Von: [redacted] EDA [redacted]
An: [redacted] BAFU; [redacted] EDA [redacted]
Betreff: FW: ISA: Allseas Beteiligung an TMC USA
Datum: Donnerstag, 29. Januar 2026 11:51:38
Anlagen: 20251022 TMC Gesuch USA ISA.docx

From: [redacted] EDA [redacted]
Sent: Wednesday, January 28, 2026 5:36 PM
To: Perrez Franz Xaver EDA PERFR <franz.perrez@eda.admin.ch>
Cc: [redacted] EDA [redacted] [redacted] @eda.admin.ch>; [redacted] EDA [redacted] @eda.admin.ch>
Subject: ISA: Allseas Beteiligung an TMC USA

Lieber Franz

Für das Bila von nächster Woche, 5. Februar 14:00 Uhr, wäre ich froh, wenn wir auch das weitere Vorgehen betr. Allseas besprechen könnten.

Anbei die insbesondere von der Sektion Völkerrecht überarbeitete Version der völkerrechtlichen Analyse (herzlichen Dank an [redacted] und [redacted]). Sie werden an der Diskussion auch teilnehmen können.

Liebe Grüsse

[redacted]

Von: [redacted] BAFU
An: [redacted] EDA [redacted] [redacted] EDA [redacted]
Betreff: GP report / Allseas
Datum: Donnerstag, 2. Juli 2026 13:39:00

Mes chers,

Happy to have your views incl. any implications for the July session – je vais terminer la lecture ce soir:
*Corporate capture of the deep sea. A call for action to protect the commons

Cordialement,

[redacted]

Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Betreff: TR: autres infos
Datum: Dienstag, 11. Juli 2023 15:12:00

Je sais pas si tu as poussé la question de Allseas, mais si jamais apparemment il est sous flag de Malta.

De : [redacted] BAFU [redacted]@bafu.admin.ch>
Envoyé : dimanche, 19 mars 2023 20:39
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : autres infos

Chère [redacted]

La question pour Allseas est que leur bateau « Hidden Gem » qui participe à l'exploitation des nodules (Hidden Gem - Allseas) est sous le flag de Malta et enregistré comme compagnie en CH. Selon moi, c'est Malte qui est responsable du law enforcement, pas la CH.
Ship HIDDEN GEM (Drill Ship) Registered in Malta - Vessel details, Current position and Voyage information - IMO 9445150, MMSI 215700000, Call Sign 9HA5252 | AIS Marine Traffic

The **flag state** of a merchant vessel is the jurisdiction under whose laws the vessel is registered or licensed, and is deemed the nationality of the vessel. A merchant vessel must be registered and can only be registered in one jurisdiction, but may change the register in which it is registered. The flag state has the authority and responsibility to enforce regulations over vessels registered under its flag, including those relating to inspection, certification, and issuance of safety and pollution prevention documents. As a ship operates under the laws of its flag state, these laws are applicable if the ship is involved in an admiralty case.

TMC : going with a smelter company called PAMCO from Japan TMC Enters into MOU with Leading Nickel Processor PAMCO to Evaluate the Processing of Polymetallic Nodules into Battery Metal Feedstocks | The Metals Company. Est-ce que cela veut dire que [redacted] n'est plus dans la course ? Il est aussi précisé que le production ship est Hidden Gem.

Betreff: Blocker: Informal Exchange on DSM
Ort: Direcotrate of International Law, Kochergasse 10, 3003 Bern

Beginn: Mo 29.06.2026 10:30
Ende: Mo 29.06.2026 12:00
Zeitspanne zeigen als: Mit Vorbehalt

Serientyp: (Keine Angabe)

Besprechungsstatus: Noch nicht geantwortet

Organisator*in: [redacted] EDA [redacted]
Erforderliche Teilnehmer: [redacted] BAFU
Optionale Teilnehmer: [redacted] EDA [redacted] EDA [redacted]

Betreff:	Informal Exchange
Ort:	FDFA Directorate of International Law DIL, Kochergasse 10, 3003 Berne, Room Vereina
Beginn:	Di 24.06.2025 12:00
Ende:	Di 24.06.2025 13:30
Serientyp:	(Keine Angabe)
Besprechungsstatus:	Zugesagt
Organisator*in:	[redacted] EDA [redacted]
Erforderliche Teilnehmer:	[redacted] BAFU; [redacted]

Change of location. I will welcome you at the lobby. Best regards,
[redacted]

Von:	[redacted] BAFU
An:	[redacted] EDA [redacted]
Cc:	[redacted] BAFU
Betreff:	tu as vu ? https://www.ejiltalk.org/untouchable-metals-how-the-obligations-of-unclos-states-parties-limit-the-commercial-viability-of-unilateral-deep-sea-mining/
Datum:	Dienstag, 24. Juni 2025 07:03:00

Untouchable metals: How the obligations of UNCLOS States Parties limit the commercial viability of unilateral deep sea mining – EJIL: Talk! -> art. 137-139.

• *Switzerland must consider the position as regards AllSeas, the Swiss owner and operator of the vessel Hidden Gem, used by TMC for its exploration activities. Switzerland must take reasonable steps to ensure that AllSeas does not make Hidden Gem available to TMC-USA for activities in the Area that are not in conformity with Part XI.*

Et aussi:
Exploitation minière en haute mer. Le Conseil fédéral met la pression sur Allseas | La Liberté
Le Conseil fédéral met la pression sur Allseas - Le Courrier
Raphaël Mahaim est satisfait de la teneur de la réponse du Conseil fédéral. «Ce rappel très clair du droit international met une forte pression sur Allseas: impossible pour l'entreprise de plaider la méconnaissance de cause», souligne le conseiller national vert. Mais le Vaudois appelle de ses vœux une démarche encore plus directe.
«Le Gouvernement néerlandais envisage de contacter Allseas pour décourager l'entreprise de se lancer dans un tel projet. J'espère que le Conseil fédéral en fera de même.»

[redacted]

Von: [redacted] EDA [redacted]
An: [redacted]
Betreff: RE: [EXTERNAL] Allseas" view on questions in Swiss Parliament regarding deep-sea mining
Anlagen: image001.png

Thank you [redacted] we will take your input into account. Again: good to hear that you are committed to international law and standards of diligence, environmental responsibility and minimizing environmental impacts. Best regards, [redacted]

From: [redacted]@allseas.com>
Sent: Tuesday, May 13, 2025 2:17 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: [EXTERNAL] Allseas' view on questions in Swiss Parliament regarding deep-sea mining

Dear Mr. [redacted]
Assuming your department will be responding to these parliamentary questions, we would like to respectfully offer the following input for your consideration.

- As technology partner of The Metals Company (TMC), Allseas supports TMC's move to advance deep-sea mineral exploitation under a fully developed regulatory regime. Allseas remains committed to operating in full compliance with national and international law, and to ensuring that environmental impacts are minimised.
- We will proceed with deployment of our mineral collection system only once we are confident that all relevant regulatory conditions are satisfied, and that the approach to deep sea mineral exploitation maintains the high standards of diligence and environmental responsibility demonstrated throughout its development. As a responsible family-owned company, minimising environmental impact has always been – and continues to be – a guiding principle in the design and development of our deep-sea technology.
- At the same time, Allseas urges the ISA to fulfil its mandate and promptly adopt a robust and enforceable framework (Mining Code) to provide legal certainty for responsible deep-sea mineral activities. This necessity is highlighted by the accelerating global demand for critical minerals like nickel, cobalt, copper and manganese, which are indispensable for advancing strategic priorities like the energy transition, digitalisation, strategic autonomy, security, and economic competitiveness.

If you have further questions on Allseas' position regarding this matter, please let us know.

Regards,

[redacted]

[redacted]

Allseas Engineering B.V.

Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Cc: [redacted] BAFU; [redacted] EDA [redacted]
Betreff: p.i. Allseas / CH & deep sea mining
Datum: Montag, 28. April 2025 16:04:00

Cher [redacted]

As-tu pu contacter Allseas, ou les collègues NL & CAN ?

J'ai eu un bon call avec [redacted] mardi dernier. Je te donne un petit feedback rapide demain avant le call [redacted] si tu veux ! -> tu participes ?

p.i.

https://www.climatechangenews.com/2025/04/25/trump-throws-lifeline-to-canadian-deep-sea-miner-setting-scene-for-international-clash/ *For instance, countries like Canada, Switzerland and the Netherlands – where TMC and its partner Allseas are respectively based – could risk breaching the terms of the UNCLOS if they fail to prevent the companies from acting unilaterally, he said.*

Q&A: Can Trump really approve mining in international waters? | NEWS | Reccessary *« Other countries involved in the mining activities could also act. For example, the deep-sea collection system that The Metal Company used in their recent mining trial is owned by a Swiss-based offshore contractor, Allseas. Switzerland would be under legal obligations to ensure its nationals do not participate in such activity."*

Je viens aussi de voir un post de Anne Sophie Roux sur instagram qui annonce que les ONGs préparent un plan par rapport à la Suisse.

Cordialement,

[redacted]

Von: [redacted] EDA [redacted]
An: [redacted] EDA [redacted] [redacted] EDA [redacted] [redacted] BAFU
Betreff: FW: [EXTERNAL] Forscher fanden Sauerstoff, der in der Tiefsee entsteht – Dies stellt den geplanten Abbau von Manganknollen infrage
Datum: Dienstag, 8. Juli 2025 10:35:09

Neuer Artikel im TA zum Tiefseebergbau

Meeresbiologe Andrew Sweetman entdeckte, dass Manganknollen in der Tiefsee wahrscheinlich ohne Sonnenlicht Sauerstoff produzieren. Gleichzeitig drängen Unternehmen wie die Schweizer Firma Allseas darauf, diese wertvollen Metalle abzubauen.

https://www.tagesanzeiger.ch/dunkler-sauerstoff-und-tiefseebergbau-forscher-fanden-sauerstoff-der-in-der-tiefsee-entsteht-dies-stellt-den-geplanten-abbau-von-manganknollen-infrage-284123721529

Media Monitoring: Deep Seabed Mining / The Metals Company / Allseas

Embassy of Switzerland in the USA, 15 July 2025

Official Documents

7 July 2025
National Oceanic and Atmospheric Administration

Deep Seabed Hard Minerals Mining

Proposed rule to consolidate deep seabed mining license and permit review process available for public comment: On Monday, July 7, 2025, NOAA issued the proposed rule: Deep Seabed Mining: Revisions to Regulations for Exploration License and Commercial Recovery Permit Applications. The proposed rule would revise some provisions of DSHMRA's implementing regulations for exploration license and commercial recovery permit applications. NOAA is accepting public comments on the proposed rule until September 5, 2025, and all comments must be submitted via the Federal e-Rulemaking Portal. More information is available in the Federal Register notice.

16 May 2025
Bericht des US-Kongresses

U.S. Interest in Seabed Mining in Areas Beyond National Jurisdiction: Brief Background and Recent Developments

In 1980, Congress passed the Deep Seabed Hard Mineral Resources Act (DSHMRA; 30 U.S.C. §1401 et seq.) as an interim measure to allow the United States to proceed with seabed mining activities in areas beyond national jurisdiction (ABNJ) until an international regime was in place (i.e., the United Nations Convention on the Law of the Sea [UNCLOS]). DSHMRA established a framework for authorizing U.S. citizens (e.g., individuals, corporations) to explore for and recover minerals from seabed in ABNJ. In general, *exploration* means the at-sea observation and evaluation of seabed mineral resources and the taking of the resource as needed to design and test mining equipment, and *commercial recovery* (or *exploitation*) means the actual at-sea mining and processing of seabed minerals for the primary purpose of commercial use (30 U.S.C. §1403).
On April 24, 2025, as part of a broader national effort to secure reliable supplies for critical minerals, President Trump issued Executive Order (E.O.) 14285, "Unleashing America's Offshore Critical Minerals and Resources," which directed certain federal agencies to advance seabed mining activities. This In Focus discusses the actions of the National Oceanic and Atmospheric Administration (NOAA) and U.S. companies related to seabed mining in ABNJ as well as congressional interest in the topic. The regulation of mineral-related activities occurring on the U.S. outer continental shelf by the Department of the Interior's Bureau of Ocean Energy Management (BOEM) is beyond the scope of this In Focus. […]

Exploration Licenses Issued by NOAA: DSHMRA authorized the NOAA Administrator to issue exploration licenses and commercial recovery permits to U.S. citizens for seabed mining activities in ABNJ (30 U.S.C. §1412). In 1984, NOAA issued exploration licenses for four sites located beyond U.S. jurisdiction in the CCZ. NOAA issued exploration licenses to four U.S. mining consortia, three of which were multinational private-sector consortia with participating American companies. Under DSHMRA, exploration licenses are initially issued for 10 years (30 U.S.C. §1417(a)). NOAA has issued

- **USA-1** to Ocean Minerals Company, comprising Cyprus Minerals and Lockheed Martin Corporation (both American companies);
- **USA-2** to Ocean Management Inc. comprising Schlumberger Technology (an American company) and Canadian, German, and Japanese companies;
- **USA-3** to Ocean Mining Associates, comprising Essex Minerals Co. and Sun Ocean Ventures, Inc. (both American companies) and Belgian and Italian companies; and
- **USA-4** to Kennecott Consortium, comprising Kennecott Utah Copper Corporation (an American company) and British, Canadian, and Japanese companies. […]

USA-1 and USA-4 remain the only active exploration licenses issued by NOAA pursuant to DSHMRA. Lockheed Martin holds both licenses; it became the sole holder of the licenses by different means. In 1993, Kennecott Consortium relinquished USA-4 to NOAA (58 *Federal Register* 33933). Ocean Minerals Company, the consortium including Lockheed Martin, applied for USA-4 (58 *Federal Register* 34782), and NOAA issued the license in 1994 (59 *Federal Register* 66942). In 1995, Cyprus Minerals withdrew from Ocean Minerals Company, leaving Lockheed Martin as the sole company overseeing USA-1 and USA-4. […]

Actions taken by Lockheed Martin suggest it may be divesting from seabed mining. In March 2023, a Norwegian company, Loke Marine Minerals, acquired 100% of UK Seabed Resources, a subsidiary of

the United Kingdom-based arm of Lockheed Martin. This acquisition included the transfer of UK Seabed Resources' two ISA-issued exploration contracts to Loke Marine Minerals. Loke Marine Minerals has since filed for bankruptcy, reportedly in part due to difficulties raising capital. Other seabed mining companies have struggled to secure investors, leading some to suggest the "industry is not economically viable."

To extend USA-1 and USA-4 beyond June 2, 2027, Lockheed Martin would need to submit an extension request to NOAA at least six months prior to the expiration date. If the licenses are not extended, U.S. entities can request a transfer of USA-1 and/or USA-4. In such cases, NOAA is to process the request pursuant to the requirements of 15 C.F.R. §970.516. According to NOAA, the agency may choose not to actively solicit offers for the transfer of these licenses.

Pending Applications to NOAA: E.O. 14258 directed NOAA, in consultation with the Department of State and BOEM, to expedite the process for reviewing and issuing exploration licenses and commercial recovery permits under DSHMRA, among other actions. On April 29, 2025, TMC's U.S. subsidiary, The Metals Company USA LLC (TMC USA), submitted applications to NOAA for two exploration licenses and one commercial recovery permit under DSHMRA for areas in the CCZ. According to the *Code of Federal Regulations*, NOAA is to make an initial determination within 30 days of receipt for exploration license applications (15 C.F.R. §970.209) and within 60 days of receipt for commercial recovery permit applications (15 C.F.R. §971.210). As TMC holds two ISA exploration contracts in the CCZ, some speculate that TMC USA's applications to NOAA may be part of "a tactic to put pressure on the ISA" to adopt its exploitation regulations for parties to UNCLOS.

Recent Congressional Interest: Congress may continue to consider seabed mining issues in the context of TMC USA's April 2025 applications to NOAA. Some Members in the 118th Congress called for the Senate to take up UNCLOS, contending that as a party to UNCLOS, the United States would be able to participate in setting and voting on ISA policies. Other Members in the 118th Congress called on the ISA to adopt ISA exploitation regulations, claiming critical minerals collected from ABNJ would "enable America to regain reliable and responsible supply chains," independent of China. No such legislation has been introduced in the 119th Congress to date. Weighing the advantages and disadvantages of giving U.S. entities access to ISA contracts through U.S. accession to UNCLOS as a means to diversify its critical mineral supply chain is an ongoing issue for Congress.

It is likely that if NOAA issues commercial recovery permits outside the ISA framework, the action would spark some international reaction. For example, following E.O. 14258 and TMC USA's applications to NOAA, the Secretary-General of the ISA stated, "any unilateral action ... sets a dangerous precedent that could destabilize the entire system of global ocean governance."

In the 119th Congress, some Members have introduced legislation (H.R. 664) to prohibit NOAA from issuing licenses and permits for seabed mining activities in ABNJ until more information is known about its potential impacts. This bill also would direct NOAA, along with the National Academies of Sciences, Engineering, and Medicine, to study the environmental impacts of mining activities. H.R. 663 would instruct the President to call for an international seabed mining moratorium until the ISA adopts a regulatory framework based on comprehensive scientific understanding of the potential impacts on the ocean.

Other Members have considered the potential for additional supplies of critical minerals that could be achieved through the domestic processing and refining of seabed minerals in the United States. H.Rept. 118-125, the House Armed Services Committee (HASC) report accompanying its reported version of the National Defense Authorization Act for Fiscal Year 2024 (P.L. 118-31), directed the Department of Defense (DOD) to submit a report to the HASC assessing the processing of polymetallic nodules (PMNs), a type of seabed mineral deposit, in the United States. The joint explanatory statement accompanying the Service Member Quality of Life Improvement and National Defense Authorization Act for Fiscal Year 2025 (P.L. 118-159) authorized a DOD study to assess the feasibility of improving U.S. capabilities for refining PMNs for defense applications. Some Members in 2023 asked DOD to support TMC USA's grant application to assess the feasibility of developing a refinery in Texas for PMN-derived intermediate products.

Media

14 July 2025
Financial Times
Lockheed Martin in talks to develop seabed mines

US defence group says there is 'large interest' in its eastern Pacific licences as companies vie for critical minerals: Lockheed Martin is in talks with mining companies to allow exploitation of its Pacific seabed licensing areas as global competition to secure access to critical minerals intensifies. The American defence group was awarded the two eastern Pacific licences in international waters by US regulators in the early 1980s during the first flush of interest in deep sea mining but never started work on them. Frank St John, Lockheed's chief operating officer, said there was now a "large interest" in the company's deposits from groups involved in undersea mining. "We are in early stages of conversations with several companies about giving them access to our licences and allowing them to process those materials," he told the Financial Times. […]
A de facto ban on mining in international waters has been in place since the 1990s, raising questions about the legality of any unilateral move to kick-start the industry.
Some experts say the industry would struggle to compete on costs with land-based mining. Lockheed in 2023 sold its two UK-backed exploration licences in the Pacific, widely interpreted at the time as a no-confidence vote in the industry. The regulator for deep-sea mining in international waters, the International Seabed Authority, is meeting for crunch talks in Jamaica this month to discuss the conditions under which it would allow mining to start. Representatives from 169 countries as well as the European Union have spent years hashing out a system of environmental safeguards, royalties and taxation that has yet to be finalised. The US has not ratified the treaty from which the ISA derives its authority but has signed an agreement recognising the treaty's seabed provisions. It has its own licensing process administered by the US National Oceanic and Atmospheric Administration. […]
"We believe the US has the opportunity to develop a gold standard for commercial recovery of nodules in an environmentally responsible manner," the company added. Separately, St John said Lockheed was taking steps to ensure it had access to key raw materials as part of its overall focus on bolstering its supply chains. The company is working with the Pentagon to "identify what are the resources that are going to be needed to either create a stockpile of material or create an alternate source". In some cases, said St John, the company was investing its own capital to "go out and secure those stockpiles", for example through agreements with mining companies. The company recently managed to put in place an alternative source plan for germanium as well as titanium, according to St John, who stressed that Lockheed had not experienced any "issues or slowdown in any production".

Dazu auch interessant: Lockheed subsidiary calls for global agreement on deep sea mining code (Financial Times, 10.9.2020)

12 July 2025
Santa Cruz Sentinel
Silicon Valley venture capitalist helps lead controversial race to start mining ocean floor

Whales, other marine life believed at risk in Pacific Ocean project: […] Days after the order, The Metals Company USA applied for a permit from the U.S. National Oceanic and Atmospheric Administration to mine about 10,000 square miles of ocean floor for the nodules containing cobalt, nickel, copper and manganese. The company is also requesting permits to explore a 77,000-square-mile area it believes contains such nodules, with millions of tons of cobalt, nickel, copper and manganese.
"NOAA has been very fast in turning around the regulatory submissions," Jurvetson said. The company's permit applications are under review. Legal obstacles The Metals Company may face remain uncertain. Several nations have banned deep sea mining in their waters, which extend out about 200 miles for countries, and many others have supported bans or pauses for their own or international waters. California also has banned deep sea mining in its waters, which extend out about 3.5 miles. "It's really unclear right now whether the United States has legal authority to do this, to issue these permits," said UC Berkeley law school professor Holly Doremus, co-director of the school's Law of the Sea Institute.
Silicon Valley venture capitalist Steve Jurvetson sees undersea mining as key to the crucial transition to electrical power from climate-cooking fossil fuels, a change requiring vast quantities of metals like nickel and cobalt to build batteries. Sucking ore from 13,000 to 20,000 feet deep in the ocean is far better for the planet than digging it from land, Jurvetson contended. "This might be the most environmentally benign way to extract metals that we've ever had," Jurvetson said. Stephen Haddock, a Monterey Bay Research Institute scientist who studies deep sea and open-ocean creatures,

described Jurvetson’s argument as “greenwashing” and the plan to mine the seafloor a looming catastrophe for ocean life that will not replace mining on land.
“We were just dreading it happening,” Haddock said. “It’s not to save the environment. It’s just for them to make a bunch of money. It’s part of our global heritage and they’re exploiting it for their own gain.”
[…]
Greenpeace, whose activists in 2023 boarded The Metals Company’s exploration vessel above Clarion Clipperton and occupied a crane for five days, has warned that noise and spreading silt from deep-sea mining pose severe threats to marine animals and delicate food webs, from species at the bottom to plankton, fish larvae, and dolphins and whales reliant on sound to forage, communicate and navigate.
“Deep sea mining is a gamble with our planet’s last untouched wilderness, threatening irreversible damage to ecosystems we barely understand,” Greenpeace oceans campaigner Jackie Dragon said.

10 July 2025
Gurufocus.com (und Weitere)
TMC Stock Rises Amid Copper Tariff Announcement

The surge in TMC's valuation comes amid significant shifts in trade policies. The Trump administration's planned 50% tariff on copper imports aims to drive domestic mineral sourcing, thus providing a favorable backdrop for TMC as it is positioned to benefit from reduced reliance on Chinese mineral resources. This policy shift has been reflected in TMC's stock performance, which has seen a year-to-date increase of over 513.39%.

Betreff:	Follow-up call on environmental aspects of DSNC
Ort:	Microsoft Teams Meeting; Delft, Conference Room N3.33 (8p)
Beginn:	Di 01.07.2025 12:30
Ende:	Di 01.07.2025 13:30
Serientyp:	(Keine Angabe)
Besprechungsstatus:	Zugesagt
Organisator*in:	[redacted]
Ressourcen:	Delft, Conference Room N3.33 (8p)

Microsoft Teams Need help?

Join the meeting now

Meeting ID: [redacted]

Passcode: [redacted]

Join on a video conferencing device

Tenant key: [redacted]

Video ID: [redacted]

More info

For organizers: Meeting options

Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Betreff: RE: [EXTERNAL] Re: request for an informal exchange
Datum: Montag, 12. Mai 2025 14:34:00
Anlagen: image001.png

Office fédéral du registre du commerce (OFRC)

[redacted]

De : [redacted] EDA [redacted] @eda.admin.ch>
Envoyé : lundi, 12 mai 2025 14:33
À : [redacted] BAFU [redacted] @bafu.admin.ch>
Objet : RE: [EXTERNAL] Re: request for an informal exchange

T'as un contacte à l'ofj pour le kvi 2.0 ?

From: [redacted] BAFU [redacted] @bafu.admin.ch>
Sent: Monday, May 12, 2025 1:53 PM
To: [redacted] EDA [redacted] @eda.admin.ch>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

Merci pour ces précisions.

Concernant CSR (plan d'action, RFA etc.): c'est le SECO ; mais ce qui est KVI 2.0 / contre-projet KVI, les aspects + juridiques c'est l'OFJ.

[redacted]

De : [redacted] EDA [redacted] @eda.admin.ch>
Envoyé : lundi, 12 mai 2025 08:55
À : [redacted] BAFU [redacted] @bafu.admin.ch>
Objet : RE: [EXTERNAL] Re: request for an informal exchange

Done.

La Suisse suit un système moniste. Il n'y a pas de distinction entre le droit national et international. Un traité devient droit suisse dès lors qu'il a été ratifié par la Suisse. En théorie. Je ne connais pas de norme édictée par le Conseil fédéral ou le Parlement qui prévoit l'interdiction d'agir contre le droit international. Cala ne ferait d'ailleures pas beaucoup de sens. Chacun doit agir conformément au droit suisse, qu'il s'agisse d'une ordonnance, d'une loi ou d'un traité. Il n'y a pas non plus de norme qui prescrive d'agir conformément au droit suisse. C'est implicite.

On pourrait demander l'OFJ, bien sûr. Mais n'est pas le Seco qui fait CSR ?

Art. 137 UNCLOS prévoit – entre autre – que aucune personne physique ou morale ne peut s'approprier une partie quelconque de la Zone ou de ses ressources. Il s'agit à mon avis d'ine interdiction : une personne morale suisse ne devrait pas s'approprier des ressources de la zone. Mais cala ne se fait pas. Il y aura une personne morale des états unis (TCM USA) qui le ferait. Et cette personne morale n'est pas nécessairement liée à UNCLOS. On revient à la question : la norme 137 est-elle de droit international coutumier ? nous en discutons à l'interne…

Franz n'est pas du tout convaincu. Ou plutôt: il est de l'avis que ce n'est pas une norme coutumière, mais il veut encore attendre une analyse détaillée.

From: [redacted] BAFU [redacted]@bafu.admin.ch>
Sent: Friday, May 9, 2025 3:26 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

Merci !

Pourrais-tu leur envoyer en réponse le lien à la MM de la position du CF sur le moratoire, et un lien à l'étude ENV sur laquelle on se base ? Leur white paper semble assez partiel ;).

On pourrait en profiter pour leur mettre le lien aux attentes CSR du Conseil fédéral (Corporate Social Responsibility (CSR) - de suivre les standards internationaux reconnus, dont font partie les MNE guidelines qui contienne un devoir de diligence. Ils font partie de la chaine d'approvisionnement et ne peuvent pas tout remettre sur TMC. J'y ai fait référence, mais pas de manière assez explicite.

Pour votre analyse, au niveau du droit national, il n'y a pas une loi qui interdit aux entreprise d'agir contrairement au droit international ? c'est peut-être à l'OFJ qu'il faut demander, qui s'occupe de ce qui est CSR.

Est-ce que l'art. 137 UNCLOS n'a pas aucun effet ?

Et enfin, ils vont probablement changer le pavillon des bateaux pour un pavillon US (et pas Malte), car les loi US DSM le demandent.

Tu as parlé à Franz ?

Je suis à disposition pour contribuer à la réponse de l'IP (p.ex. aspects CSR).

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : vendredi, 9 mai 2025 13:45
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : FW: [EXTERNAL] Re: request for an informal exchange

From: [redacted]@allseas.com>
Sent: Friday, May 9, 2025 9:16 AM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: Re: [EXTERNAL] Re: request for an informal exchange

Hi [redacted]
Thank you for the time yesterday and I appreciate the opportunity for an informal exchange. I talked about a White paper prepared by Allseas with respect to deep-sea polymetallic nodule collection and

Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Cc: [redacted] BAFU
Betreff: mes commentaires - Allseas whitepaper on DSM
Datum: Montag, 23. Juni 2025 18:00:00
Anlagen: White paper deep-sea mining 2025-0501.pdf

Cher [redacted]

J'ai relu le whitepaper de Allseas on DSM. Je ne m'attendais pas à de la grande science, et effectivement, c'est pas très scientifique.

Quelques commentaires ci-joints et aussi en général :

- Needs for critical minerals : ils utilisent quelques chiffres de l'IEA mais de façon sélective et donc fallacieuse, et utilisent surtout les conclusions des rapports d'une boite de conseil (Benchmark Minerals) pour une certaine « DSM business roundtable »
- Ils utilisent l'argument selon lequel les impacts ENV du DSM sont plus faibles que terrestrial mining, MAIS : il n'y a pas de données pour pouvoir affirmer ça, L'impact terrestrial mining dépend de l'endroit, la technologie, etc. on arrive à le gérer aussi, car on peut le contenir.
- Pour les impacts ENV, c'est une minimisation crasse des impacts qui contredit les études scientifiques ci-dessous.
  - Ils font référence à « l'extensive data », or, des études (e.g. EASAC) montre que les données manquent de rigueur statistiques, etc.
  - Ils se réfèrent au « preliminary results » de TMC de leur tests de 2022. Ce n'est pas une recherche tout à fait indépendante ;)
  - La vie est censé revenir rapidement… or, des études montrent que dans le test qu'il y avait eu 40 ans après, il y a très peu, et surtout des modification au niveau des mammifères marins.
  - Pareil pour les sédiments, le brief de UNEP dit qu'ils peuvent induire une pollution durable dans la colonne d'eau et que c'est insuffisamment évalué
  - Bruit, lumière.. ça va dans le même sens
- Ils mentionnent plusieurs fois l'ISA comme régulateur responsable, etc. Or, ils sont justement impliqués dans la demande de licence de TMC qui n'est justement pas sous ISA. Ils donnent aussi l'impression qu'ISA monitora tout ca, or la question du monitoring est très complexe et très débattue dans les négociations, et surtout, personne ne sait comment ISA serait assez fort pour monitorer vraiment des activités à des milliers de mètre de profondeur.
- Il n'y a aucune mention du principe de précaution, ou autre objectifs international environnemental. Même pas les SDG. Ils auraient pu au moins faire référence aux SDG pour faire joli.

Tu as reçu qqch de [redacted] ?

Au lieu de cela, voici quelques récentes études crédibles, peer-reviewed qui sont sorties et qui réfutent ce qui est dans leur whitpaper. Il y a p.ex. EASAC ou le UN Secretary-General's Scientific Advisory Board and its associated global network of scientific institutions qui advise UN leaders on breakthroughs in science and technology. Je pense qu'ils font un peu + le poids que les chercheurs de TMC.

- Harmful marine extractives: Deep-Sea Mining – United Nations Environment – Finance Initiative (2022)

- Assessment of scientific gaps related to the effective environmental management of deep-seabed mining - ScienceDirect (2022)
- Microsoft Word - report_deepsea_mining_froelicher_jaccard_final_published.docx (2023)
- Deep-sea mining: assessing evidence on future needs and environmental impacts (2023)
- wedocs.unep.org/bitstream/handle/20.500.11822/45494/deep_sea_mining.pdf?sequence=3&isAllowed=y (2024)
- https://www.un.org/scientific-advisory-board/sites/default/files/2025-05/250403-DSM-Brief-Rev-7.pdf(2025)
- Metal mining on land versus the ocean in the context of the current Biodiversity Crisis | npj Ocean Sustainability (2025)

Cordialement,

[redacted]

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Département fédéral de l'environnement, des transports,
de l'énergie et de la communication DETEC

Office fédéral de l'environnement OFEV
Division Economie et Innovation

Note

Date :	04.04.2023
Pour :	[redacted]
Copie à :	-

Référence : BAFU-477.272-60119/8

Remarques générales

Avant de rentrer dans les détails du document que tu m'as partagé, j'ai regardé ce que dit la littérature scientifique du concept de Deep Sea Mining. Je te résume ci-dessous mes conclusions.

Les méthodes de caractérisations des impacts environnementaux en écobilan (Life Cycle Impact Assessment) ne sont pas adaptées au calcul des impacts pour le Deep Sea Mining (DSM). Ils n'ont pas été conçu pour. Les impacts globaux, comme le changement climatique pourrait être acceptable (même si on manque probablement de recul sur la technologie DSM). Mais les impacts locaux (p.ex pollution des sols, pertes de biodiversités, etc.) n'ont jamais été prévu pour ce type de configuration.

Les projets de DSM sont théoriques. On ne dispose donc pas de données précises pour faire une modélisation écobilan déterministe et précise. Il faudrait faire des analyses de sensibilité (sur les aspect vraiment pertinent, cf analyse du document ci-après) en appliquant un maximum de principes de précaution pour voir si, dans le pire des cas, on aurait toujours un bilan environnemental suffisamment bénéfique pour imagine que ce concept soit moins impactant que l'exploitation en surface.

⇨ Globalement donc on manque de connaissances sur la question des impacts du DSM. Si on manque de connaissance, on ne peut pas les retranscrire correctement dans une LCA. Une LCA c'est une photographie des impacts environnementaux d'un produit ou système à un instant t, compte tenu de l'état de l'art des connaissances. Sans connaissance, on rate donc la cible.

La publication suivante : Sustainability | Free Full-Text | Conflicting Narratives of Deep Sea Mining (mdpi.com), mentionne les 4 visions identifiées concernant le développement du DSM :

Office fédéral de l'environnement OFEV
[redacted]
3003 Berne
Siège : Monbijoustrasse 40, 3011 Bern
Tél. +41 58 [redacted]
[redacted]@bafu.admin.ch
https://www.bafu.admin.ch

	Emphasis on			
Narrative 1: A green economy in a blue world	DSM can be aligned with economic viability and sustainability	DSM can provide potential large-scale economic gains	Actual costs and benefits still remain unknown	
Narrative 2: The sharing of DSM profits	The governance and potential for equal sharing of global resources are main challenges	DSM can provide potential large-scale economic gains	Actual costs and benefits remain unknown	The real benefit for humankind (due to DSM) will be an increase in the flow of metals on the global market
Narrative 3: The depths of the unknown	There are significant remaining uncertainties when it comes to the deep sea ecosystems	The payment scheme and global redistribution is not yet robust enough	It is naïve to believe the ISA can govern the 'benefit everyone' ideal	
Narrative 4: Let the minerals be	The morally correct action would be to set the vast majority of these ecosystems under moratorium until further notice	A moratorium and shift focus on closing the loop on metals on land instead of venturing to new exploitation		

On voit donc bien la frontière entre économie et principe de précaution. Au-delà de ce clivage assez générique, on peut se demander pourquoi les alternatives au DSM ne sont pas envisagées en priorité ?

En effet, il existe de nombreuses publications qui mettent en évidence que l'économie circulaire et en particulier le recyclage des métaux pourrait suffire à assurer la demande en matière 1ère sans avoir recourt au DSM. Dans le cas du recyclage, on contrôle complètement les impacts environnementaux, et il est clair que c'est une solution qui est viable, économiquement, socialement et environnementalement. On pourrait donc chercher à promouvoir le recyclage plutôt que le Deep Sea Mining. A tout le moins, une étude comparative entre les coûts/bénéfices des deux alternatives serait intéressante et montrera très probablement que le DSM ne fait pas de sens.

Analyse de la publication

- J'ai parcouru le « Full report », il s'agit en fait d'une présentation power point. Je trouve le format assez surprenant et cela n'aide pas à la lecture.
- Les indicateurs environnementaux utilisés excluent par exemple « Marine Ecotoxicity » et garde des indicateurs qui a mon sens, ne garantissent pas une comparaison équitable entre les mines à l'air libre et le DSM (p.ex utilisation d'eau douce qui dans le cadre du DSM va forcément être plutôt pas mal)
- Certaines limitations intéressantes sont mentionnées dans l'étude :
    - *The life cycle impact assessment (LCIA) only assesses environmental impacts covered in the scope and goals of the study. Therefore, not all environmental issues affected by the product system are covered.*
    - *There is a constraint for the LCIA due to the limited development of characterisation models, uncertainty and sensitivity analysis. For instance ecological impacts such as deep water habitat/species' behavioural changes cannot be explicitly communicated through the characterization mode*ls
    - Studies have shown that the ocean is a carbon sink and deep waters specifically allow carbon to remain for a longer period of time which is then buried in sediments. However, these carbon sinks are outside the scope of this study since SimaPro (v 9.4.0.2) is yet to incorporate ocean carbon in its calculation algorithm.
        - Pour cette dernière remarque, je ne comprends pas ce que la mention du logiciel Simapro vient faire ici, c'est comme si on reprochait à Word de mal écrire, c'est assez hors de propos
    - Le mix électrique employé est de l'éolien terrestre. On suppose donc ici que c'est uniquement de l'énergie éolienne qui alimente les processus techniques. Peu probable à priori. Même dans les analyses de sensibilité, on remplace l'éolien par d'autres énergies renouvelables. A aucun moment il n'est envisagé un mix électrique carboné. Alors que, à l'inverse, les technologies standards qui servent à la comparaison utilisent elle des énergies carbonées. On pourrait imaginer que l'entreprise a un critère d'utiliser que du renouvelable, mais clairement, c'est chercher à maximiser les bénéfices environnementaux en induisant un biais de modélisation.
- Dans les résultats (uniquement de la technologie DSM), on voit que l'étape de Mining ne représente que 6 à 8% de l'impact des métaux. Le reste c'est donc le raffinage. Or ici, d'une part la part de métal dans le minerai est élevée et le raffinage est estimé avec un haut taux de récupération et de l'électricité renouvelable. On a donc pris les hypothèses les plus bénéfiques pour le calcul.
- Comme hypothèse, il est considéré une approche d'allocation par « extension du système » pour un des coproduits du DSM (le sulfate d'ammonium). C'est une hypothèse assez forte et sensible. D'ailleurs, elle est testée dans l'analyse de sensibilité et on voit que les résultats augmentent entre 45 et 779% (dépendant de la catégorie d'impact) si on emploi un autre type d'allocation. Si on considère donc cette 2ème version de l'allocation, on obtient des résultats toujours plus intéressants pour le DSM (par rapport aux autres techniques) mais dans un écart beaucoup plus restreint qu'on pourrait considérer comme une marge d'erreur du fait qu'on manque de recul sur la technologie DSM. L'approche utilisé d'extension du système n'est pas forcément fausse, mais il faut la manipuler avec précaution. Ici, je trouve qu'on ne rentre pas assez dans le détail et ça me laisse donc perplexe.
- Si on regarde la comparaison entre le DSM et les autres process, on voit qu'il y a des hypothèses fortes qui vont créer forcément des différences
    - Les technologies terrestres ont comme lieu de raffinage la Chine, le Japon ou le Canada. Les mix énergétiques utilisés pour le raffinage vont donc être bien plus carboné que pour le DSM dont le raffinage aura lieu au Texas uniquement alimenté par de l'éolien. Encore une fois, ici si on plaçait un raffinage en Chine, on pourrait avoir des résultats qui évoluent pas mal.
    - Je te mets ci-dessous le tableau qui résume les hypothèses pour chaque technologie, ici pour le Nickel :

Processing technology	Ore	Ore grade	Mine to Intermediate region	Intermediate content	Refining region	Overall recovery rates	Methodology	Credit
RKEF RKEF & Pierce-Smith converters	Laterite	Nickel - 1.50% Cobalt - 0.02%	Indonesia	*Matte* Nickel - 75% Cobalt - 0.71%	China	Nickel - 84% Cobalt - 59%	The refining of matte to metal is economically allocated	Sodium sulphate (by-product)
DON Direct smelting	Sulphide	Nickel - 0.60% Copper - 0.10% Cobalt - 0.02%	Australia	*Metal (100%)*	China	Nickel - 73% Copper - 73% Cobalt -74%	The refining of matte to metal is economically allocated	Sulphuric acid (by-product) Co-generation of electricity Sodium sulphate (by-product)
Conventional Flash furnace & Pierce-Smith converters								
HPAL High Pressure Ammonium Leaching	Laterite	Nickel - 1.35%	Indonesia	*MHP* Nickel - 42% Cobalt - 6%	China	Nickel - 85% Cobalt - 63%	The refining of intermediate to metal is economically allocated	Ammonium sulphate (by-product)
		Cobalt - 0.08%	Phillipines	*MSP* Nickel - 60% Cobalt - 5%	Japan	Nickel - 87% Cobalt - 74%		
Caron Reductive roast and ammonium leaching	Laterite	Nickel - 1.45%	Cuba	*Metal (100%)*	Canada	Nickel - 84.5%	No allocation needed	None
Pox Pressure oxidation leach	Sulphide	Nickel - 3.5% Cobalt - 0.2%	Canada	*Metal (100%)*	Canada	Nickel - 86% Cobalt - 85%	Economic allocation	None
RLE Roasters, leaching and electrowinning	Mixed sulphide and oxides	Copper - 2.5-3% Cobalt - 0.3-0.4%	Democratic Republic of Congo	Copper Cathode Cobalt hydroxide	China	Copper - 90% Cobalt - 74%	Pre-refining the concentrate is economically allocated	None
TMC NORI-D RKEF and sulphur converter	Nodule	Nickel - 1.39% Copper - 1.14% Cobalt - 0.14%	Clarion-Clipperton Zone	*Matte* Nickel - 41% Copper - 31% Cobalt - 3%	Texas	Nickel - 95% Copper - 86% Cobalt - 77%	*Matte*: metallurgical demand (electricity, coal, natural gas) & mass allocation *Refining*: economic allocation MnSi (co-product)	Ammonium sulphate (by-product) Converter slag (by-product)

  - Donc l'électricité est biaisée
  - Le taux de minerai métallique est plus faible dans les technologies terrestres (peut-être que c'est vrai mais à discuter à minima)
  - Le taux de récupération dans le raffinage est très élevé pour la technologie avec le DSM par rapport au autres (ici je ne vois pas la justification mais peut-être que c'est vrai également)

⇨ Les hypothèses sont définies par « jugement d'expert » pour les technologies de référence. C'est une approche qui se comprendre mais qui est souvent jugées peu fiable.

⇨ Au global, en lisant le papier, j'ai le sentiment (logique) que le DSM est présenté sous un excellent jour alors que les autres technologies sont présentées avec une modélisation plutôt négative. C'est assez fréquent dans ce type d'étude qui vise à montrer qu'une technologie est en rupture avec ses concurrentes

  - On retrouve le même schéma concernant les hypothèses quand le Cuivre ou le Cobalt sont étudiés. On peut ajouter que pour le Cobalt, les résultats des alternatives ne sont pas si mauvais et que compte tenu de la marge d'erreur pour le DSM, il pourrait être jugé difficile de clairement conclure que DSM est meilleur que les autres

- Dans l'étude, on voir que ce n'est pas vraiment le Mining qui serait important mais le raffinage. En tout cas pour le changement climatique, c'est assez clair. Je trouve qu'on biaise pas mal l'étude en modélisant le couple {extraction+ raffinage} et pas uniquement {extraction}. Il y a un biais fort pour moi ici.
- Finalement, l'écobilan a fait l'objet d'une revue critique. C'est en théorie un bon point, mais :
  - Ici la revue critique ne fait « que » préciser que l'écobilan respecte les règles très générales décrites dans la norme ISO 14'040. Il est juste précisé que les résultats « ont l'air » plausibles. Dans un sujet aussi complexe que DSM, seul des experts du domaines pourraient challenger les hypothèses
  - La personne qui a signé la revue critique me laisse perplexe. Je ne trouve que très peu d'information sur elle sur internet et son entreprise n'est qu'un revendeur d'un logiciel écobilan. En principe, lors d'une revue critique, on vérifie que le relecteur soit adéquat avec le cadre de l'étude. Ici, je suis donc dubitatif
  - Si on fait une revue critique, en particulier pour un sujet aussi complexe et clivant, on pourrait prendre ce qu'on appelle l'option « panel », 3 experts indépendants reconnus doivent relire l'étude et soumettre en aveugle leurs commentaires. Ensuite, une série d'échange est prévue pour harmoniser les adaptations. Toutes les discussions et les commentaires sont listés dans un fichier et mis à la disposition de tous. De cette manière, on voit le processus et on peut se positionner par rapport à celle-ci.

Conclusion

L'étude est assez standard pour ce type de démarche, à savoir présenter une technologie sous son meilleur jour et surtout la montrer comme révolutionnaire d'un point de vue environnemental le tout sous couvert d'une avalanche de détails et de transparence feinte. Cela pourra induire en erreur ou créer un doute chez une personne n'a pas les connaissances de la technologie étudiée ou des écobilans. On retrouve les ingrédients habituels, à savoir, choix des indicateurs partiellement trié, hypothèses de calculs et hypothèses des performances technologies optimisées. Par ailleurs, l'ajout d'une phase du cycle de vie (raffinage) au calcul créer une distorsion entre les technologies étudiées qui n'a pas lieu d'être, or c'est un point clef de l'étude car le raffinage c'est 90% de l'impacts.

On ne peut pas se fier à une seule publication pour fixer définitivement l'avantage (ou le désavantage) d'une technologie par rapport à une autre. Ici, tant qu'il n'y aura pas de travaux indépendants sur le sujet, ou alors suffisamment de publications pour faire une méta-analyse, alors je ne m'avancerai pas sur des conclusions trop rigides.

En premier niveau de réponse, je proposerai les points suivants :

1- Il serait nécessaire de comparer la technologie avec la filière de recyclage des métaux. Si le recyclage est meilleur, alors on pourra ensuite discuter du potentiel pour couvrir les besoins mondiaux. Si avec le recyclage on est autosuffisant, pourquoi chercher à aller pêcher du minerai ?
2- Il faudrait que tous les impacts environnementaux soient considérés et par uniquement un sous-ensemble. On pourrait aussi demander à ce que les aspects sociétaux et économiques soient inclus pour avoir une analyse de durabilité complète. La référence de comparaison devrait être la technique la plus avantageuse et pas la pire, donc ici le recyclage encore une fois.
3- On devrait aussi discuter l'étape de raffinage et demander pourquoi on voit des différences entre les 2 technologies (probablement du fait du contenu métallique dans le minerai) cela amènera donc ensuite à discuter plus globalement les hypothèses du modèle.
4- L'incertitude sur une technologie aussi peu connue devrait être mentionné. On ne peut pas faire une analyse déterministe avec si peu d'information
5- Finalement, on devrait aussi mentionner que l'approche écobilan ne permet peut-être pas encore de caractériser complètement les impacts dans les fonds marins et qu'il serait utile que la recherche comble ce manque. Il est dans tous les cas clairs qu'il faut absolument avoir des études multicritères et ne pas juste regarder le changement climatique.

Von: [redacted] EDA [redacted]
An: [redacted]
Betreff: Information Exchange on DSM
Dringlichkeit: Hoch

Dear [redacted] dear [redacted]

I have been trying to call you today, but couldn't get through. I would be grateful if you could give me a call back, preferably today.

Best regards,

[redacted]

[redacted]

Federal Department of Foreign Affairs FDFA
Directorate of International Law DIL
Swiss Maritime Navigation Office SMNO

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Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Betreff: RE: ISA matters
Datum: Donnerstag, 8. Mai 2025 09:14:00

Oui d'accord avec toi de faire preuve de retenue.
Effectivement pour le CAN, on pouvait s'y attendre…
merci pour tes retours et corrections sur les references !

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : jeudi, 8 mai 2025 08:53
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : RE: ISA matters

Ich bin gerade auch an der vorbereitung. Ich glaube, wir müssen auch eine gewisse zurückhaltung an den tag legen.
Ziel: kennenlernen, mehr über allseas pläne betr. DSM erfahren.
Wie sind sie impliziert in TCM USA

Die Kanadier sagen: es ist TCM US, ein eigenständiges Unternehmen. Zudem werden sie wohl eher nicht deutlich gegen die USA sprechen, da gerade sehr kompliziertes verhältnis/verhandlungen.

From: [redacted] BAFU [redacted]@bafu.admin.ch>
Sent: Wednesday, May 7, 2025 7:22 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Subject: RE: ISA matters

Désolée pour l'avalanche d'emails ;)

Mais après des recherches j'ai trouvé -> mais j'ai besoin de ton expertise de juriste ☺ ☺

Allseas, is subject to Swiss national legislation [gestützt worauf? Es gilt territorialitätsrecht. Schweizer recht unterworfen, für alles was sie in der schweiz machen. Was sie auf einem schiff unter fremder flagge machen ist dem recht dieses staates unterworfen] and international commitments [sehe ich nicht, gestützt worauf? CHs verpflichtungen verpflichten.. die Schweiz als staat! Völkerrecht verpflichtet grundsätzlich nur staaten, nicht individuen], notably:

- The Swiss Environmental Protection Act (EPA), which enshrines the precautionary principle and the polluter-pays principle. [mE nicht anwendbar]
- CF's CSR expectations -> international recognized standards, e.g. OECD MNE Guidelines, even if the 2020 Responsible Business Initiative failed. [müsste man prüfen, ob diese guidelines irgendwie völkerrecht und völkergewohnheitsrecht darstellen, sonst schwierig. Kenne ich jedenfalls nicht]
- Swiss export control regulations (if exports of infrastructure or service is sensitive, legally uncertain or contested, or might contribute to environmental damaged or breach international obligations). (Swiss Goods Control Act, Ordinance on the Expoert, Important and Transit of Dual-Use Goods) ?? [sehe ich gerade nicht, da geht es doch um güter, also waren, technologien und software, die doppelt verwendet werden können,

also für zivile und militärische zwecke, und aus der schweiz exportiert werden und weil sie für militärische zwecke verwendet werden könnten, massnahmen unterliegen, insb. bewilligungen. Schwierig, DSM equipment etc. als dual use zu sehen. Zudem eher nein, dass sie aus der schweiz exportiert werden]

- Switzerland's ratification of UNCLOS [bindet die schweiz, firmen sind nach klassischer auffassung kein subjekt von völkerrecht]
- Switzerland signature of BBNJ ?? [bindet die schweiz ; firmen sind nach klassischer auffassung kein subjekt von völkerrecht]

Qu'est-ce que les canadiens ont dit ?

[redacted]

De : [redacted] BAFU
Envoyé : mercredi, 7 mai 2025 18:05
À : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Objet : RE: ISA matters

Un autre commentaire de ma part :
Ne faudrait-il pas regarder aussi si Allseas violerait la législation nationale, p.ex. celle à laquelle on fait référence dans le BRA du moratoire ? p.ex. le principe de précaution ? ou qqch dans la LPE ?

De : [redacted] BAFU
Envoyé : lundi, 5 mai 2025 20:09
À : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Objet : RE: ISA matters

Une source intéressante :
Implementing Agreements Under the United Nations Convention on the Law of the Sea (UNCLOS) | Congress.gov | Library of Congress),

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De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : lundi, 5 mai 2025 17:57
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : RE: ISA matters

Je t'avais donné accès déjà le vendredi…

Ca ne marche pas ?

From: [redacted] BAFU [redacted]@bafu.admin.ch>
Sent: Monday, May 5, 2025 5:47 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Subject: RE: ISA matters

Super merci. Peux-tu me donner accès à la note ?

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : lundi, 5 mai 2025 17:42
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : FW: ISA matters

fyi

From: [redacted] EDA [redacted]
Sent: Friday, May 2, 2025 3:56 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Subject: ISA matters

Liebe [redacted]

Wie an der CdS-Sitzung angesprochen, komme ich betr. völkerrechtliche Fragen zur ISA/USA auf dich und deine Sektion zu.

Ich habe den Hintergrund und die sich stellenden Fragen in einer Aktennotiz auf AN festgehalten: TMC: Gesuch USA/ISA; Völkerrechtliche Abklärungen.docx. Die Datei sollte für deine ganze Sektion zugänglich sein.

Könntet ihr den Sachverhalt studieren und die sich stellenden völkerrechtlichen Fragen wenn nötig ergänzen? Ich habe die allgemeinen völkerrechtlichen Fragen zudem Gelb markiert. Mindestens da wären wir natürlich um Hilfe der Fachexpertinnen und Fachexperten der Sektion Völkerrecht sehr dankbar…

Wir können dazu gerne noch kurz telefonieren.

Liebe Grüsse

[redacted]

Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Betreff: RE: Re : Amterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023
Datum: Freitag, 9. Juni 2023 12:28:00
Anlagen: image001.jpg

Merci pour l'article, très éloquent !
Très bon week-end à toi,
[redacted]

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : vendredi, 9 juin 2023 10:15
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Cc : [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : FW: Re : Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Chère [redacted]

Je te remercie pour la discussion, ainsi que [redacted] et pour les informations concernant les prochaines consultations Asie-Pacifique à Bangkok et ton dernier contact avec l'Australie pour la nomination d'un point focal qui ne s'est jamais matérialisée.

@[redacted] : pouvez-vous tenter de contacter mardi matin quelqu'un au sein du Département compétent afin que l'Australie identifie un point focal pour les questions de mineral and metals management ? Il serait étrange que l'Australie ne fasse partie des discussions internationales aux côtés de la centaine d'Etats ayant déjà nommé des points focaux alors qu'ils jouent un rôle majeur dans l'industrie extractive. Ils peuvent participer en ligne aux consultations Asie-Pacifique que [redacted] va co-faciliter avec le Pakistan (elles ont lieu jeudi et vendredi prochain à Bangkok). Merci beaucoup à vous.

Je m'occupe des îles du Pacifique (Vanuatu et Palau en particulier).

@[redacted] : en ce qui concerne le DSM et sa faible profitabilité économique, voilà un article intéressant qui vient de sortir : The Dubious Economics of Deep-Sea Mining : Environment aside, is it just a bad investment? : https://nautil.us/the-dubious-economics-of-deep-sea-mining-309597/?_sp=782f8d7a-cf5d-45f3-b5c6-d92dcb1171aa.1686185704210

Meilleures pensées et d'avance un très bon week-end.

[redacted]

From: [redacted] BAFU [redacted]@bafu.admin.ch>
Sent: Friday, June 9, 2023 5:48 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted] BAFU [redacted]@bafu.admin.ch>
Subject: RE: Re : Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Cher [redacted]

Merci beaucoup pour l'échange. Comme discuté, voici des informations utiles pour

approcher l'Australie et Vanuatu notamment :

- Page internet avec toutes les informations utiles concernant le processus :Initiative Activities | Green Growth Knowledge Partnership (background document, lien pour s'inscrire aux consultations et agenda)
- Ci-joint, la lettre d'invitation de UNEP ED aux Etats Membres pour nommer des points focaux.
- Mon dernier échange avec le collègue AUS, [redacted], qui indiquait qu'ils étaient en train de nommer un point focal.

Je reste à disposition pour tout complément d'information,

Cordialement,

[redacted]

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : lundi, 5 juin 2023 12:43
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Cc : [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : RE: Re : Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Chère Madame,

Je vous remercie de votre message et pour ces informations. Je participe volontiers à la réunion proposée ce vendredi à 9h00.

Meilleures salutations.

[redacted]

From: [redacted] BAFU [redacted]@bafu.admin.ch>
Sent: Monday, June 5, 2023 6:19 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>
Subject: RE: Re : Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Cher Monsieur,

Je vous remercie pour ces informations en effet très utiles, qui viennent renforcer l'argument selon lequel les aspects économiques sont problématiques concernant le DSM.

Comme vous le savez peut-être, la Suisse s'engage plus généralement pour une gestion plus durable des métaux et minéraux. Dans le cadre de la mise en œuvre d'une résolution de l'Assemblée des Nations-Unies pour l'Environnement, des consultations régionales auront lieu pour la région Asie-Pacifique le 15 et 16 juin à Bangkok. La Suisse ([redacted]) copréside ces consultations conjointement avec le Pakistan. Dans ce contexte, et dans votre rôle d'envoyé spécial pour la région, nous souhaiterions vous proposer une réunion pour échanger concernant

les enjeux de la région relatifs à ces questions.

Auriez-vous de la disponibilité ce **vendredi (9h00 Berne / 17h00 Canberra)** ?

Cordialement,

[redacted]

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : lundi, 5 juin 2023 07:06
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Cc : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Objet : RE: Re : Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Chère Madame,

Par ailleurs, j'ai reçu des infos intéressantes sur les aspects économiques du DSM que je me permets de vous faire suivre à toutes fins utiles :

There is some work coming out on liability and risk by people who work in finance and investments. TMC is in the worst situation but Allseas, [redacted] and [redacted] while more diverse in their business models, will face similar issues in their DSM business. An article on the topic is planned to come out soon in the journal nautilus which should be interesting.
Victor Vescovo speech at Explorers Club 2022 and PPT https://docs.google.com/presentation/d/1UJTKcw6Ak_t0ixOUn3jmOaLz7PlN7BEp/edit?usp=sharing&ouid=109485746964298310505&rtpof=true&sd=true
" *Many aspects of TMC's financial models and projections are problematic, including - importantly - their underestimation of operating costs in the deep ocean and of costs to process the nodules. One key example is that TMC alleged in its Q1 2023 Corporate Update (11 May, 2023) that their Net Present Value (NPV) was almost double the original value, because of rising metals prices. However, TMC's update only accounted for the positive (changings metals prices) and not the negative: NPV models have not been updated to account for the increased discount rate that is mandated by the very rapid recent rise in interest rates (not to mention lower appetite in the debt markets for high-risk technology products backed by SPAC vehicles). When TMC's NPV model was created in March 2021, TMC used a discount rate of 9% (assumedly based on the fact that CCC bonds were trading at 7.34% + 1.66%). As interest rates have risen steeply, CCC bonds are trading at 14.84%. Adding the exact same 1.66% they implicitly did before, the new discount rate for their financial model should be 16.5%, which would bring the NPV down from $ 6.8B in their February 26, 2021 published financial model to $ 1.8B, a 73% reduction.*

With this new, lower net present value using a current interest/discount rate, it only takes a 10% decrease in revenue (in a highly unpredictable metals market) and a 10% increase in operating expenditures and capital expenditures to make the NPV go negative. Given the very rosy assumptions they started out with (recalling that Metals have never been extracted at commercial scale from nodules and, for processing, TMC is relying on equipment that has been neither manufactured nor tested and has been unable to finalize a processing partnership), a mere 10% increase in revenue and capital costs is all-too-likely.

The significant rise in interest rates and substantially underestimated actual operating and capital costs, combined with even minor revenue risk, means this investment no longer holds up in terms of financial modeling."

Meilleures salutations.

[redacted]

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: Saturday, June 3, 2023 8:26 AM
To: [redacted] BAFU [redacted]@bafu.admin.ch>
Cc: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Subject: Re : Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Chère Madame,

J'espère que vous allez bien.

Dans le prolongement de l'email de [redacted] je vous fais tenir ci-dessous l'article que j'ai rédigé hier pour la Newsletter de l'Ambassade de Suisse à Canberra. N'hésitez pas à utiliser des éléments et à le faire parvenir aux collègues de l'administration fédérale intéressés par le sujet.

Je reste à votre disposition en cas de questions complémentaires.

Meilleures salutations.

[redacted]

Pacifique

Deep Sea Mining (DSM) : les investisseurs quittent le navire et l'opposition s'intensifie

L'intérêt pour le DSM dans le Pacifique est apparu dans les années 1970. Cependant, le défi technologique était trop important et les coûts trop élevés, ce qui a conduit à l'abandon des recherches. De nouvelles avancées technologiques sont censées offrir des moyens prometteurs pour exploiter les minerais qui se trouvent dans les nodules polymétalliques présents dans le fond de l'océan Pacifique, notamment en vue de produire les batteries nécessaires à la transition écologique. Quelques entreprises, au premier rang desquelles la compagnie canadienne The Metals Company (TMC), veulent passer de l'exploration à l'exploitation des nodules polymétalliques. TMC a collaboré avec l'Etat de Nauru pour faire valoir ses intérêts au sein de l'Autorité internationale des fonds marins à Kingston (AIFM). Les mois et les années à venir seront clés car les négociations en cours visant à partager équitablement les richesses potentielles, à protéger l'environnement marin et à réglementer le DSM, vont déterminer l'avenir de cette industrie. Le DSM est confronté à une vague d'oppositions grandissante car les scientifiques accumulent des preuves démontrant qu'il aura des conséquences négatives irréversibles

sur l'environnement, la pêche, le tourisme, les communautés côtières et sur le cycle de la vie de l'océan. Outre de nombreuses voix de la société civile à travers les 5 continents et plusieurs entreprises d'importance mondiale, 14 États ont déjà pris position contre le DSM dont plusieurs Etats et territoires du Pacifique : Palau, Fidji, Micronésie, Samoa, Polynésie française, Nouvelle-Calédonie, Vanuatu et NZ. Ils ont été rejoints par des Etats européens et non des moindre (Allemagne, France et Espagne) ainsi que par plusieurs Etats d'Amérique latine. Quant à l'engouement initial des investisseurs, il fait place à un scepticisme grandissant en raison des difficultés pour extraire ces nodules à des profondeurs importantes (plusieurs kilomètres) et de l'incertitude quant à la rentabilité de ces opérations. Maersk vend 2,3 % des parts de TMC qu'elle détient encore. Son désinvestissement fait suite à une décision similaire de Lockheed Martin. En ce qui concerne l'entreprise Glencore, qui a initialement investi dans TMC, elle semble elle aussi avoir décidé de renoncer à s'engager dans le DSM. TMC connaitrait des difficultés financières importantes. Lors de son introduction au NASDAQ en 2021, l'action de l'entreprise valait 12 USD. Elle vaut maintenant moins d'1 USD, augurant d'un avenir sombre.

Campaigners push corporations to divest in deep sea mining (ABC Pacific, 16.05.2023)

What matters Down Under #93 / 10-2023



De: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Date: 3 juin 2023 à 01:49:49 UTC+10
À: [redacted] BAFU [redacted]@bafu.admin.ch>
Cc: [redacted] EDA [redacted] <[redacted]@eda.admin.ch>
Objet: FW: Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Chère [redacted]

Si tu veux en prendre profit pour la consultation des offices .

LG,

[redacted]

From: [redacted] EDA [redacted]@eda.admin.ch>
Sent: Friday, June 2, 2023 12:58 PM
To: [redacted] EDA [redacted]@eda.admin.ch>
Subject: RE: Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Merci bien [redacted] cela fait plaisir à lire, bravo à vous c'est très convaincant ! Ce n'est pas par hasard si j'ai fait le WMDU sur le sujet ;-) C'était pour enfoncer le clou. Peut être un élément qui manque (mais trop tard pour le rajouter), c'est que les investisseurs pour le DSM se retirent les uns après les autres et que l'entreprise qui a la plus avancé, TMC, est dans une situation difficile et que ses actions sont au plus bas. Pour [redacted] j'ai parlé à l'un des grands chefs pour l'Australie qui était à la maison la semaine dernière. Il m'a dit qu'ils ont essayé (notamment avec TMC) mais qu'ils ont décidé de renoncer (pas probant et trop expérimental et risqué si je comprends bien). Je n'ai pas osé être aussi clair dans le WMDU. Si tu veux faire suivre mon article aux personnes concernées par le sujet, je ne peux que t'y encourager ;-). J'imagine que la proposition au CF devrait passer comme une lettre à la poste ?

Par ailleurs, le side event pour le PIF avance bien, j'ai soumis un projet de concept note et de panel à Palau et j'attends leur détermination. Je vous tiendrais au courant si cela se concrétise.

Amicales pensées depuis Canberra.

[redacted]

From: [redacted] EDA [redacted]@eda.admin.ch>
Sent: Friday, June 2, 2023 7:52 PM
To: [redacted] EDA [redacted]@eda.admin.ch>
Subject: FW: Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Zur Kenntnis.

Wie auch:

https://www.admin.ch/gov/fr/accueil/documentation/communiques/communiques-conseil-federal.msg-id-95536.html

From: [redacted] EDA [redacted]@eda.admin.ch>
Sent: Friday, June 2, 2023 11:09 AM
To: _BK-Aemterkonsultationen <aemterkonsultationen@bk.admin.ch>; _EDA-GS Registratur <registratur@eda.admin.ch>; _GSEDI-Aemterkonsultation-BRGe <Aemterkonsultation-BRGeschaeft@gs-edi.admin.ch>; _GS-EJPD-Dok <dok@gs-ejpd.admin.ch>; _BJ-Info (Postmaster) <info@bj.admin.ch>; _GS-VBS-Aemterkonsultationen <aemterkonsultationen@gs-vbs.admin.ch>; _EFD-Ämterkonsultationen <aemterkonsultationen@gs-efd.admin.ch>; _EFV-Bundesratsgeschäfte <bundesratsgeschaefte@efv.admin.ch>; _EPA-Gever <gever@epa.admin.ch>; _GS-WBF-Kanzlei <kanzlei@gs-wbf.admin.ch>; _GS-UVEK-Registratur

<registratur@gs-uvek.admin.ch>; _BAFU-Aemterkonsultationen <_BAFU-Aemterkonsultationen@bafu.admin.ch>
Cc: [redacted] EDA [redacted]@eda.admin.ch>; _EDA-GS BR-Geschäfte <gs-br-geschaefte@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA MNB [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] SECO [redacted]@seco.admin.ch>; [redacted] BJ <[redacted]@bj.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>
Subject: Ämterkonsultation: BRA EDA zu einem Moratorium des Tiefseebergbaus und der Teilnahme an der ISA-Versammlung und Ratssitzung (Juli 2023) | Frist 08.06.2023

Sehr geehrte Damen und Herren

Als Beilage erhalten Sie den Entwurf zu einem Antrag an den Bundesrat betreffend ein Moratorium zum Tiefseebergbau und die Teilnahme an der ISA-Versammlung und Ratssitzung vom Juli 2023. Wir bitten Sie um Stellungnahme im Rahmen der Ämterkonsultation bis

8. Juni 2023

Bitte richten Sie Ihre Stellungnahme an [redacted] des Schweizerisches Seeschifffahrtsamts [redacted]@eda.admin.ch; +41 58 [redacted]).

Ohne Ihren Bericht bis zum genannten Zeitpunkt gehen wir davon aus, dass Sie mit dem Antrag einverstanden sind.

Mit freundlichen Grüssen

[redacted]

Beilagen:
Inhaltsübersicht DE
Inhaltsübersicht FR
Antrag an den Bundesrat
Beschlussdispositiv
Credentials

Federal Department of Foreign Affairs FDFA
Directorate of International Law DIL
Swiss Maritime Navigation Office SMNO

Elisabethenstrasse 33, P.O.Box, CH-4010 Basel
SWITZERLAND
Ph: +41 58 [redacted]
Fax: +41 58 467 11 29
[redacted]@eda.admin.ch
www.smno.ch

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Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Betreff: TR: ton avis LCA study the metals company
Datum: Freitag, 14. April 2023 12:30:00
Anlagen: DeepSeaMining_Analyse_Ecobilan_PP_Final PL.docx

Cher [redacted]

Pour info, j'ai demandé à un expert OFEV des écobilans son avis sur la LCA (ecobilan) de The Metals Company. C'est assez instructif en effet !

Cordialement,

[redacted]

De : [redacted] BAFU [redacted] @bafu.admin.ch>
Envoyé : mardi, 4 avril 2023 11:33
À : [redacted] BAFU [redacted] @bafu.admin.ch>
Objet : RE: ton avis LCA study the metals company

Chère [redacted]

Comme discuté, voici en pièce jointe ce que je peux te dire, à mon niveau sur cette publication.

L'exercice a été assez instructif !

A disposition pour en discuter si nécessaire.

[redacted]

De : [redacted] BAFU [redacted] @bafu.admin.ch>
Envoyé : lundi, 3 avril 2023 08:51
À : [redacted] BAFU [redacted] @bafu.admin.ch>
Objet : RE: ton avis LCA study the metals company

Excellent merci

[redacted]

De : [redacted] BAFU [redacted] @bafu.admin.ch>
Envoyé : lundi, 3 avril 2023 08:51
À : [redacted] BAFU [redacted] @bafu.admin.ch>
Objet : RE: ton avis LCA study the metals company

Chère [redacted]

Je regarde ça d'ici à demain soir j'espère.

Belle journée

[redacted]

De : [redacted] BAFU [redacted]@bafu.admin.ch>
Envoyé : lundi, 3 avril 2023 08:48
À : [redacted] BAFU [redacted]@bafu.admin.ch>
Objet : ton avis LCA study the metals company

Cher [redacted]

Pourrais-tu jeter un œil à cette LCA mandatée par une compagnie très agressive pour débuter l'exploitation minière dans les grands fonds marins et me dire ce que tu en penses ?
https://metals.co/wp-content/uploads/2023/03/TMC_NORI-D_LCA_SummaryMarch2023.pdf

Les résultats prétendent que les minéraux issues des grands fonds marins ont – d'impacts ENV que sur terre. Hors, de nombreux scientifiques alertent par rapport aux risques ENV de cette extraction pour la biodiversité marine notamment (en résumé : mining-impact-science-2023.pdf (dosi-project.org))

On pourrait en discuter brièvement.

Cordialement,

[redacted]

full report : https://metals.co/wp-content/uploads/2023/03/TMC_NORI-D_LCA_Final_Report_March2023.pdf
communiqué de presse: Lifecycle Assessment by Benchmark Shows TMC's NORI-D Nodule Project Could Outperform Land-Based Routes of Producing Nickel, Copper and Cobalt in Almost Every Impact Category Analyzed | The Metals Company

Poseidon Personnel Services S.A.

Route de Pra de Plan 18
1618 Châtel-Saint-Denis
Switzerland
Telephone +41 21 948 3500
www.allseas.com

Ref. HR Crew/LLa/47713

The Embassy of the Netherlands
Attn. Visa department

17 January 2025

Subject: Letter of Invitation

Dear Madam / Sir,

Allseas Group S.A. is a world-renowned contractor in offshore pipeline installation, heavy lift and subsea construction. The group employs over 4000 people worldwide and operates a fleet of specialised heavy-lift, pipelay and support vessels, designed and developed in-house. To date, the Allseas group of companies has executed over 300 projects and installed over 23,500 km of subsea pipeline.

This letter serves to confirm that Mrs. [redacted] is an employee of Poseidon Personnel Services S.A., Route de Pra de Plan 18, 1618 Châtel- Saint-Denis (a subsidiary of the Allseas Group S.A.) per date of joining. The Allseas fleet of vessels is operated by Allseas Engineering BV in Delft, The Netherlands.

Mrs. [redacted] will join our vessel, Lorelay, in Rotterdam, The Netherlands. She will join the vessel on 10/02/2025. Her full details are:

Name: [redacted]
Date of Birth: [redacted]
Nationality: Sri Lankese
Passport no.: [redacted]
Issued date: [redacted]
Exp. date: [redacted]
Function: Trainee Construction Department

Poseidon Personnel Services S.A. holds themselves fully responsible for all costs incurred by the crewmember in the course of his travel to, stay on board and return from the said vessel. This includes costs such as flights, transport, safety courses, medical care, insurance, software training and hotel costs.

For her employment Mrs. [redacted] will be required to travel on a regular basis over the next years, since our crew members all work on a rotation basis. Therefore, we would be grateful if you could issue her a multiple entry Schengen visa with a long-term validity (5 years). The duration of the visits will vary depending on our project requirements in between times she will be on board of one of our vessels.

She is required to travel to Amsterdam, The Netherlands with arrival on 10/02/2025. Upon arrival in she will be met by our agent [redacted] tel. +31 [redacted] (24 hrs). Note also that, since the vessels are operated in The Netherlands, she may be required from time to time to attend at the offices of Allseas Engineering BV in Delft and/or attend routine periodical safety trainings and medical check-ups in The Netherlands during the course of her employment.

We would appreciate your assistance in issuing the visa in time for her to travel.

Should you require more information or documentation, please do not hesitate to contact us.

Yours sincerely,

Poseidon Personnel Services S.A.

[redacted]

Poseidon Personnel Services SA
Route de Pra de Plan 18
Case postale 411
CH-1618 Châtel-Saint-Denis, Switzerland

Von: [redacted] EDA [redacted]
An: [redacted] BAFU; [redacted] EDA [redacted]
Cc: [redacted] EDA [redacted]
Betreff: RE: [EXTERNAL] RE: Invitation / Einladung Apéritif du Nouvel An / Neujahresapéro
Datum: Dienstag, 6. Januar 2026 11:22:44
Anlagen: image001.png
image002.png
image003.png
image004.png
image005.png

Dear [redacted]

Thank you very much for your kind message and for your good wishes for the New Year. We are pleased to reciprocate these wishes to you and all colleagues at Allseas and likewise look forward to our continued cooperation in 2026.

We regret that you will not be able to attend the reception on January 29th, but we thank you sincerely for your response and appreciate your kind words.

We look forward to a future opportunity for a personal exchange.

Kind regards

[redacted]
Fachspezialistin

Eidgenössisches Departement für auswärtige Angelegenheiten EDA
Schweizerisches Seeschifffahrtsamt SSA

Elisabethenstrasse 33
Postfach, CH-4010 Basel

Tel.: +41 58 [redacted]
[redacted]@eda.admin.ch
dv.ssa@eda.admin.ch

www.schweizerischesseeschifffahrtsamt.eda.admin.ch/de

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From: [redacted]@allseas.com>
Sent: Tuesday, January 6, 2026 11:02 AM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Subject: [EXTERNAL] RE: Invitation / Einladung Apéritif du Nouvel An / Neujahresapéro

Dear [redacted],

On behalf of Allseas, we wish you and all colleagues at the Swiss Maritime Navigation Office a wonderful New Year. We look forward to continued cooperation in 2026.

We are unable to attend the reception on January 29, but we sincerely thank you for the kind invitation.

Kind regards,

[redacted]

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

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Van: _EDA-DV Seeschifffahrtsamt <dv.ssa@eda.admin.ch>
Verzonden: vrijdag, december 19, 2025 2:54 PM
Onderwerp: Invitation / Einladung Apéritif du Nouvel An / Neujahresapéro

Avec **confiance**, **courage et clairvoyance vers 2026** – à vos côtés.

À l'aube de cette nouvelle année, nous revenons sur les événements marquants de l'année écoulée et nous tournons notre regard vers l'avenir : quelles expériences tirons-nous de 2025 et quelle direction prendrons-nous en 2026?

Nous avons le plaisir de vous inviter à notre apéritif du Nouvel An afin d'échanger avec vous sur les défis et les opportunités de l'année à venir. Au centre des discussions figureront notamment la présidence suisse de la Commission centrale pour la navigation du Rhin, le renforcement du pavillon suisse, la représentation de la Suisse au sein de l'Organisation maritime internationale ainsi que d'autres thèmes d'actualité. Le Musée Suisse des Transports présente notamment l'exposition « Ports rhénans – notre porte ouverte sur le monde ». Une extension à la navigation maritime dans le cadre d'un projet complémentaire est envisageable et ouvre de nouvelles perspectives à l'industrie maritime en Suisse.

Arrivée à partir de 15h, présentation et discussion à partir de 15h30, apéritif à partir de 17h. Pour des raisons d'organisation (nombre de places limité), nous vous prions de bien vouloir vous inscrire avant le 15 janvier 2026 à l'adresse suivante : [redacted]@eda.admin.ch.

Nous vous remercions sincèrement pour votre confiance et collaboration au cours de l'année écoulée et vous souhaitons une excellente fin d'année.

Cordialement,

Office suisse de la navigation maritime



Mit **Vertrauen, Mut und Weitsicht ins 2026** – gemeinsam mit Ihnen.

Zum Jahreswechsel blicken wir zurück auf die Meilensteine des vergangenen Jahres und richten den Blick nach vorne: Welche Erfahrungen nehmen wir aus 2025 mit – und wohin führt unser Kurs im 2026?

Gerne laden wir Sie zu unserem Neujahrsapéro ein, um uns frühzeitig mit Ihnen über die Herausforderungen und Chancen des kommenden Jahres auszutauschen. Im Mittelpunkt stehen unter anderem die Schweizer Präsidentschaft bei der Zentralkommission für die Rheinschifffahrt, die Stärkung der Schweizer Flagge, die Vertretung der Schweiz bei der Seeschifffahrtsorganisation sowie weitere aktuelle Themen: Unter anderem präsentiert das Verkehrshaus der Schweiz die geplante Ausstellung «Rheinhäfen – Unser Tor zur Welt». Eine Ausweitung auf die Seeschifffahrt in einem Zusatzprojekt ist denkbar – und eröffnet der maritimen Wirtschaft in der Schweiz neue Perspektiven.

Eintreffen ab 15h, Präsentation & Diskussion ab 15h30, Apéro ab 17h. Für die Planung (beschränkte Platzzahl) bitten wir Sie um Anmeldung bis spätestens 15. Januar 2026 an folgende Adresse: [redacted]@eda.admin.ch.

Wir danken Ihnen herzlich für Ihr Vertrauen und die Zusammenarbeit im vergangenen Jahr und wünschen Ihnen einen gelungenen Jahresabschluss.

Freundliche Grüsse

Schweizerisches Seeschifffahrtsamt



With **confidence, courage, and foresight into 2026** – together with you.

At the turn of the year, we look back on the milestones of the past year and look ahead: What experiences will we take with us from 2025 – and where will our course take us next year?

We would like to invite you to our New Year's reception where we can discuss the challenges and opportunities of the coming year with you. The focus will be on Switzerland's presidency of the Central Commission for Navigation on the Rhine, the strengthening of the Swiss flag and Switzerland's representation in the International Maritime Organization, as well as other current topics. The Swiss Museum of Transport will present the planned exhibition 'Rhine Ports – Our Gateway to the World'. An extension to maritime shipping in an additional project is conceivable – and opens up new perspectives for the maritime economy in Switzerland.

Arrival from 3 p.m., presentation & discussion from 3:30 p.m., reception from 5 p.m. For planning purposes (limited

number of places), please register by January 15, 2026, at the latest at the following address: [redacted]@eda.admin.ch.

We would like to thank you very much for your trust and cooperation over the past year and wish you a successful end to the year.

Kind regards,

Swiss Maritime Navigation Office



White paper: The case for deep-sea polymetallic nodule collection

Introduction
The global energy transition and advances in technology are driving exponential demand for critical minerals such as nickel, cobalt, manganese and copper. These materials are essential for building technical infrastructure, power generation, transmission, and batteries. However, traditional land-based mining faces growing supply constraints, environmental risks and geopolitical challenges, underscoring the need to explore alternative sources.

Deep-sea polymetallic nodule collection presents a responsible and scalable solution, offering access to critical minerals with a lower environmental footprint than most terrestrial mining operations.

The discussion around deep-sea mining is often reduced to a choice between environmental protection and economic gain. This oversimplification risks undermining efforts intended to achieve broader goals: sustainability, energy security, economic resilience, and resource independence. A more balanced and informed debate is needed – one that reflects the complex relationship between environmental, economic, and geopolitical interests.

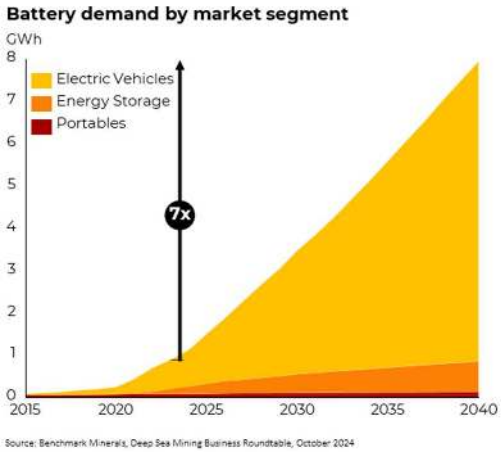
As a responsible family-owned company, Allseas is guided by a commitment to minimise environmental impact in the design and development of our deep-sea technology.

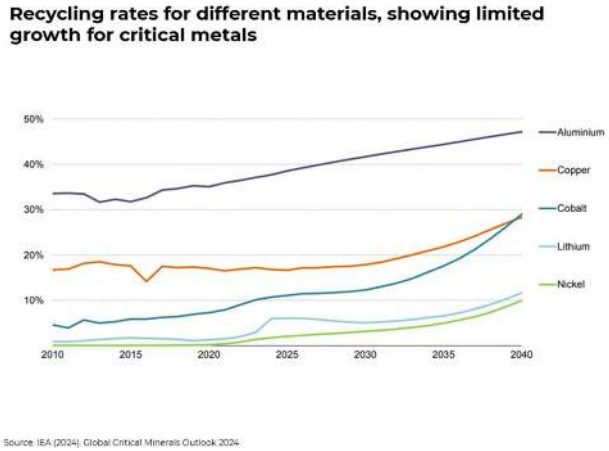
This paper sets out the case for deep-sea polymetallic collection: why it is necessary, how it can be done responsibly, and the vital role it can play in securing a stable and reliable supply of critical raw materials.

Why do we need deep-sea nodule collection?

Meeting the demand for critical metals
To realise the energy transition and achieve the Paris Climate Agreement targets, demand for critical metals is projected to increase six- to seven-fold by 2040[1,2,3]. However, current mining and recycling rates fall short:

- Only **10%** of nickel and lithium, and **<30%**[4] of cobalt and copper will come from recycling by 2040.
- Existing terrestrial mines are unable to meet the projected demand by 2030[5].



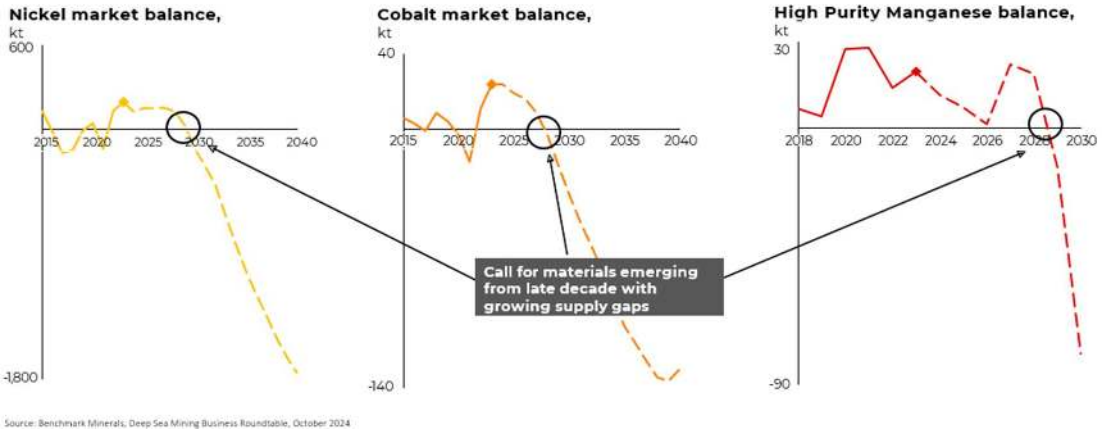


Projected increase of battery and critical mineral demand towards 2040 (left); projected limited growth of recycling rates for critical metals up to 2040 (right).

[1] UNFCCC. "The Paris Agreement"
[2] Benchmark Minerals, Deep Sea Mining Business Roundtable, October 2024
[3] IEA (2021a), The Role of Critical Minerals in Clean Energy Transitions, IEA, Paris. Net Zero by 2050
[4] IEA (2024) Global Critical Minerals Outlook 2024
[5] Benchmark Minerals, Deep Sea Mining Business Roundtable, October 2024

The rapid expansion of **battery technologies**, particularly for electric vehicles (EVs) and energy storage systems, is driving an unprecedented demand for **nickel, cobalt, and manganese**. Despite the emergence of new technologies, lithium-ion batteries with nickel-based chemistries – including Lithium Nickel Manganese Cobalt Oxide (NMC) – remain the dominant source for EVs due to their superior performance, high energy density and relatively lightweight characteristics[6].

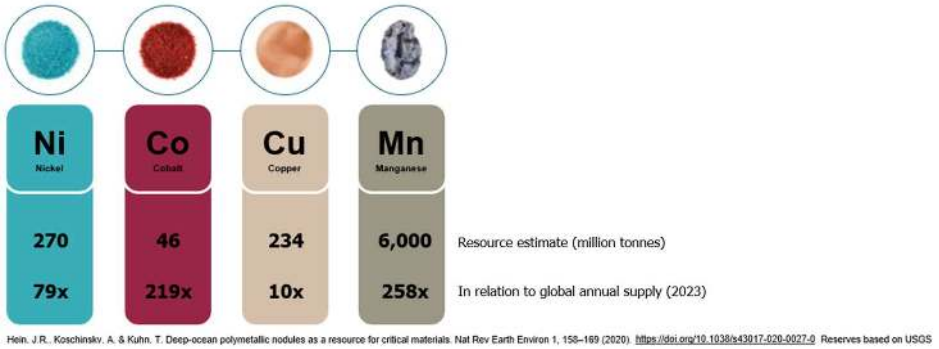
As the energy transition accelerates, industry projections indicate that shortages in these critical materials could hinder the growth of EV adoption and renewable energy storage. Securing new, sustainable and responsible sources of these metals is essential to meeting the increasing global demand while reducing dependence on terrestrial mining operations heavily controlled by China.



Raw material supply for nickel, cobalt and manganese will fall short towards the end of the twenty-first century.

Polymetallic nodules contain four essential metals: **nickel, cobalt, copper, and manganese**. Extracting these metals from land-based sources would typically require three active mines, mining low-grade ores and leads to significant environmental damage per tonne of metal produced[7]. In contrast, nodules can be collected from the seabed without drilling, digging or blasting.

The **Clarion Clipperton Zone (CCZ)** in the eastern Pacific Ocean presents a significant opportunity for the energy transition, with an estimated 22 billion tonnes of polymetallic nodules, containing a potential **270 million tonnes of nickel**, **46 million tonnes of cobalt** and **234 million tonnes of copper**. For comparison, global nickel production in 2023 amounted to 3 million tonnes, and total land-based nickel reserves stand at 130 million tonnes[8].



Resource estimate (million tonnes) for nickel, cobalt, copper and manganese in the CCZ relative to global annual supply (2023).

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[6] Benchmark Minerals, Deep Sea Mining Business Roundtable, October 2024

[7] PowerPoint Presentation Life Cycle Assessment for TMC's NORI-D polymetallic nodule project and comparison to key land-based routes for producing nickel, cobalt and copper

[8] Hein, J.R., Koschinsky, A. & Kuhn, T. Deep-ocean polymetallic nodules as a resource for critical materials. Nat Rev Earth Environ 1, 158–169 (2020). Reserves based on USGS 2024

Reducing geopolitical risks and strengthening supply chains
Critical minerals such as nickel, cobalt and copper are **essential to modern technologies –** including EV batteries, renewable energy sources and storage – as well as advanced industrial applications identified by countries around the world to strengthen strategic autonomy, such as **semiconductors, microchips, and quantum computing**[9]. Manganese is vital for all steel production, while nickel is key for stainless steel manufacturing.

However, global supply chains are increasingly exposed to risk due to over-reliance on a handful of supplier nations. Recent export restrictions by China on materials such as gallium, germanium and antimony[10] have highlighted the vulnerability of current supply networks and the need to diversify sources.

The EU, which depends heavily on imports, has responded with new legislation to bolster supply security. The **Critical Raw Materials Act** sets ambitious targets: by 2030, **at least 10% of metals** must be sourced domestically, **40% of raw materials processed within the EU,** and a **maximum of 65% of any strategic material can come from a single country**[11].

Deep-sea nodule collection offers a strategic opportunity to help meet these targets. It can reduce dependency on politically unstable regions and contribute to a more resilient, diversified and sustainable supply chain for essential minerals.

The 2024 **Future of EU Competitiveness Report** (Mario Draghi) also identifies deep-sea mining as a critical growth sector for Europe's long-term economic and technological security[12].

By responsibly leveraging deep-sea resources, countries can secure stable access to critical materials, strengthen industrial resilience, and accelerate the transition to cleaner energy technologies.

What is deep-sea nodule collection?

A low-impact alternative
Deep-sea mineral exploration focuses on three main resources: **massive sulphide deposits** around hydrothermal vents, **cobalt-rich ferromanganese crusts** on the flanks of seamounts, and fields of **manganese (polymetallic) nodules** on the abyssal plains.

Seafloor massive sulphide mining involves cutting deposits from rock formations, while cobalt crust mining relies on mechanical excavators to scrape and extract metal-rich crusts. In contrast, polymetallic nodule recovery uses robotic vehicles to collect unattached nodules from the seafloor **without excavation or drilling**. The nodules are then pumped to a surface vessel and transported to land for processing.

As a responsible family business, Allseas is committed to the **least invasive method**, nodule collection, which avoids excavation and minimises disturbance to the seabed. These nodules rest on the abyssal seafloor at depths of 4,000–6,000 metres, an environment characterised by complete darkness, near-freezing temperatures, extreme pressure and limited food availability.

With only 0.2% of life on earth inhabiting the abyssal plain, life in the abyssal zone is sparse with biomass quantities second only to polar ice; around 13 grammes of biomass can be found per square metre – largely microbial – which is approximately 3,000 times less than the 40-50 kilogrammes per square metre that would be found in tropical forests where mining takes place today[13].

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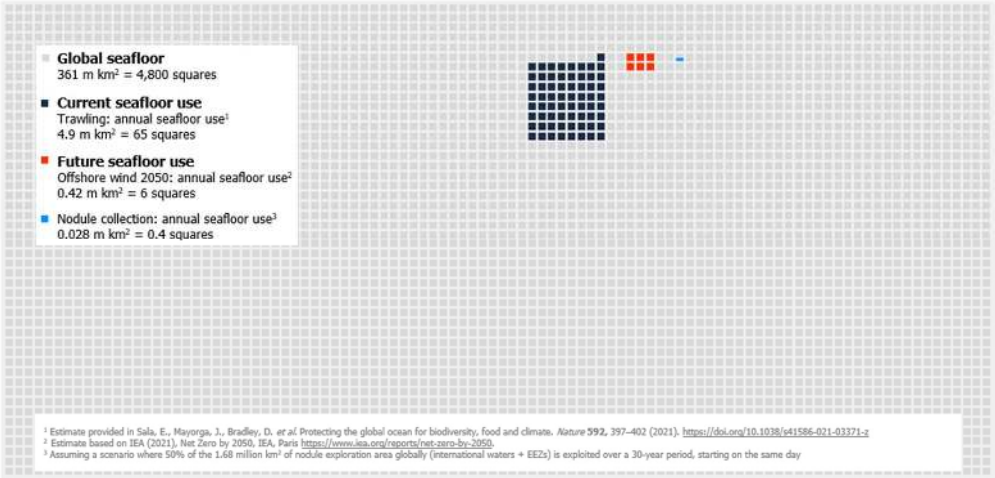
[9] European Commission. EU to invest close to half a billion euro in cutting-edge technologies and research - Projects Part One. 2024
[10] China Imposes Its Most Stringent Critical Minerals Export Restrictions Yet Amidst Escalating U.S.-China Tech War
[11] Critical Raw Materials Act - European Commission
[12] The Draghi report on EU competitiveness
[13] Bar-On et al, The Biomass Distribution on Earth, PNAS, June 2018



Impression of deep-sea mineral collection activities in the abyssal zone, where 7% of ocean life is present.

Allseas' focus is the Clarion Clipperton Zone (CCZ) in the eastern Pacific Ocean, located between Hawaii and Mexico, far from human communities. The CCZ is designated for careful governance by the International Seabed Authority (ISA), a United Nations body tasked with regulating mining in international waters to ensure responsible practices, fair mineral rights distribution and royalty payments that benefit all nations.

Of the entire CCZ, 43% is already protected by the ISA and off-limits to mining. Given the size of the CCZ, this means that only 0.4% of the global seafloor is available for exploration[14]. To put this into perspective, this is **175 times smaller** than the area currently affected by international trawling activities[15]. In its own license areas, **Allseas will leave at least 25% untouched**.



Annual seafloor footprint of nodule collection in comparison to offshore wind, trawling, and the total global seafloor.

[14] The International Seabed Authority. Exploration contracts on polymetallic nodules.
[15] Estimate provided in Sala, E., Mayorga, J., Bradley, D. et al. Protecting the global ocean for biodiversity, food and climate. Nature 592, 397–402 (2021). Estimate based on IEA (2021), Net Zero by 2050, IEA, Paris. Assuming a scenario where 50% of the 1.68 million km2 of nodule exploration area globally (international waters + EEZs) is exploited over a 30-year period, starting on the same day

How can deep-sea nodule collection be done responsibly?

Scientific research and environmental mitigation
More than **300 deep-sea research campaigns** have been conducted since the 1960s, providing extensive data on the deep-sea environment. In the last 20 years, almost all these studies have been undertaken under the auspices of the ISA, ensuring that the resulting data is freely available to the scientific community[16].

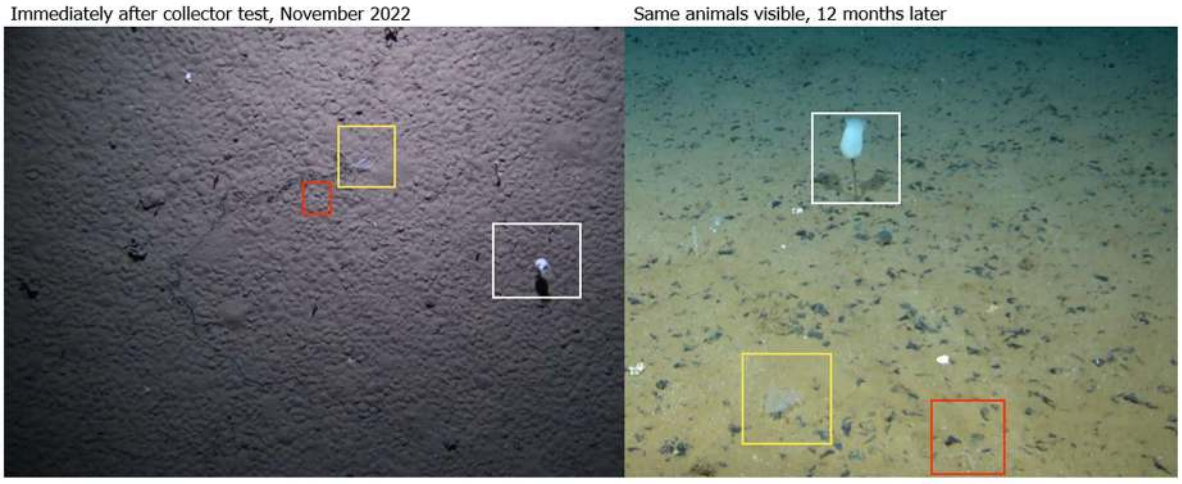
The Metals Company (TMC), in partnership with Allseas, conducted comprehensive research into the impacts of deep-sea mining during fully integrated nodule collection system tests in 2022. Preliminary results show that the environmental impact of deep-sea mining using our in-house developed technology is significantly lower than previously thought. As a responsible family-owned company, minimising environmental impact has always been – and continues to be – a guiding principle in the design and development of our deep-sea technology.

1. Minimal seabed disturbance

Minimising seabed sediment disturbance was a key design criterion for our collection system.

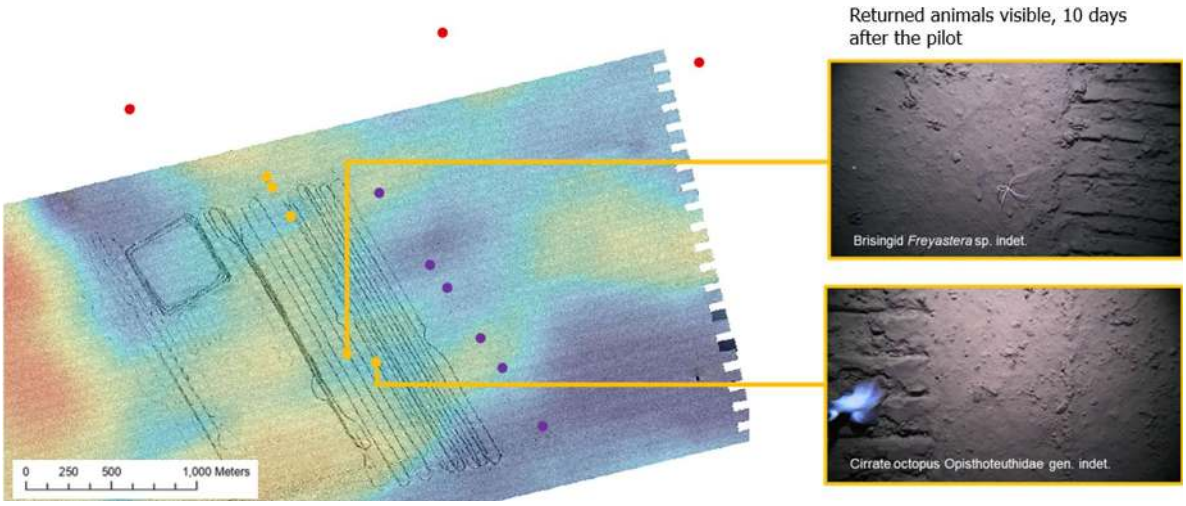
Sediment plume
Applying our technology, collecting nodules which lie unattached to the seafloor, disturbs **less than 3 centimetres** of sediment, most of which is separated and redeposited directly behind the vehicle. Only a fraction travels with the nodules to the surface. The resulting sediment plume is highly localised, with around **95% remaining within 2 metres** of the seafloor and settling within 500 metres of the collector's tracks within a few days[17,18].

Seafloor biodiversity
One year on from the pilot, preliminary data shows marine life was present and alive in areas where nodules were collected, including right next to the collector tracks[19]. The trials also led to the discovery of newly introduced species, which are now being identified and studied[20].



Source: Post collector test survey and further survey 12 months after.

[16] The International Seabed Authority. Report on the contribution of the ISA to the scientific objects of the UN Decade of Ocean Science for Sustainable Development, May 2024
[17] Danish Institute of Hydrology (DHI). Findings as part of Environmental and Social Impact Assessment (ESIA) program
[18] Muñoz-Royo, et al, 2022. An in situ study of abyssal turbidity-current sediment plumes generated by a deep seabed polymetallic nodule mining preprototype collector vehicle, September 2022
[19] Post collector test survey and further survey 12 months after
[20] Simon-Lledó, E., Amon, D.J., Bribiesca-Contreras, G. et al. Carbonate compensation depth drives abyssal biogeography in the northeast Pacific. Nat Ecol Evol 7, 1388–1397 (2023)



Photographs of marine life that remained 12 months after the pilot (top) and species that returned within 10 days.

2. Limited impact on marine life

Minimising disturbance in the water column was – and continues to be – a key design criterion for our vertical transport system.

Midwater plume

During the pilot, the nodule production process released return water and sediment at a depth of 1,200 metres. Preliminary data from the pilot showed that there is significant and rapid settling of the plume due to flocculation, with a very small area of measurable plume. Beyond this, concentrations returned to normal, indicating the plume remains localised.

While studies had warned of impacts to fisheries and marine mammals, multiple independent studies have shown that the extreme spatial separation of planned operations and negligible overlap with commercial fisheries means the likelihood of affecting marine life is very low[21].

Furthermore, the results and additional research show improvement potential by choosing a deeper discharge point at approximately 2,000 metres and opportunities to further improve flow and dispersion characteristics, limiting interactions with marine ecosystems even more.

Noise

Operational noise will be highly localised and similar to typical vessel operations common today. Initial results from full-scale modelling developed for the pilot indicate that noise levels that could impact mammalian behaviour are highly constrained and unlikely to exceed military and commercial operations that are far more widespread and which all use sonar[22].

3. Negligible carbon release

Most of the world's carbon (80%) is stored in the ocean's water column, with less than 5% in seafloor sediments. Of the carbon contained in seafloor sediments, only 1.5% resides in abyssal plains, which cover an estimated 70% of the ocean floor, while the CCZ accounts for only a small fraction of this area[23,24]. There is no physical mechanism for carbon to rise from such great depths to the surface.

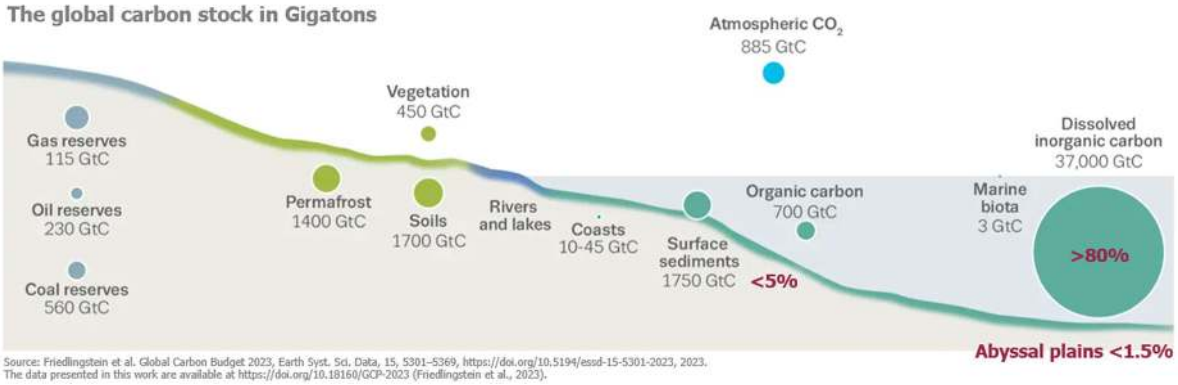
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[21] The International Seabed Authority. Technical Study 33: Potential interactions between fishing and mineral resource-related activities in areas beyond national jurisdiction: a spatial analysis (2023)

[22] SAMS and HRW (2024). NORI-D - Underwater Noise Impact Assessment Report. Scottish Association for Marine Sciences (SAMS) Enterprise and HR Wallingford (HRW). Technical Report commissioned by NORI (10 May 2024 - Draft)

[23] Friedlingstein et al. Global Carbon Budget 2023, Earth Syst. Sci. Data, 15, 5301–5369, 2023. The data presented in this work are available at Friedlingstein et al., 2023

[24] National Oceanic and Atmospheric Administration (NOAA). What are Seamounts and why are they important as abyssal habitats?



The global carbon stock in gigatonnes, highlighting that only 1.5% of carbon resides in the abyssal plains.

4. Processing and sustainability gains

Unlike terrestrial mining, nodule processing does not require tailings dams, eliminating the risk of catastrophic failures that have caused environmental disasters and mass fatalities. Additionally, deep-sea mining:

- avoids forced relocations of local communities or destruction of local ecosystems,
- does not impact local (coastal) communities by impacting local industries such as fisheries,
- is governed by the ISA, ensuring the highest environmental, social, and governance (ESG) standards.

Additional discussion topics

There are two additional topics we would like to address.

Radioactivity

Like all minerals, nodules contain low levels of naturally occurring radioactive material (NORM). On board our vessels, alpha radiation exposure can be managed with dust masks and proper ventilation. Gamma radiation exposure levels are estimated at a maximum of 0.7 millisieverts (mSv) per full year worked – comparable to a single X-ray scan and well below the annual public exposure limit of 1.0 mSv[25].

Dark oxygen

Four out of five studies using the same techniques referenced in the paper published by Sweetman et al. (2024) found no evidence of oxygen production at these depths, instead concluding that small amounts of oxygen are consumed[26]. Since publication of Sweetman et al., multiple rebuttals by independent academics have criticised the authors for flawed seafloor-lander experiments, which led to wholly "unusable" data and called for the paper's retraction, while stating the "high probability that the paper is wrong"[27].

Further research is needed to confirm the existence of dark oxygen; until then, it remains unproven.

Outlook

Allseas is convinced – based on extensive research and environmental assessments – that the responsible collection of polymetallic nodules from the deep ocean presents a unique opportunity to secure critical minerals essential for the energy transition and advanced industrial applications, with significantly lower environmental impact than traditional land-based mining.

Once exploitation licenses are granted - or once sufficient regulatory clarity is in place - we will move forward with preparing our technical systems for the commercial collection of polymetallic nodules.

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[25] Source: BGR [Federal Institute for Geosciences and Natural Resources]
[26] Source: Khripounoff et al. (2006). Vonnahme et al (2020). An et al. (2024). NORI-D (unpub)
[27] Source: Tengberg, Hall, Kononets. Rebuttal of Sweetman, A.K., Smith, A.J., de Jonge, D.S.W. et al. Evidence of dark oxygen production at the abyssal seafloor.

As a company with a proven track record of offshore innovation, Allseas is ready to lead this next chapter in securing sustainable, responsible access to the critical resources that will shape the world's energy and industrial future.

About Allseas

Allseas is a leading contractor in the global offshore energy market, specialising in subsea pipeline installation, ultra-heavy platform removal and installation, offshore wind development and river waste capture.

Continuously pushing the existing boundaries of technology, we excel in the design and execution of large-scale, complex offshore projects. Our versatile fleet of specialised vessels, designed in-house, operates worldwide, equipped with state-of-the-art equipment and systems.

As a responsible family company with a long-term vision, our commitment to sustainable innovation drives our efforts to develop responsible deep-sea mineral recovery solutions for a cleaner energy future.

Betreff: FW: Blocker: Informal Exchange
Ort: B014 (Bundesgasse 32 » Bundesgasse 32 » B_EG)

Beginn: Do 08.05.2025 10:00
Ende: Do 08.05.2025 11:00

Serientyp: (Keine Angabe)

Besprechungsstatus: Zugesagt

Organisator*in: [redacted] EDA [redacted]

-----Original Appointment-----
From: [redacted] EDA [redacted]
Sent: Wednesday, April 30, 2025 5:54 PM
To: [redacted] EDA [redacted] [redacted]
Cc: [redacted]; [redacted]
Subject: Blocker: Informal Exchange
When: Donnerstag, 8. Mai 2025 10:00-11:00 (UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna.
Where: B014 (Bundesgasse 32 » Bundesgasse 32 » B_EG)

Von: [redacted] EDA [redacted]
An: [redacted] EDA [redacted] BAFU; [redacted] EDA [redacted] EDA [redacted] EDA [redacted] EDA [redacted] EDA [redacted] BAFU
Cc: [redacted] EDA [redacted] EDA [redacted] EDA [redacted] EDA [redacted] EDA [redacted]
Betreff: INFO: Bloomberg - Trump's Critical Minerals Obsession Reignites Deep-Sea Mining
Datum: Dienstag, 22. Juli 2025 17:29:30

Liebe Kolleginnen und Kollegen

Den heutigen Artikel von Bloomberg zu Deep-Sea Mining möchte ich Euch nicht vorenthalten, in welchem auch Allseas erwähnt wird.
Danke für Eure Kenntnisnahme.

Beste Grüsse,
[redacted]

21 July 2025
Bloomberg

Trump's Critical Minerals Obsession Reignites Deep-Sea Mining

Todd Woody

The leader of one of the most aggressive seabed mining startups spent years invoking global warming to spark interest in extracting avocado-sized rocks rich in electric-vehicle battery metals from the bottom of the ocean.

"We want to help the world transition away from fossil fuels with the smallest possible climate change and environmental impact," Gerard Barron, the Australian chief executive officer of a company then known as DeepGreen, told a 2019 meeting of the United Nations-affiliated International Seabed Authority, which for a decade has been debating regulations to allow the mining of untouched, biodiverse deep-sea ecosystems in global waters.

The Metals Company, San Diego, minerals, copper, nickel, manganese nodules, environment, ocean Gerard Barron.Photographer: Carolyn Cole/Getty Images

That's not Barron's pitch anymore. Climate was out and critical minerals were in during an appearance earlier this year before a congressional committee in Washington, DC. His firm, renamed as The Metals Company (TMC), would help "ensure the nation's energy security and industrial competitiveness for generations," Barron said. "China is close behind."

Barron's new tack is working. In April, President Donald Trump issued an executive order expediting US licensing of seabed mining, departing from international law to unleash what the administration called a "gold rush" to "counter China's growing influence." The country is set to conduct ISA-sanctioned tests of two seabed mining machines in the Pacific over the next year.

China already dominates the critical minerals supply chain on land, and TMC had successfully tapped into the US president's pursuit of China-free metals, expressed as a desire for dominion over Canada and Greenland. The global seabed, TMC repeatedly emphasized as it lobbied politicians and the White House, holds the planet's largest estimated reserves of minerals like cobalt and nickel in the form of black rocks called polymetallic nodules. These cover the Pacific Ocean floor by the billions.

In an instant, Trump cleared the way for a race to the abyss to extract nodules, even though seabed mining technology remains under development and commercially unproven. At the ISA's annual meeting in Kingston, Jamaica, delegates on Monday decried Trump's move, with China's representative denouncing the US for "unilateralist hegemonic acts" and attempting to "replace the global standards with US standards."

Within days of Trump's order, Canadian-registered TMC's US subsidiary filed the world's first application to mine the seabed in international waters, including an area it licenses from the ISA. An $85 million investment from a leading Korean metals processor soon followed. Nasdaq-listed TMC's shares, which have periodically languished below a dollar, hit a 52-week high of $8.19 on Thursday.

Greenpeace protesters hang a banner reading, "Don't Go to Sea With Trump" from seabed mining technology company Allseas' building in Delft, Netherlands, on July 3, 2025.Photographer: Marten van Dijl/Greenpeace

A Silicon Valley startup called Impossible Metals, meanwhile, has applied for a license to explore and possibly mine nodules in US waters off American Samoa, with an aim to raise $1 billion. Then on July 14, a top executive at US defense giant Lockheed Martin told the Financial Times the company is in

talks to give seabed miners access to international areas of the Pacific it licenses from the US. A Lockheed Martin spokesperson declined to confirm the report but said, “We appreciate the Trump administration’s focus on ensuring reliable sources of critical minerals, including the ocean.”

On Monday, delegates in Kingston ordered a report on ISA-licensed seabed miners at risk of violating their contracts with the body, a thinly veiled reference to TMC and other companies that might also seek to apply for US licenses to mine in international waters.

The Trump-triggered seabed mining boom faces significant hurdles, though. While TMC has told investors it expects to begin mining within a year of receiving a license, the technology to extract minerals from the seabed at depths of four kilometers (2.5 miles) could be years away from being deployed at scale. Its competitiveness with terrestrial mining is unknown, as is the economic viability of processing and refining seabed minerals amid seesawing metal prices and the growing market share of battery technologies not reliant on nodule metals. The US lacks such metallurgical capacity, and it could take years to bring online in the few countries outside of China with the potential to refine nodule minerals.

“Given the rapid evolution of batteries and other relevant technologies, there is great uncertainty about the future demand for critical minerals,” researchers at RAND wrote in a recent report. “A seabed mining industry, as a whole, faces considerable opposition from nations and organizations concerned about the potential negative environmental impacts.”

The White House did not respond to a request for comment.

The countries that TMC relies on for seabed mining and processing technology are among the ISA’s 169 member nations (plus the European Union) that oppose unilateral mining in international waters. Amid such backlash, a Japanese corporation, Pacific Metals Company, that planned to process TMC’s nodules has now told investors that it would only “launch operations once the international rules are finalized.”

“All those parties have a legal obligation to ensure that deep sea mining only takes place through the ISA,” says Samantha Robb, an Amsterdam-based attorney who specializes in ocean litigation.

At the ISA, delegates convened behind closed doors on Friday to debate how to respond to TMC’s plans. Barron, who once sat with the delegation of a tiny Pacific island nation that sponsors one of TMC’s ISA contracts, has been absent this year but he’s weighing in from afar. “Amid some noisy grandstanding coming out of Jamaica this month, this is a good reminder … the US has every right to pursue seafloor resources in international waters,” he wrote Wednesday on X.

Samples of polymetallic nodules at the Viridian Biometals lab.Photographer: Alex Welsh/Bloomberg

In a statement to Bloomberg Green, TMC says it’s “on firm legal and regulatory footing,” citing the sizable investments it’s recently attracted. The company, however, cautioned investors in a May securities filing that a US mining license wouldn’t be recognized internationally, which could affect “logistics, processing, and market access” for the seabed minerals TMC mines.

‘It’s going to take some time’

More than a thousand miles southwest of Mexico on a September morning in 2022, a yellow, 80-metric-ton machine slowly rumbled across the seabed on tank-like treads, a plume of sediment billowing behind. During a two-month test for TMC, the 38-foot-long prototype vacuumed up 3,000 metric tons of nodules, sending them through a tube to a specialized surface vessel called the Hidden Gem.

TMC hailed the trial as a success. Yet any commercial operations are a ways off, even if the US grants TMC a mining license this year, given technological and legal obstacles that must be overcome.

Allseas, a Dutch-owned, Swiss-registered offshore engineering and construction company, developed the technology, the world’s only working prototype of a nodule mining system. The company supplies the apparatus to TMC and is its second-largest shareholder. To meet TMC’s production targets, it must now build a much bigger version capable of harvesting nodules nearly around the clock under crushing pressure far from shore.

A US seabed mining license, however, would require TMC to deploy American-built and owned vessels. How the companies would comply with that mandate is unclear. Allseas said in a statement that it would take about two years to engineer the technical systems to support full-scale mining but it won’t begin that work “until we are confident that all relevant regulatory conditions are met.” Allseas, which itself owns an ISA-licensed seabed mining company, has come under pressure from Dutch politicians and activists not to provide technology for unilateral mining.

TMC says it can’t comment while its US mining license application is under review. But in a May 14 securities filing the company said it’s “evaluating U.S.-based vessel” options. However, the US hasn’t built a specialized seabed mining ship like the Hidden Gem, and only eight US ocean-going bulk cargo carriers — large ships that can hold tens of thousands of pounds of nodules and transport them to shore — are in service. Seven of them are at or near the end of their lifespan, according to a 2024

US Maritime Administration report.
Impossible Metals uses a nodule collector, called Eureka, that's designed to hover above the ocean floor, its robotic claws selecting individual nodules that its artificial intelligence program determines aren't inhabited by marine organisms. (Scientists estimate that at least 30% to 40% of deep ocean life in the seabed targeted for mining live on nodules.)
The company has delayed a planned trial of the Eureka in an ISA-licensed area of the Pacific until at least 2027 because the technology needs further refinement. And any mining wouldn't happen until at least the early 2030s. Impossible Metals' mining license application is for US waters, not areas controlled by ISA. "That's far less controversial," said CEO Oliver Gunasekara. "But obviously it's going to take some time."
What it takes to process a nodule
In a small lab in Pasadena, California, scientists at an Impossible Metals spinoff called Viridian Biometals are trying to crack a problem about as challenging as pulling nodules out of the abyss: getting the metals out of the nodules.
Nodule minerals precipitate out of seawater, forming layers around a piece of whale bone, a shark tooth or another small object at the rate of a few millimeters every million years. Unlike terrestrial minerals, where a couple of different metals might be found together in a deposit, nodules contain nickel, cobalt and copper particles scattered throughout every rock, mostly embedded in a matrix of manganese oxide.
"The treatment of materials that contain all four of these elements is not something that is commercially done today," said Lyle Trytten, a veteran of the metals processing industry and president of Canada-based Trytten Consulting Services.
Viridian scientists are tinkering with rock-breathing microbes that oxidize nodules to extract the most valuable metals. On a June afternoon, senior scientist Kenny Bolster opens up what looks like a freezer to reveal stainless steel bioreactors. As microbes inside oxide the manganese bits, they release nickel, cobalt and copper ions into a solution.
Matthew Lavichant, an intern at Viridian Biometals, plates wells in preparation for conducting a test on samples.Photographer: Alex Welsh/Bloomberg
"All this happens at ambient temperature and pressure, which saves an enormous amount of energy and doesn't produce any toxic waste," says Viridian CEO Eric Macris.
It'll take a few years to assess whether the technology is likely to be commercially feasible. "We love what Viridian is doing but we're just not sure if it will be mature enough when we need it," says Impossible Metals' Gunasekara.
If TMC, Impossible Metals and other companies mine the ocean floor under a US license, then federal law requires the minerals to be processed and refined in America. Aside from Viridian's early efforts, the US has no such capacity.
A single facility in the US capable of processing and refining nodules would cost several billion dollars, and could take up to a decade to reach full production, in part due to the complexities of handling an entirely new feedstock, according to Niels Verbaan, director of metallurgy technical services for Swiss testing and certification company SGS.
The US tax and spending bill enacted on July 4 allocates $5.5 billion to the Department of Defense for investments in critical minerals supply chains. But the US has suffered a precipitous decline in metallurgical expertise since the 1980s when universities began to eliminate related degree programs. "We are decades behind now, and it's going to be very hard to catch up," says Corby Anderson, a professor of metallurgical and materials engineering at the Colorado School of Mines. New immigration restrictions will also make it harder to recruit engineering talent from overseas.
China has invested heavily in the industry and is now in a position to retrofit existing facilities to process nodules or build dedicated new plants. The country processes 74% of the world's cobalt ore, according to a 2024 report from the Wilson Center, a nonpartisan think tank, while 97% of global nickel ore processing capacity lies outside of North America. China also maintains more than 80% of the capacity for refining those metals into advanced EV battery materials.
There's few existing facilities outside of China capable of handling nodules, even if a US seabed miner receives permission to use them and the owners are willing to revamp operations, according to industry executives. "These processing plants are not just sitting there idle begging for feed, they're all in use today," says Trytten.
A laboratory ball mill used to pulverize polymetallic nodules. A bioreactor that contains polymetallic nodule bits and microbes.Photographer: Alex Welsh/Bloomberg
The 'blue whale' in the room
TMC has found one overseas metals processor willing to make the switch. Last year, Pacific Metals Company of Japan fed a 2,000-ton pile of nodules collected by TMC in 2022 into an electric-arc furnace to produce 500 tons of a material. In February, it was smelted into a nickel-cobalt-copper

alloy.
“These process plants are very expensive to build, they’re very complicated, they’re very risky,” says Jeffrey Donald, TMC’s head of onshore development. “So by using an existing asset, existing operators, you’re really taking that capital off the front end and you're really de-risking the technology and operations aspect.”
In April, Pacific Metals announced it would transition from processing nickel ore to smelting nodules. But it doesn’t expect full production to begin until 2029 at the earliest.
TMC has also struck a deal with metals giant Korea Zinc, which is assessing the feasibility of refining nodules into battery materials, a process TMC has so far tested only in the lab.
What on Earth?
The Green Daily newsletter is your guide to the latest in climate news, zero-emission tech and green finance.
Whether nations would be enabling deep-sea mining through commercial relationships with US-licensed seabed mining companies was the subject of whispered conversations among ISA delegates this month as they continued drafting mining regulations. Trump’s move to mine in international waters and TMC’s defiance of the ISA was, as French ambassador Olivier Guyonvarch alluded, “the blue whale” in the room.
The UN Convention on the Law of the Sea prohibits unilateral mining by any country or corporation. It also requires the ISA to administer the global seabed for the benefit of humanity, with any royalties from mining divided among member states. The US never ratified the treaty, though it had generally adhered to its provisions and still participates in ISA proceedings as an observer.
Pressure is growing on member states to not supply technology to seabed mining companies the US licenses, process their nodules or buy metals from them, as the treaty mandates ISA countries treat unilateral mining as illegitimate. Thirty-seven ISA countries support a moratorium on seabed mining until its environmental impacts are better understood.
“The risks of bypassing the ISA’s oversight are not only legal, they are also economic,” ISA Secretary-General Leticia Carvalho said in a statement to Bloomberg Green. “Product lines derived from ventures that violate international law will carry reputational and legal concerns that increase the risk of the investment and can undermine its return.”
Pacific Metals appears to have gotten the message. In a recent investor briefing, the company, which did not respond to requests for comment, emphasized that when it comes to nodule processing, it considers “international credibility to be a material issue.”

Von: [redacted]
An: _EDA-REP Havana
Cc: [redacted] EDA [redacted] [redacted] EDA [redacted]
Betreff: [EXTERNAL] Re: Request for assistance with visa Issue for trainee program
Datum: Donnerstag, 6. Februar 2025 10:51:05
Anlagen: Outlook-A blue tex.png

Dear Embassy,

Please see the below correspondence to Ambassador [redacted] In the absence of the Ambassador, I kindly request your assistance in resolving this matter.

Best regards,
[redacted]

From: [redacted]@allseas.com>
Sent: Thursday, February 6, 2025 10:40 AM
To: [redacted]@eda.admin.ch [redacted]@eda.admin.ch>
Cc: ISA Training <training@isa.org.jm>; [redacted]@allseas.com>; [redacted]@eda.admin.ch [redacted]@eda.admin.ch>; [redacted]@isa.org.jm>
Subject: Request for assistance with visa Issue for trainee program

Dear Ambassador [redacted]

I hope this message finds you well. My name is [redacted] from Blue Minerals Jamaica, and I am writing to seek your assistance regarding a visa issue faced by a trainee from Sri Lanka.

Ms. [redacted] has been selected to participate in the trainee program for Blue Minerals Jamaica, which is part of the mandatory scope in accordance with UNCLOS. Unfortunately, her visa application for the Schengen area has been denied by te Embassy of Switzerland in Colombo, preventing her from participating in this important training program.

Given the significance of this program and its impact on her professional development, I kindly request your assistance in resolving this matter. Could you please contact the relevant authorities or provide any guidance on how we might proceed to secure her visa?

Your support in this matter would be greatly appreciated.

Thank you for your time and consideration.

Attached:
Visa refusal notification
Letter of Invitation

Best regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob: +31 [redacted]



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Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

NOTIFICATION OF REASONS FOR REFUSAL, ANNULMENT OR REVOCATION OF A VISA

The Embassy of Switzerland in Colombo has examined visa application number **CHE-A-007749956** dated 2025-01-28 for [redacted] [F] in representation of: Netherlands.

The visa has been refused

This decision is based on the following **reasons**:

- Justification for the purpose and conditions of the intended stay was not provided.
- The information submitted regarding the justification for the purpose and conditions of the intended stay was not reliable.
- There are reasonable doubts as to your intention to leave the territory of the Member States before the expiry of the visa.

Additional remarks:

The applicant may appeal against the decision to refuse / annul / revoke a visa.
The rules on appeal against decisions on refusal / annulment / revocation of a visa are set out in:
Article 6 paragraph 2bis of the Federal Act on Foreign Nationals and Integration; FNIA, SR 142.20;
Article 18 of the Ordinance on Entry and Visa Procedure OEV; SR 142.204.

Competent authority with which an appeal may be lodged:
The applicant, a duly authorized representative, in particular the host in Switzerland or an inviting company in Switzerland may file an appeal addressed to the State Secretariat for Migration (SEM) against a visa refusal, annulment or revocation decision.
The appeal must be submitted by signed and dated letter in an official language of Switzerland (German, French, Italian) to either the Swiss representation that refused, annulled or revoked the visa or to the State Secretariat for Migration (SEM), Quellenweg 6, CH-3003 Berne-Wabern.

After advance payment of an administrative fee of CHF 200.-- (Article 63 of the Federal Act on Administrative Procedure, APA, SR 172.021), the SEM shall issue a contestable decision. Advance payment must be made according to the indications of the diplomatic mission or the SEM.

Information on the procedure to follow can be found at the Swiss diplomatic mission that refused, annulled or revoked the visa.

An appeal must be lodged within 30 days from the notification of this decision. The 30-day period for filing an appeal is deemed to have been complied with, if the appeal has been submitted no later than the last day of the 30-day period either to the State Secretariat for Migration (SEM) or a Swiss post office or Swiss consular representation for the attention of the SEM.

2025-02-03
Embassy of Switzerland
63, Gregory's Road
Colombo 7
Sri Lanka

Date and signature of the person concerned:

_____

Address in Switzerland for the notification of a formal decision (Optional):

Surname:

First name(s):

Street, No.:

Postal code, City:

The notification of a formal decision on the decline of the appeal is send to the appellant at the above-mentioned address in Switzerland. This helps to simplify the procedure as well as making it faster and more efficient. If no Swiss postal address is given, the appellant receives the notification of a formal decision through the competent Swiss diplomatic mission. In that case, the appellant either receives the notification of a formal decision in person against receipt or by registered mail, to ensure compliance with the appeal period.

Von: [redacted]
An: [redacted] BAFU; [redacted] EDA [redacted] [redacted] EDA [redacted] [redacted] EDA [redacted]
Cc: [redacted]
Betreff: BGR paper on radiation protection and polymetallic nodules
Datum: Donnerstag, 4. September 2025 15:21:49
Anlagen: image.png
s41598-025-10842-0.pdf

Dear All,

On this subject, I previously delivered a presentation during a side event at the ISA meeting in Jamaica. Since then, a paper authored by the German Federal Institute for Geosciences and Natural Resources (BGR) has been published, which I would like to share with you. It addresses the presence of naturally occurring radioactive material (NORM) in polymetallic nodules and the implications for radiation protection during the exploitation and processing of these nodules.

The study demonstrates that radiation doses in laboratory settings remain well below the occupational exposure threshold of 1 mSv per year. However, for personnel involved in transport and metallurgical processing, doses could exceed this limit under conservative assumptions. Importantly, with standard protective and mitigation measures—as already common in other NORM-affected industries—exposures can be maintained well within regulatory limits.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands
Tel. +31 [redacted] | Mob: +31 [redacted]

Follow us on LinkedIn, Instagram and Facebook

Von: [redacted] BAFU
An: "[redacted]"
Cc: [redacted] EDA [redacted] "[redacted]"
Betreff: RE: Informal Exchange on DSM
Datum: Mittwoch, 2. Juli 2025 07:16:00
Anlagen: image001.png

Dear [redacted] dear [redacted]

Thank you for your presentation and the discussion yesterday. Would it be possible to share your slides ?

Kindly,

[redacted]

De : [redacted] BAFU
Envoyé : vendredi, 27 juin 2025 13:47
À : [redacted]@allseas.com>; [redacted]@allseas.com>
Cc : [redacted]@allseas.com>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Objet : RE: Informal Exchange on DSM

Dear [redacted] dear [redacted]

Thank you very much from my side too for your availability and your presentation on the scientific aspects. Tuesday at 12.30 work fine for me. I am looking forward to continue the dialogue.

In the meantime, as discussed, please find a few recent scientific studies on the environmental aspects of DSM:

- boris.unibe.ch/183008/10/report_deepsea_mining_froelicher_jaccard_final_published.pdf (A pril 2023): the meta-study we commissioned to leading academic experts that assesses the state of knowledge on the environmental impacts of deep-sea mining.
- Deep-Sea Mining | Secretary-General's Scientific Advisory Board (19 May 2025): published a only a few weeks ago, a Brief from the UN Secretary General's Scientific Advisory Board and its associated global network of scientific institutions. They provides independent insights to support UN System organizations.
- « Deep-sea mining : The environmental implications of deep-sea mining need to be comprehensively assessed", UNEP Issue note, 6 May 2024, by the United Nations Environment Programme, the leading global environmental authority of the UN system.
- Deep-sea mining: assessing evidence on future needs and environmental impacts (June 2023) by the European Academies' Science Advisory Council (EASAC) that brings together the National Academies of Science of the EU Member States, Norway, Switzerland and the United Kingdom, as well as Academia Europaea (a pan-European Academy) and ALLEA (the federation of all academies in geographical Europe) to provide independent science advice.
- Assessment of scientific gaps related to the effective environmental management of deep-seabed mining - ScienceDirect (2022) : peer-reviewed article by a group of scholars on the scientific gaps.

There are many others as you know, but I find that among the authoritative independent scientific studies that I know of, these provide good overviews of the state of knowledge.

Kindly,

[redacted]

De : [redacted]@allseas.com>
Envoyé : jeudi, 26 juin 2025 12:25
À : [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc : [redacted]@allseas.com>; [redacted]@allseas.com>
Objet : RE: Informal Exchange on DSM

Dear [redacted]

It was a pleasure meeting you— a valuable starting point to continue the dialogue.

We would be available for an online meeting on Tuesday, 1 July, from 12:30 to 13:30. Would this time work for you?

Looking forward to hearing from you.

Best wishes,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: 24 June 2025 17:37
To: [redacted]@allseas.com>; [redacted]@allseas.com>
Cc: [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Subject: Informal Exchange on DSM

Dear [redacted] dear [redacted]

Thank you again for having taken your time to visit us in Bern.

Sorry that we had to cut your presentation short. We would be happy to pick up on it in a virtual

discussion. Next week, Tuesday afternoon, Wednesday and Thursday might be suitable. We will use this opportunity to also ask you questions on your whitepaper.

Please feel free to share information on the role of Allseas in the future activities related to a possible US authorization and any legal analysis on articles 136 ff. UNCLOS with us, particularly on the activities of Allseas and responsibilities of Switzerland (in particular art. 139 para. 1 UNCLOS).

Best regards,

[redacted]

Von: [redacted]
An: [redacted] EDA [redacted]
Cc: [redacted] BAFU
Betreff: RE: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection
Datum: Dienstag, 17. Juni 2025 11:56:42
Anlagen: image001.png

Dear [redacted]

Thank you. 1.5 hours will give sufficient time to touch on the key ecological aspects at high level and some of the points raised during your previous discussion with [redacted] He will indeed be joining me for the meeting.

Regarding the whitepaper: it has not yet been formally published, but it is not privileged information. Its aim is to contribute to provide fact-based information, so we are happy for it to be shared with interested persons.

As a small note: would it perhaps be possible to meet at 12:00 instead of 13:00? If not, we are happy to maintain the original timing.

Best wishes,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted] EDA [redacted] @eda.admin.ch>
Sent: 17 June 2025 08:46
To: [redacted] @allseas.com>
Cc: [redacted] @allseas.com>; [redacted] BAFU [redacted] @bafu.admin.ch>
Subject: RE: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted]

June 24, 13h00 in Bern it is.

I am afraid we will not be able to do more than 1.5 hours, as I have another meeting just after.

Please be aware that neither [redacted] nor I are scientists. We thus do not need to enter into all the details. I am again sharing with you the link of the meta study on the state of knowledge on the environmental impacts of deep-sea mining that the Swiss government commissioned to determine its position in 2023: https://boris.unibe.ch/183008/.

Is your whitepaper public, so we can share it with other interested persons?

We would also like to take up some aspects of our last discussion with [redacted] Will he be present as well?

Best regards,

[redacted]

From: [redacted]@allseas.com>
Sent: Monday, June 16, 2025 5:47 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>
Cc: [redacted]@allseas.com>
Subject: RE: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted]

Thank you for your message.

We would be pleased to meet in Bern at 13:00 on 24 June and appreciate the opportunity to do so in person. May I ask whether you would have 1.5 to 2 hours available for the meeting? This would allow us sufficient time to discuss all relevant ecological aspects and address any outstanding questions in detail.

I look forward to it.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: 16 June 2025 09:52
To: [redacted]@allseas.com>; [redacted] BAFU [redacted]@bafu.admin.ch>
Cc: [redacted]@allseas.com>
Subject: RE: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted]

Sorry for not getting back to to earlier.

So 24 June, we can propose 11 am in our offices in Basel, [redacted] would participate virtually. Or we could have the meeting in Berne at 13h, and we could both participate in person.

Are you still available?

Best regards,
[redacted]

From: [redacted]@allseas.com>
Sent: Wednesday, June 4, 2025 1:07 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>
Cc: [redacted]@allseas.com>
Subject: RE: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted]

24 June would actually work even better on our end — I would like to also propose that as an option.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted]
Sent: 04 June 2025 12:12
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted]@bafu.admin.ch
Cc: [redacted]@allseas.com>
Subject: RE: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted]

Thank you for your response — please don't worry about the delay; I hope you enjoy your holiday.

We would like to propose scheduling our in-person meeting for 20 June, if that works for you. Should that date be inconvenient, 18 June is also possible, although slightly less preferable on our end. Would you prefer to meet at either Bern or Basel?

Best regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>

Sent: 04 June 2025 10:19
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>; [redacted] BAFU [redacted]@bafu.admin.ch>
Subject: RE: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted]

Thanks for reaching out again. Sorry for not replying earlier. I am on holidays now, and was therefore also quite busy just before leaving.

Happy to meet after my holidays (after next Monday). I am sure my colleague from the environment office will be interested, too.

When will you be in Switzerland next?

Best regards,
[redacted]

From: [redacted]@allseas.com>
Sent: Tuesday, June 3, 2025 9:55 AM
To: [redacted] EDA [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>
Subject: [EXTERNAL] RE: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted],

I hope this message finds you well. I am following up on my previous message regarding a potential meeting. I understand that your schedule may be demanding, and if an in-person meeting is not feasible at this time, I would be happy to arrange a virtual call instead to inform you on our approach to responsible management of the environmental impact of deep-sea nodule collection at a time that suits you.

I am looking forward to hearing what would work best from your side.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted]
Sent: 22 May 2025 10:45
To: [redacted] EDA [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>

Subject: Proposal to meet on managing environmental impact of deep-sea nodule collection

Dear [redacted]

Following your recent engagement with my colleague [redacted], he mentioned your interest in gaining a deeper understanding of the scientific aspects related to environmental impact of Allseas' approach to deep-sea nodule collection.

Therefore, I would like to kindly propose a follow-up meeting to present our approach to responsible management of the environmental impact of deep-sea nodule collection. This presentation will be based on scientifically substantiated data and offers insight into our methods and commitment to minimal impact.

Would you be available for an in-person meeting on either the 3rd, 4th, or 5th of June? If so, would you prefer to meet at either Bern or Basel? We are of course flexible and will gladly adjust to your schedule.

Please let us know what suits you best. We look forward to the opportunity to engage in dialogue and to share our insights.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

Von: [redacted] EDA [redacted]
An: [redacted] EDA [redacted] BAFU; [redacted] EDA [redacted] [redacted] EDA
Cc: [redacted] EDA [redacted] [redacted] EDA [redacted] [redacted] EDA [redacted] [redacted] BAFU; [redacted] EDA [redacted] [redacted] EDA [redacted] [redacted] EDA [redacted] [redacted] EDA [redacted]
Betreff: Info USA: Deep Sea Mining
Datum: Dienstag, 15. Juli 2025 17:44:18
Anlagen: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
image008.png
image009.png
2025-07-15 - REPWAS - Deep Sea Mining Media Monitoring.docx

Liebe Kolleginnen und Kollegen

Beiligend lasse ich euch einen Überblick zu aktuellen Entwicklungen und Berichterstattungen aus den USA im Zusammenhang mit der Executive Order *«Unleashing America's Offshore Critical Minerals and Resources»* sowie dem Gesuch von *The Metals Company* zur Durchführung entsprechender Aktivitäten zukommen.

Gerne nehmen wir Rückmeldungen und Hinweise entgegen, zu welchen Aspekten ein besonderes Interesse besteht. Bei weiteren Fragen stehen wir euch gerne zur Verfügung.

Mit freundlichen Grüssen

[redacted]

[redacted]

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From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: Friday, June 27, 2025 5:13 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] @eda.admin.ch>; [redacted] EDA [redacted] [redacted] @eda.admin.ch>; [redacted] EDA [redacted] [redacted] @eda.admin.ch>; [redacted] EDA [redacted] [redacted] [redacted]@eda.admin.ch>
Cc: [redacted] BAFU [redacted] [redacted]@bafu.admin.ch>; [redacted] EDA [redacted] @eda.admin.ch>; [redacted] EDA [redacted] [redacted] @eda.admin.ch>; [redacted] EDA [redacted] [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted] [redacted]@bafu.admin.ch>; [redacted] EDA [redacted]

[redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>
Subject: RE: Info USA: Deep Sea Mining

Liebe Kollegen und Kolleginnen,

Die Nachricht, dass Korea Zinc eine strategische Investition in TMC tätigt, hat [redacted] und mich dazu angeregt, weitere implizierte Akteure ausfindig zu machen. In folgender Tabelle findet Ihr eine Übersicht der soweit bekannten Firmen, welche am Schurf und der Verarbeitung der Mineralien aus internationalen Gewässern beteiligt sind:

Akteur	**Potenzielle Konfliktbehaftung**	**Domiziliert in UNCLOS-Staat**	**Details und Quellen**
Allseas	Partnerschaft mit TMC	Schweiz (Niederländische Firma)	Ermöglicht eigentlichen Schurf von Mineralien aus internationalen Gewässern
Glencore	Abnehmer von TMC-Gütern	Schweiz	Hält Abnahmerechte auf 50% der von DGE geschürften Erze aus der CCZ (DGE: DeepGreen, TMC-Vorläufer/Tochter) (CCZ: Clarion-Clipperton-Zone, fraglicher Schürfbereich in internationalen Gewässern)
Pacific Metals (PAMCO)	Partnerschaft mit TMC	Japan	Besitzer der von TMC-beabsichtigten Verarbeitungsanlage für geschürfte Erze aus CCZ
Korea Zinc	Strategischer Investor TMC	Südkorea	Investiert in TMC, prüft vertikale Integration zur Verwendung der verarbeiteten Materialien
Hidden Gem (Tiefseebergbauschiff)	Schiff im Besitz von TMC, fährt unter maltesischer Flagge	Malta	Hidden Gem im Besitz von Allseas; unter maltesischer Flagge
Indonesische Verarbeiterfirma (noch unbekannt)	Verarbeitung von TMC-Gütern	Indonesien	Potenzielle Zusammenarbeit von TMC-CEO Gerard Barron angedeutet

Wie ihr seht, sind weitere Akteure aus den UNCLOS-Vertragsstaaten **Japan, Südkorea, Malta** und evtl. auch **Indonesien** an diesem Vorhaben beteiligt. Haltet Ihr es für sinnvoll, einen informellen Austausch mit den Kolleg:innen der jeweiligen Botschaften zu initiieren? Falls Ihr darin einen Mehrwert für unsere Informationsbeschaffung seht, stehen wir dafür gerne zur Verfügung.

Freundliche Grüsse,

[redacted]

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Embassy of Switzerland in the USA

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[redacted]@eda.admin.ch



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From: [redacted] BAFU [redacted]@bafu.admin.ch>
Sent: Tuesday, June 24, 2025 1:16 AM
To: [redacted] EDA [redacted]@eda.admin.ch>
Cc: [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>; [redacted] EDA [redacted]@eda.admin.ch>
Subject: RE: Info USA: Deep Sea Mining

Chère [redacted]

Merci beaucoup, très utile. Vendredi dernier, il y a aussi eu en Suisse :

Exploitation minière en haute mer. Le Conseil fédéral met la pression sur Allseas | La Liberté & Le Conseil fédéral met la pression sur Allseas - Le Courrier (même article)
Raphaël Mahaim est satisfait de la teneur de la réponse du Conseil fédéral. «Ce rappel très clair du droit international met une forte pression sur Allseas: impossible pour l'entreprise de plaider la méconnaissance de cause», souligne le conseiller national vert. Mais le Vaudois appelle de ses vœux une démarche encore plus directe.
«Le Gouvernement néerlandais envisage de contacter Allseas pour décourager l'entreprise de se lancer dans un tel projet. J'espère que le Conseil fédéral en fera de même.»

Quelques extraits intéressants dans votre monitoring:

23 June 2025
EJIL:Talk! (Blog of the European Journal of International Law -> analyse 137-139 UNCLOS et autres pays concernés.
Untouchable metals: How the obligations of UNCLOS States Parties limit the

commercial viability of unilateral deep sea mining
Toby Fisher and Samantha Robb

Switzerland must consider the position as regards AllSeas, the Swiss owner and operator of the vessel Hidden Gem, used by TMC for its exploration activities. Switzerland must take reasonable steps to ensure that AllSeas does not make Hidden Gem available to TMC-USA for activities in the Area that are not in conformity with Part XI.

13 June 2025
World Today News
Trump & Deep Sea Mining: A Seabed Gold Rush?
Lucas Fernandez

Swiss Company on the Front Lines: Switzerland finds itself in a delicate position. Allseas, a Fribourg-based multinational specializing in underwater infrastructure, has confirmed its intention to participate in seabed mining following the US decree. The company, known for its involvement in projects like the Nord Stream 2 gas pipeline, has developed the Hidden Gem, a giant vessel designed to collect polymetallic nodules from the ocean floor.

Allseas holds a 20% stake in The Metals Company (TMC), a Canadian firm that has applied for an operating license from the US administration. This puts Switzerland,which has ratified UNCLOS and supports a moratorium on deep sea mining,in a potentially contradictory position.

The Swiss government now faces increasing pressure to reconcile its support for a moratorium with the activities of a major Swiss company poised to profit from deep sea mining. The decisions made in the coming months could have significant implications for the future of ocean governance and the protection of vulnerable marine ecosystems

13 June 2025
JapanToday
China carefully assembling a deep-sea mining strategy
Amelie Bottolier-Depois and Mary Yang

The Canadian company initially said it would submit its request to the International Seabed Authority (ISA), a body which has jurisdiction over the ocean floor in international waters.
The Metals Company says it ignored this authority because of its slow pace in talks on adopting a mining code that establishes rules for exploiting seabed resources. The United States is not an ISA member.
A long-time observer of those talks who spoke on condition of anonymity said China is not particularly worried about who starts mining first.
"For them it's more about dominance, staying competitive in the game, and giving the impression that you can't mess with us," the observer said.
With that goal in mind "they're definitely developing the technology and putting the strategic agreements in place," Alex Gilbert, a researcher at the Payne Institute for Public

Policy at Colorado School of Mines, told AFP.
For instance, China has reached an agreement with the Cook Islands to explore for minerals in that Pacific country's waters.
Another tiny Pacific nation, Kiribati, also says it is exploring a deep-sea mining partnership with China.
This approach is "more geopolitical than economic," said Emmanuel Hache of the French Institute for International and Strategic Affairs, noting Beijing is using undersea mining as a lure to cement greater diplomatic support as it exerts power.
China holds five contracts handed out by the ISA to look for resources in the Pacific and Indian Ocean sea beds and these contracts cover all types of undersea mineral resources. China's is the largest number of the 22 contracts the organization has granted.
"From a research perspective, we have been continuously getting closer. And from a technical perspective, we have been continuously improving," said Chen Xuguang, a researcher at Ocean University of China.

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : lundi, 23 juin 2025 20:44
À : [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc : [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Objet : Info USA: Deep Sea Mining

Liebe Kolleginnen und Kollegen

Bezugnehmend auf unseren Austausch via Teams vom 10. Juni folgt hier ein erster Überblick zu aktuellen Entwicklungen und Berichterstattungen im Zusammenhang mit der Executive Order *«Unleashing America's Offshore Critical Minerals and Resources»* sowie dem Gesuch von *The Metals Company* zur Durchführung entsprechender Aktivitäten.

Zu diesem Zweck wurde ein Media Monitoring eingerichtet. Ziel ist es, wöchentlich eine kompakte Zusammenfassung relevanter Regierungs- und Medienberichte bereitzustellen. Derzeit ist die Berichterstattung jedoch noch begrenzt.

Gerne nehmen wir Rückmeldungen und Hinweise entgegen, zu welchen Aspekten ein besonderes Interesse besteht.

Mit freundlichen Grüssen aus Washington, D.C.

[redacted]

[redacted]

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Phone (CH) +41 58 [redacted] Extension: [redacted]

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www.eda.admin.ch

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Von: [redacted] EDA [redacted]
An:
Cc: [redacted]"
Betreff: RE: [EXTERNAL] Re: request for an informal exchange
Anlagen: image001.png

PS for your interest:

1. the decision of the Federal Council on Deep Sea Mining: https://www.news.admin.ch/en/nsb?id=96138
2. Analysis of the state of knowledge on the environmental impacts of deep-sea mining (literature review): https://boris-portal.unibe.ch/entities/publication/210b3ef7-21d8-4db2-8ef5-ef7cb2130542/full

Best regards and happy Monday!

From: [redacted] EDA [redacted]
Sent: Friday, May 9, 2025 1:44 PM
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

Dear [redacted]

Thank you for having joined us in Bern. It was a pleasure meeting you. We really appreciated you coming and the possibility for an open informal exchange. As already mentioned, we are happy to continue discussions.

Thank you as well for the white paper. We will study it carefully. Please feel free to share any further information with us and to contact us in other matters, too.

Best regards from Basel,
[redacted]

[redacted]

Federal Department of Foreign Affairs FDFA
Directorate of International Law DIL
Swiss Maritime Navigation Office SMNO

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From: [redacted]@allseas.com>
Sent: Friday, May 9, 2025 9:16 AM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>

Subject: Re: [EXTERNAL] Re: request for an informal exchange

Hi [redacted]
Thank you for the time yesterday and I appreciate the opportunity for an informal exchange. I talked about a White paper prepared by Allseas with respect to deep-sea polymetallic nodule collection and I promised to send this by email.
Please find attached this white paper dated 1 may 2025.

Regards,
[redacted]



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From: [redacted] EDA [redacted] @eda.admin.ch>
Sent: 30 April 2025 17:48
To: [redacted] @allseas.com>
Cc: [redacted] @allseas.com>; [redacted] @allseas.com>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

Perfect, let's fix it. I will get back to you with more information on the exact location!

From: [redacted] @allseas.com>
Sent: Wednesday, April 30, 2025 3:54 PM
To: [redacted] EDA [redacted] @eda.admin.ch>
Cc: [redacted] @allseas.com>; [redacted] @allseas.com>
Subject: Re: [EXTERNAL] Re: request for an informal exchange

Dear [redacted]
Bern works for me. Shall we pencil in 10 am?

Regards,
[redacted]



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From: [redacted] EDA [redacted] @eda.admin.ch>
Sent: 30 April 2025 14:42
To: [redacted] @allseas.com>
Cc: [redacted] @allseas.com>; [redacted] @allseas.com>

Subject: RE: [EXTERNAL] Re: request for an informal exchange

Dear Mr. [redacted]

Many thanks for your swift reply.

We are based in Basel. Would it be possible to meet in Bern, in the middle, may 8 in the morning? We could organize a meeting room in Bern.

Best regards,

[redacted]

[redacted]

Federal Department of Foreign Affairs FDFA
Directorate of International Law DIL
Swiss Maritime Navigation Office SMNO

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From: [redacted]@allseas.com>
Sent: Wednesday, April 30, 2025 12:27 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: [EXTERNAL] Re: request for an informal exchange

Dear [redacted],
I am writing in response to your email to [redacted] earlier today. Like [redacted] I am also involved in deep sea mining matters and am available to meet on Thursday, 8 May for an informal exchange.

Would you prefer the meeting to be in person? Next week, I will be in Chatel-Saint-Denis and, depending on the location, I might be able to come to your office. Please let me know your preferred location.

Regarding the subject matter, would you like me to prepare anything specific or are there particular topics connected to this matter that you would like to address?

I look forward to our meeting next week.

Regards,

[redacted]

[redacted]

Allseas Engineering B.V.

Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]



Follow us on LinkedIn, Instagram and Facebook

From: [redacted] EDA [redacted] <[redacted]@eda.admin.ch>
Sent: 30 April 2025 8:37 AM
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>
Subject: DSM: request for an informal exchange

Dear [redacted]

I hope you are doing well and that it was possible to resolve the visa issue for your trainee with the help of the embassy.

As you know, the Swiss Maritime Navigation Office represents Switzerland at the ISA and is consulted on all matters relating to deep sea mining. Discussions on deep sea mining have recently intensified due to the developments in the USA.

Would you or someone from Allseas be available for an informal exchange with us, possibly the 5th or 8th May in the morning?

Thanks for getting back to me.

Kind regards from Basel,

[redacted]

scientific reports

Check for updates

OPEN

Estimations of effective doses received from naturally occurring radioactivity in polymetallic nodules from the deep sea

Thomas Lüttke[1]✉, Christian Kunze[2], Klaus Flesch[3], Jörg Dilling[4], Jens Fohlmeister[4], Holger Hummrich[2], Robert Arndt[2], Annegret Krzikalla[2], Christian Lucks[2], Thomas Kuhn[1], Annemiek Vink[1] & Carsten Rühlemann[1]

The strategic importance of metals found in deep-sea polymetallic nodules has spurred a surge in interest for their exploitation. However, nodules are known to incorporate radionuclides during their growth, so that any industrial processing would involve classifying them as naturally occurring radioactive materials (NORM). As the start of deep-sea mining gets closer, concerns about elevated exposure to radiation that could result from the handling of nodules has recently been raised. In this study, we address this issue within the framework of radiation protection regulations. For the first time, we present estimates of effective doses associated with laboratory work and industrial-scale exploitation, transportation and metallurgical processing of polymetallic nodules. Estimates are based on an analysis of all long-lived radionuclides from the three natural decay chains of uranium-238, uranium-235 and thorium-232 and on radon exhalation rates from dry nodules. We show that effective doses for laboratory workplaces are well below the threshold of 1 millisievert per calendar year (mSv/a) for occupational exposure, even under the most conservative assumptions. Furthermore, we find that the effective doses for personnel on nodule transport vessels and metallurgical processing facilities may exceed the threshold in a conservative scenario. However, with standard radiation protection and mitigation measures common in other NORM-affected industries, effective doses can be kept well below the occupational exposure limit.

Keywords Polymetallic nodules, Natural radioactivity, Effective dose calculations, Deep-sea mining

Reliable and unhindered access to certain raw materials is a growing concern within the European Union and across the globe. Polymetallic nodules (nodules) from the deep sea in international waters occur in all major oceans and contain metals of economic interest that may help to overcome potential supply risks for manganese, copper, nickel and cobalt, which are considered strategic or critical to all industries across all stages of the supply chain, including the transition to sustainable energy alternatives[1,2]. With the increasing interest to push exploration efforts towards exploitation, the naturally occurring radioactivity of the nodules was recently investigated in the light of potential health risks that may arise from the exposure to ionizing radiation[3].

The radioactivity of nodules has been known for more than a century[4]. It was thoroughly investigated in the 1960s and throughout a first exploration period in the 1980s. The uranium series were used for the determination of growth rates and widely discussed[5–8]. A decrease of overall specific activity from the surface of the nodules towards the nucleus was observed[5,6,9,10]. Another finding was the higher specific activity of Pa-231 and Th-230 compared to their parent nuclides U-235 and U-234 respectively[9,10]. Radioactive equilibria between U-234 and Th-230 were observed in deeper layers[11]. These two studies[9,10] report striking differences of the activity ratios of parent-daughter pairs depending on the orientation of the nodules on the ocean floor.

Following earlier publications by others on the same topic, Volz et al.[3] measured the specific activity of several naturally occurring nuclides in nodules from the Pacific Ocean. They then assessed them against exemption levels according to Annex 4 of the German Radiation Protection Ordinance[12] and other international guidelines.

[1]Federal Institute for Geosciences and Natural Resources (BGR), Stilleweg 2, 30655 Hannover, Germany. [2]IAF-Radioökologie GmbH, Wilhelm-Rönsch-Straße 9, 01454 Radeberg, Germany. [3]Nuclear Control & Consulting GmbH, Hinter dem Turme 24, 38114 Braunschweig, Germany. [4]Federal Office for Radiation Protection, Köpenicker Allee 120, 10318 Berlin, Germany. ✉email: thomas.luettke@bgr.de

Volz et al.[3] conclude that the specific activities of these nuclides exceed the exemption levels by up to a factor of 1000, thus potentially imposing serious health risks for the public, workers and environment. This has triggered public concerns about the safety and feasibility of economic exploitation of nodules in general. However, according to German legislation, the exemption levels of Annex 4 were derived for practices with radioactive materials that are used because of their radioactivity, such as nuclear fuels or substances for medical applications. These exemption levels refer to an effective dose threshold of 10 microsieverts per year (10 μSv/a). However, polymetallic nodules are natural materials and are thus treated as naturally occurring radioactive materials (NORM), for which the mentioned exemption levels do not apply. Since the threshold value for activities involving NORM is 1 millisievert per year (1 mSv/a), the exemption levels of Annex 4 should not be applied to polymetallic nodules. The same concept also applies for the European Union Basic Safety Standards directive (EU BSS[13]),. Summarizing, artificial nuclides are evaluated with respect to the 10 μSv/a-criterium, while for NORM the 1 mSv/a has to be accounted for. Thus, the approach of Volz et al.[3], and the conclusions drawn from it, are misguided, both from the conceptual regulatory and the practical perspective.

The specific activities of all long-lived nuclides from the natural decay chains of U-238, U-235 and Th-232, and the Rn-222 exhalation rates of dry and water-saturated nodules were determined and summarized in Kunze et al.[14] (see supplementary data). The common assumption of radioactive equilibrium between Pa-231 and its daughter Ac-227 was found to be incorrect, and unsupported (i.e. excess) activities of Ac-227 nuclides in the thin surface layer of the nodules are the rule rather than the exception[14]. Given the high dose conversion factor along the exposure pathway for dust inhalation of Pa-231 ($8.9*10^{-5}$ Sv/Bq), Th-230 ($2.8*10^{-5}$ Sv/Bq) and Ac-227 ($1.5*10^{-4}$ Sv/Bq)[15], it is necessary to determine specific activities of these nuclides individually. In contrast, the specific activities of the nuclides of the Th-232 decay series are within range of the natural background[7,8,16,17].

The specific activities of nuclides in the surface layer of nodules (upper 1 mm) are higher than the average obtained during measurement of bulk nodule material[3,14]. Kunze et al.[14] found up to a threefold variability in specific activities of nodules deriving from ten sampling locations in the NE Pacific (average and maximum values). Legally, the doses received from the inhalation of radon and its progenies must also be considered in planned exposure scenarios, which applies to the case of nodule mining[18].

For this study, dose estimates were calculated for laboratory work with small amounts of nodule material in the facilities of the Federal Institute for Geosciences and Natural Resources (BGR). As commercial exploitation of polymetallic nodules has not yet started, and specific engineering-level designs of industrial-scale process facilities do not yet exist, we use generic and high-sided assumptions to estimate effective doses for industrial-scale activities. The scenarios used for the calculations are based on a generic flowsheet of nodule transport on a vessel from the offshore mining site to harbor, the storage of nodules on land at the processing plant and the pyrometallurgical processing and storage of intermediate products. We assume industrial standards regarding storage areas, ventilation concepts and processing plant layouts.

Dose calculations were conducted within the framework of the German Radiation Protection Act[19] and the German Radiation Protection Ordinance[12], which align with the European Basic Safety Standards 2013/59/Euratom[13] and follow the General Safety Requirements (International Basic Safety Standards) laid down by the International Atomic Energy Agency[20].

Here, we present estimates of the effective doses to workers across the nodule mining, transport and processing value chain, and evaluate the regulatory framework to which such activities must comply. Finally, we assess whether, and to what extent, deep-sea mining and processing of polymetallic nodules may impose health risks due to their naturally occurring radioactivity.

Results and discussion

Fundamentals of the applicable radiation protection laws

The German Radiation Protection Act (hereafter: the Act) and the German Radiation Protection Ordinance (hereafter: the Ordinance)[12,19] came into effect in their entirety on 31 st December 2018. Section 2 of the Act defines three types of exposure situations: (a) existing, (b) planned, and (c) emergency exposures. According to Sect. 2 para. 2 of the Act, activities involving polymetallic nodules and their naturally occurring radionuclides can be classified as a planned exposure situation, since they cause, or may cause, an exposure that cannot be disregarded from a radiation protection point of view. Regulations for "workplaces with exposure to naturally occurring radioactivity" are outlined in Part 2, Chap. 2, Sect. 8, §§ 55 to 59 of the Act. According to Sect. 55 para. 1 of the Act, an assessment of the individual dose related to the workplaces listed in Annex 3 of the Act must be carried out prior to commencing such activities.

Polymetallic nodules and any activities involving them are not mentioned in Annex 3 of the Act, neither in the laboratory nor at a larger industrial scale. Thus, there is initially no immediate obligation to carry out a dose assessment for such workplaces. The present dose assessment for the laboratory- and industrial-scale handling of nodule material was, however, carried out specifically to review and verify or rebut the concerns raised by Volz et al.[3].

According to Sect. 5 para. 7 of the Act, the benchmark for the radiological assessment of a workplace is an effective dose of 1 millisievert per calendar year (mSv/a). If the effective dose exceeds, or may exceed 1 mSv/a, workers must be classified as occupationally exposed. In this case medical surveillance and annual check-ups must be provided for the workers. However, the maximum annual dose for the protection of occupationally exposed persons is set at 20 mSv/a. To place these threshold values into perspective, it is important to state that the global average natural radiation dose is already 2.4 mSv/a[21], and that sizeable population groups, such as those in Kerala (India) and Ramsa (Iran), receive 10–20 mSv/a from abnormally high levels of natural background radiation[22,23].

Since the work scenarios with polymetallic nodules are to be classified as planned exposure situations according to the Act (see above), effective doses from the inhalation of Rn-222 and its short-lived decay products

must also be determined. Note that the concept of reference levels for indoor Rn-222 activity concentration[12,20,24] is not applicable to planned exposure scenarios.

Estimations of effective doses received during handling of polymetallic nodules

For every workplace assessed, we calculated the effective doses received during the handling of polymetallic nodules using realistic exposure parameters (for details see Chap. 3). Where this was not possible, we adopted generic and conservative assumptions on layouts of workspaces, exposure times and health- and safety measures. These estimations are based on the average values of the full radionuclide vector of polymetallic nodules as presented in Kunze et al.[14].

Laboratory workplaces

The evaluated laboratory workplaces are specific to the facilities of the Federal Institute for Geosciences and Natural Resources (BGR) in Hanover, Germany, but likely also apply to other research laboratories that comply with international safety standards. Various steps of nodule handling occur at these workplaces, from the preparation of nodules for mineralogical or geochemical analysis (e.g. sawing; crushing) to the handling of products obtained, for example, during nodule leaching experiments. Results are presented in the supplementary data and not discussed in detail here, as the maximum calculated effective dose for these laboratory workspaces, assuming 2000 working hours per year, is 0.4 mSv/a and thus well below the threshold of 1 mSv/a even under the most conservative assumptions on exposure time. The results highlight that small-scale handling of nodule material in laboratory environments is safe in terms of radiation exposure and protection, and does not require any specific regulation beyond the use of appropriate personal protective equipment and the application of standard occupational safety measures that is generally recommended for such environments anyway (e.g. gloves, mouth protection, hand washing, good ventilation, fume hood when dust is generated).

Commercial operations

To date, there are no commercial, large-scale operations for the mining and metallurgical processing of polymetallic nodules. Thus, we have estimated effective doses under generic and conservative assumptions for (a) a reference person operating in the engine room of a bulk carrier[25] that transports nodules from a deep-sea mining site to the shore, and (b) a reference person working in a processing onshore plant, using a pyrometallurgical processing route for the extraction of the valuable metals from the nodules[26,27].

In the first scenario, the operator in the engine room is separated from the nodule hold by a 15-mm-thick metal plate and 5 mm of installations (machinery, tool cabinet). Inhalation of dust and radon has not been considered, as we assume no air exchange between the cargo hold and the ships interior workplaces. For a conservative estimate of 2000 working hours per year, the calculated effective dose is 0.7 mSv/a from gamma radiation only (for details on this calculation, refer to Chap. 3), classifying the operator as non-occupationally exposed.

In the second scenario, we conservatively assumed that a single reference person works at all workplaces within a processing plant with the *pro rata* working hours according to generic scenarios laid out in Mobbs et al. (European Commission)[28]. The activities include handling of nodules and intermediate products at dedicated storage sites outside of the processing plant, as well as handling of installations within the processing plant. The relevant exposure pathways include external exposure from gamma radiation, internal exposure from inhalation of dust and internal exposure from inhalation of radon gas. We assess the first two exposure pathways in the context of the reference person. We address the exposure to inhalation of radon and its progenies separately, due to the multitude of parameters that influence accumulation of radon in air.

Exposure to gamma radiation includes 400 h of exposure from proximity to outside storage areas[28] of both the nodules and the slag(s) produced during processing, summing up to 800 h of exposure time per year. The dose rate contribution of gamma radiation by airborne radon progenies was found to be negligible[29,30]. For internal exposure, we assumed 1000 working hours in the interior of the processing plant that include exposure to dusts from both nodules and slag. During these processes, we assume that installations and factory layout provide shielding and spatial separation from gamma radiation. We further assumed 2 h per month of maintenance work on filter systems. For the concentration of dust particles in the air, we assumed compliance with maximum allowable concentrations (MAC) of alveolar dust (A-dust) of 1.25 mg/m^3 for the common plant area and 3 mg/m^3 for the maintenance work[31]. The total exposure time for the reference person thus sums up to 1824 h per year.

Several conservative assumptions regarding exposure parameters during the processing chain have been made:

- Using a threefold factor of surface average to bulk average specific activities to account for variability of nodules,
- Concentrating all radionuclide activity into one slag stream, namely the slag with the highest ratio of mass streams (after third reduction step) of all the slags,
- Double counting of Po-210 and Pb-210 in slag of the third reduction step and filter dust of first reduction step,
- Overestimating the radon exhalation rate based on dry nodules and using the calculated value, which is 2–3 times higher compared to the measured rate,
- No shielding of gamma radiation by steel frames of trucks, excavators, cranes etc. during loading, unloading, transshipment,
- No dust protection (face pieces) is worn by workers,
- Neglecting dust suppression measures (e.g. wetting),
- Neglecting preventative measures to reduce radon concentration (except ventilation), such as housing of crushers and mills, cladding of storage areas, vacuum suction for radon removal from indoor workplaces,

- Using maximum work exposure times (2000 h per year) or very high work times as appropriate.

Excluding inhalation of radon and its progenies, the effective dose for the reference person in the processing plant sums up to 0.6 mSv/a. This value is below the threshold of 1 mSv/a for occupationally exposed persons. However, as reported in Kunze et al.[14] and others[3,5,6,9,10], the specific activity in a thin, 1 mm surface layer of a nodule is generally up to a factor of three times higher than in bulk material, and may reach a factor of 10–20 for Ac-227 and Pa-331. Thus, in a theoretical scenario in which the average specific activity of the bulk material is multiplied with three, to account for the higher activity of the surface layer[14], the effective dose will be 2.1 mSv/a for the transport scenario and 1.8 mSv/a for the processing scenario.

In accordance with the principle of optimization, the following measures should be considered during plant design to minimize the effective dose:

- Shielding of areas where large quantities of materials with high specific activity are stored, e.g., using steel or concrete walls and/or keeping workplaces at a distance from materials with high specific activity,
- Dust suppression by wetting, ventilation and encapsulation of dust-prone processes,
- Limitation of working hours in areas with elevated gamma dose rates, radon activity concentration and/or dust concentration,
- Use of industry-standard personal protective equipment (FFP masks) in areas with high dust exposures.

As the storage and processing of polymetallic nodules constitutes a planned exposure scenario according to the International Commission of Radiological Protection (ICRP)[13,18], all exposure pathways, including the inhalation of radon and radon decay products, must be taken into account.

The actual radon activity concentration is influenced strongly by the design of the facilities and the ventilation concepts installed. We therefore address its potential impacts on effective dose calculations separately. As presented in Kunze et al.[14], the radon exhalation rate depends on the moisture content of the material and the actual specific activity of its parent nuclide Ra-226, which shows a high variability. To calculate the effective dose from radon exposure, generic assumptions and the ICRP[30] reference value for workplaces of 300 Bq/m^3 can be used as an indicative value for comparison. As stated before, in a legal sense according to Part 4, Chap. 2, Sect. 2 of the Act, the reference value only refers to existing exposure situations. We assume an equilibrium factor of 0.4 (in line with the UNSCEAR report of 2000[22]), a conversion factor according to ICRP Publication 65[32] and an annual exposure time of workers of 2000 working hours. In this scenario, the effective dose from exposure to radon gas alone is 1.87 mSv/a. Recently, a new conversion factor has been proposed (ICRP Publication 137[33]) that, however, has not yet been implemented into regulations by Germany and several other states due to ongoing discussions. To maintain consistency with German legislation, this assessment adheres to the conversion factor in ICRP Publication 65[32] of 7.8e-6 $(mSv^*m^3)/(Bq^*h)$.

The effective dose received from radon is proportional to the exposure time, the equilibrium factor and the radon activity concentration, and can thus be estimated as a function of these parameters. While radon exposure may provide a non-negligible contribution to the total effective dose and workers may be classified as occupationally exposed, the combined dose remains well below the limit of 20 mSv/a for exposed workers.

To minimize the radon activity concentration at workplaces in line with the principle of optimization for radiation protection, the following measures for plant design and the organization of work are additionally recommended:

- Enclosure of nodule storage areas, crushers, mills, etc. and discharge of ventilation air outdoors,
- Moistening of materials or storage under a closed water cover,
- Positive pressure ventilation of workplaces near to crushers, mills, dryers, etc.,
- Closed, ventilated workplaces (e.g. cabins) for workers within the processing plant,
- Continuous radon monitoring with warning systems (e.g. alarm in case of plant ventilation failure or in radon-prone plant areas),
- Special organizational and technical measures for maintenance work (ventilation of enclosed areas of the plant for a sufficiently long period before entering).

Summary

Based on our underlying assumptions, we show that workers in a processing plant may receive an effective annual dose from gamma radiation and the inhalation of dust of 0.6 mSv per year, and potentially an additional dose from exposure to radon gas of 1.87 mSv/a. This result shows that the industrial-scale handling of polymetallic nodules must take due regard of radiation protection measures as a standard requirement. However, by applying commonly applicable health and safety regulations, standard ventilation concepts and adapted plant designs and work schedules, effective doses can be reduced to values below the threshold for occupationally exposed persons of 1 mSv/a. Even under the most conservative assumptions, effective doses calculated here for nodule processing are not exceptional in comparison with other NORM-associated industries such as oil and gas, land-based ore mining and processing or the operation of geothermal power plants, and remain far below the maximum effective dose of 20 mSv/a allowed for workers. To ensure occupational safety for all workers we advise continuous monitoring and assessment of workplace-specific exposures, once commercial operations start.

In terms of health and radiation safety, we show that the radionuclide activity concentrations in nodules presented in historical and more recent datasets are not alarmingly high as postulated in conclusion by Volz et al.[3], and that the concerns raised therein for different parts of the nodule mining chain could not be substantiated.

Scenario	ADR (µSv/h) for 1,000 Bq/kg Ra-226	
	At the surface	At a distance of 1 m from the surface
Lateral infinitely extended surface (2π geometry)	0.5	0.5
Cone-shaped pile (4 m diameter, 2 m height)	0.4	0.2
Big Bag (1 m^3)	0.3	0.07
2 Big Bags next to or on top of each other	0.3	0.15

Table 1. Ambient gamma dose rate (ADR) for different scenarios (rounded values), based on figures in the Dose Calculation Guide for Mining[34,35], Gellermann, Nickstadt and Ahrens[36] and internal measurements of the authors with the various geometries.

Nuclide	Dose coefficient (µSv/Bq)
U-238	1.6
U-234	2.1
Th-230	28
Ra-226	2.2
Pb-210	1.1
Po-210	2.2
U-235	1.8
Pa-231	89
Ac-227	630
Th-232	12
Ra-228	1.7
Th-228	22

Table 2. Inhalation dose coefficient g_{Inh} for radionuclides of the natural decay series with values above 0.1 µSv/Bq for particles with a size of 5 µm.

Methods

Exposure scenarios

External exposure to gamma radiation, internal exposure from dust inhalation, as well as inhalation of radon and its progenies were all included in the calculation of effective doses. We have excluded the pathway of ingestion, assuming compliance with standard health and safety rules. Natural background values have been included into all calculations, thus producing conservative results[34]. As no facilities for the large-scale processing of polymetallic nodules currently exist, we have based our estimations on generic scenarios as presented in the Dose Calculation Guide for Mining[34,35], with modifications according to ICRP publication 119[15].

For the determination of external exposure, we have calculated the ambient gamma dose rate (ADR). The ADR is expressed as dose equivalent and is given in µSv/h. In the case of polymetallic nodules, the ADR depends mainly on the specific activity of Ra-226 (or more precisely, Ra-226 is used as proxy for its short-lived gamma-emitting daughters Pb-214 and Bi-214, with which it is largely in equilibrium). The nuclides of the Th-232 series can be neglected because of their low specific activity in the range of natural background[14]. The ADR can be estimated to an order of magnitude for simple geometries. Table 1 shows the ADR related to a homogeneously distributed specific activity of material of 1,000 Bq/kg Ra-226, based on figures in the Dose Calculation Guide for Mining[34,35] and internal measurements of the authors with the various geometries. If the distance between spatially limited materials is of the order of magnitude or greater than the lateral dimensions of the container or debris, the ADR decreases approximately inversely proportional to the square of the distance.

Estimation of internal exposure from the inhalation of dust particles takes account of the full nuclide vector of all radionuclides. Th-230 and Pa-231 are especially relevant in polymetallic nodules[14] as they are characterized by high dose coefficients (Table 2). The inhalation dose coefficients g_{Inh} for long-lived, dose-relevant, naturally occurring radionuclides have been obtained from the ICRP Publication 68[37] and partially modified after ICRP publication 119[15].

The coefficients refer to dust with an average aerodynamic diameter (AMAD) of 5 µm as suggested by ICRP 68[37] and applied in other calculation procedures[35]. The inhalation dose coefficients are differentiated by the absorption rate of radionuclides into the respiratory and blood circulatory system, where values for fast (F), moderate (M) and slow (S) exist. S-values of the dose coefficients were used for the Th-nuclides, F-values for Ac-227 and M-values for all other radionuclides (ICRP 68[37]). Table 2 shows the inhalation dose coefficients for occupational activities of the natural decay series for all dose-relevant radionuclides with a dose coefficient > 0.1 µSv/Bq. We took recent ICRP[15] recommendations into consideration for the nuclides Th-230, Ac-227 and Th-228, as they are already implemented within the German regulations. For the breathing rate of employees, we assumed a rate of 1.2 m^3/h as stipulated by the ICRP Publication 68[37].

In order to remain conservative, dust minimizing measures such as wetting and/or coverage of dust-producing materials, vacuum extraction, and enclosure or encapsulation of dust-forming processes (such as drop off parts of conveyer belts) were not taken into consideration. Furthermore, no personal protective measures such as the use of FFP-2 respiratory masks in working areas with increased dust concentration were taken into account, despite the fact that it is a cost-effective, easy-to-implement and effective occupational health and safety measure, reducing the amount of inhaled dust by up to 94%[38].

Radiation exposure from radon inhalation and its decay products has been included in the dose assessment, regardless of the fact that the activity concentration of radon is highly dependent on the layout of the facilities and the exposure times involved. Such calculations can thus only be carried out under generic assumptions with a conservative approach. As the radon exhalation rate from nodules is two times lower for saturated nodules stored under a layer of water than for dry nodules[14], and for the sake of remaining conservative, we have considered dry nodules here. In line with the Dose Calculation Guide for Mining[35], we have used a dose coefficient of 7.8 µSv/Bq for radon and radon progeny (Rn/RP) exposure, and an equilibrium factor of 0.4. For the activity concentration, we have used the reference value for existing exposure scenarios of 300 Bq/m^3.

Effective dose estimations for these different exposure scenarios during transport and pyrometallurgical processing of polymetallic nodules are provided in Chap. 3.3. Generic assumptions in relation to transport processes and plant designs that are important for these calculations are provided in Chap. 3.2 below.

Assumptions for exposure during transport and pyrometallurgical processing of polymetallic nodules

Common designs for a deep-sea mining operation include the collection of the nodules via a remotely operated collector at the seafloor, their vertical transport to a surface production support vessel with a riser system, followed by the transport of nodules to an onshore processing plant, most likely on another vessel or bulk carrier after at-sea ship-to-ship transfer[25].

For the calculation of radiation exposure on a transport vessel or bulk carrier, we neglected internal radiation exposure due to the inhalation of dust and radon as a physical separation of the engine room and all other common working spaces from the cargo holds is assumed. We assume a shielding of the ADR by 50% due to the separation of the cargo holds from the engine room by 2 cm of steel sheets, metal cabinets and cupboards based on information obtained from the nodule mining test of the company Nauru Ocean Resources Inc. (NORI) in the NE Pacific in 2022[39], during which 3000 t of nodules were collected, as well as from a Monte Carlo simulation of the radiation field using Monte Carlo N-Particle[40].

Various metallurgical processing routes for polymetallic nodules have been investigated extensively in the past[16,41–46]. While both hydro- and pyrometallurgical processing routes may be applicable for the extraction of valuable metals from nodules, we assume a pyrometallurgical processing route for this analysis, as a hydro-metallurgical processing route includes lower exposure scenarios (less dust generation and radon exhalation due to water saturation).

For pyrometallurgical processing, we use the process described in Sommerfeld et al.[27] featuring three smelting steps in order to produce a metal-rich alloy, as well as ferro- and silicomanganese from the resulting slags of each smelting step. Figure 1 shows a simplified flowsheet of the process. Metallurgical processes can lead to an increase of specific activity due to mass reductions in certain processing streams. Due to the lack of existing samples from the different slags produced, the following assumptions were made for the redistribution of radionuclides during pyrometallurgical processing:

- A preferential transfer of radionuclides from the raw material into the slag is assumed, rather than into the resulting metal-rich alloy[47]. Furthermore, we assume a complete transfer into the slag of the third reduction stage to be most conservative. The transfer of radionuclides into the third slag translates to an enrichment factor of 2.2 when a mass ratio of 3 million t/a of nodules (input) produces 1.374 million t/a (output) of slag after the last smelting step[27].

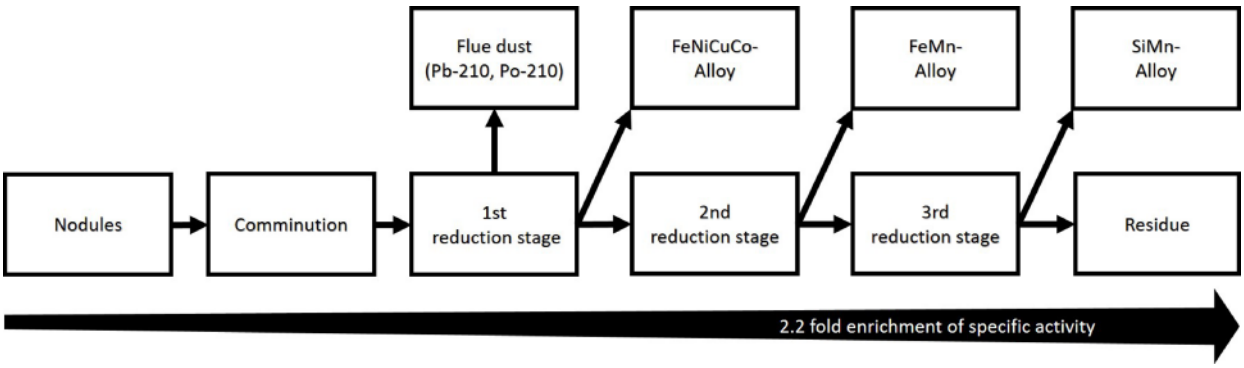


Fig. 1. Simplified pyrometallurgical process flowsheet that was used for the estimation of effective doses (adapted from Sommerfeld et al.[27]). In this scenario, the enrichment of nuclides after the transfer of Pb-210 and Po-210 into the flue dust of the first reduction stage amounts to a 2.2-fold increase in specific activity in the residue after the third reduction stage.

Nuclide	Specific activity (Bq/kg)		
	Nodules	Assumption for filter dust of the 1st reduction stage	Assumption for slag of the 3rd reduction stage
U-238	55 (17)	-	120
U-234	58 (18)	-	127
Th-230	620 (22)	-	1.363
Ra-226	2,317 (13)	-	5,098
Pb-210	1,098 (21)	10,975	2,415
Po-210	1,042 (17)	10,422	2,293
U-235	3 (45)	-	6
Pa-231	22 (36)	-	48
Ac-227	47 (33)	-	104
Th-232	56 (27)	-	123
Ra-228	58 (24)	-	127
Th-228	60 (27)	-	131

Table 3. Average specific activities of nodules (bulk, obtained from Kunze et al.[14], uncertainties in % in parentheses), of the flue dust and of the slag of the third reduction stage based on the assumed 10.1- and 2.2-fold increase in specific activity due to mass reductions during these stages (see text for further explanation and Table 4 for the application of each column to the exposure scenarios).

Exposure pathway	Transport	Production				
	External exposure from nodules in cargo hold	External exposure from stored nodules	External exposure from stored slag	Inhalation of dust from nodules	Inhalation of dust from slag	Inhalation of dust during maintenance of dust filters
Specific activity [Bq/g]	2.3	2.3	5.1	See Table 3, column "Nodules"	See Table 3, column "Slag"	See Table 3, column „Filter Dust"
Working time [h/a]	2000	400	400	1000	1000	24
Proportionality factor between specific activity and ambient dose rate (ADR) [µSv/h per Bq/g Ra-226]	0.5	0.4	0.07	-	-	-
ADR H*(10) [µSv/h]	1.16	0.93	0.36	-	-	-
Conversion factor H*(10) to effective dose	0.6	0.6	0.6	-	-	-
Reduction factor through shielding/dust protection	0.5	no shielding	no shielding	no mask	no mask	no mask
Unit dose of dust [µSv/mg]	-	-	-	0.06	0.13	0.04
Dust concentration [mg/m^3] [1]	-	-	-	1.25	1.25	3
Dose factors for inhalation [µSv/Bq]	-	-	-	see Table 2	see Table 2	see Table 2
Respiration rate [m^3/h]	-	-	-	1.2	1.2	1.2
Effective dose [mSv/a]	0.7	0.22	0.08	0.09	0.2	0.003

Table 4. Summary of the parameters used for the calculations of effective doses expected for each exposure scenario. For external exposure from gamma radiation, the specific activity depends on Ra-226, whereas the exposure to dust has to integrate the specific activity of each nuclide that is contained in the dust fraction. [1]According to the MAC as outlined in[31].

- The metallic nuclides Pb-210 and Po-210 are volatized at the high temperatures (1,450 °C) of the pyrometallurgical process. With 3 million t/a (input) to 0.297 million t/a (output) of dust, the mass ratio leads to a 10.1-fold increase in specific activity. These nuclides will fully transfer into the dust filter and are not present in subsequent smelting stages. However, we did not exclude them from the dust calculations of the slag of the third reduction stage to ensure doses were not underestimated.

In addition to the processing streams discussed above, further slags and possibly also dust (e.g. slags after the first and second reduction stages, dust from the drying stage) may occur in the process. However, under the assumptions made, the maximum possible nuclide concentrations in these material flows will be significantly lower than in the slag of the third reduction stage and in the flue dust from the first reduction stage. Table 3 summarizes the specific activities in the material flows that are relevant for the dose estimations. The application to the calculations of each column from Table 3 is explained in Chap. 3.3 (subchapter internal exposure from dust inhalation) and Table 4.

Dose estimations

The effective dose is the sum of the effective doses received from external and internal radiation as presented in Eq. (1),

$$E = E_{A,\gamma} + E_{Inh,Dust} + E_{Inh,Rn} + E_{Ing,Mat} \tag{1}$$

with E Effective dose [mSv/a]. $E_{A,\gamma}$ Contribution through external radiation (gamma radiation) [mSv/a]. $E_{Inh,Dust}$ Contribution through inhalation of dust [mSv/a]. $E_{Inh,Rn}$ Contribution through inhalation of Rn-222 and its progenies [mSv/a]. $E_{Ing,Mat}$ Contribution through the ingestion of material [mSv/a].

As we assume compliance with standard health and safety regulations, the contribution through ingestion of material$E_{Ing,Mat}$ was excluded from the calculations

External exposure from gamma radiation

The contribution of gamma radiation is calculated according to Eq. (2):

$$E_{A,j} = f_{Con,j} \cdot \sum_{s} \left(H^{*}\,(10)_{s}\right) \cdot t_{Exp,j,s} \cdot a_{s} \tag{2}$$

with $E_{A,j}$ Effective external radiation dose for a reference person *j* [mSv/a]. *H*(10)* Ambient equivalent dose rate in exterior spaces at a distance of 1 m from to the source *s* [mSv/h]. $f_{Con,j}$ Conversion factor to effective dose for the reference person *j* [-]. $t_{exp,j,s}$ Annual exposure time of reference person *j* next to the source *s* [h/a]. a_s Factor to account for shielding of gamma radiation from the source *s*; $0 \leq a_s \leq 1$
where

$$H^{*}\,(10) = ADR \cdot C_{Ra-226}/1000 \tag{2a}$$

ADR Ambient gamma dose rate, which depends on the geometric shape of nodule storage and handling, i.e. proportionality factor [µSv/h per Bq/g] (see Table 1). $C_{Ra\text{-}226}$ activity concentration of Ra-226 [Bq/g].

For external exposure to gamma radiation, a conversion factor f_{con} of 0.6 is used between the unit *H*(10)* (ambient equivalent dose) and the effective dose[34]. Furthermore, we assumed an average ADR of 0.4 µSv/h per Bq/g Ra-226 for large quantities of stored material (stockpiles, debris, spatially extended stored quantities) and 0.07 µSv/h per Bq/g Ra-226 for quantities up to 1 m^3 that are typically handled/stored in production facilities. These assumptions are based on Gellermann, Nickstadt and Ahrens[36] with reference to Mobbs et al.[28] and the IAEA safety report No.49[48]. Exposure times in areas with elevated ADR are assumed to be 400 h/a[28]. We did not consider the attenuation of gamma radiation from the shielding of containers or drivers/operator cabins in cranes or dozers etc. If the distance between spatially limited materials is of the order of magnitude or greater than the lateral dimensions of the container or debris, the ADR decreases approximately inversely proportional to the square of the distance.

Internal exposure from dust inhalation

The contribution of dust inhalation to the effective dose is calculated according to Eq. (3):

$$E_{Inh,Dust.} = \dot{V} \cdot t_{exp} \cdot \sum_{i} g_{Inh,i} \cdot C_{air,i} \tag{3}$$

with $E_{Inh,Dust}$ Effective dose due to dust inhalation [mSv/a]. $\dot{V}$ Breathing rate [m^3/h]. t_{exp} Annual time of exposition [h/a]. $C_{air,i}$ Activity concentration of radionuclide *i* bound to dust particles in the breathed air [Bq/m^3]. $g_{Inh,i}$ Dose coefficient for dust inhalation for radionuclide *i* [mSv/Bq].

The activity concentration of radionuclide *i* in the breathed air $C_{Air,i}$ can be calculated using Eq. (4):

$$C_{Air,i} = C_{Dust} \cdot C_{i} \cdot (1 - f_{Inh}) \tag{4}$$

with $C_{Air,i}$ Activity concentration of radionuclide *i* bound to dust particles in breathed air [Bq/m^3]. C_{Dust} Dust concentration at the workplace using 95th percentile [g/m^3]. C_i Specific activity of radionuclide *i* in the material [Bq/g]. f_{Inh} Factor to account for reduction of dust inhalation through personal safety equipment (respirators) [-]; $0 \leq f_{Inh} \leq 1$

The exposure time for activities in areas with high dust concentrations are assumed to be 1,000 h/a, according to the generic scenarios in[28]. The specific activity of the dust corresponds to the values in Table 3. In compliance with the generally applicable maximum allowable concentration (MAC) according to the German Technical Rules for Hazardous Substances[31], a maximum dust concentration for the fine dust fraction entering the alveolar system (A-dust) of 1.25 mg/m^3 is assumed. This value may not be exceeded at any workplace, regardless of radiation protection aspects. For the replacement or maintenance of the dust filters of the first reduction stage, a working time of 2 h per month or 24 h per year is assumed. The concentration of dust that occurs for a short time during this work is limited to the maximum shift average of 3 mg/m^3 for "workplaces with occasional exposure", also according to the German Technical Rules for Hazardous Substances[31]. The use of FFP-2 protection masks, as well as wetting or other dust suppression methods, have not been considered. Table 4 summarizes the parameters that were used for the calculations of effective doses during the investigated exposure scenarios.

Internal exposure to radon inhalation

According to Annex 18 part B No. 3 a) of the Ordinance[12], an exposition to Rn-222 of 0.32 MBq per m^3 and hour leads to an effective dose of 1 mSv, which was calculated with the dose conversion coefficient according to ICRP Publication 60[32]. The contribution to the effective dose from the inhalation of radon and its progenies is calculated according to Eq. (5):.

$$E_{Inh,Rn} = C_{Rn-222} \cdot t_{exp} \cdot F \cdot DCF \tag{5}$$

with $E_{Inh,Rn}$ Effective dose received from inhalation of radon gas [mSv/a]. C_{Rn-222} Radon-222 activity concentration of the air in interior spaces [Bq/m^3]. t_{exp} Time of exposition [h]. F Equilibrium Factor [-]. DCF Dose conversion factor for Radon: 7.8*10^{-6} (mSv*m^3)*(Bq*h)$^{-1}$.

Equation (5) implicitly contains an equilibrium factor of 0.4. The equilibrium factor F represents the ratio of the potential alpha energy concentration for the actual mixture of radon progeny with respect to the radon concentration.

Changes in the indoor radon concentration, C_{Rn-222}, can be described by considering its sources and sinks (e.g[49]., :

$$\frac{dC_{Rn-222}}{dt} = e' + vC^a_{Rn-222} - \lambda C_{Rn-222} - vC_{Rn-222} \tag{6}$$

The sources are the volume-specific entry rate *e'* [in Bq/m^3/s] of radon by the decay of Ra-226 within the nodules and its successive degassing as well as by the ventilation rate v [in 1/s], which introduces outdoor radon, C^a_{Rn-222}. The total volume-specific entry rate expresses the supply of radon activity to the considered indoor area per unit time and per unit indoor air volume. The sinks of radon indoors are the decay with its decay constant, λ [1/s], and removal by ventilation with the ventilation rate, v.

Under steady state conditions and the assumption that the outdoor radon contribution is negligible, Eq. 6 reduces to:

$$C_{Rn-222} = \frac{e\prime}{(\lambda + v)} \tag{7}$$

The total volume-specific entry rate can be derived from the exhalation rate P [Bq/m^2/s], the room volume V [m^3] and the surface area A [m^2] from which radon exhalation occurs.

$$e' = \frac{PA}{V} \tag{8}$$

The diffusive exhalation rate of radon (Rn-222) from wet or dry nodules in storage areas depends on water saturation and can be calculated using the model of an extended source (e.g., in the hold of a bulk carrier vessel, ore stockpiles on land) with the approach presented in Ishimori et al.[50]. The model considers a matrix where radon is continuously produced by decay of Ra-226 and emanates from the grains into a pore volume. Assuming a thick layer of nodules (> 3 m), the exhalation rate at the surface is given by Eq. 9:

$$P = C_{Ra-226} \cdot E(\Theta) \cdot \rho \cdot \sqrt{\frac{D}{\lambda}} \cdot \lambda \tag{9}$$

with P Rate of exhalation [Bq/(m^2s)]. C_{Ra-226} Specific activity of Radon-226 [Bq/kg]. $E(\Theta)$ Emanation Factor E in dependence of moisture Θ of the nodules [-]. ρ Bulk density of the nodules [kg/m^3]. D_{bulk} Diffusion constant of radon in bulk material [m^2/s]. λ Radioactive decay constant of Radon-222 [1/s].

Assuming dry nodules to remain conservative, the diffusion constant of radon in bulk material is:

$$\mathrm{D_{bulk}} = \mathrm{D_{MA}} \cdot \mathrm{R} \tag{10}$$

with D_{MA} = 0.00001 m^2/s[50] being the molecular diffusion coefficient of radon in air and R representing the measured porosity of the nodules, which have been measured (R = 0.6). This results in a bulk diffusion coefficient within the nodules of 0.000006 m^2/s.

Using further properties of a typical nodule[14], with C_{Ra-226} = 2317 Bq/m^2, ρ = 3300 kg/m^3, E = 0.36 of a dry nodule and the decay constant of radon being 0.0000021 s^{-1}, a radon exhalation rate of approximately 10 Bq/(m^2s) is obtained for dry nodules using Eq. (9). This results in a typical total volume-specific entry rate (Eq. 8) of 2 Bq/m^3/s, when assuming the storage of nodules up to a height of 5 m below the hold ceiling of a bulk carrier vessel with a hold area of about 10*90 m^2 that we assume equals the effective area from which radon is exhaled. This assumption implies that nodules from the lower parts of the cargo hold do not effectively contribute to the radon concentration in the cargo head space, but stay within the voids between nodules, which is realistic when diffusion is the only transport mechanism within the voids.

With the total volume-specific entry rate and an assumed natural, non-technically enhanced ventilation rate of 1/h = 0.0003/s, an activity concentration (Eq. 7 of approximately 7000 Bq/m^3 is expected in the air-filled space between the nodules and the cargo compartment cover. However, crew members of the transport vessel do not usually work in the bulk material hold areas. If required for short term inspections, maintenance or similar tasks, the activity concentration can easily be lowered prior to commencement of the task by ventilating the compartments, either by opening the cover or by active ventilation. Already with a ventilation rate of

24/h = 0.0067/s, which is readily achievable by opening the cargo hold, the activity can be brought down to ~ 300 Bq/m^3. As the effective dose also depends significantly on the exposure time, unnecessary exposure should be avoided.

The release of radon from the pore spaces of the nodules can occur at the mining/transportation stage and during metallurgical processing, when the nodules are mechanically crushed and possibly ground.

Depending on the ventilation and the airflow of the facility, radon may enter indoor workplaces. This can be expressed as a source term, *R* according to Eq. (11):

$$R = C_{Ra-226} \cdot \ f_{com} \cdot \ pc \tag{11}$$

For the sake of simplicity, it can be assumed that a fraction, f_{com}, of 0.3[51,52] of the total Rn-222 activity stored in the material is released at the comminution stage. With a typically assumed processing capacity, *pc*, of 3 million t/a (~ 95 kg/s), this corresponds to a radon source term, *R*, of 66 kBq/s. Although it is likely that the nodules partially break during the mining process and during vertical transport in the riser system, we conservatively assume here that the release of radon occurs exclusively during the processing stage on land. This occurs both during the comminution and during the subsequent process stages. While crushers are usually located outdoors, we assume that further metallurgical processing taking place in a closed production hall, with 50% of the radon release occurring during crushing and milling, and a fraction, *f*, of 50% which is released during further, indoor processing stages.

In a theoretical production hall with a surface area of 30 m x 100 m and a height of 15 m (V = 45000 m^3) the radon source term, *R*, translates into a volume-specific entry rate *e'*, using

$$e' = R \cdot f/V \tag{12}$$

to approximately 0.74 Bq/(m^{3}s). Assuming an area-based fresh air flow of 150 m^3/h per m^2 of surface area (in accordance with, e.g., the German VDI guideline 2262 part 3[53]), which equals a ventilation rate of 10/h = 0.0028/s, the average Rn-222 activity concentration is approximately 264 Bq/m^3 (see supplementary data). This air exchange rate complies with standard technical means[54], and is common practice, for example, in uranium ore processing[55]. This value is close to the often-mentioned reference value of 300 Bq/m^3. This implies that it is advisable to regularly monitor the radon concentration in such facilities.

However, as stated before, we have used a more conservative approach for the calculation of the effective dose from radon exposure during processing. The activity concentration was assumed to be 300 Bq/m^3 with an equilibrium factor of 0.4 and an annual work exposure of 2,000 h.

Data availability

The tables showing all calculations and underlying parameters including the effective dose estimations for laboratory environments at BGR is available at Mendeley data (doi: https://doi.org/10.17632/svm5s8btdy.4) or can be requested from the corresponding author via e-mail: thomas.luettke@bgr.de.

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Author contributions

T.L., C.K., K.F., J.D., J.F., T.K. and A.V. conceptualized the project. T.L., C.K. and K.F. did the on-site measurements at BGR facilities. T.L., C.K., K.F., H.H., R.A., A.K. and C.L. carried out the calculations of effective Doses and determination of related parameters. C.K., K.F., J.D. and J.F. put together the legal and regulatory aspects of the manuscript. T.L. wrote the manuscript and created the figure. T.L., C.K., K.F. and J.F. created the tables. C.K., K.F., J.D., J.F., T.K., A.V., and C.R. reviewed the manuscript.

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Declarations

Competing interests

The authors declare no competing interests.

Additional information

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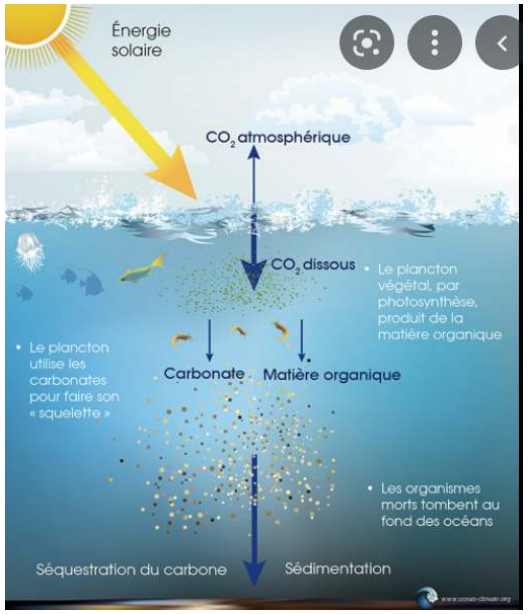
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of the Environment, Transport,
Energy and Communications DETEC
Federal Office for the Environment FOEN
International Affairs Division

Explorer ou exploiter…
Deep sea mining

7 septembre 2022

Océans: espaces contigus en 3 dimensions – en relation par des courants



- **Fonctions:**
  - Puits de carbone naturels: ¼ des émissions CO2
  - Sources de
    - nourriture
    - matériaux (incl. marine genetic resources-MGRs)
    - espace
- **Destruction des écosystèmes et leurs espèces animales et végétales par**:
  - Surpêche
  - CC ->réchauffement de leur température- modifications des courants marins
  - Extraction ressources minérales : ->Pollutions (prélèvements d'eau pour désalini-sation, métaux-deep sea mining, extraction de gaz et de pétrole): sédiments – acidi-fication- pollution sonore-physique (lumière-bruit-changement de température/sédiments)

Facts about deep sea (profondeur > 200 m)

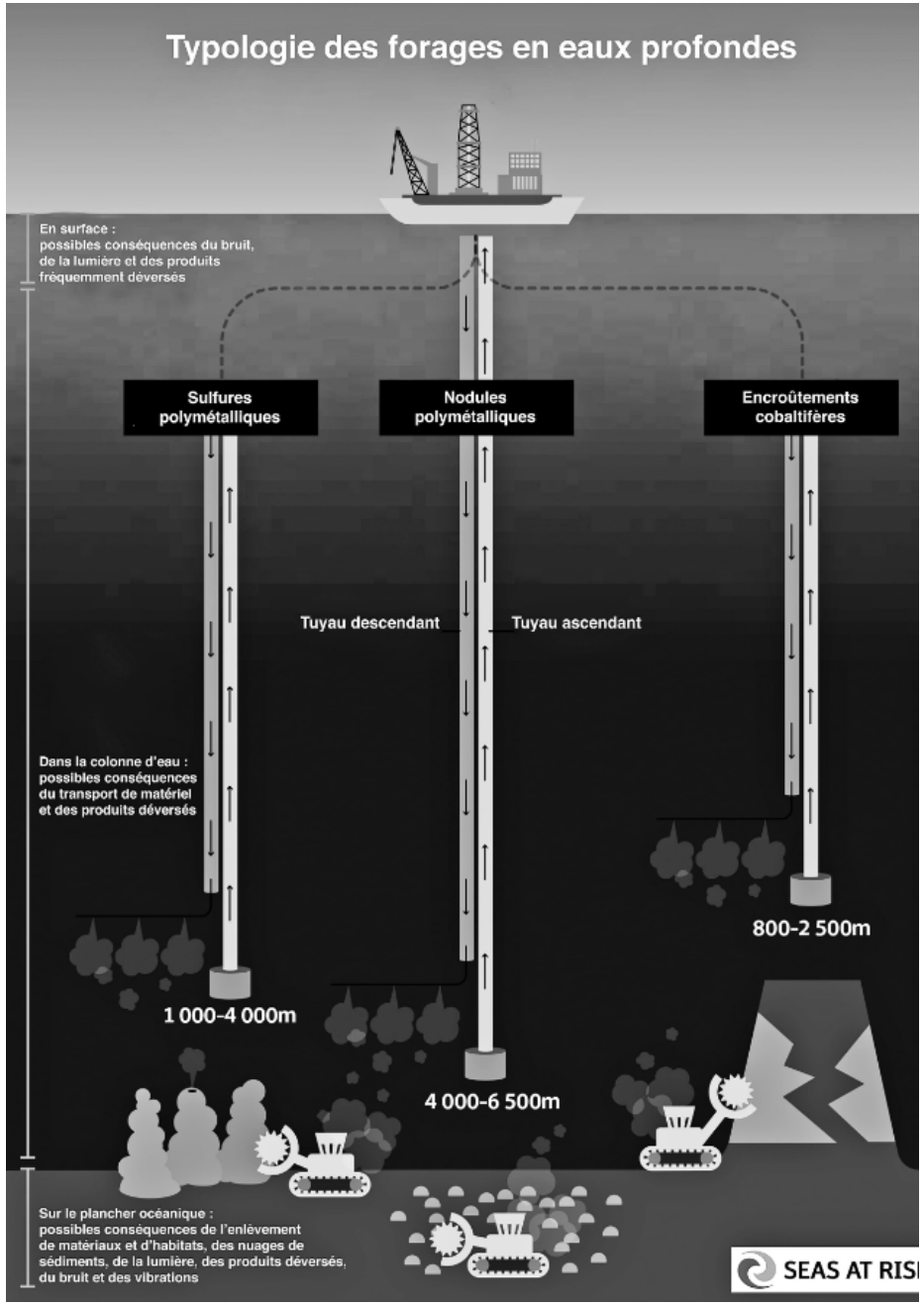
- 10 % des fonds marins connus (- que la Lune)
- Le plus grand écosystème de la planète: millions de kilomètres carrés, avec des pressions très fortes et dans une totale obscurité.
- Plaines abyssales: sur moins de 0,01 % des fonds marins, ont permis d'identifier plus de 1 000 espèces animales (millions d'espèces)
- Sans oxygène, sans lumière: croissance très lente, maturité tardive (100-200 ans, voire 400 ans/coraux)
- Les sédiments s'accumulent 1 mm/ 1000 ans!

- Translucent Deepstaria Jelly Whorls With Resident Isopod | Nautilus Live - YouTube

Which metals in deep sea?



- Discovery in 1868
- Polymetallic nodules on abyssal plains between 3,000 and 6,000 metres depth: precipitated iron oxyhydroxides and manganese oxides, onto which metals such as **nickel, cobalt, copper, titanium manganese, iron, silicium, aluminium**
- Cobalt-rich ferromanganese crusts on seamounts between 800 and 2,500 metres depth
- Polymetallic sulphides at **hydrothermal vents** on mid-ocean ridges and back-arc basins between 1,000 and 4,000 metres depth

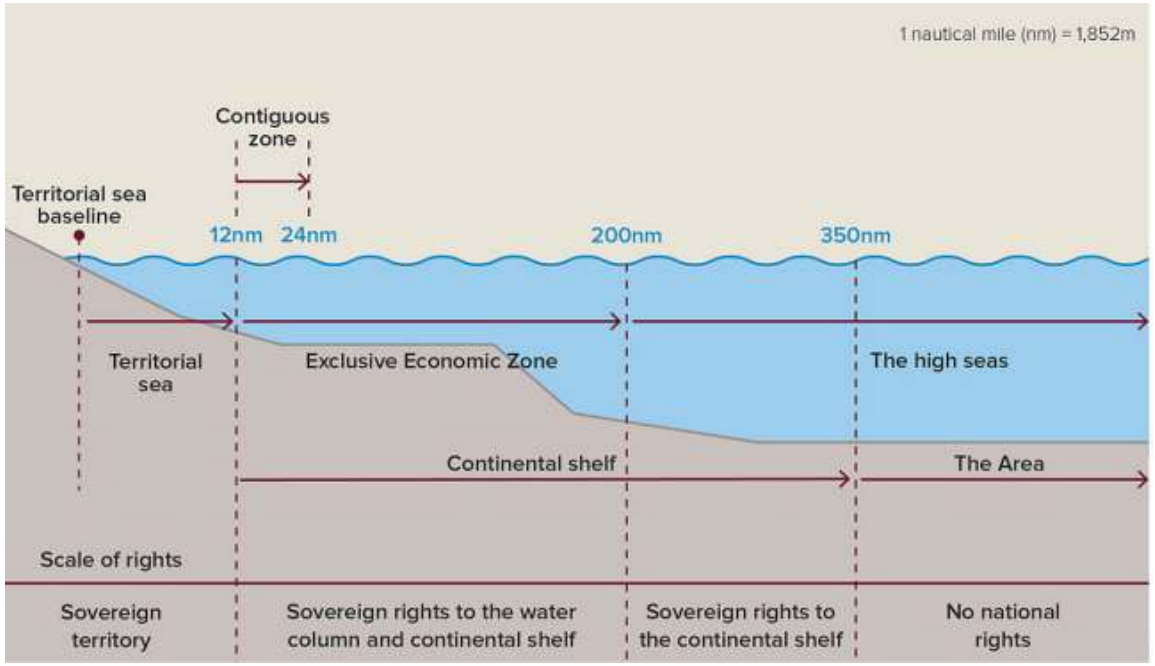

Typologie des forages en eaux profondes
En surface :
possibles conséquences du bruit,
de la lumière et des produits
fréquemment déversés
Sulfures
polymétalliques
Nodules
polymétalliques
Encroûtements
cobaltifères
Tuyau descendant
Tuyau ascendant
Dans la colonne d'eau :
possibles conséquences
du transport de matériel
et des produits déversés
1 000-4 000m
4 000-6 500m
800-2 500m
Sur le plancher océanique :
possibles conséquences de l'enlèvement
de matériaux et d'habitats, des nuages de
sédiments, de la lumière, des produits déversés,
du bruit et des vibrations
SEAS AT RIS

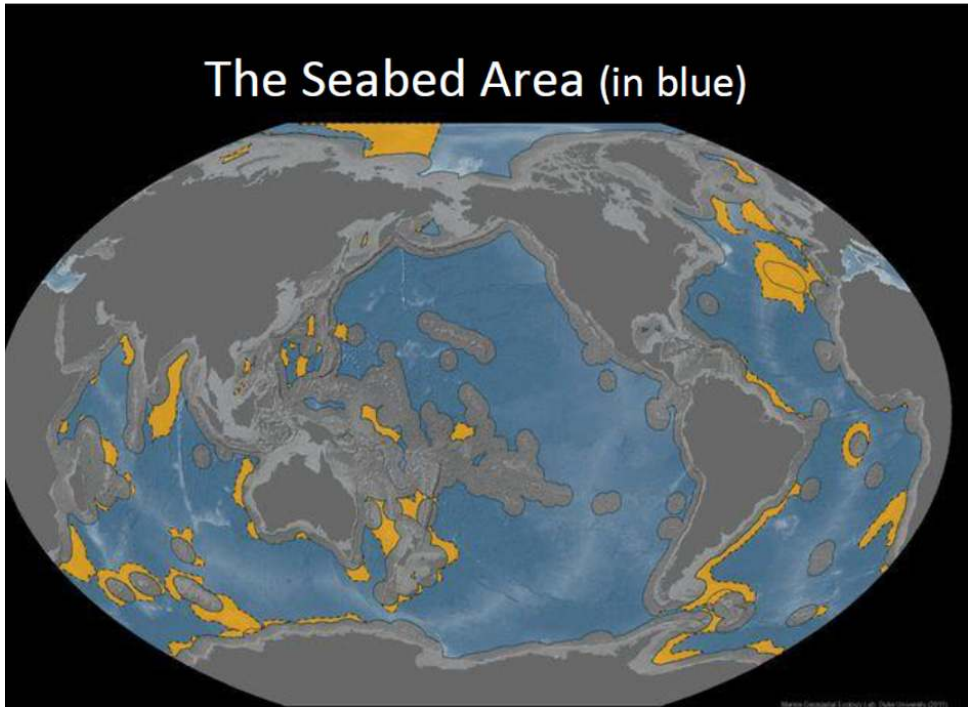
Utilisation des métaux-deep sea

- Ordinateurs
- Smartphones
- Panneaux solaires
- Eoliennes
- Voitures électriques

- Nota bene: Chine contrôle 85% de ces minerais au niveau terrestre

The AREA





The Area covers around 54 per cent of the total area of the world's oceans. The Area and its resources are the common heritage of mankind.

Colonne d'eau: high seas- toute l'eau de mer en dessus de l'area

Legal sea regime

- ISA: The International Seabed Authority (ISA) is an autonomous international organization established under the 1982 United Nations **Convention on the Law of the Sea** (UNCLOS) and the **1994 Agreement** relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea (1994 Agreement).
- ISA: 168 Parties
- ISA: Agreement with the UN UN-ISA-Agrmnt.tif
- ISA is the organization through which States Parties to UNCLOS organize and control all mineral-resources-related activities in the Area for the benefit of mankind as a whole**. In so doing**, ISA has the mandate to ensure the effective protection of the marine environment from harmful effects that may arise from deep-seabed related activities.
- 30 contrats d'exploration minière (pour 22 pays)(15 ans), y compris dans des zones vulnérables.
- **Négociation d'un nouveau code minier** pour réguler les fonds marins internationaux: permis d'exploration -> permis d'exploitation (isba_25_c_wp1-e_0.pdf (isa.org.jm))
- La moitié des zones d'exploration sont des réserves pour les pays en développement (Common Heritage of Mankind) qu'elles peuvent exploiter. Pour les exploiter, les entreprises industrielles (de pays développés)tels The Metals Company doivent trouver des sponsors dans les pays en développement, comme Nauru, Tonga et Kiribati. Ainsi, TMC vient de s'assurer 75'000 km2 à exploiter.

ISA Council- 36

2023	2024	2025	2026
Italy	Italy	Italy	Italy
Russian Federation	Russian Federation	Russian Federatio	Russian Federatiom
Japan	Japan		
China	China		
India	India		
R.O. Korea	R.O. Korea	R.O. Korea	R.O. Korea
Netherlands	France	France	France
Germany	Germany	Netherlands	Germany
Australia	Australia	Australia	Australia
Chile	Chile	Chile	Chile
Canada	Canada		
South Africa	South Africa		
Bangladesh	Bangladesh		
Fiji	Fiji	Nauru	Nauru
Brazil	Brazil		
Jamaica	Jamaica	Jamaica	Jamaica
Losotho	Losotho	Losotho	Losotho
Uganda	Uganda		
Norway	United Kingdom		
Algeria	Algeria		
Nauru	Indonesia	Indonesia	Indonesia
Poland	Poland		
Czech Republic	Czech Republic		
Belgium	Norway		
Spain	Spain		
Singapore	Singapore	Singapore	Singapore
Tonga	Tonga	Tonga	Tonga
Cameroon	Cameroon	Cameroon	Cameroon
Nigeria	Nigeria	Nigeria	Nigeria
Morocco	Morocco		
Ghana	Ghana	Ghana	Ghana
Mauritius	Mauritius		
Sierra Leone	Sierra Leone	Sierra Leone	Sierra Leone
Argentina	Argentina		
Trinidad & Tobago	Trinidad & Tobago		
Costa Rica	Costa Rica		
Mexico	Mexico	Mexico	Mexico

CBD EBSA: Ecologically or Biologically Significant Marine Areas
FAO VME: Vulnerable marine ecosystem

IMO PSSAs: Particularly Sensitive Sea Areas

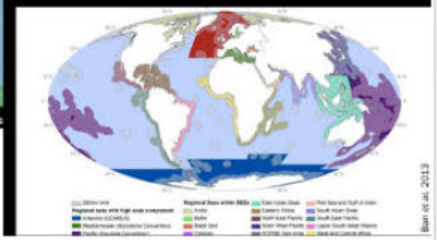
CBD EBSAs

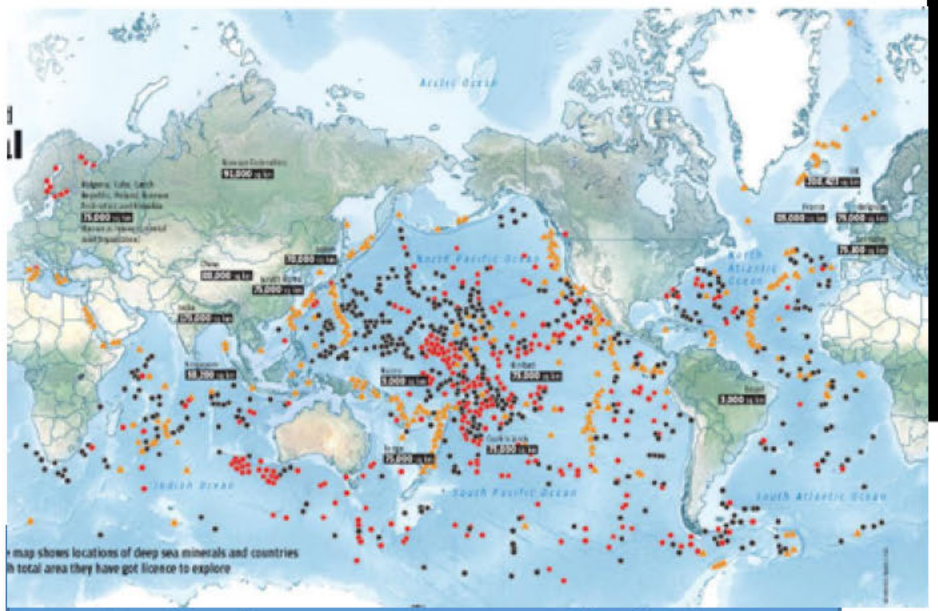


FAO VMEs



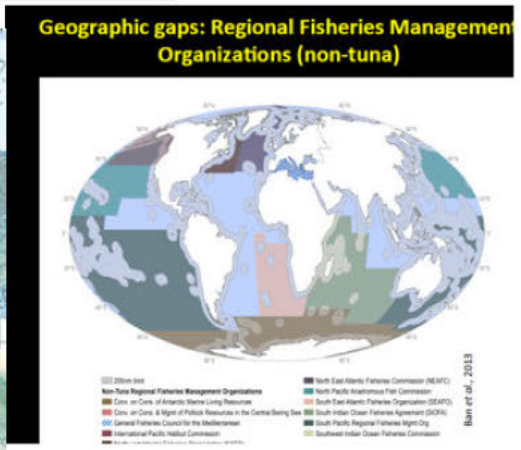
Geographic gaps: Regional Seas programmes put in place MPAs, but ABNJ mostly not covered



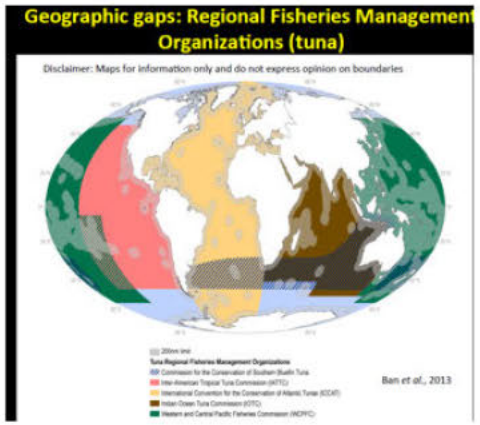


Carte des resources minérales

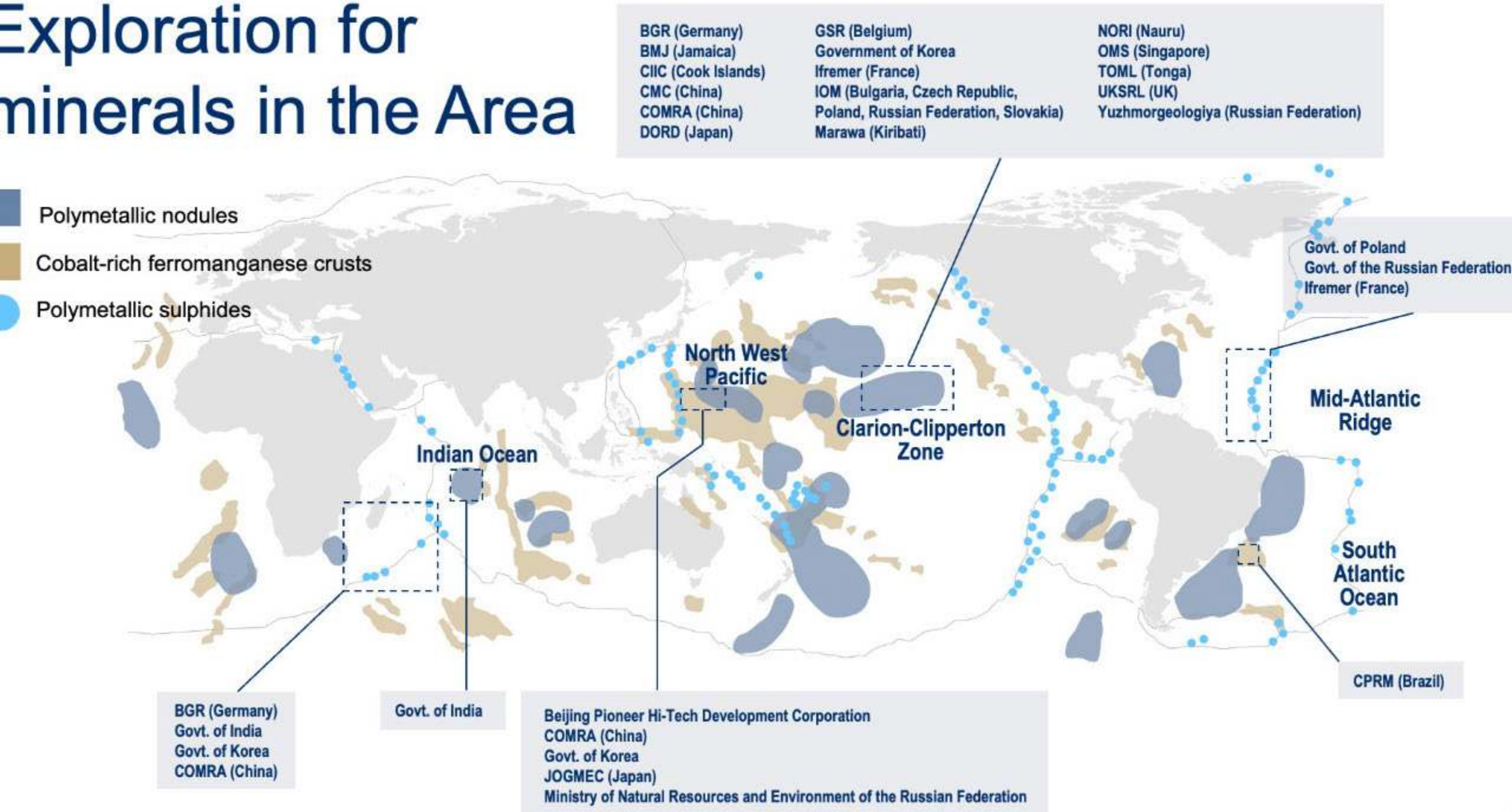
Geographic gaps: Regional Fisheries Management Organizations (non-tuna)



Geographic gaps: Regional Fisheries Management Organizations (tuna)



Exploration for minerals in the Area



ISA and the ‘two-year trigger clause’

- Section 1(15) of the 1994 Implementing Agreement Section 1(15) of the 1994 Implementing Agreement UNCLOS and Agreement on Part XI - Preamble and frame index

- 2021- Nauru requested that the Council of the International Seabed Authority (ISA) complete the adoption of the rules, regulations and procedures necessary to facilitate the approval of plans of work for **exploitation in the Area** pursuant to Section 1, paragraph 15 of the 1994 Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea.
- It sets a deadline of two years for the ISA to finalise regulations governing the industry. If it is unable to do so, the ISA is required to allow mining companies to begin work under whatever regulations are in place at the time.

A

Adoption of exploitation regulations: By July 2023, during the 28th Session of the ISA in 2023, the Council votes in consensus to formally adopt exploitation regulations, which will allow any member State of the ISA to apply for a mining license on behalf of the 'contractor' (the State itself, a state-owned enterprises or a private company) they sponsor and thus begin the industry of commercial deep seabed mining.

Adopting the regulations requires a consensus of all 36 voting members of the Council.

B

"What if" scenario: During Part III of the 27th Session of the ISA, the members of the Council will begin discussing how they might respond to applications for mining licenses after July 2023 if they are unable to reach a consensus vote for adopting the exploitation regulations by then.

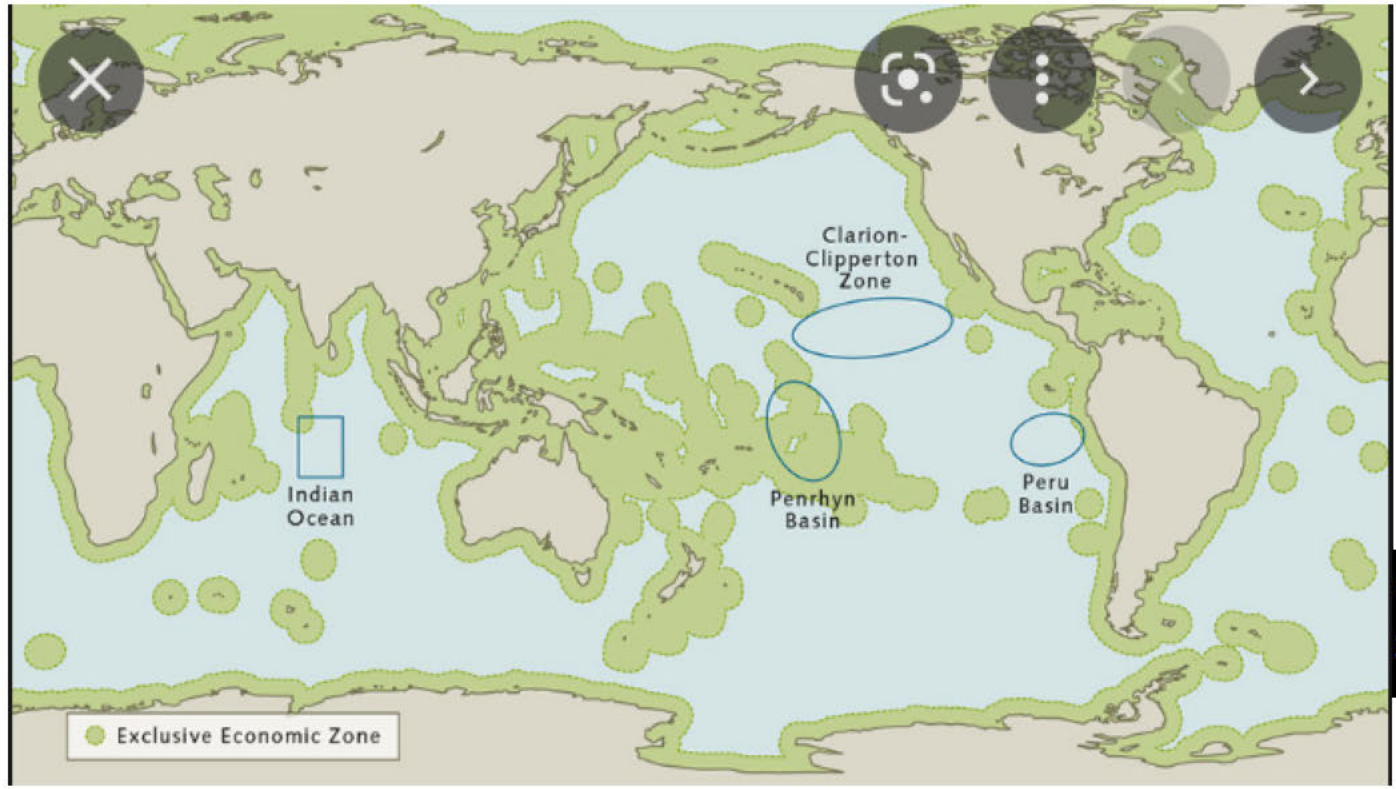
Under the 2-year rule triggered by Nauru[8], if the ISA does not adopt regulations by July 2023, and a State applies for a license on behalf of a 'contractor', the Council of the ISA is required to consider the application and potentially approve on a provisional basis under any provisional rules, regulations and procedures adopted by the Council at that point. Some States have argued that this means the Council must grant a license; others that the Council is not obliged to do so. This will be a critically important debate within the ISA which Assembly members should participate in even though only the members of the Council have the authority to decide on the regulations, whether to adopt the regulations or not, and whether to approve or reject applications for mining licenses.

C

Formal adoption of a moratorium: The Council votes in consensus to formally adopt a moratorium, which would allow for a precautionary approach and time for the scientific community to develop the research and evidence needed to better assess whether deep seabed mining can be done without damage to this common heritage for humankind.

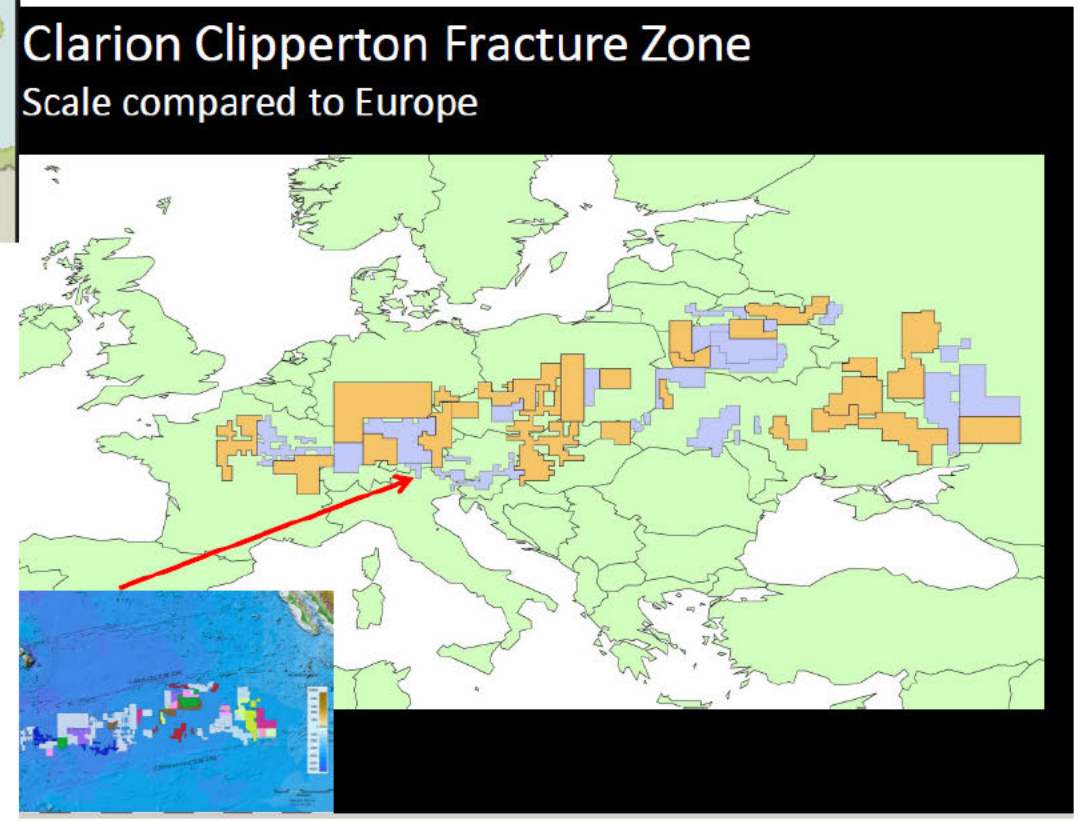
There is no specific timeline on when this vote could take place.

This means that The Metals Company (avant DeepGreen) could possibly obtain a license to mine nodules in the Clarion Clipperton Zone in 2023, even in the absence of international regulations for exploitation.



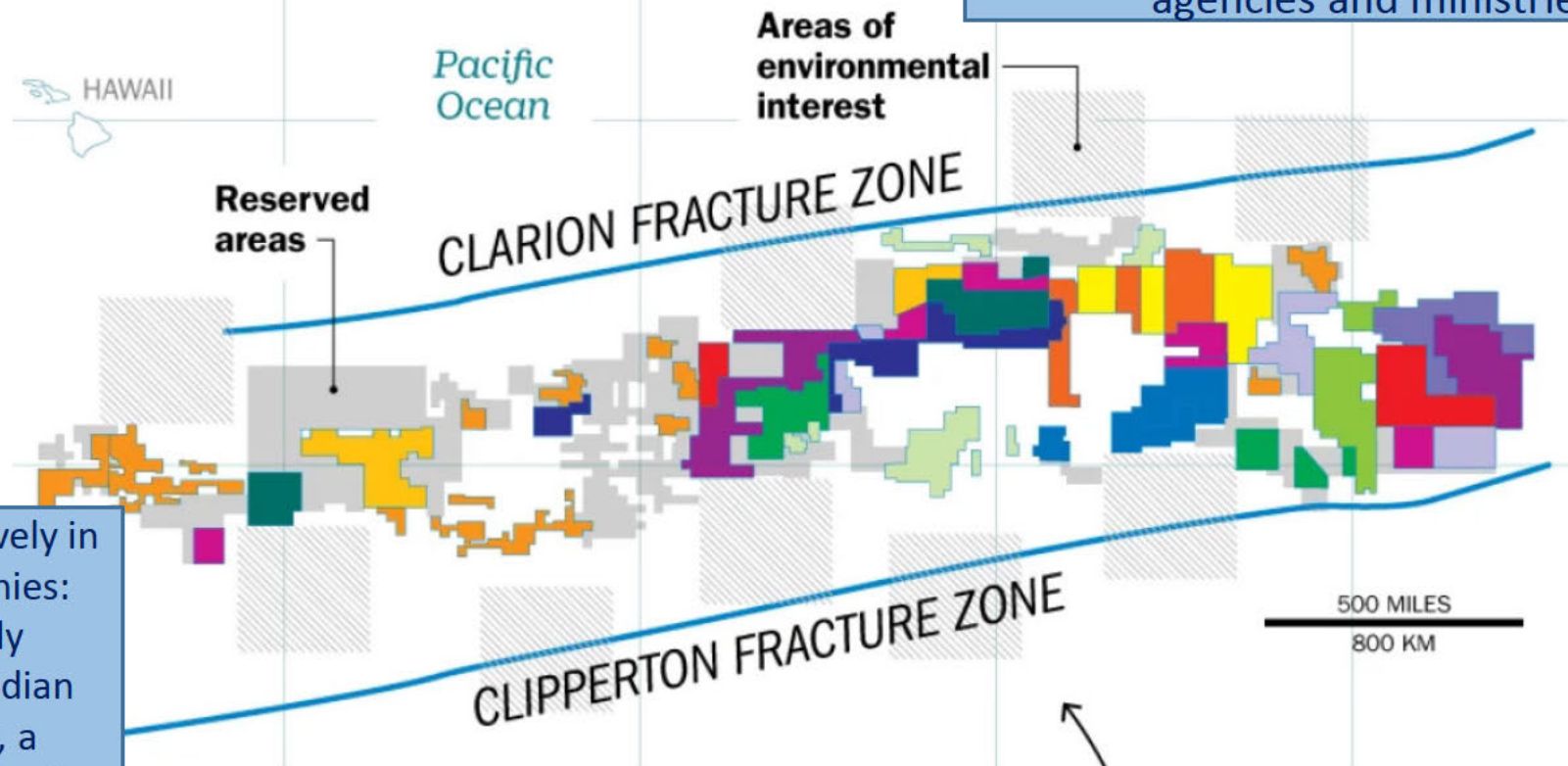
Clarion Clipperton Zone CCZ

Prenez la zone Clarion-Clipperton (CCZ), une plaine abyssale qui s'étend entre Hawaï et le Mexique et qui a été ciblée par des mineurs pour les nodules polymétalliques (PDF) qui couvrent 7.8 millions de km2 carrés du plancher océanique à des profondeurs comprises entre 4000 et 6500 m.
(pour info: Cobalt: 60% production au Congo)



Germany
Cook Is.
China
Japan
Belgium
South Korea
Bulgaria, Cuba, Czech Republic, Poland, Russia, Slovakia
Jamaica
France
Kiribati
Nauru
Singapore
Tonga
U.K.
Russia

Of the thirty exploration contracts the ISA has issued to date, at least eighteen are held by only seven countries – China, France, Germany, India, Japan, Russia and South Korea – through their state owned companies or government agencies and ministries



Another seven contracts are effectively in the hands of three private companies: The Metals Company (previously DeepGreen), a privately held Canadian company; UK Seabed Resources, a subsidiary of US based Lockheed Martin; and Global Sea Mineral Resources, a subsidiary of the Belgium company DEME Group

[Exploration Contracts | International Seabed Authority (isa.org.jm)]

In this promotional video from The Metal Company (previously DeepGreen Metals) (compagnie privée Canada), Michael Lodge, secretary-general of International Seabed Authority, (elected by the Asembly) asserts support for the firm's mission and says his organization has greenlighted a 15-year exploration contract. The video for the firm now known as The Metals Co. was posted online in 2018 but recently removed from public view on its Vimeo site



[Seabed mining company promo - Los Angeles Times (latimes.com)]

-----Original Message-----
From: Vijay Kodagali <[redacted]@isa.org.jm>
To: Charles Morgan <[redacted]@aol.com>
Sent: Thu, Jun 21, 2012 11:13 am
Subject: RE: Tonga Offshore Mining Exploration Data

Charles,

Here is the entire reserved area data. It is an excel file if u want, I can send an ascii file.

This is supposed to be classified data and not to be disclosed to others I am sure u will use for your resource analysis and for nothing else.

See u next month.

Best regards,

Vijay

Charles Morgan, an environmental scientist, was retained by the authority to study data collected by early explorers of the proposed mining areas. Later, he was hired by a firm whose assets are now controlled by the Metals Company to secure a piece of that data for business purposes.

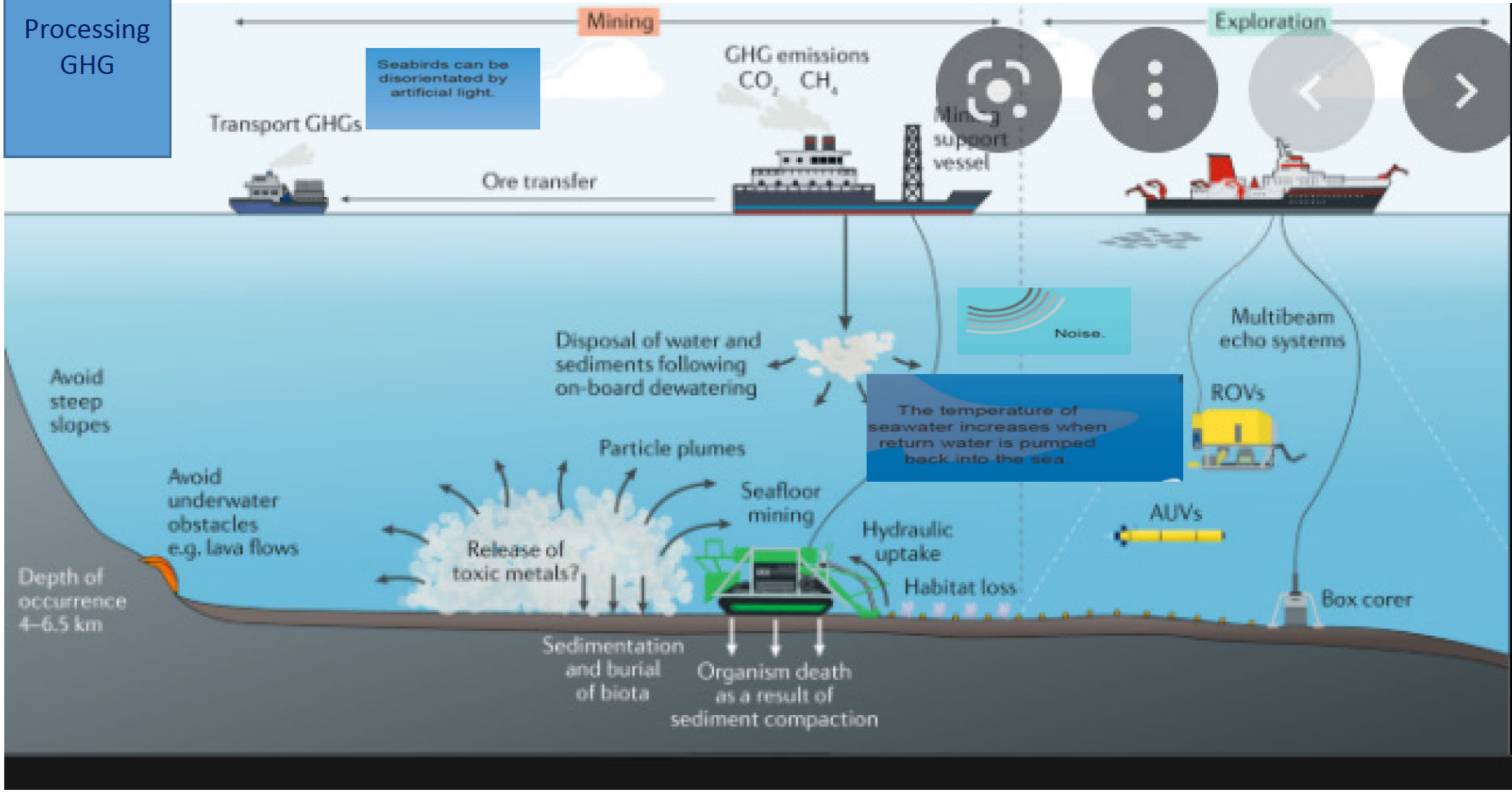
The CEO of **The Metal Companytaking the floor as… Nauru at the ISA meeting???**

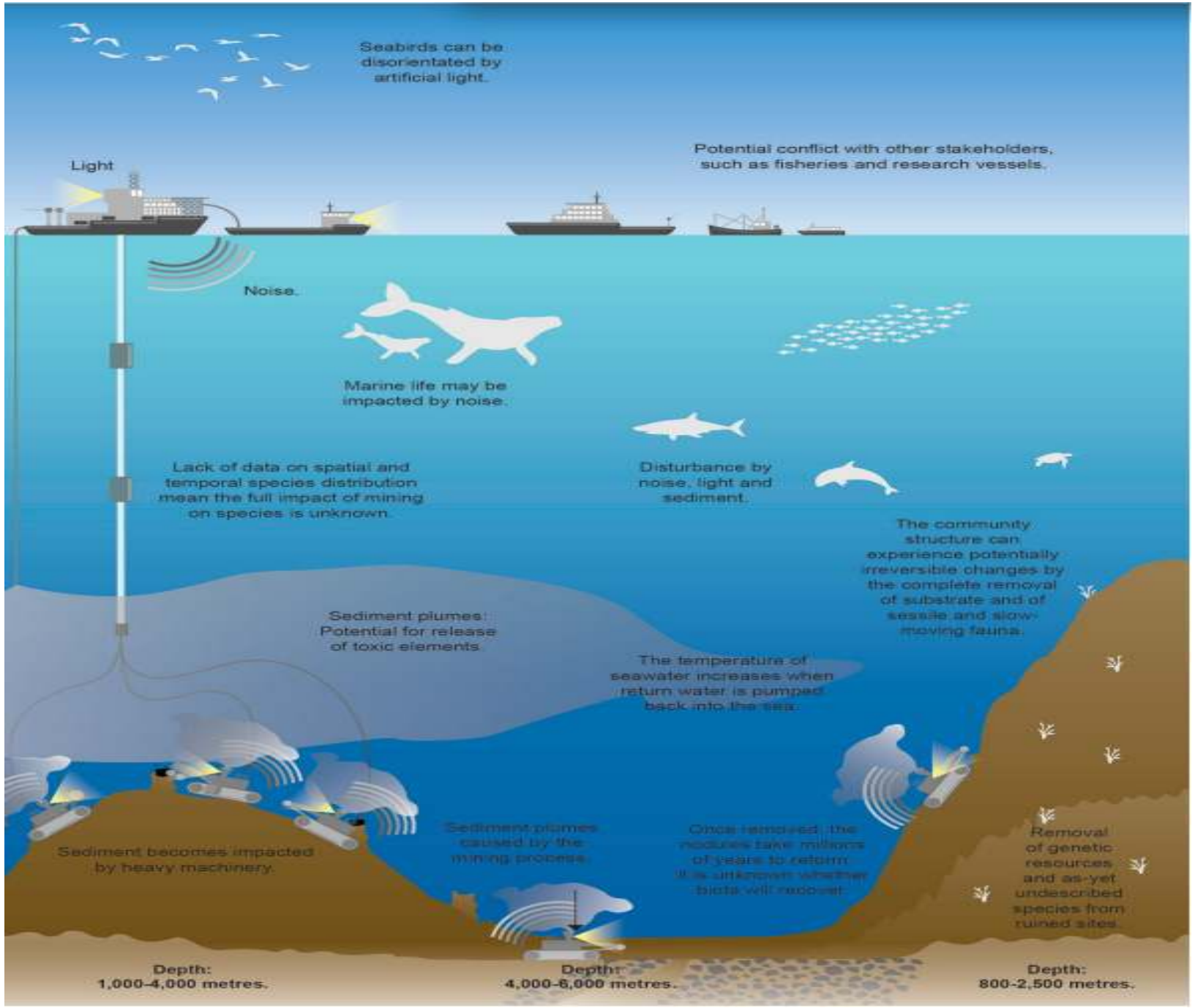


- [Interview: Gerard Barron, DeepGreen - 121 Mining Investment Cape Town 2019 – YouTube]
- DeepGreen est devenu The Metals Company Inc (TMC) Associé à Allseas (CH), Glencore PLC Offshore et Moller-Maersk A/S



Processing GHG




Seabirds can be disorientated by artificial light.
Light
Potential conflict with other stakeholders, such as fisheries and research vessels.
Noise.
Marine life may be impacted by noise.
Lack of data on spatial and temporal species distribution mean the full impact of mining on species is unknown.
Disturbance by noise, light and sediment.
The community structure can experience potentially irreversible changes by the complete removal of substrate and of sessile and slow-moving fauna.
Sediment plumes: Potential for release of toxic elements
The temperature of seawater increases when return water is pumped back into the sea.
Sediment becomes impacted by heavy machinery.
Sediment plumes caused by the mining process.
Once removed, the nodules take millions of years to return. It is unknown whether biota will recover.
Removal of genetic resources and as-yet undescribed species from ruined sites.
Depth: 1,000–4,000 metres.
Depth: 4,000–6,000 metres.
Depth: 800–2,500 metres.

Impacts du deep sea mining

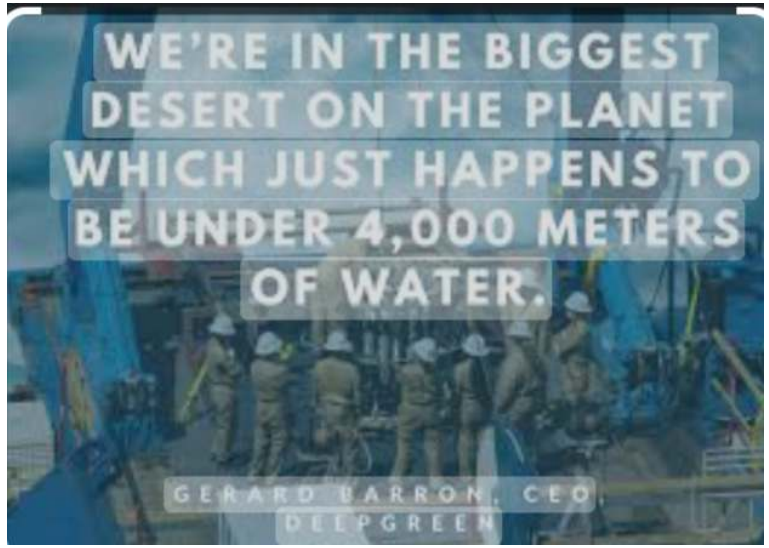


- Loss of habitats and its biodiversity
- Noise on surface and in sea (even low frequency noise travels 600km)
- Light above and below water
- Sediments in the area and water column (operational and discharge plumes) -> dispersion into different layers and horizontally (-> reduction of light and temperature, prey – visibility, clogging filter feeding for gelatinous zooplankton-> change in food chain, burial of organisms, etc.)
- Change in temperature (mixing top-low water layers in column)
- Toxic spills – metal pollution -> change in food chain (displacement of fish schools), limitation of CO2 sequestration
- Each mining operation would effectively strip mine **8,000-9,000 square kilometers of deep ocean seabed over a 30 year mining license period**.

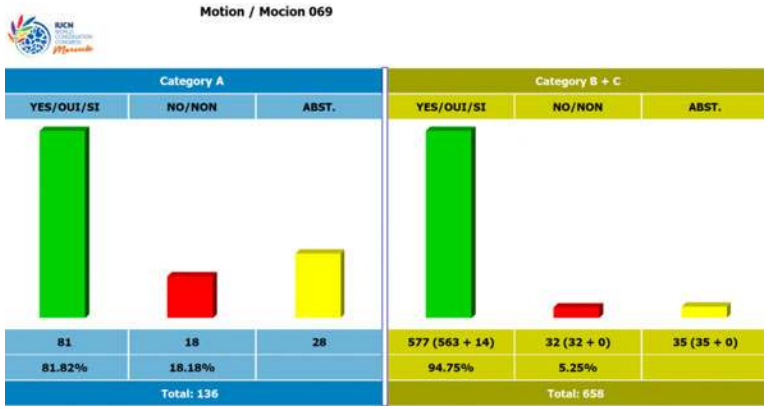
Dixit les futurs mineurs des plaines abyssales

- Fonds marins - un non-lieu, indistinct et éloigné, dont l'exploitation n'aurait pas d'impact humain et ce, malgré la présence des populations sur les îles avoisinantes. Eriger les fonds des océans en une *terra nullius* - terre vierge sans vie
  - « Forages en mer - éviter les conséquences sociales et environnementales désastreuses des mines terrestres: accidents, pénibilité, déplacement de populations, destruction d'écosystèmes, **déforestation, pas de travail des enfants** (!!!), etc. »
  - Site d'exploration Solwara 1, dans la mer de Bismarck dans le Sud du Pacifique, Nautilus Minerals: « une activité sismique si intense qu'y **forer aurait si peu d'impact que cela équivaudrait à fumer une cigarette ultra-light dans les fumées d'un volcan** »
  - CEO de The Metals Company (DeepGreen):

    « **Comme passer l'aspirateur sur un terrain de golf** »



Contexte international d'un moratoire



- **2021: décennie des Nations unies** pour les sciences océaniques au service du développement durable
- **2021 IUCN Congress**: moratorium on deep-sea mining until rigorous and transparent impact assessments are carried out, the social, cultural and economic risks understood, and the protection of the marine environment ensured. It also called on states to promote the reform of the International Seabed Authority (ISA) to ensure transparent and environmentally responsible decision-making and regulation. (069 - Protection of deep-ocean ecosystems and biodiversity through a moratorium on seabed mining | IUCN World Conservation Congress 2020 (iucncongress2020.org))
- le Parlement européen a adopté en 2018 une résolution sur la gouvernance des eaux internationales, qui demande l'arrêt du financement des explorations minières en eaux profondes et l'établissement d'un moratoire. En 2019 Textes adoptés - Stratégie de l'UE en faveur de la biodiversité à l'horizon 2030: ramener la nature dans nos vies - Mercredi 9 juin 2021 (europa.eu) le Parlement européen **« appelle la Commission et les États membres à promouvoir un moratoire sur le deep sea mining, y compris à l'Autorité internationale des fonds marins »**.

Résolution du Parlement européen du 16 janvier 2018 sur la gouvernance internationale des océans: un programme pour l'avenir de nos océans dans le contexte des objectifs de développement durable à l'horizon 2030 (2017/2055(INI))

- 42. demande à la Commission et aux États membres d'apporter leur soutien à un moratoire international sur les licences d'exploitation minière commerciale des grands fonds jusqu'à ce que les effets de l'exploitation minière des grands fonds sur le milieu marin, la biodiversité et les activités humaines en mer aient été étudiés et fait l'objet de recherches suffisantes et jusqu'à ce que tous les risques possibles soient compris;

- Textes adoptés - Gouvernance internationale des océans: un programme pour l'avenir de nos océans dans le contexte des objectifs de développement durable à l'horizon 2030 - Mardi 16 janvier 2018 (europa.eu)

Résolution du Parlement européen du 9 juin 2021 sur la stratégie de l'UE en faveur de la biodiversité à l'horizon 2030: Ramener la nature dans nos vies (2020/2273(INI))

- souligne que les grands fonds marins détiendraient la biodiversité la plus riche de la planète et offrent des services environnementaux indispensables, y compris une séquestration à long terme du carbone;
- souligne que **l'exploitation minière** des grands fonds marins risque très probablement de provoquer un appauvrissement inévitable et permanent de la biodiversité; insiste pour que le principe de précaution s'applique au secteur émergent de l'exploitation minière des grands fonds marins;
- rappelle sa résolution du 16 janvier 2018 sur la gouvernance internationale des océans[(98)] et invite la Commission et les États membres à **encourager un moratoire sur l'exploitation des grands fonds marins, y compris auprès de l'Autorité internationale des fonds marins**, jusqu'à ce que les effets de l'exploitation des grands fonds marins sur le milieu marin, la biodiversité marine et les activités humaines en mer aient fait l'objet d'études et de recherches suffisantes et que l'exploitation des grands fonds marins puisse être gérée de façon à ne provoquer aucune perte de biodiversité marine ni aucune dégradation des écosystèmes marins;
- souligne qu'il faut que la Commission mette fin au financement du développement de technologies d'exploitation minière des grands fonds marins conformément à **une économie circulaire fondée sur la réduction au minimum, le réemploi et le recyclage des minerais et des métaux**
- Textes adoptés - Stratégie de l'UE en faveur de la biodiversité à l'horizon 2030: ramener la nature dans nos vies - Mercredi 9 juin 2021 (europa.eu)

2022 UN Ocean Conference

- WORLD LEADERS AND PARLIAMENTARIANS CALL FOR URGENT ACTION TO HALT THE EMERGING DEEP-SEA MINING INDUSTRY - Deep Sea Conservation Coalition (savethehighseas.org)
- **Palau, Samoa, Fiji, Guam and 57 Parliamentarians (CH: M. Raphaël Mahaim et M. Nicolas Walder)**

Suisse- IP Walder 21.3633

Exploitation minière des grands fonds marins. Un indispensable moratoire

- 21.3633 | Exploitation minière des grands fonds marins. Un indispensable moratoire | Objet | Le Parlement suisse (parlament.ch)
- 1 Quelle est la position du Conseil fédéral sur l'exploitation minière des grands fonds marins? Est-il favorable à un moratoire sur la question ?
- 2 La Suisse, forte de son expertise en matière de gouvernance et au vu des enjeux majeurs pour notre planète, entend-elle s'engager dans la gouvernance au sein de l'Autorité internationale des fonds marins.
- **CF: Questions 1 et 2 : Il ressort de récentes recherches que l'exploitation commerciale des fonds marins dans le respect des règlements de l'ISA en vigueur ne suffisait plus à fournir la protection ad hoc du milieu marin. Le Conseil fédéral prend acte de ces nouveaux éléments et examine les mesures appropriées. Il examine également l'option d'un moratoire international en vue d'étudier plus précisément les répercussions environnementales de l'exploitation des ressources des fonds marins. Parallèlement il encourage les nouvelles technologies ainsi que les voies alternatives d'approvisionnement en matières premières.**
- **Pour réduire de manière globale les effets sur l'environnement des activités d'extraction, la Suisse déploie en outre des efforts au niveau multilatéral pour renforcer la réglementation en matière d'exploitation des matières premières minérales, notamment dans le cadre du Programme des Nations Unies pour l'environnement (PNUE), de l'Organisation de coopération et de développement économiques (OCDE) et de la Commission économique pour l'Europe des Nations Unies (CEE-ONU) mais aussi sur la base des travaux du Groupe international d'experts sur les ressources (International Resource Panel, IRP).**

Suisse – IP Walder 21.8174 Soutien de la Suisse au moratoire sur l'exploitation minière en eaux profondes ?

- 21.8174 | Soutien de la Suisse au moratoire sur l'exploitation minière en eaux profondes ? | Objet | Le Parlement suisse (parlament.ch)
- L'entreprise suisse Allseas équiperait déjà à Rotterdam son premier navire destiné à l'exploitation minière en eaux profondes. Ce navire est prévu de prendre la mer en 2022 pour des expéditions tests avant de démarrer l'exploitation à proprement parler.
- Lors du Congrès mondial de la nature de l'UICN en septembre dernier, l'OFEV avait déjà voté en faveur d'un moratoire sur l'exploitation minière en eaux profondes afin de protéger les écosystèmes et la biodiversité extraordinairement riche de ces fonds marins.
- Est-ce que la Suisse confirmera cette position lors de la 26ème session de l'assemblée de l'autorité internationale des fonds marins (ISA) qui se tient du 13 au 15 décembre 2021 à Kingston ?
- **CF: La question d'un moratoire sur l'exploitation minière en eaux profondes ne figure pas à l'ordre du jour de la 26e session de l'assemblée de l'autorité internationale des fonds marins qui se tiendra la semaine prochaine à Kingston. Aucune décision ne sera prise à ce sujet à cette occasion.**

Suisse IP Walder 21.4582 Moratoire sur l'exploitation des grands fonds marins. Quelle est la position du Conseil fédéral?

- 21.4582 | Moratoire sur l'exploitation des grands fonds marins. Quelle est la position du Conseil fédéral? | Objet | Le Parlement suisse (parlament.ch)
- Dans ce contexte, quand est-ce que le Conseil fédéral prévoit-il d'arrêter sa position ? Par ailleurs, entend-il soutenir activement les plaidoyers d'autres Etats et d'ONGs en faveur de ce moratoire ?
- **Les règles devant régir l'exploitation des fonds marins et relevant de la compétence de l'AIFM sont encore en cours d'élaboration et leur compatibilité avec la protection du milieu marin est à l'étude.**
- **L'AIFM n'a accordé à ce jour aucun permis pour l'extraction minière en haute mer et, partant, pour l'exploitation commerciale des fonds marins. Les seules autorisations accordées portent sur l'exploration des fonds marins. Ces activités doivent permettre de déterminer si l'exploitation minière en haute mer est techniquement possible et si elle peut être conçue dans le respect des exigences environnementales.**
- **L'organe de l'AIFM chargé d'élaborer les règles relatives à l'exploitation minière des fonds marins est le Conseil. Or la Suisse n'est pas représentée au Conseil, mais seulement à l'Assemblée. Compte tenu des exigences réglementaires et de l'évaluation de l'AIFM, on peut s'attendre à ce que le Conseil termine l'élaboration des règles et les soumette à l'examen de l'Assemblée d'ici 2023. Dans le cadre de cet examen, la Suisse se prononcera sur les règles relatives à l'exploitation minière des fonds marins en se fondant sur les propositions concrètes formulées par le Conseil et sur les derniers développements scientifiques.**

Deep sea mining – relation à la Suisse

- L'entreprise suisse Allseas équiperait déjà à Rotterdam son premier navire destiné à l'exploitation minière en eaux profondes. Ce navire est prévu de prendre la mer en 2022 pour des expéditions tests avant de démarrer l'exploitation à proprement parler.
- Deep-sea polymetallic nodule collection – Allseas
- 2020-0302-Allseas-acquires-ship-for-deep-sea-polymetallic-nodule-collection-in-partnership-with-DeepGreen.pdf
- 2021-0910-Allseas-congratulates-The-Metals-Company-on-merger-and-market-listing.pdf: alliance avec The Metals Company
- Glencore est associée à The Metals Company

Secteurs pour un moratoire ou exclusion Momentum for a Moratorium - Deep Sea Conservation Coalition (savethehighseas.org)

- Companies that support a moratorium on deep-sea mining and commit not to source minerals from the deep seabed; to exclude such minerals from our supply chains; and not to finance deep seabed mining activities:Samsung, automakers **BMW, Renault, Volkswagen and Volvo,** ScaniaPatagonia, Rivian, Google

- Companies explicitly distancing themselves from deep-sea mining by excluding deep-sea metals from their procurement policies and/or investment policies: Microsoft, Ford, Daimler, General Motors, Tiffany & Co
- Financial insitutions: ABN AMRO, BBVA, Cooperative Bank, Lloyds Banking Group, NatWest (previously Royal Bank of Scotland), Standard Chartered Bank, Triodos Bank
- Harmful marine extractives: Deep-Sea Mining – United Nations Environment – Finance Initiative (unepfi.org)

"In their current form, there is no foreseeable way in which the financing of deep-sea mining activities can be viewed as consistent with the Sustainable Blue Economy Finance Principles."

- Fishing: EU Advisory Councils (Long Distance, Pelagic & South-western Waters), International Pole and Line Foundation, Norwegian Fisheries Association, SATA (South Africa Tuna Association), SAHLLA (South African Hake Long Line Association)

Concerns around deep-sea mining Momentum for a Moratorium - Deep Sea Conservation Coalition (savethehighseas.org)

- The Norwegian Environment Agency
- The Norwegian Ministry of Climate and Environment
- The Institute for Marine Research in Bergen, Norway highlights the great lack of knowledge of the ecosystems in the areas where the government wants to open up for deep-sea mining
- The World Bank
- Tuvalu has withdrawn support for deep-sea mining in international waters
- EU Advisory Councils (Mediterranean Sea, North Sea, North-western & Outermost regions)
- UK House of Commons Environment Audit Committee concluded that deep-sea mining would have “catastrophic impacts on the seafloor”; the International Seabed Authority benefiting from revenues from issuing mining licenses is “a clear conflict of interest” and “the case for deep-sea mining has not yet been made”


Chrysomallon squamiferum

Von: [redacted]
An: [redacted] EDA [redacted]
Cc: [redacted]
Betreff: Re: [EXTERNAL] Re: request for an informal exchange
Datum: Montag, 12. Mai 2025 20:24:57
Anlagen: image001.png
Outlook-A blue tex.png

Thank you and will have a look.
Regards,
[redacted]

Follow us on LinkedIn, Instagram and Facebook

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: 12 May 2025 08:27
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

And PPS for your consideration, the Federal Council's take on Corporate Social Responsibility:
https://www.seco.admin.ch/seco/en/home/Aussenwirtschaftspolitik_Wirtschaftliche_Zusammenarbeit/Wirtschaftsbeziehungen/nachhaltigkeit_unternehmen/gesellschaftliche_verantwortung_der_unternehmen.html

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From: [redacted] EDA [redacted]
Sent: Friday, May 9, 2025 1:44 PM
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

Dear [redacted]

Thank you for having joined us in Bern. It was a pleasure meeting you. We really appreciated you coming and the possibility for an open informal exchange. As already mentioned, we are happy to continue discussions.

Thank you as well for the white paper. We will study it carefully. Please feel free to share any further information with us and to contact us in other matters, too.

Best regards from Basel,
[redacted]

[redacted]

Federal Department of Foreign Affairs FDFA
Directorate of International Law DIL
Swiss Maritime Navigation Office SMNO

Elisabethenstrasse 33, P.O.Box, CH-4010 Basel
SWITZERLAND
Ph: +41 58 [redacted]
Fax: +41 58 [redacted]
[redacted]@eda.admin.ch
www.smno.ch

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From: [redacted]@allseas.com>
Sent: Friday, May 9, 2025 9:16 AM
To: [redacted] EDA [redacted] <[redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: Re: [EXTERNAL] Re: request for an informal exchange

Hi [redacted]
Thank you for the time yesterday and I appreciate the opportunity for an informal exchange. I talked about a White paper prepared by Allseas with respect to deep-sea polymetallic nodule collection and I promised to send this by email.
Please find attached this white paper dated 1 may 2025.

Regards,
[redacted]

Follow us on LinkedIn, Instagram and Facebook

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: 30 April 2025 17:48
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

Perfect, let's fix it. I will get back to you with more information on the exact location!

From: [redacted]@allseas.com>
Sent: Wednesday, April 30, 2025 3:54 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: Re: [EXTERNAL] Re: request for an informal exchange

Dear [redacted]
Bern works for me. Shall we pencil in 10 am?

Regards,
[redacted]



Follow us on LinkedIn, Instagram and Facebook

From: [redacted] EDA [redacted] <[redacted]@eda.admin.ch>
Sent: 30 April 2025 14:42
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: RE: [EXTERNAL] Re: request for an informal exchange

Dear [redacted]

Many thanks for your swift reply.

We are based in Basel. Would it be possible to meet in Bern, in the middle, may 8 in the morning? We could organize a meeting room in Bern.

Best regards,

[redacted]

Federal Department of Foreign Affairs FDFA
Directorate of International Law DIL
Swiss Maritime Navigation Office SMNO

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From: [redacted]@allseas.com>
Sent: Wednesday, April 30, 2025 12:27 PM
To: [redacted] EDA [redacted] <[redacted]@eda.admin.ch>
Cc: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: [EXTERNAL] Re: request for an informal exchange

Dear [redacted]
I am writing in response to your email to [redacted] earlier today. Like [redacted] I am also involved in deep sea mining matters and am available to meet on Thursday, 8 May for an informal

exchange.

Would you prefer the meeting to be in person? Next week, I will be in Chatel-Saint-Denis and, depending on the location, I might be able to come to your office. Please let me know your preferred location.

Regarding the subject matter, would you like me to prepare anything specific or are there particular topics connected to this matter that you would like to address?

I look forward to our meeting next week.

Regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

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From: [redacted] EDA [redacted]@eda.admin.ch>
Sent: 30 April 2025 8:37 AM
To: [redacted]@allseas.com>
Cc: [redacted]@allseas.com>
Subject: DSM: request for an informal exchange

Dear [redacted]

I hope you are doing well and that it was possible to resolve the visa issue for your trainee with the help of the embassy.

As you know, the Swiss Maritime Navigation Office represents Switzerland at the ISA and is consulted on all matters relating to deep sea mining. Discussions on deep sea mining have recently intensified due to the developments in the USA.

Would you or someone from Allseas be available for an informal exchange with us, possibly the 5th or 8th May in the morning?

Thanks for getting back to me.

Kind regards from Basel,
[redacted]

Von: [redacted] BAFU
An: [redacted] EDA [redacted]
Cc: [redacted] BAFU
Betreff: TR: New memo: USA: Einseitige US-Rohstoffpolitik in der Hohen See wirft völkerrechtliche Bedenken auf
Datum: Mittwoch, 11. Juni 2025 10:14:00
Dringlichkeit: Hoch

---

p.i.

De : [redacted] EDA [redacted] @eda.admin.ch>
Envoyé : mercredi, 11 juin 2025 09:50
À : [redacted] SECO [redacted] @seco.admin.ch>; [redacted] EDA [redacted] @eda.admin.ch>
Cc : [redacted] BAFU [redacted] @bafu.admin.ch>; [redacted] SECO [redacted] @seco.admin.ch>; [redacted] SECO [redacted] @seco.admin.ch>
Objet : FW: New memo: USA: Einseitige US-Rohstoffpolitik in der Hohen See wirft völkerrechtliche Bedenken auf
Importance : Haute

Bonjour [redacted]

Nous (DDIP/OSNM, OFEV, DDC) avons eu, hier, un échange avec l'ambassade à Washington à propos de la politique américaine liée au Deap Sea Mining et, en particulier, sur les conséquences légales pour la Suisse. La discussion a notamment porté sur l'implication éventuelle d'entreprises suisses dans l'exploration et l'exploitation des grands fonds. Comme tu le sais, il s'agit à ce stade des entreprises [redacted] et Allseas.

Les choses se sont passé assez vite sur cet objet. L'ambassade à Washington a publié mercredi dernier un Memo (plus bas). En constatant qu'il manquait à l'analyse des conséquences pour la Suisse un examen de cette question, celle des entreprises suisse, j'ai levé la question en incluant l'OFEV, qui a ensuite sollicité l'OSNM. L'ambassade a été très réactive et proposé un échange, celui d'hier, qui s'est organisé quasi-spontanément.

L'échange a permis à l'OSNM et OFEV de présenter l'état des négociations au sein de l'ISA, des discussions à Nice et, surtout, de faire le point sur la position suisse (moratoire) et sur les contacts avec le secteur privé. Les sections économiques et légales de l'ambassade se sont montré très intéressées, à la fois pour affiner leurs tâche de veille stratégique, d'analyse et de représentation. Outre Nice, cette semaine, le prochain temps fort devrait être celui de la conclusion des négociations ISA en juillet pour le volet coopération internationale ; tout en tenant compte du fait que le volet américain suit sa propre trajectoire temporelle et légale (question des licences).

Nous pouvons en reparler à la prochaine occasion. Vous pourriez en effet devoir être impliqués le jour où il pourrait y avoir des questions de responsabilité éventuelle des entreprises, si ça n'est pas déjà le cas.

C'est pourquoi je voulais te tenir informé et savoir à quel point cela vous concerne ? De mon côté, je souhaite juste faciliter la coordination WOGA et la cohérence des politiques sur ce point.

Merci.

[redacted]

From: [redacted] BAFU [redacted] @bafu.admin.ch>
Sent: Wednesday, June 4, 2025 8:10 AM

To: [redacted] EDA [redacted] <[redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] [redacted] BAFU [redacted]@bafu.admin.ch>
Subject: RE: New memo: USA: Einseitige US-Rohstoffpolitik in der Hohen See wirft völkerrechtliche Bedenken auf

Cher.e.s collègues, cher [redacted]

Je remercie également cette analyse depuis la perspective de notre représentation à Washington.

Merci à [redacted] d'avoir soulevé la question de Allseas qui est un élément-clé pour la Suisse. La question de l'implication de Allseas et de la responsabilité de la Suisse a eu beaucoup de visibilité dans les médias notamment suisses récemment, et aussi au niveau parlementaire. Cet intérêt s'est cristallisé sur le rôle de la Suisse depuis l'annonce par TMC du dépôt de sa demande aux US fin avril. Elle soulève en effet de nombreuses questions, notamment juridiques.

L'OSNM, qui est chef de file pour le dossier ISA suit de près et analyse actuellement ces développements et les questions que tu soulèves ci-dessous, @[redacted] EDA [redacted] Je mets en copie [redacted], responsable du dossier à l'OSNM et en son absence, le chef de l'OSNM, [redacted] pour un éventuel complément de leur part.

Pour ma part, je couvre le dossier ISA pour l'OFEV qui soutient l'OSNM pour les aspects environnementaux et représente également la Suisse aux négociations ISA. Il est prévu que je participe à la prochaine session de négociations de juillet. Ainsi, je serai intéressée à mieux comprendre comment les discussions se développent aux US. De manière générale, je vous remercie de rester vigilants sur ce thème et nous informer au besoin. @[redacted] EDA [redacted] serait-ce possible de fixer un échange téléphonique à ce sujet ces prochains jours ?

Cordialement,

[redacted]
Federal Department of the Environment,
Transport, Energy and Communication DETEC
Federal Office for the Environment FOEN
International Affairs Divison
Europe, Trade and Cooperation on Development Section
Postal address: FOEN, CH-3003 Bern

Tel. +41 (0)58 [redacted] / Mob. +41 (0)[redacted]
[redacted]@bafu.admin.ch
www.bafu.admin.ch

De : [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Envoyé : mercredi, 4 juin 2025 13:45
À : [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Cc : [redacted] EDA [redacted] <[redacted]@eda.admin.ch>; [redacted] BAFU [redacted]@bafu.admin.ch>; [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Objet : RE: New memo: USA: Einseitige US-Rohstoffpolitik in der Hohen See wirft völkerrechtliche Bedenken auf

Cher [redacted] chère [redacted]

Merci pour l'analyse proposée concernant le Deep Sea Mining et les défis présentés par la nouvelle posture de l'administration américaine.

Sur le plan des conséquences pour la Suisse, il aurait toutefois pu être judicieux de soulever dans l'analyse le fait que l'un des principaux partenaires opérationnel de The Metals Company (TMC) est une entreprise de sous-traitance basée à Fribourg, l'entreprise Allseas, fournisseur d'équipements et de services pour la construction offshore, et qu'une implication possible de [redacted] ne doit pas être exclue non plus.

Si ces faits étaient avérés, il faudrait alors pousser l'analyse encore plus loin et examiner la question des responsabilités tierces, liées à l'implication d'acteurs privés dans la mise en œuvre de ces décisions, notamment d'entreprises ayant leur siège dans un Etat signataire et, qui plus est, qui défend le moratoire. L'imbroglio juridique, diplomatique et politique n'est pas sans risques pour la Suisse.

Avez-vous pensé à engager un dialogue et/ou inclure la perspective d'autres services dans votre analyse ? Je copie nos collègues de l'AWN et de l'OFEV, qui pourraient certainement apporter plus d'éléments. [redacted] était avec la délégation Suisse à Kingston pour la 30ème session de l'ISA en mars.

De mon côté, je couvre les questions de cohérence des politiques pour le développement durable à la DDC. Je relève cette information et la porte à votre attention dans le but d'équilibrer et d'approfondir l'analyse, le cas échéant. J'appuie les travaux de la coordination interdépartementale sur les matières premières, dont le lead est partagé par le SECO, le DFAE et le SIF (Rohstoff Platform). Au DFAE, c'est la DPDH qui a le lead.

Merci beaucoup pour votre analyse et les questions qu'elle soulève, très utile pour la réflexion d'ensemble

Meilleures salutations depuis Zollikofen.

[redacted]

[redacted]
Analysis and Research Section A&R
Swiss Agency for Cooperation and Development SDC

From: CH@World [redacted] EDA [redacted] <noreply@eda.admin.ch>
Sent: Tuesday, June 3, 2025 10:20 PM
To: CH@World - Favourites <favourites@chatworld.eda.admin.ch>
Subject: New memo: USA: Einseitige US-Rohstoffpolitik in der Hohen See wirft völkerrechtliche Bedenken auf

The following memo has just been added to CH@World.

USA: Einseitige US-Rohstoffpolitik in der Hohen See wirft völkerrechtliche Bedenken auf | Memo

Memo > Domestic and Foreign Policy United States of America > United States of America > Americas > Bilateral

Facts
Am 24.4. veröffentlichte US-Präsident Trump den Präsidialerlass *«Unleashing America's Offshore Critical Minerals»* (*Freisetzung «offshore»-kritischer Mineralien und Ressourcen der USA*). Ziel der Anordnung ist es, die USA als führende Nation in der Tiefseeexploration und der Gewinnung mineralischer Rohstoffe aus dem Meeresboden zu positionieren.

Die Anordnung hebt das geopolitische und sicherheitsrelevante Interesse der USA an einer unabhängigen Versorgung mit kritischen Mineralien, insbesondere strategisch relevanten Metallen wie Nickel, Kobalt, Kupfer, Mangan, Titan und Seltenen Erden, hervor. Die Förderung des Rohstoffabbaus sieht die Administration als bedeutend zur Reduktion der Abhängigkeit von ausländischen, insbesondere chinesischen, Rohstofflieferanten. Der Erlass sieht u.a. vor, die Erschliessung von Rohstoffen in ausgedehnten Offshore-Gebieten zu forcieren, eine robuste inländischen Wertschöpfungs- und Lieferkette aufzubauen, Forschung und Investitionen in Tiefseewissenschaft, Meereskartierung und relevante Schlüsseltechnologien zu fördern und regulatorische Verfahren zu beschleunigen.

Die Anordnung bezieht sich in erster Linie auf innenpolitische und strategische Fragen. Dennoch sieht sie vor, Genehmigungen zur kommerziellen Gewinnung von mineralischen Rohstoffen in Gebieten jenseits nationaler Hoheitsgewalt der USA zu erteilen. Auf die EO gestützt hat die «The Metals Company USA» am 29.4. einen Antrag für eine Lizenz zur kommerziellen Ausbeutung von Tiefseemineralien gestützt auf den *Deep Seabed Hard Mineral Resources Acts*, d.h. auf Grundlage nationalen US-Rechts. Damit berührt die Anordnung grundlegende völkerrechtliche Fragen.

Evaluation
Das Seerechtsübereinkommen der Vereinten Nationen (*SRÜ/United Nations Convention on the Law of the Sea, UNCLOS, SR 0.747.305.15*), das USA nie ratifiziert haben, regelt umfassend die souveränen Rechte und Zuständigkeiten von Staaten in den an ihre Küsten angrenzenden Meereszonen. Es unterscheidet dabei zwischen dem Küstenmeer, der ausschliesslichen Wirtschaftszone (bis zu 200 Seemeilen von der Küste) und dem erweiterten Festlandsockel sowie der Hohen See. In den erstgenannten Zonen stehen dem Küstenstaat weitreichende souveräne Rechte zur Erforschung und Ausbeutung der natürlichen Ressourcen im Wasser, auf dem Meeresboden und im Untergrund zu. Der weitaus grösste Teil der mineralischen Ressourcen des Meeresbodens befindet sich jedoch in der Hohen See. Diese Gebiete jenseits nationaler Hoheitsgewalt unterliegen dem Regime des SRÜ sowie der Zuständigkeit der Internationalen Meeresbodenbehörde (International Seabed Authority, ISA, in Kingston, Jamaika), die auf Grundlage des SRÜ eingerichtet wurde und für die Regulierung und Überwachung von Tätigkeiten im internationalen Meeresbodenbereich verantwortlich ist. Ziel ist es, sicherzustellen, dass derartige Tätigkeiten zum Wohle der gesamten Menschheit erfolgen. Zugleich obliegt der ISA die Verantwortung, die Meeresumwelt vor nachteiligen Auswirkungen potenzieller Tiefseebergbauaktivitäten wirksam zu schützen. Entsprechend müssen Erkundungs- und Ausbeutungstätigkeiten in der Hohen See unter der Kontrolle der Behörde durchgeführt werden

Die ISA äusserte sich in einem Statement vom 30.4. kritisch gegenüber dem Vorhaben der USA. Die im Präsidialerlass vorgesehene einseitige Erteilung von Genehmigungen durch die USA für Aktivitäten in Gebieten der Hohen See würde das multilaterale Verwaltungsregime untergraben. Die USA sind kein Vertragsstaat des SRÜ und vertreten daher wohl die Auffassung, dass sich in extraterritorialen Gewässern befindliche mineralische Ressourcen herrenloses Gut (*res nullius*) darstellen. Folglich sehen sie sich nicht an das Genehmigungsregime der Internationalen Meeresbodenbehörde (ISA) gebunden. Gleichwohl haben sich die USA über die letzten 30 Jahre als verlässlicher Beobachter und massgeblicher technischer Beitragender aktiv an den Verhandlungen und der regulatorischen Ausgestaltung der ISA beteiligt. Zudem haben sie das Übereinkommen vom 28. Juli 1994 zur Durchführung des Teiles XI des Seerechtsübereinkommens der Vereinten Nationen vom 10. Dezember 1982 (*Agreement Relating to the Implementation of Part XI, SR 0.747.305.151*) unterzeichnet, wenngleich nicht ratifiziert. Ziel dieses Durchführungsübereinkommens war genau die

Etablierung eines gemeinsamen Verwaltungsrahmens für die Hohe See und deren mineralische Ressourcen.

Überdies spiegeln die im SRÜ vorgenommenen Klassifizierungen der verschiedenen Zonen sowie der Nutzungsmöglichkeiten im Weitesten die allgemeinen Grundsätze des Völkerrechts sowie Völkergewohnheitsrecht wider und erklärt die Hohe See und ihre Ressourcen zum *Gemeinsamen Erbe der Menschheit*. Das Prinzip des Gemeinsamen Erbes der Menschheit, gilt heute als zentraler Grundsatz der internationalen Meeresordnung und findet breite Anerkennung in der Völkerrechtsgemeinschaft. Eine unmittelbare Folge dieses völkerrechtlichen Status ist, dass kein Staat Hoheitsrechte oder souveräne Rechte über irgendeinen Teil dieser Zone oder ihre mineralischen Ressourcen beanspruchen, erwerben oder ausüben darf. Im Rahmen der ISA wurde von mehreren Delegationen die Auffassung vertreten, dass dieses Prinzip den Rang des Völkergewohnheitsrechts erreicht habe und damit auch für Nichtvertragsstaaten des SRÜ, also auch die USA, verbindlich sei. Es wurde argumentiert, dass durch eine langjährige und konsistente Staatenpraxis insbesondere Teil XI des SRÜ sowie das Durchführungsübereinkommen von 1994 als verbindliche Normen des allgemeinen Völkerrechts anerkannt seien. Durch die einseitige Ausbeutung von Ressourcen aus der Hohen See verstossen die USA damit eventuell gegen Regeln des Völkerrechts, reizen aber auf jeden Fall dessen Grenzen aus.

Am 19.12.2023 gab das US-Aussenministerium erstmals die Aussengrenzen des erweiterten Festlandsockels («Extended Continental Shelf (ECS)») der USA bekannt. Dieser bestimmt sich nach Art. 76 des SRÜ. Den Inhalt von Art. 76 UNCLOS anerkennen die USA jedoch als Völkergewohnheitsrecht. Dies stellte bereits einen historische Schritt der USA dar, um ihre Hoheitsrechte an riesigen zusätzlichen Unterwassergebieten zu sichern und damit künftige wirtschaftliche Interessen zu schützen. Mit der neuerlichen Anordnung wird der Hoheitsanspruch nun noch weiter ausgedehnt.

Consequences for Switzerland
Obwohl die Schweiz als Binnenland von dieser Praxisänderung der USA nicht direkt betroffen ist, so offenbart dieses Verhalten dennoch die ambivalente Haltung der USA gegenüber dem Völkerrecht: Einerseits tragen sie über Jahrzehnte im Rahmen der ISA konstruktiv zur Ausgestaltung internationaler Normen bei. Andererseits behalten sie sich in entscheidenden Momenten das Recht vor, sich einseitig über bestehende oder entstehende völkerrechtliche Ordnungen hinwegzusetzen, wenn dies mit ihren nationalen Interessen kollidiert, was die multilaterale Zusammenarbeit im Bereich der Hohen See gefährden könnte. [redacted]

[redacted] EDA [redacted]
EDA - Vertretung Washington

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[redacted] EDA [redacted]

[redacted] EDA [redacted]

EDA - DEZA

[redacted] EDA [redacted]

[redacted] EDA [redacted]

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[redacted] EDA [redacted]

EDA - DR

[redacted] EDA [redacted]

EDA - DV

[redacted] EDA [redacted]

[redacted] EDA [redacted]

EDA - GS

[redacted] EDA [redacted]

EDA - UNA

[redacted] EDA [redacted]

EDA - Vertretung Beijing

[redacted] EDA [redacted]

EDA - Vertretung Bogota

[redacted] EDA [redacted]

EDA - Vertretung Brüssel (EU)

[redacted] EDA [redacted]

[redacted] EDA [redacted]

[redacted] EDA [redacted]

EDA - Vertretung Canberra

[redacted] EDA [redacted]

EDA - Vertretung Colombo

[redacted] EDA [redacted]

EDA - Vertretung Genf

[redacted] EDA [redacted]

[redacted] EDA [redacted]

EDA - Vertretung Harare

[redacted] EDA [redacted]

EDA - Vertretung Maskat

[redacted] EDA [redacted]

EDA - Vertretung New York (UNO)

[redacted] EDA [redacted]

EDA - Vertretung Oslo

[redacted] EDA [redacted]

EDA - Vertretung Paris (OECD)

[redacted] EDA [redacted]

[redacted] EDA [redacted]

EDA - Vertretung Washington

[redacted] EDA [redacted]

[redacted] EDA [redacted]

[redacted] EDA [redacted]

[redacted] EDA [redacted]

[redacted] EDA [redacted]

PD

[redacted] PD

VBS - AR

[redacted] ARMASUISSE

WBF - SBFI

[redacted] SBFI

WBF - SECO

[redacted] SECO

Von: [redacted]@allseas.com>
Gesendet: Donnerstag, 2. Juli 2026 08:06
An: [redacted] EDA [redacted]
Cc: [redacted]
Betreff: RE: [EXTERNAL] RE: Informal dialogue

Dear [redacted]

Thank you for the constructive meeting on Monday.

We discussed maintaining open lines of communication through regular exchanges. In that context, we also mentioned a follow-up discussion later this year. Would early October work for you?

Regarding the questions posed to the Federal Council, please find below some additional context on Allseas' position, consistent with our discussions. In particular, the final bullet point is relevant to the questions raised. We value a measured and procedurally correct approach, one that avoids drawing premature conclusions based on assumptions about corporate structures, speculative scenarios, or one-sided legal interpretations.

- While recognising differing views and interpretations on deep-sea mining, Allseas remains firmly committed to the responsible collection of deep-sea minerals.

- Based on extensive research, Allseas advocates the responsible collection of polymetallic nodules from the seabed to help meet growing demand for critical metals.

- Critical metals are the backbone of our daily lives – from everyday devices such as smartphones and laptops to wind turbines, solar panels and battery storage. They are also essential for vital infrastructure such as electricity grids, satellites, data centres and defence applications, helping to safeguard our security.

- Demand for these metals is increasing and, according to the International Energy Agency (IEA), is expected to grow sevenfold by 2040. Supply remains scarce, while current mining and recycling activities fall short. In addition, extraction and processing are concentrated in a limited number of countries, creating undesirable dependencies. New sources of supply are essential to safeguard (Western) strategic autonomy.

- The importance of these metals is too great and too wide-ranging to reduce the debate to ecology alone. It is time recognise a broader narrative – one in which ecological considerations are essential, but economic and geopolitical realities are also taken into account.

- Allseas is a global technology leader in the responsible collection of deep-sea polymetallic nodules. We are convinced that this form of deep-sea mining makes an important contribution to the supply of essential metals that are difficult to obtain due to geopolitical circumstances.

- Based on thorough scientific and environmental research conducted during more than 300 exploration campaigns since the 1960s, Allseas is convinced that its technology can be deployed responsibly and offers a sustainable alternative to the extraction of these metals on land.

- Under the United Nations Convention on the Law of the Sea (UNCLOS), the International Seabed Authority (ISA) was mandated to adopt the Mining Code by July 2023. To date, the ISA has not done so, failing to fulfil its obligation.

- As a result, Allseas' strategic partner, The Metals Company (TMC), felt compelled to apply for licences for both exploration and commercial recovery of deep-sea minerals, under existing US legislation.

- Allseas supports TMC's efforts to advance deep-sea mineral exploitation within a transparent and fully developed regulatory framework. In the current context of this route via the US, there appear to be two differing legal opinions. This highlights the urgent need for the ISA to establish the Mining Code to provide legal certainty for responsible deep-sea mineral activities.

- We will proceed with deployment of our mineral collection system only once we are confident that all relevant regulatory conditions are satisfied, and that the approach to deep sea mineral exploitation maintains the high standards of diligence and environmental responsibility demonstrated throughout its development.

NB: As promised, I am sharing this interesting podcast on the international legal framework.

Kind regards,

[redacted]

[redacted]

Allseas Engineering B.V.

Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]



From: [redacted] EDA [redacted] @eda.admin.ch>
Sent: Thursday, June 18, 2026 5:00 PM
To: [redacted] @allseas.com>
Subject: RE: [EXTERNAL] RE: Informal dialogue

Dear [redacted]

Yes, it shouldn't be a problem to have the meeting in Ben.

Best regards,
[redacted]

From: [redacted] @allseas.com>
Sent: Thursday, June 18, 2026 4:53 PM
To: [redacted] EDA [redacted] @eda.admin.ch>
Subject: RE: [EXTERNAL] RE: Informal dialogue

Dear [redacted]

Thank you for scheduling the meeting.

I was wondering if it is feasible from you end to have the meeting in Bern. When we have a location we can adjust our schedules accordingly. Thank you in advance!

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]



From: [redacted]
Sent: Wednesday, June 17, 2026 12:58 PM
To: [redacted] EDA [redacted] @eda.admin.ch>
Subject: RE: [EXTERNAL] RE: Informal dialogue

Dear [redacted]

Do you already have more clarity on your availability? If so, we can adjust our schedules accordingly.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: Monday, June 15, 2026 1:36 PM
To: [redacted]@allseas.com>; [redacted]@allseas.com>
Cc: [redacted]@allseas.com>
Subject: RE: [EXTERNAL] RE: Informal dialogue

Thanks, I will get back to you asap!

From: [redacted]@allseas.com>
Sent: Thursday, June 11, 2026 12:05 PM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted]@allseas.com>
Cc: [redacted]@allseas.com>
Subject: RE: [EXTERNAL] RE: Informal dialogue

Dear [redacted]

Of course. I am sure we can find a suitable moment in our tight schedules.

One alternative date would be 30 June between 10:30 and 12:00.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: Thursday, June 11, 2026 10:54 AM
To: [redacted]@allseas.com>; [redacted]@allseas.com>
Cc: [redacted]@allseas.com>
Subject: RE: [EXTERNAL] RE: Informal dialogue

Dear [redacted]

Thank you for your swift reply.

I will check if this date suits us internally. I already have a meeting then, but I may be able to reschedule if others can make it. Could you perhaps send me one or two alternative dates, to facilitate my planning?

Kind regards,
[redacted]

From: [redacted]@allseas.com>
Sent: Thursday, June 11, 2026 10:00 AM
To: [redacted] EDA [redacted] [redacted]@eda.admin.ch>; [redacted]@allseas.com>
Cc: [redacted]@allseas.com>
Subject: [EXTERNAL] RE: Informal dialogue

Dear [redacted]

Thank you for your e-mail.

We would welcome the opportunity to continue our informal dialogue.

Before the summer, [redacted] and I are available for an in-person meeting in Bern on 29 June between 10:30 and 12:00. Would that work for you?

If not, I would be happy to find another time that suits your schedule.

Kind regards,

[redacted]

Allseas Engineering B.V.
Poortweg 12 | 2612 PA Delft | The Netherlands

Tel. +31 [redacted] | Mob. +31 [redacted]

From: [redacted] EDA [redacted] [redacted]@eda.admin.ch>
Sent: Wednesday, June 10, 2026 6:15 PM
To: [redacted]@allseas.com>; [redacted]@allseas.com>
Subject: Informal dialogue

Dear [redacted] dear [redacted]

I hope you this email finds you well.

I was wondering if you would be available in the next few weeks to continue our informal dialogue, preferably before the summer holidays?

Best regards,

[redacted]

[redacted]

Federal Department of Foreign Affairs FDFA

Directorate of International Law DIL
Swiss Maritime Navigation Office SMNO

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