

February 2025: meeting report

# UK Deep-Sea Mining Environmental Science Network

## Background

This meeting was led by the Department of Environment, Food and Rural Affairs (Defra) on Tuesday 4 February 2025 at 12 Bloomsbury Square, London and the Natural History Museum, London.

## Meeting objectives

This meeting introduced the broader context of environmental policy negotiations on deep-sea mining (DSM) and provided the opportunity for members to showcase UK research relevant to the Network's aims. Discussion sessions were designed to generate ideas from members for actions the Network could implement to achieve its aims:

- to collate the UK evidence base to better understand the environmental impacts of DSM
- to identify and encourage strategic links within UK science and between science and policy to grow the UK evidence base
- to find proactive and innovative ways to ensure such evidence base is shared domestically and internationally

To guide this meeting participants were encouraged to familiarise themselves with the [deep-sea mining evidence review](#) commissioned by the UK government and published in 2022, and the purpose of the Network set out on our network page.

## Attendance

Almost 50 individuals registered for this event. Participants included government officials from Defra, Foreign, Commonwealth and Development Office (FCDO) and Department for Business and Trade (DBT), as well as members of the Network. The expertise of Network members included:

- ocean science
- marine conservation
- geology
- engineering
- social science

The meeting was convened by Defra, supported by Joint Nature Conservation Committee (JNCC) and Centre for Environment, Fisheries and Aquaculture Science (Cefas), and chaired by Defra's Lead Marine and Fisheries Scientist.

Defra was able to provide funding for the travel and accommodation costs of three Early Career Researchers to enable them to attend the event.

## **Meeting overview**

### **Introduction**

The meeting opened with a recorded presentation from Defra Minister Emma Hardy, who provided context for the meeting by presenting:

- the UK priorities for nature recovery
- the UK position on deep-sea mining
- the UK's interest in building the knowledge base for deep-sea mining through expert collaboration, knowledge exchange and research

Defra officials then described the meeting aims, and UK government roles and responsibilities, before providing an update on the International Seabed Authority (ISA) and the latest Council Session on the development of the draft exploitation regulations. Key environmental issues of priority for the UK were highlighted to ensure that the Network was aware of these policy needs, and to focus UK research and expertise on identifying and addressing relevant critical evidence gaps. These topic areas included:

- environmental goals and objectives
- stakeholder consultation
- Environmental Impact Assessments
- test mining
- Environmental Management and Monitoring Plans
- closure plans
- mitigation hierarchy
- Standards and Guidelines
- Regional Environmental Management Plans
- ISA Central Data Repository
- technical workshops

### **Lightning talks**

The remainder of the morning session was set aside for 3-minute lightning talks from sixteen UK scientists. These talks covered a diversity of subjects, including:

- organic and inorganic environmental analyses of short-term impacts and long-term recovery from mining disturbances
- considerations for the monitoring and management of mining activities
- the role of museum archives in maximising long-term data availability
- the need for ecosystem service valuation and cost-benefit analyses

- the need to understand the chemical hazards and risks emanating from deep sea mining activities
- the need to incorporate environmental, social, economic and cultural factors to ensure a responsible approach to DSM
- technical developments for recording and monitoring microorganisms

## Strategic discussions

Small-group discussions in the afternoon session were facilitated by Defra, JNCC and Cefas. Discussions were focused around two separate questions to explore how the Network could be organised to maximise its impact, these were:

- what actions can you envisage the Network undertaking to achieve its aims, and what would be most beneficial for Network participants?
- which areas require strategic connect for UK science, and UK science and policy, to better understand the environmental impacts of DSM?

The outcomes of these discussions were presented to the group at the end of the afternoon session and key outcomes are summarised in the 'Meeting outcomes' section below.

## Networking event

Participants were invited to attend an evening event hosted by the Natural History Museum. This networking event provided a further opportunity for Network members to showcase their research through poster presentations. An exhibition, including specimens from the [Seabed Mining and Resilience to Experimental Impact \(SMARTEX\) project](#) and the Natural History Museum's Ocean Bottom Deposit collection, was also on display.

## Meeting outcomes

Key outcomes from the discussion groups are described below.

### Discussion topic 1

#### **What actions can you envisage the Network undertaking to achieve its aims, and what would be most beneficial for Network participants?**

Participants saw value in the Network meeting twice per year, once in person, to foster new connections and ideas, with the potential for additional meetings on technical topics when needed. There was broad agreement that the Network should not only provide updates on Network research, but also actively facilitate increased policy science engagement.

Network members highlighted the importance of communicating policy priorities. The design of research proposals and projects is slow, with long lead-in times, so it is essential to understand long-term policy strategy to ensure that research remains relevant.

Although membership is currently formed of environmental scientists working on DSM, it was suggested that expanding participation could be valuable, to include the views and experience of:

- those from other industries (including terrestrial mining)
- those from other relevant environmental science disciplines, beyond DSM

This would expand professional networks, integrate new perspectives into discussions, and support the effective translation of discovery science into applied science in the decision making space.

## **Discussion topic 2**

### **Which areas require strategic connect for UK science, and UK science and policy, to better understand the environmental impacts of DSM?**

More discussion between scientists and policy makers was seen as key to targeting the priority gaps in the evidence base. While much research is focused on pure science, any policy application must bring together multiple sources of knowledge and may approach questions from different and overlapping angles, bridging academic silos.

Access to funding was raised as a critical need for Network members. The absence of reliable future funding could limit the scope of evidence generated with implications for developing the evidence base. Investment is needed to retain UK deep-sea expertise and maintain related facilities and equipment. A long-term, strategic view is needed to ensure sustained capacity, with a particular focus on funding initiatives to support multi-decade programmes.

Some thematic topics were indicated by Network members as requiring further research focus, including long-term temporal studies, impacts on deep-sea pelagic environments, and climate change impacts.

## **Priorities and next steps**

The UK holds significant and world-renowned expertise in environmental research related to DSM. This research could be of an even greater value in filling critical gaps if it is more strategically developed. Future Network meetings (both online and in person) will continue to encourage strategic links within UK science and between science and policy to develop the UK evidence base for DSM.

Opportunities to develop these links may include:

- the provision of regular updates, via the Network meetings and email bulletins, on current issues and key gaps in environmental knowledge for the ISA
- developing a list of key priorities from a UK policy perspective and inviting Network members to identify existing evidence and research that may be relevant, building from the DSM evidence review
- selecting key topics as a focus for future network meetings, to share relevant expertise and ideas to support UK government technical briefs on these topics (for example, closure plans, environmental goals and objectives)
- learning sessions on making science relevant to policy
- holding collaborative meetings with other industries to identify similarities and differences in environmental management approaches for other sectors

The next Network meeting is anticipated in September 2025, to be held virtually.

An email bulletin will continue to be sent to Network members on roughly a monthly basis.

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