

Deep sea mining: Exploring the unknowns

Multi-stakeholder conference – 26th April 2016, Brussels
Minutes

Introduction

This Seas At Risk (SAR) – Deep Sea Conservation Coalition (DSCC) multi stakeholder event on deep sea mining brought together some 70 participants from industry, NGOs, policy makers and scientists to exchange views on the need for deep sea mining and to take stock of the state of play of research, regulations and technology. It was a day full of lively debates, showing how stakeholders are keen to link up around this topic and identify the gaps in knowledge that still need to be filled. It also showed that technology and industry are progressing fast towards the development of the capability to mine the deep-sea and the International Seabed Authority is proceeding with developing exploitation regulations.

Keynote speeches

On the issue of the need for deep sea mining, views were diverse. Lowri Evans, Director General of the DG GROW, kicked off the day by putting deep sea mining in the context of the EU's Raw Materials Initiative and the circular economy strategy. She explained how secure and sustainable access to raw materials is a critical factor for the competitiveness of the EU economy, contributing to boost jobs and growth. She stressed the importance of sustainability, and acknowledged that in that respect deep sea mining is one of the most controversial sectors of the Blue Growth strategy. With low recycling rates of various metals, the circular economy's aim is to set stronger recycling targets and quality standards for products. However, with growing world population and global demand on the rise, extra primary production will be needed. The EU has some of the highest environmental and social standards and regulations for mining operations, and can play an important role in developing and implementing a robust regulatory framework. Ms Evans concluded it is important to continue to support research through the Horizon2020 programme and other means, and to increase knowledge of deep sea minerals and related environmental issues.

The conference brought out the scientist in MEP Ricardo Serrão Santos, who gave an insightful presentation about the vulnerability of the deep sea ecosystems, the many gaps in knowledge about species and habitats, the conflict with marine protected areas e.g. around the Azores. He noted that to the best of our current knowledge, the environmental conditions in abyssal deep sea areas, such as the Clarion Clipperton Zone (CCZ), tend to be relatively stable, and hence the local ecosystems are unaccustomed to environmental disturbances, such as those expected to be associated with deep sea mining. The incomplete ecosystem recovery in areas of the CCZ, for example, where manganese nodules have been extracted is an illustration. The extent of the global area covered by many deep sea habitats and their characteristics are still largely unknown, and the proportion studied to date is minimal. Serrão Santos put deep sea mining in the context of the global growing demand for raw materials and showed the importance of ensuring traceability of raw materials supply. He referred to the 2015 study by the European Parliament's STOA (Science and Technology Options Assessment), which considered the technical and environmental aspects, and recommended the promotion of recycling to lower the need for DSM. Identifying Ecologically or Biologically Significant Areas is crucial as well. Serrão Santos referred to Greenpeace's campaign to protect 40% of the seas and quoted Edward O. Wilson 'We Got the Whole World in Our Hands; We Should Give Half of it Back'.

Session 1: **Where are we going: Assessing the need for deep sea mining**

Sybille van den Hove (MEDIAN) reminded us of the EU's 2050 vision of 'living well within the limits of our planet', as spelled in the Union's 7th Environment Action Programme (7th EAP.) She emphasised the need to step back and reflect, and proposed a phased approach, to give time for a step-by-step learning process in adaptive management. Given the many unknowns, looking at alternatives is key.

Ann Dom (Seas At Risk) saw the precautionary alternatives within the circular economy. She also referred to the 2050 vision of the EAP and emphasised that the vision of a circular economy goes much beyond merely recycling. It would entail a transition to a new economy, a fundamental system change, with reduction of demand for minerals through waste prevention, reuse, redesign, recycling as key elements, but also through new ways of consuming, e.g. the sharing economy. She called for an independent assessment for the future need for deep sea mining against this framework, bearing in mind that the

materials needed in future may be different than today's, and including an assessment of alternatives such as landfill mining and urban mining.

Sven Teske of the University of Sydney presented results of a study into a 100% renewable energy future and how demand for raw materials would evolve. He concluded that deep sea mining would not be essential to provide the additional materials needed to support a renewables based economy, provided recycling is further developed.

Robert van de Ketterij (IHC MTI), representing the technology industry, explained how industry is gearing up for test mining and is confident that deep sea mining will be profitable. He explained the increasing need for materials like cobalt and nickel for rechargeable batteries in electric cars, phones, laptops E-bike etc. The expectation is that already in the coming year there will be a shortage in supply for many metals. He also explained that most of these materials are not freely available on the world market as countries like China control the major part of this market. He also issued a strong message about the weak recycling targets set by the EU (only 40% of batteries are to be recycled under EU legislation, for example) and how households in particular should step up recycling of batteries and electronic devices. However, recycling alone will never provide all required materials. The key problem is that the deep sea exploitation regulation is still missing and this constitutes a risk for industry.

Flor Diaz Pulido (DG GROW) explained how the European Commission, by being involved in the development of International Seabed Authority (ISA) regulation, could help steer it to ensure EU values are taken into account. EU member states such as France, Belgium, Germany and the UK also have a role to play. The EU has the highest sustainability standards in the world and we need to ensure DSM is done in a sustainable manner. The Commission is technologically neutral and therefore will not take any position on the need for deep sea mining and on comparisons with other types of mining - this is to be driven entirely by market mechanisms.

In the panel debate, steered by Torsten Thiele, Phil Weaver highlighted that research funding has been successful in bringing together a community of scientists but was too often granted only to short term projects. Sybille van den Hove pointed out that EU and other research is very much focused on technological development, with too little effort made on assessing potential risks of technologies, but Flor Diaz Pulido challenged that saying that this balance had been adjusted. Ricardo Serrão Santos made the case for the creation of a European Ocean Agency to pool knowledge on the seas and marine environment.

Matthew Gianni emphasised the EU's role in pioneering the development of the precautionary principle and the need to apply it effectively in relation to the deep-sea, about which little is known. He also stated that it is important to recognize the distinction between whether deep sea mining is needed to provide for society's needs as opposed to being merely economically feasible. Sybille van den Hove suggested perseverance and the proposing of alternative models, while challenging the idea that precaution is anti-innovation: the EEA report '[Late lessons from early warnings: science, precaution, innovation](#)' shows that application of the precautionary principle actually boosts innovation.

Jane Feehan of the European Investment Bank asked whether the panel viewed any safe starting point for DSM, or is it to be considered inherently unsafe? Ann Dom suggested that without a set of strong regulations and an established coherent network of MPAs, she could not see any. The broader social perspective was also discussed, such as the potential benefits (or not) for small islands. John Hannes of JPI Oceans emphasised the need to ensure benefits are shared (as we are speaking about the Common Heritage of Mankind). Sybille van den Hove pointed out we also need to consider the benefits of leaving materials in the ground. She also pointed to many mistakes made in the past and how the Commission does indeed have a way of influencing the market by its targeting of research funds and through regulations. Christopher Mann (Pew) pointed out that Europe has led the way in the precautionary principle approach, but this approach is not reflected in the ISA process, which has little intellectual backing, and there is a feel that the current process is geared to get regulations as soon as possible so that mining can begin. He

questioned the economic case for deep sea mining and called for a financial mechanism to ensure revenues are reinvested into things that are of value, a fiscal regime to ensure redistribution.

Session 2: Where are we now: exploring deep sea mining's current status

The afternoon session looked into the state of research on the environmental impacts, as well as the governance and technology developments.

Prof Phil Weaver (Seascope Consultants Ltd) presented some results of the MIDAS project, showing that much is still unknown and that further research is needed. He explained how impacts and the length of time to recover differ according to the type of mining and the geographic area. He showed the importance of mitigating plume formation. MIDAS also looked into some ideas for restoration of the ecosystem after mining, but it is as yet very unclear if those would be effective. Long monitoring times are needed to really assess impacts. The importance of Areas of Particular Environmental Interest was also discussed, as was the establishment of buffer zones between mining areas. With MIDAS contract coming to an end in October 2016, it is clear that follow up research is much needed.

David Billet (Deep Sea Environmental Solutions Ltd) gave a comprehensive overview of how the International Seabed Authority operates, where it is at with the development of an exploitation regulation, what the role of the EU is and how stakeholders are being involved. He showed the steep increase in the number of exploitation permits of the last years. The environmental issues in the ISA's draft exploitation regulations include definitions (of Vulnerable Marine Ecosystems and 'serious harm'), adaptive management, Strategic Environmental Assessment, Environmental Impact Statement, environmental and regional management and monitoring plans as well as environmental bonds, insurances, compliance, and a Seabed Sustainability Fund.

Kris Van Nijen (DEME - GSR) explained how industry is ready to start testing technologies with a view to beginning operations within 6-8 years. He also stressed the need for a clear legal framework as this would give companies certainty about the limits within which to operate and confidence that DSM could occur in a manner that avoid excess damage to the environment.

Matthew Gianni (DSCC) reminded us that the deep sea is one of the largest reserves of biodiversity on the planet. The issue is how to determine the risks and the acceptable levels of damage (recognizing the slow growth rates of many deep sea species, the potential for limited or no recovery from mining impacts, and the lack of information on deep sea ecosystems). Questions such as the amount of environmental baseline information needed to assess potential impacts and the extent of monitoring and evaluation of test mining would be needed to be resolved to determine whether and to what extent to allow 'scaling up' to commercial mining (e.g. what if all ISA contractors want to start mining within the same time frame?). He suggested the UN General Assembly agreements for the regulation of deep sea fisheries in Areas Beyond National Jurisdiction should be used as a template for the ISA exploitation regulations, and stressed the importance of Strategic or Regional Environment Assessments and Management Plans (SEMPs) and environmental impact assessments. Matt also explained how the ISA is currently reviewing its working methods, which should ensure more stakeholder participation and transparency and a much stronger structure for the assessment, monitoring and regulation of the environmental impacts of mining if and when it occurs. He estimated a 50-100 year planning process would be required to cover the collection of baseline information, develop SEMPs, conduct and review EIAs, test mining, evaluation of test mining, some 40 years of commercial mining and eventually post mining monitoring of longer term effects. He emphasized that there is growing public awareness of the capacity of humankind to cause environmental damage on a large-scale and that regulatory processes adopted over the next few years by the ISA and others may well represent our generation's collective choices regarding the fate of deep-sea species and ecosystems potentially for many years to come. Decisions we take today may have long lasting impacts, one way or another, and the choices we make have to reflect our responsibility to future generations.

Philomene Verlaan (University of Hawaii/ Advisory Committee on Protection of the Sea) stressed the importance of the United Nations Convention on the Law of the Sea, a complex global treaty which sets out

the legally binding rules under which the international community are required to manage the oceans, their environments, ecosystems and resources, and all related activities, including deep sea mining, to which, *inter alia*, an entire chapter of the treaty and a dedicated implementing agreement are specifically devoted. As with all treaties (and national law), implementation and enforcement are key elements on which much work remains to be done. In the deep sea mining context, these are priority items on the agenda of the International Seabed Authority.

Iain Shepherd (DG MARE) agreed that the ISA process could be improved but also pointed out that if regulations are developed well, international waters would be better governed than national ones. He saw the role of the EU mainly as setting good practice for environmental standards, identification of marine protected areas and supporting further research. It is probable that the issue of deep sea mining will be covered in the imminent Communication on international ocean governance, but that it is too early to say what the main messages will be.

Another panel debate followed. Christian Reichert, chair of the ISA Legal and Technical Committee helped to shed further light on the work of the ISA, progress with the exploitation regulation, and explained how the ISA puts in practice the polluter pays principle. In discussing potential impacts, David Billett stressed that it is important to assess impacts at regional and local scales. There was also discussion of the ISA's anticipated regulatory regime and the influence that UNCLOS would exert, with the speakers noting that enforcement will be a key challenge. This is a major task for member states and the UN has no capacity to act in this regard.

Conclusions

Monica Verbeek concluded the day's proceedings with a summary of the main conclusions. There were different views on whether or not DSM is inevitable in light of the increasing demand for materials driven by global growth. An independent assessment seems in order. The precautionary principle played a prominent role in the day's discussions, there is still a need to step back and reflect. We also heard a strong call for a phased approach based on risk assessment and establishment of a network of protected areas.

All agreed on the lack of key knowledge that is required to be addressed if we are to better understand the potential impacts, and put in place a comprehensive regulatory system, including environmental assessments, at the global level that can best serve researchers, industry and the environment. There was general agreement that the EU should be involved in this, whilst always stressing sustainability and targeting Horizon2020 research accordingly. An important but unresolved point is who would do the monitoring for the ISA regime, and how is it to be funded.

Monica Verbeek concluded the session by welcoming the involvement of so many different stakeholders. We live on an incredible blue planet with the most complex and extensive ecosystems being in the marine world, so our future is bound up with our learning to live well within our one world.



for the protection and restoration of the marine environment

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