Proposed Resolution #7: Preserving Deep Sea Ecosystems

Club Name
CFUW Nanaimo

Title of Proposed Resolution
Preserving Deep Sea Ecosystems

Resolved Clauses
RESOLVED, That CFUW urge the Government of Canada to protect deep sea ecosystems in Canadian coastal waters by immediately extending the current moratorium on deep seabed mining until research has been completed and a robust regulatory regime has been developed and implemented.

RESOLVED, That CFUW urge the Government of Canada to fund and support credible short- and long-term scientific research on deep sea ecosystems and how to regulate and preserve their biodiversity.

RESOLVED, That CFUW urge the Government of Canada to work with other member countries to urgently press the International Seabed Authority to declare a precautionary pause on international deep seabed mining activities until comprehensive, science-based and enforceable seabed mining regulations are developed and implemented to protect deep sea ecosystems.

Background
Introduction
The world's deep seabed ecosystems are home to a unique array of biodiverse marine life and resources (Amon, 2023). However, a dangerous threat is imminent – deep sea resource mining. Protecting the ocean and its inhabitants from the devastating consequences of deep-sea mining has never been more pressing, as mining companies are pressuring governments to allow them to extract resources from deep seabeds, despite substantial risks and environmental concerns (Jarecki, 2023). In the absence of significant regulation, mining of deep seabeds could start as early as summer 2024 (Beiser, 2023).

Deep Sea Ecosystems
Although exploration of deep seabeds has been limited, the findings are extraordinary (Guy, 2018). A 2016 deep seabed investigation found an abundance and diversity of life (Chung *et al., 2023)*. Seamounts and hydrothermal vents are homes to a wide range of unique species found nowhere else in the world (Renwick, 2022). As marine scientist Dr. Cherisse du Preez commented, "It's like a slightly alien world that we didn't know existed because we thought everything on the planet required sunlight…. It's this incredible, weird place where life can't exist unless you're these specialized life forms." (Renwick, 2022*)*

Some deep seabeds in the Pacific Ocean contain unique nodules that are made up of valuable rare-earth and other minerals (Labbe, 2023). These nodules form over millennia and are home to a wide range of unique and foundational species (Pollon *et al*, 2023).

Deep sea species play a keystone role in ocean ecosystems as the nutrients they produce drift upwards and sustain more common marine species (Amon, 2023). Deep sea ecosystems are highly sensitive to human disturbances, such that their removal could amplify ecological consequences significantly (Stenvers *et al*, 2023). Once destroyed, deep sea habitats can take hundreds or thousands of years to recover (Gallagher, 2023). Damaging these unique habitats would be catastrophic to the biodiversity and sustainability of marine ecosystems. Once lost, these delicate ecosystems cannot be restored (CBC, 2023).

Mining the Seabed

An increasing demand for rare metals, coupled with advances in deep sea extractive technology, is creating a demand to bring industrial-scale mining to the seafloor (Egwu & Ramirez, 2023). The U.S. Geological Survey estimates that deep sea nodules could hold more critical metals than all of the world's terrestrial reserves (Beiser, 2023).

The "green rush" to the bottom of the ocean has attracted about a dozen competing companies and countries (CBC, 2023), largely due to increased technological demand. Mining companies insist that the impact in the ocean is reduced compared with the bulldozing and blasting that takes place in terrestrial mines (Beiser, 2023). But a recent deep-sea robotic collector vehicle test stirred up significant sediment, creating big plumes that travelled up 4.5 kilometres to the surface (CBC, 2023). The overall environmental impact of expanding mining activities could be colossal (Stenvers *et al,* 2023).

There is still much to learn about the environmental effects of deep seabed mining (Chung *et al.*, 2023). What is known so far is not encouraging. Decades ago, scientists tested the potential effects of seabed mining by dragging a plow over a swath of ocean floor in the eastern Pacific Ocean, resulting in a sediment plume that buried the study area (Browning & Rudolph, 2020). The plow tracks from the 1989 experiment remain visible to this day, a testament to the lasting damage seabed mining could inflict (CBC Canada, 2023).

Environmental Effects of Deep Seabed Mining

Deep seabed mining would remove or destroy sponges, corals, and other marine life (Browning & Rudolph, 2020). Sediment clouds, some capable of traveling long distances, smother or negatively impact the feeding of other marine life, including plankton, deep-diving marine mammals, and a range of fish species (Stenvers *et al,* 2023). Seabed mineral extraction methods, which range from dredging to far more destructive techniques such as removing 12 inches from the surface of seamounts, would affect kelp forests and other marine habitats that nurture important fish (Browning & Rudolph, 2020).

Life on the ocean floor moves at a glacial pace (Pollon *et al*, 2023). Sediment accumulates at a rate of one millimeter every millennium. With such a slow rate of growth, areas disturbed by deep sea mining would be unlikely to recover (Imbler & Corum, 2022).

Resolved Clause 1: Canadian Seabeds

In Canada, the federal government has exclusive responsibility for coastal waters, fisheries and international treaties (*Constitution Act*, section 91). The government has taken steps within its fisheries mandate to protect against environmentally destructive practices like bottom trawling, but this Resolution is limited to addressing the government's role in regulating deep seabed mining. The federal government has designated several marine protected areas (Government of Canada, February 2023), and currently supports a temporary moratorium on commercial seabed mining. It has stated that it recognizes marine ecosystems are critical to protect biodiversity, so it will take a precautionary approach to marine development (Government of Canada, July 2023). In early 2023, it announced a moratorium on deep sea mining in waters within national borders (Government of Canada, February 2023).

However, there is no guarantee that in the longer term the federal government will continue to oppose deep sea mining. Its current commitment only applies to Canadian waters and does not address seabed mining's environmental impacts, nor does it propose a robust regulatory regime (Government of Canada, July 2023). There is still a need for continued dialogue, action and research around a permanent rejection of deep sea mining within Canadian waters (Medenhall & Helm, 2024).

Resolved Clause 2: Research

Research will be essential to preserve deep sea ecosystems (Mendenhall & Helm, 2024). As Dr. Cherisse du Preez has said, "We know more about the surface of the moon than we do the deep sea. We joke in deep-sea science that it's not rocket science, it's harder." (Renwick, 2022)

Much more research is needed to determine the long-term effect of deep sea mining and how it should be regulated (Gallagher, 2023). NGOs and governments have called for a moratorium until more is known about potential long term environmental impacts of seabed mining (Jarecki 2023). Research must be done into alternatives to mining metals for energy production, including through recovering metals from existing energy sources (Ashford *et al*, 2024; Mendenhall & Helm, 2024). The overarching issue will be how to protect these ecosystems while transitioning to new sources of energy (Chung *et al., 2023)*.

Resolved Clause 3: International Seabeds

Most deep seabeds lie in international waters, which are regulated by the International Seabed Authority (ISA) (Beiser, 2023). The ISA was formed in 1994 following a United Nations Convention on the Law of the Sea (UNCLOS), and 168 countries, including Canada, are members. The ISA's mission is, first, to regulate mining the international

seabed for the benefit of humankind. Its second mandate is to protect the ecosystem of the seabed, ocean floor and subsoil in areas beyond national jurisdiction (ISA, 2024; Egwu & Ramirez, 2023). There is an inherent conflict in ISA's irreconcilable dual role – to regulate mining, and on the other hand, to protect the marine environment (Beiser, 2023).

Since 1994, ISA has approved eight exploration contracts in the Atlantic, Pacific and Indian Oceans (Egwu & Ramirez, 2023). ISA has not yet authorized any commercial mining contracts as it deliberates over regulations amid global calls for a moratorium on deep sea mining (Beiser, 2023).

ISA's most pressing current issue is a loophole known as the two year rule (Jackson & Karan, 2024). Before regulations are passed, a member nation has the authority to notify ISA that it wants to mine. This starts the two-year clock during which the ISA must develop regulations. If it fails to do so, the mining is implicitly approved (Beiser, 2023). The situation is now urgent, as Nauru (an island country in Micronesia), in partnership with a Canadian mining company, has filed a mining notification (Labbe, 2023). In the absence of ISA regulations, the partnership will be able to start full scale mining operations the end of 2024 or early 2025 (Labbe, 2023).

As a member of ISA, Canada must continue to uphold the principles, rights, duties, and obligations in the UNCLOS (Government of Canada, July 2023). Canada should work with other member countries to urge the ISA to first close the two year loophole, and in the meantime, negotiate and enforce rules, regulations, and procedures to protect the deep sea environment, and to advocate for the conservation and restoration of the global oceans and their resources (Holst, 2023).

Related CFUW Resolutions

Of the active Resolutions in the 2023 CFUW Policy Book, two current resolutions address water resources. "Canadian Water" from 2001 addresses management of freshwater resources, and "Enforcement of the Fisheries Act" from 2006 concerns pollution of fish and their habitat in Canada's coastal and inland waters. Neither relates specifically to protecting the deep sea environment. As the proposed Resolution covers deep sea ecosystems in a national and international context, it fills a gap, builds upon, and is consistent with CFUW's existing policy framework.

Why CFUW Nanaimo is Proposing this Resolution

In January 2022, Dr. Cherisse Du Preez, Head of the Deep Sea Ecology Program for Fisheries and Oceans Canada, Science, Pacific Region, gave an engaging and energetic presentation to the CFUW Nanaimo club. Titled "Deep Dark Not-so-Secrets Anymore", the presentation was an illuminating tour through current deep sea research. A key takeaway was that life in the deep sea is naturally stable, highly specialized, and very slow to change. After fascinating us with why the deep sea is remarkable, she talked about how humans are impacting the deep sea.

Her presentation brought to our attention the current state of affairs regarding lack of regulation of deep sea mining, nationally and internationally. From there, members of our club took it upon themselves to seek more resources, and to do more research. As citizens of a country with three coastlines, we strongly feel the need to conserve and protect the oceans. Moratoriums, research, and regulatory frameworks are the tools closest to hand to ensure deep sea mining does not cause irreversible harm to the planet.

Implementation

Through its Canadian and global networks, CFUW is well-positioned to advocate for and raise awareness about the protection of deep sea ecosystems. Members could advocate to:

- the Government of Canada urging action on the three resolved clauses.
- the Government of Canada to expand and accelerate designation of marine protection areas related to deep sea mining.
- the Government of Canada to ensure that Indigenous groups are consulted as part of the research and regulation processes.
- the United Nations Commission on the Status of Women to meet and adhere to the Strategic Objectives of Women and the Environment (K.1, K.2, and K3), formulated at the Fourth World Conference on Women in Beijing.
- provincial governments to press the federal government to act to protect deep sea ecosystems.
- provincial departments of education to develop and implement school and post-secondary educational curricula on biodiversity of marine ecosystems and the implications of deep seabed mining.
- raise awareness with the general public on the importance of protecting deep sea ecosystems by sponsoring talks.
- join in collective action by seeking out and collaborating with other groups that are addressing the issue.

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