SDG214 Spring 2024

UN Sustainable Development Goals

DEEP SEA MINING

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EXCUSE MY NORWEGIAN ARM

THE AIM OF THE PROJECT (1)

On the 12 of April 2024 Norway decided to start deep sea mining (DSM). We aim to evaluate the economic benefits, environmental risks, and potential mitigations of DSM in Norway.

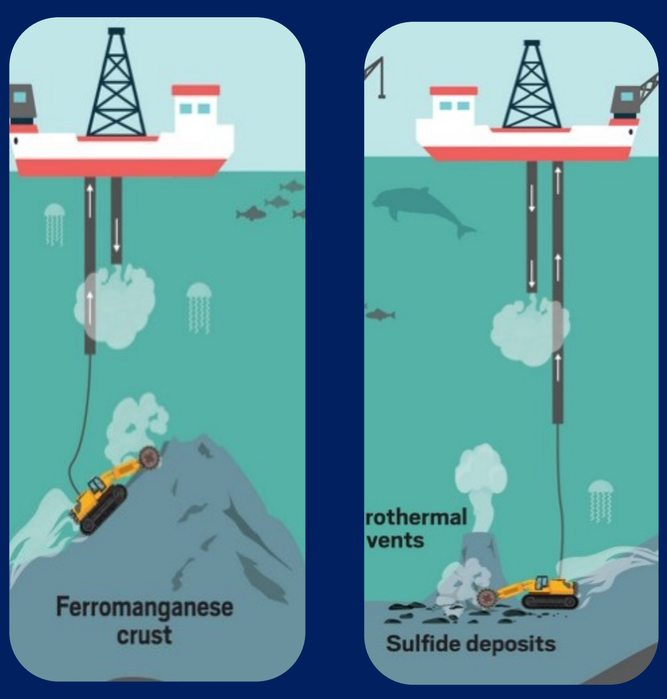
WHAT IS DEEP SEA MINING? (3)

Extracting valuable minerals such as cobalt, nickel, and zinc etc. from the ocean floor, typically from depths greater than 200 meters used for batteries necessary in the green transition.

ECONOMIC BENEFITS (2)

- Still early estimates
- Norwegian seabed holds values of 1000 billion NOK

CURRENT METHODS: OPEN PLUMES



(3)

BIOLOGICAL IMPACTS (4)

The chimney structures of inactive vents typically hosts cnidarians and sponges and provides substratum for benthic suspension feeders. These taxa are usually considered long-lived and slow-growing.

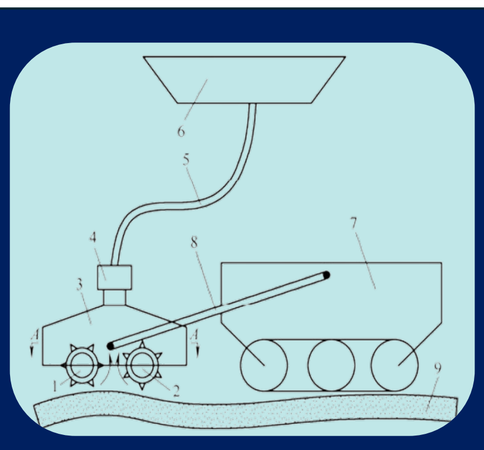
DIRECT EFFECTS

- Faunal mortality
- Habitat destruction

INDIRECT EFFECTS

- Sediment plumes
- Release of toxic substances to water column

POSSIBLE SOLUTION: CLOSED COMPARTMENT TECHNOLOGY



(5)

TAKE HOME MESSAGE

Deep sea mining poses significant environmental risks and requires careful consideration of its potential impacts before proceeding. Closed compartment technology might present a solution to minimize environmental damage

References

1. World Wide Found for Nature. (2023). *Deep Seabed Mining: WWF Takes Legal Action Against The Goverment. WWF.no/wwf-takes-legal-action-against-the-state.*
2. Anneli Strand. (2020). *Kan være mineraler for svimlende 1000 milliarder på norsk sokkel.* Article from nrk.no.
3. Priyanka Runwal. (2023). *The Deep Sea mining dilemma. Chemical&Engineering news. Volume 101, Issue 31.*
4. Gollner et al. (2017). *Resilience of benthic deep-sea fauna to mining activities.* Marine environmental research, 129, 76–101.
5. Liu et al. (2016). *Development of mining technology and equipment for seafloor massive sulfide deposits.* Chinese Journal of mechanical engineering, 29(5), 863-870.