procedures, whether adopted by the Board of Directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (a) the establishment of an agenda or order of business for the meeting; (b) the determination of when the polls shall open and close for any given matter to be voted on at the meeting; (c) rules and procedures for maintaining order at the meeting and the safety of those present; (d) limitations on attendance at or participation in the meeting to stockholders of record of the Corporation, their duly authorized and constituted proxies or such other persons as the chairman of the meeting shall determine; (e) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (f) limitations on the time allotted to questions or comments by participants.

ARTICLE IV – DIRECTORS

Section 1. Board Management: The business and affairs of the Corporation shall be managed by or under the direction of its Board of Directors. The Board of Directors shall consist of such number of persons as the Board of Directors shall determine from time to time, in its discretion. Each Director shall hold office until a successor is duly elected and qualified or until the Director's earlier death, resignation, disqualification, or removal. Any Director may resign at any time by notice given in writing (including through Electronic Transmission) to the Corporation. Such resignation shall take effect at the date of receipt of such notice by the Corporation or at such later time as is therein specified. Verbal resignation shall not be deemed effective until confirmed by the Director in writing (including through Electronic Transmission) to the Corporation. Except as prohibited by applicable law or the Certificate of Incorporation, the stockholders entitled to vote in an election of Directors may remove any Director from office at any time, with or without cause, by the affirmative vote of a majority in voting power thereof.

Section 2. Regular Meetings: Regular meetings of the Board of Directors may be held without notice at such times and at such places as may be determined from time to time by the Board of Directors or its chairman.

Section 3. Special Meetings: Special meetings of the Board of Directors may be called by the Chairman of the Board of Directors on five (5) days' notice to all Directors, either personally or by mail, courier service, or through Electronic Transmission; special meetings may be called by the President or Secretary in like manner and on like notice by written request (including by request through Electronic Transmission) to the Chairman of the Board of Directors.

Section 4. Telephonic or Web Meetings: Board of Director's meetings or committee meetings, regular or special, may be held by means of telephone conference or other communications equipment by means of which all persons participating in the meeting can hear each other and be heard, as may be determined by the Board of Directors. Attendance by a Director in a meeting through the relevant media pursuant to this Section 4 shall constitute presence in person at such meeting.

Section 5. Quorum: A majority of the total number of Directors shall constitute a quorum of any regular or special meetings of the Directors for the transaction of business.

Section 6. Voting: Except as otherwise expressly required by these By-Laws, the Certificate of Incorporation, or by applicable law, the vote of a majority of the Directors present at a meeting at which a quorum is present shall be the act of the Board of Directors.

Section 7. Consent In Lieu of Meeting: Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting if all Directors or members of such committee, as the case may be, consent thereto in writing (including through Electronic Transmission), and the consents are filed with the minutes of proceedings of the Board of Directors or committee in accordance with the DGCL.

Section 8. Board Committees: The Board of Directors may designate one or more committees, each committee to consist of one or more of the Directors of the Corporation. The Board of Directors may designate one or more Directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. If a member of a committee shall be absent from any meeting, or disqualified from voting thereat, the

remaining member or members present at the meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent permitted by the DGCL, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation and may authorize the seal of the Corporation to be affixed to all papers that may require it to the extent so authorized by the Board of Directors. Unless the Board of Directors provides otherwise, at all meetings of such committee, a majority of the then authorized members of the committee shall constitute a quorum for the transaction of business, and the vote of a majority of the members of the committee present at any meeting at which there is a quorum shall be the act of the committee. Each committee shall keep regular minutes of its meetings. Unless the Board of Directors provides otherwise, each committee designated by the Board of Directors may make, alter, and repeal rules and procedures for the conduct of its business. In the absence of such rules and procedures each committee shall conduct its business in the same manner as the Board of Directors conducts its business pursuant to this Article IV.

Section 9. Compensation: Directors may receive equity compensation or such fees as the Board of Directors may determine from time to time. In addition, a fixed sum per Board of Directors or committee meeting and any expenses of attendance may be allowed for attendance at each regular or special meeting. Nothing herein contained shall be construed to preclude any director from serving the Corporation as an officer or employee and receiving compensation therefore.

Section 10. Board Vacancies: Any newly created Director positions resulting from an increase in the authorized number of directors and any vacancies occurring in the Board of Directors, may be filled by the affirmative votes of a majority of the remaining members of the Board of Directors, although less than a quorum, or by a sole remaining Director. A Director so elected shall be elected to hold office until the earlier of the expiration of the term of office of the Director whom he or she has replaced, a successor is duly elected and qualified, or the earlier of such Director's death, resignation or removal. When one or more Directors shall resign from the Board, effective at a future date, a majority of the Directors then in office, including those who have resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective.

ARTICLE V – OFFICERS

Section 1. Executive Officers: The executive officers of the Corporation shall be chosen by the Board of Directors. The initial officers shall be: President, Secretary, and Treasurer. The Board may choose one or more Vice Presidents and such other officers as the Board of Directors shall deem necessary, and may delegate the selection of lesser officers to one or more executive officers of the Corporation. The Board of Directors may also choose a Chairman from among its own members. Any number of offices may be held by the same person, including a Director.

Section 2. Salaries: Salaries of all officers and agents of the Corporation shall be determined and fixed by the Board of Directors. The primary terms of such officers' and agents' compensation, responsibilities, obligations and other terms of employment shall be set forth in an employment agreement between the officer and the Corporation.

Section 3. Term of Office: Subject to the terms of any employment agreement between the Corporation and the officers, the officers of the Corporation shall serve at the pleasure of the Board of Directors and shall hold office until their successors are chosen and have qualified. Any

officer or agent elected or appointed by the Board may be removed by the Board of Directors whenever, in its judgment, the best interest of the Corporation will be served thereby.

Section 4. President: The President shall be chief executive officer of the Corporation, shall preside at all meetings of the stockholders, and shall have general and active management of the business of the Corporation. He or she may be an *ex officio* member of all committees if provided for by the Board of Directors, and shall have the general power and duties of supervision and management, the scope of which shall be set by the Board of Directors.

Section 5. Secretary: The Secretary shall attend all sessions of the Board of Directors and all meetings of the stockholders and act as clerk thereof, and record all votes of the Corporation and the minutes of all its transactions in a book to be kept for that purpose, and shall perform like duties for all the committees of the Board of Directors when required. He or she shall give, or cause to be given, notice of all meetings of the stockholders and of the Board of Directors, and such other duties as may be prescribed by the Board of Directors or President, under whose supervision shall be. He or she shall keep in safe custody the Seal of the Corporation, and when authorized by the Board of Directors, affix the same to any instrument requiring it.

Section 6. Treasurer: The Treasurer shall have custody of the corporate funds and securities and shall keep full and accurate accounts of receipts and disbursements in books belonging to the Corporation and shall keep the moneys of the Corporation in a separate account to the credit of the Corporation. He or she shall disburse the funds of the Corporation as may be ordered by the Board, taking proper vouchers for such disbursements, and shall render to the President and Directors, at the regular meetings of the Board or whenever they may require it, an account of all his transactions as Treasurer and of the financial condition of the Corporation.

Section 7. Delegation; Customary Powers: In case any officer is absent, or for any other reason that the Board of Directors may deem sufficient, the President or the Board of Directors may delegate for the time being the powers or duties of such officer to any other officer or to any Director. Each officer of the Corporation shall have in addition to the duties and powers specifically set forth herein such duties and powers as are customarily incident to such officer's office, and such duties and powers as may be designated from time to time by the Board of Directors.

ARTICLE VI - CORPORATE RECORDS

Section 1. Maintenance of Records: Any records administered by or on behalf of the Corporation in the regular course of its business, including its stock ledger, books of account, and minute books, may be maintained on any information storage device, method, or one or more electronic networks or databases (including one or more distributed electronic networks or databases); provided that the records so kept can be converted into clearly legible paper form within a reasonable time, and, with respect to the stock ledger, the records so kept comply with Section 224 of the DGCL. The Corporation shall so convert any records so kept upon the request of any person entitled to inspect such records pursuant to applicable law.

Section 2. Inspection Rights: Any stockholder of record, in-person or by attorney or other agent, shall, upon written demand under oath stating the purpose thereof, have the right during the usual hours of business to inspect for any proper purpose the Corporation's stock ledger, a list of its stockholders, and its minute of Stockholder meetings for the past two (2) years. A proper purpose shall mean a purpose reasonably related to such person's interest as a stockholder. In

every instance where an attorney or other agent shall be the person who seeks the right to inspection, the demand under oath shall be accompanied by a power of attorney or such other writing which authorizes the attorney or other agent to so act on behalf of the stockholder. The demand under oath shall be directed to the Corporation at its registered office or at its principal place of business.

ARTICLE VII - STOCK CERTIFICATES, DIVIDENDS, ETC.

Section 1. Certification of Shares: The shares of stock of the Corporation may or may not be represented by certificates; the Board of Directors may provide by resolution or resolutions that some or all of any class or series shall be uncertificated shares that may be evidenced by a book-entry system maintained by the registrar of such stock. If shares are represented by certificates, such certificates shall be in the form, other than bearer form, approved by the Board of Directors. The certificates representing shares of stock of each class shall be signed by, or in the name of, the Corporation by any two authorized officers of the Corporation. Any or all such signatures may be facsimiles. Although any officer, transfer agent, or registrar whose manual or facsimile signature is affixed to such a certificate ceases to be such officer, transfer agent, or registrar before such certificate has been issued, it may nevertheless be issued by the Corporation with the same effect as if such officer, transfer agent, or registrar were still such at the date of its issue.

Section 2. Transfers: Stock of the Corporation shall be transferable in the manner prescribed by law and in these by-laws. Any transfer of stock by a stockholder must be made in compliance with the Securities Act of 1933, as amended, as well as similar state securities laws. Transfers of stock shall be made on the books of the Corporation only by the holder of record thereof, by such person's attorney lawfully constituted in writing and, in the case of certificated shares, upon the surrender of the certificate thereof, which shall be cancelled before a new certificate or uncertificated shares shall be issued. No transfer of stock shall be valid as against the Corporation for any purpose until it shall have been entered in the stock records of the Corporation by an entry showing from and to whom transferred. To the extent designated by the President or the Treasurer of the Corporation, the Corporation may recognize the transfer of fractional uncertificated shares, but shall not otherwise be required to recognize the transfer of fractional shares.

Section 3. Lost Certificate: The Board of Directors may direct a new certificate or uncertificated shares to be issued in place of any certificate theretofore issued by the Corporation alleged to have been lost, stolen, or destroyed upon the making of an affidavit of that fact by the owner of the allegedly lost, stolen, or destroyed certificate. When authorizing such issue of a new certificate or uncertificated shares, the Board of Directors may, in its discretion and as a condition precedent to the issuance thereof, require the owner of the lost, stolen, or destroyed certificate, or the owner's legal representative to give the Corporation a bond sufficient to indemnify it against any claim that may be made against the Corporation with respect to the certificate alleged to have been lost, stolen, or destroyed or the issuance of such new certificate or uncertificated shares.

Section 4. Dividends: Subject to applicable law and the Certificate of Incorporation, dividends upon the shares of capital stock of the Corporation may be declared by the Board of Directors at any regular or special meeting of the Board of Directors. Dividends may be paid in cash, in property, or in shares of the Corporation's capital stock, unless otherwise provided by applicable law or the Certificate of Incorporation.

Section 5. Reserves: Before payment of any dividend there may be set aside out of the net profits of the Corporation such sum or sums as the Directors, from time to time, in their absolute discretion, think proper as a reserve fund to meet contingencies, or for equalizing dividends, or for repairing or maintaining the property of the Corporation, or for such other purpose as the Directors shall think conducive to the interests of the Corporation, and the Directors may abolish any such reserve in the manner in which it was created.

ARTICLE VIII – INDEMNIFICATION AND ADVANCEMENT

Section 1. Definitions: Solely for purposes of this Article VIII, the following terms shall have the definition set forth below:

(a) "Disinterested Director" means, with respect to each Proceeding in respect of which indemnification is sought hereunder, a Director of the Corporation who is not and was not a party to such Proceeding.

(b) "Expenses" means all reasonable attorneys' fees, retainers, court costs, transcript costs, fees of expert witnesses, private investigators and professional advisors (including, without limitation, accountants and investment bankers), travel expenses, duplicating costs, printing and binding costs, costs of preparation of demonstrative evidence and other courtroom presentation aids and devices, costs incurred in connection with document review, organization, imaging and computerization, telephone charges, postage, delivery service fees, and all other disbursements, costs or expenses of the type customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, settling or otherwise participating in, a Proceeding.

(c) "Non-Officer Employee" means any person who serves or has served as an employee or agent of the Corporation, but who is not or was not a Director or Officer;

(d) "Officer" means any person who serves or has served the Corporation as an officer appointed by the Board of Directors of the Corporation;

(e) "Proceeding" means any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, inquiry, investigation, administrative hearing or other proceeding, whether civil, criminal, administrative, arbitrative or investigative.

Section 2. Indemnification of Directors and Officers: Subject to the operation of Section 4 of this Article VIII, each Director and Officer shall be indemnified and held harmless by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than such law permitted the Corporation to provide prior to such amendment) against any and all Expenses, judgments, penalties, fines and amounts reasonably paid in settlement that are incurred by such Director or Officer or on such Director's or Officer's behalf in connection with any threatened, pending or completed Proceeding or any claim, issue or matter therein, which such Director or Officer is, or is threatened to be made, a party to or participant in by reason of such Director's or Officer's status or conduct as such, if such Director or Officer acted in good faith and in a manner such Director or Officer reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The rights of indemnification provided by this Section 2 shall

continue as to a Director or Officer after he or she has ceased to be a Director or Officer and shall inure to the benefit of his or her heirs, executors, administrators and personal representatives.

Section 3. Indemnification of Non-Executive Employees: Subject to the operation of Section 4 of this Article VIII of these By-Laws, each Non-Officer Employee may, in the discretion of the Board of Directors of the Corporation, be indemnified by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended, against any or all Expenses, judgments, penalties, fines and amounts reasonably paid in settlement that are incurred by such Non-Officer Employee or on such Non-Officer Employee's behalf in connection with any threatened, pending or completed Proceeding, or any claim, issue or matter therein, which such Non-Officer Employee is, or is threatened to be made, a party to or participant in by reason of such Non-Officer Employee's status or conduct as such, if such Non-Officer Employee acted in good faith and in a manner such Non-Officer Employee reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The rights of indemnification provided by this Section 3 shall exist as to a Non-Officer Employee after he or she has ceased to be a Non-Officer Employee and shall inure to the benefit of his or her heirs, personal representatives, executors and administrators. Notwithstanding the foregoing, the Corporation may indemnify any Non-Officer Employee seeking indemnification in connection with a Proceeding initiated by such Non-Officer Employee only if such Proceeding was authorized by the Board of Directors of the Corporation.

Section 4. Good Faith: Unless ordered by a court, no indemnification shall be provided pursuant to this Article VIII to a Director, to an Officer or to a Non-Officer Employee unless a determination shall have been made that such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal Proceeding, such person had no reasonable cause to believe his or her conduct was unlawful. Such determination shall be made by (a) a majority vote of the Disinterested Directors, even though less than a quorum of the Board of Directors, (b) a committee comprised of Disinterested Directors, such committee having been designated by a majority vote of the Disinterested Directors (even though less than a quorum), (c) if there are no such Disinterested Directors, or if a majority of Disinterested Directors so directs, by independent legal counsel in a written opinion, or (d) by the stockholders of the Corporation.

Section 5. Advancement of Expenses to Directors Prior to Final Disposition:

(a) The Corporation shall advance all Expenses incurred by or on behalf of any Director in connection with any Proceeding in which such Director is involved by reason of such Director's Corporate Status within ten (10) days after the receipt by the Corporation of a written statement from such Director requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Director and shall be preceded or accompanied by an undertaking by or on behalf of such Director to repay any Expenses so advanced if it shall ultimately be determined that such Director is not entitled to be indemnified against such Expenses.

(b) If a claim for advancement of Expenses hereunder by a Director is not paid in full by the Corporation within ten (10) days after receipt by the Corporation of documentation of Expenses and the required undertaking, such Director may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim and if successful in whole or in part, such Director shall also be entitled to be paid the expenses of

prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such advancement of Expenses under this Article VIII shall not be a defense to the action and shall not create a presumption that such advancement is not permissible. The burden of proving that a Director is not entitled to an advancement of Expenses shall be on the Corporation.

(c) In any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that the Director has not met any applicable standard for indemnification set forth in the DGCL.

Section 6. Advancement of Expenses to Officers and Non-Officer Employees Prior to Final Disposition:

(a) The Corporation may, at the discretion of the Board of Directors of the Corporation, advance any or all Expenses incurred by or on behalf of any Officer and Non-Officer Employee in connection with any Proceeding in which such is involved by reason of such person's status and/or actions as such upon the receipt by the Corporation of a statement or statements from such Officer or Non-Officer Employee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Officer and Non-Officer Employee and shall be preceded or accompanied by an undertaking by or on behalf of such to repay any Expenses so advanced if it shall ultimately be determined that such Officer or Non-Officer Employee is not entitled to be indemnified against such Expenses.

(b) In any suit brought by the Corporation to recover an advancement of Expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such Expenses upon a final adjudication that the Officer or Non-Officer Employee has not met any applicable standard for indemnification set forth in the DGCL.

Section 7. Contractual Nature of Rights:

(a) The foregoing provisions of this Article VIII shall be deemed to be a contract between the Corporation and each Director and Officer entitled to the benefits hereof at any time while this Article VIII is in effect, and any repeal or modification thereof shall not affect any rights or obligations then existing with respect to any state of facts then or theretofore existing or any Proceeding theretofore or thereafter brought based in whole or in part upon any such state of facts.

(b) If a claim for indemnification hereunder by a Director or Officer is not paid in full by the Corporation within sixty (60) days after receipt by the Corporation of a written claim for indemnification, such Director or Officer may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim, and if successful in whole or in part, such Director or Officer shall also be entitled to be paid the expenses of prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such indemnification under this Article VIII shall not be a defense to the action and shall not create a presumption that such indemnification is not permissible. The burden of proving that a Director or Officer is not entitled to indemnification shall be on the Corporation.

ARTICLE IX – AMENDMENTS

Section 1. These By-Laws may be supplemented, amended, or repealed by the Board or by a vote of stockholders entitled to cast at least a majority of the votes which all stockholders are entitled to cast thereon, at any regular or special meeting of the stockholders, duly convened after notice to the stockholders of that purpose; provided, that (a) the Board of Directors may not alter, amend or repeal any provision of these By-Laws which under the DGCL, by the Certificate of Incorporation or by these By-Laws requires action by the stockholders and (b) any alteration, amendment or repeal of these By-Laws by the Board of Directors and any new By-Law adopted by the Board of Directors may be altered, amended or repealed by the stockholders as set forth in this Section.

ARTICLE X – BUSINESS

Section 1. The Corporation is a special purpose vehicle existing to carry out the following business : (a) Applying to the government of the United States of America ("U.S.") for a licence to explore for seafloor polymetallic nodules in the CCZ, (b) Exploring for seafloor polymetallic nodules in the CCZ, (c) Developing a metallurgical process to treat seafloor polymetallic nodule ore, (d) Subject to receiving a permit from the U.S government, carrying out commercial recovery of seafloor polymetallic nodules in the CCZ, processing the nodules, and selling the resultant metals and other products and (e) such activities that are related and connected to the above and necessary to pursue the above, and/or may be incidental, ancillary or consequential thereto. For certainty, the Corporation is restricted from exploring for any natural resource other than seafloor polymetallic nodules.

ARTICLE XI - MISCELLANEOUS PROVISIONS

Section 1. Checks: All checks or demands for money and notes of the Corporation shall be signed by such officer or officers as the Board of Directors may from time to time designate.

Section 2. Fiscal Year: The fiscal year of the Corporation shall be the calendar year, unless otherwise determined by the Board of Directors.

Section 3. Delaware Chancery Forum Selection: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall, to the fullest extent permitted by law, be the sole and exclusive forum for: (a) any derivative action or proceeding brought on behalf of the Corporation, (b) any action asserting a claim for breach of a fiduciary duty owed by any Director, officer, employee or agent of the Corporation to the Corporation or the Corporation's stockholders, (c) any action asserting a claim arising pursuant to any provision of the DGCL, the Certificate of Incorporation or these By-Laws or (d) any action asserting a claim governed by the internal affairs doctrine, in each case subject to said Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein.

Section 4. Notice: Whenever notice is required to be given to any person by these By-Laws, such notice shall be deemed given effectively if given in person, by mail addressed to such person at such person's address as it appears on the records of the Corporation, by facsimile, or by any means of Electronic Transmission.

Section 5. Waiver of Notice: Whenever any written notice is required by these by-laws, a waiver thereof in writing, signed by the person or persons entitled to such a notice, whether

before or after the time stated therein, including a communication sent by means of Electronic Transmission bearing the name of the person or persons entitled to notice, shall be deemed equivalent to the giving of such notice. Attendance of a person either in person or by proxy at any meeting shall constitute a waiver of notice of such meeting, except where a person attends a meeting for the express purpose of objecting to the transaction of any business because the meeting was unlawfully convened.

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