SciMUNC XVII

United Nations Ocean Conference (UNOC)

Deep Sea Mining

BACKGROUND GUIDE

United Nations Ocean Conference

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Letter from the Dais

Dear Delegates,

Welcome to SciMUNC XVII!! My name is Umme Anushka and I will be your chair for the UNOC committee. I am the Assistant Director of the Varsity Division of Bronx Science's Model UN Team and have been on the team since my freshman year. I am extremely grateful for that experience because it has taught me so much about the world we live in and beyond that how to research, communicate effectively, make friends, and have fun while discussing topics that are important to us. Outside of MUN, I am the President of the Student Organization and the Public Health and Biostatistics Club at Bronx Science. I am super excited to meet you all and help you develop your confidence and skills further.

Hi delegates! My name is Jesse Berman and I am your vice-chair for the UNOC committee. This is my second year as a member of Bronx Science's Model UN Team. I am really excited to have the opportunity to be a vice-chair at this conference. For me, Model UN has given me lots of opportunities to develop new skills such as extemporaneous speaking and negotiating while also having a lot of fun in the process. Aside from Model UN I run long distance and jump for the Bronx Science Cross Country and Track and Field teams. We are looking forward to being your chairs for this committee and we want to help you throughout any step of the conference process that may confuse you. If you need any help with research or have any questions at any point, please do not hesitate to reach out to us! You can reach Umme at anushkau@bxscience.edu and Jesse at bermanj@bxscience.edu.

Sincerely,
Umme Anushka and Jesse Berman

Committee Description

United Nations Ocean Conference

The United Nations Ocean Conference, UNOC, has its origins in the 1956 Conference on the Law of the Sea, UNCLOS, held in Switzerland. Subsequently, three more of these conferences were held in 1962 and 1982. The third conference established the International Seabed Authority, ISA, specifically to authorize seabed exploration and mining in areas lying outside of any country's jurisdiction, and the International Tribune of the Law of the Sea, as a court of law for maritime disputes. After the 1982 UNCLOS very little novel work was done by the UN and associated bodies specifically to address issues related to the preservations of the world's oceans. This was solved in 2015 when the UN created the 2030 Agenda for Sustainable Development Goals to make the world a better and healthier place to live and minimize climate change.

Of the 17 Sustainable Development Goals, SDGs, set forth the 14th targets the oceans saying that we must "conserve and sustainably use the oceans, seas and marine resources for sustainable development." In accordance with these goals in 2017 the first UNOC was held. This conference set out to address the ten challenges that were identified by Target 14 of the 2030 Agenda for Sustainable Development. UNOC 2017 was a tremendous success in protecting our ocean. During UNOC over 1,300 commitments were. Both economically, and millions of kilometers of ocean and coastline being preserved. It also led to the adoption by consensus of a 14-point action plan to further preserve the ocean.

The second and most recent conference was held in 2022 in Lisbon, Portugal and was co-sponsored by Portugal and Kenya. This conference focused on the recently created United Nations Decade of Ocean Science for Sustainable Development 2021-2030, UNDOSSD. UNDOSSD goal is to solve the 10 challenges that were identified as relating to Target 14 of the SDG. These 10 challenges are: beating marine pollution, protecting and restoring biodiversity, sustainable food growth and harvesting, developing a sustainable and equitable ocean economy, invent ocean-based to climate change, increasing community resilience to ocean hazards,

expanding the Global Ocean Observing System, formulating a digital representation of the ocean, distribute skills and knowledge to all and to change humanity's relationship with the oceans. UNOC 2022, was another success, with many goals being accomplished. Among the tremendous promises made, a few stand out. These goals and promises include the global shipping industry creating a detailed plan on how to become a carbon neutral industry by 2050 and numerous countries promising to protect 30% or more of their national maritime zones by 2030, a 2040 carbon neutrality goal, ensuring 100% of fishing stocks are sustainably maintained, and the allocation of over 3 billion dollars for further research.

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Background Information

Deep sea mining, a relatively new frontier in the extraction of valuable resources from the ocean floor, which lies at depths exceeding 200 meters, refers to the extraction of mineral resources from the ocean floor in areas known as the deep seabed or the seabed beyond national jurisdiction. Located in international waters, these areas are beyond the exclusive economic zones of any particular country and are instead considered a part of the global commons. The abundance of minerals ranging from precious metals like copper, nickel, and cobalt to rare earth elements has captured the attention of industries that seek to meet the demand for such raw materials. At the same time, however, the process of deep-sea mining is one that poses several ethical and environmental concerns, along with being extremely technically difficult to perform.

To shine light on the actual process requires the examination of the technical complexity of deep sea mining. Due to the depths at which minerals lie in the seabed, enormous amounts of pressure, extreme temperatures, and complete darkness make the extraction process difficult. Thus, mining equipment must be able to withstand such harsh conditions in areas that frequently have not been fully explored before. Innovative robotic technology such as remotely operated vehicles (ROVs) and autonomous underwater vehicles (AUVs) are used to explore, survey, and collect samples from the ocean floor and at the moment provide the best likelihood for success at deep sea mining.

However, as previously mentioned, deep sea mining is not just technically complex, but also has numerous ethical and environmental concerns. One of the primary ethical concerns is about the ownership of the deep sea areas where the mining takes place. At the moment the International Seabed Authority issues these licenses for areas outside of a single national jurisdiction, though there are still numerous complaints over the fairness of this system. A major point in this area is about how ethical it is for the UN to be sanctioning for countries to be buying up ‘land’ across the world from them and the ramifications of that. Another problem is the countless cases where different countries debate over their claims of ownership of the waters geographically near them along with mining

operation debates could further worsen these relationships. Another set of concerns is the environmental impacts that deep sea mining could have. Humans have only explored 5% of the deep seafloor, despite it making up 60% of the earth's surface and as a result many call for exploration prior to mining operations starting. Mining operations on the seafloor would likely disrupt the ecosystems there. While these operations could lessen the burden of mining on land and help preserve ecosystems, then the question of which ecosystem is better to save comes up.

Deep-sea mining has gained particular attention due to the potential commercial value of mineral resources found in the seabed, such as polymetallic nodules, sulfide deposits, and ferromanganese crusts. These minerals contain the aforementioned valuable earth elements which are essential for various industries, including renewable energy, electronics, and electric vehicles. Due to the usefulness of these minerals they already have a high value and as such deep sea mining is estimated to discover billions of dollars worth of these resources. A lot of this wealth could in fact go to many poor and/or developing nations, especially island nations if they approve of deep sea mining on their ‘land’. Additionally, due to the sea floor's unexplored nature it is entirely possible to discover new materials that could be used. It’s important to consider the facts and determine if the benefits of deep sea mining to commercial industries outweighs the risk to marine ecosystems.

Main Committee Topic

One of the primary environmental concerns associated with deep sea mining is the potential for habitat destruction and biodiversity loss. Mining operations involve the use of heavy machinery and extraction techniques that can directly impact sensitive marine habitats such as hydrothermal vents and seamounts among others. These unique ecosystems host an exorbitant amount of rare and diverse species that have adapted over time to survive in extreme conditions. Not to mention, improper use and operation of mining technology as well as accidents also pose a similar threat. Disrupting these habitats could lead to irreversible loss of biodiversity including the extinction of species that may not be found anywhere else on Earth. Moreover, the removal of mineral-rich nodules and crusts can result in the loss of critical substrate for many marine organisms, further contributing to the degradation of such areas.

Deep sea mining activities also stir up sediments on the ocean floor which creates sediment plumes that can travel considerably large distances in the water column. These plumes have the potential to smother delicate marine organisms, block the penetration of sunlight, and negatively impact the surrounding ecosystem's overall productivity. Filter-feeding species like plankton, which form the basis of the marine food web, can be particularly vulnerable to these disturbances. In addition to that, sediment plumes can transport potentially toxic substances and heavy metals from the seabed to other parts of the ocean floor, which leads to chemical pollution. Such pollution poses the potential of bioaccumulation in marine organisms, which risks both local marine life and the humans who consume seafood sourced from the contaminated areas which the marine organisms previously occupied.

Case Study

Papua New Guinea

The Pacific Island nation of Papua New Guinea (PNG) which is situated in a region containing vast mineral-rich seabeds and includes the potential for polymetallic nodules and hydrothermal vents. Deep-sea mining has become a topic of interest in Papua New Guinea due to the economic potential it holds. The Solwara 1 project, operated by Nautilus Minerals, aimed to extract high-grade seafloor massive sulfide deposits off the coast of PNG. However, this endeavor faced significant opposition from environmentalists and local communities who were concerned about potential ecological damage and disruptions to traditional livelihoods like fishing.

The history of PNG's relationship with deep-sea mining reflects the tension between economic development and environmental preservation. The practice raises concerns about the potential destruction of unique deep-sea ecosystems, which are still not fully understood due to their remote and extreme environments.This case underscores the complex interplay between economic interests, environmental conservation, and the rights of indigenous communities in the context of emerging industries like deep-sea mining.

Nauru

Nauru is a small island country with a population of around 10,000 and is known for its phosphate mining history. The island's terrestrial phosphate resources were extensively exploited, leading to ecological degradation and environmental challenges. In recent years, Nauru has turned its attention to the potential of deep-sea mining. The Clarion-Clipperton Zone (CCZ) in the Pacific Ocean, located between Nauru and Hawaii, is estimated to contain vast polymetallic nodules rich in valuable minerals like manganese, cobalt, and nickel. The prospect of deep-sea mining in the CCZ is driven by Nauru's economic interests, as the country seeks alternative revenue streams beyond its phosphate reserves. Deep-sea mining is seen as a potential source of income for a nation with limited economic diversification. However, concerns have been raised about the environmental consequences. Nauru's history of terrestrial mining serves as a cautionary tale, highlighting the potential risks of extractive industries. Environmentalists worry about the potential

destruction of fragile deep-sea ecosystems and the yet-to-be-understood consequences of disturbing these unique habitats.

The deep-sea mining debate intersects with questions of indigenous rights, as Nauru is home to the Nauruan people whose traditional way of life heavily depends on marine resources. The potential disruption to fishing and marine activities raises concerns about the broader social and cultural implications. Moreover, the effects of deep-sea mining are not contained within national borders; they can have transboundary environmental impacts, affecting neighboring countries' marine environments. The Nauruan government faces a complex challenge in balancing economic interests, environmental concerns, and the preservation of indigenous cultures. The case of Nauru underscores the broader global discourse on sustainable development, responsible resource extraction, and the importance of scientific research to better understand the potential risks and benefits of deep-sea mining.

Past Solutions

There have been numerous avenues of solutions, proposed and/or implemented in various regions of the world with differing outcomes. The International Seabed Authority (ISA) and Regulatory Frameworks: The International Seabed Authority (ISA), established under the United Nations Convention on the Law of the Sea (UNCLOS), plays a pivotal role in regulating deep-sea mining activities in international waters. The ISA has developed a comprehensive framework that aims to balance the potential benefits of mineral extraction with environmental protection. This includes issuing exploration contracts, setting environmental guidelines, and promoting sustainable practices. The ISA's efforts exemplify a collaborative approach to managing deep-sea resources on a global scale.

Another noteworthy effort is the Marine Protected Areas (MPAs) and Conservation Zones which are several regions that have proposed or established Marine Protected Areas (MPAs) and conservation zones to safeguard vulnerable deep-sea ecosystems from the impacts of

mining. For instance, New Caledonia in the South Pacific has designated the Coral Sea Natural Park as a marine protected area, which includes areas potentially affected by deep-sea mining. This approach prioritizes the preservation of biodiversity and critical habitats. While less specific, there are also technological innovations for less-invasive mining which is in response to environmental concerns; certain companies and researchers are exploring technological innovations that could minimize the impact of deep-sea mining. For instance, the "continuous mining" concept involves extracting nodules without directly disturbing the seabed, reducing sediment plumes and habitat disruption. Such initiatives reflect a proactive effort to develop methods that balance resource extraction with environmental stewardship.

Potential Solutions

As we navigate the future of deep-sea mining, a precautionary approach is important to consider. This means pausing or limiting mining activities until a thorough understanding of potential ecological impacts is obtained. Extensive scientific research and exploration should assess baseline conditions, monitor changes over time, and inform the development of effective mitigation strategies. Coupled with ecosystem-based management, which focuses on holistic ecosystem health rather than isolated components, this approach can ensure the preservation of deep-sea biodiversity. By integrating scientific findings into regulatory decisions, we can strike a balance between the economic potential of mining and the long-term health of our oceans.

Looking ahead, embracing a circular economy model within deep-sea mining holds promise. This involves maximizing resource efficiency, minimizing waste, and promoting recycling. Developing technologies that efficiently recover valuable materials from mining byproducts can reduce the need for additional extraction. Repurposing mined materials for other industries and promoting reusability can decrease the environmental impact. Transitioning to a circular economy aligns with broader sustainability goals, offering a path toward responsible resource management and reduced ecological disruption.

Questions to Consider

1. How can countries who have differing beliefs regarding the process of deep-sea mining come together to devise a solution that addresses the concerns of the committee as a whole?
2. What have been the benefits and drawbacks of past solutions and how can they be revised to keep up with the more recent developments on the topic?
3. What is the necessary level of action required for this issue to be addressed? Aside from government intervention, are there any other methods to regulate the problems caused by deep-sea mining?
4. How can the committee ensure a solution to the problem be effectively implemented while simultaneously preventing an infringement of the public sovereignty of nations?
5. Which nations are of particular focus in the conversation surrounding deep sea mining and how will that knowledge be useful in improving the problem at hand?

Bloc Positions

Nauru

China

Russia

South Korea

Germany

Singapore

United States of America

United Kingdom

Canada

Vanuatu

India

Brazil

France

Spain

New Zealand

Costa Rica

Greece

Chile

Panama

Palau

Samoa

Fiji

Federated States of Micronesia

Papua New Guinea

Tonga

Sweden

Ireland

Japan

Jamaica

Finland

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Norway

Poland

Australia

Haiti

Philippines

Bangladesh

Argentina

South Africa

Indonesia

Turkey

Madagascar

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