

Deep-sea mining: a new industry for the oceans

Introduction

Deep-sea mining for metals is predicted to start in 2018. Over a decade of exploration has yielded information on where mineral deposits can be found and new technologies will make mining in the deep sea possible. However, the deep-sea environment is vulnerable to disturbance, and the environmental impacts of mining have yet to be fully assessed. The UK has strategic interests both as a commercial contractor and as a State with obligations and duties under the United Nations Convention on the Law of the Sea to protect the marine environment. The European Union includes mineral resources as one of its five sectors with high potential to be developed for sustainable Blue Growth. The aim of this dialogue is to raise awareness about the challenges and opportunities faced by this emerging industry.

Programme

Lord Julian Hunt of Chesterton, President of ACOPS

Lord Hunt will welcome participants and explain the role of ACOPS.

Professor David Johnson, Chairman of ACOPS

Professor Johnson will explain the role of the International Seabed Authority and the growing interest of governments and society in Blue Growth. He will introduce the invited speakers and moderate questions and discussion.

Professor Philip Weaver, Coordinator of the MIDAS project

Professor Philip Weaver will provide an overview of the current state of deep-sea mining, explaining what we currently know and underlining where the major knowledge gaps lie. He will demonstrate how the MIDAS project, an EC-funded research programme investigating the environmental impacts of deep-sea mining, will make progress towards closing these gaps.

Dr Daniel Jones, Senior Marine Biologist, National Oceanography Centre

Dr Jones will illustrate the complexities of the deep-sea environment from a scientific perspective, focusing on a region of potential mining in the central Pacific Ocean. He will present images and information from his recent research expedition to the area aboard the British research vessel RRS James Cook.

Dr David Billett, UK representative on the ISA Legal and Technical Commission & Prof. Philomene Verlaan, Senior Advisor to ACOPS

Dr Billett and Prof. Verlaan will provide details of the emerging legal regime for deep-sea mining. As deep-sea mining contractors move from exploration to exploitation, how they operate and their obligations to report information on how they are proceeding will be governed by this regime.

Dr Chris Vivian, Centre for Environment, Fisheries and Aquaculture

Dr Vivian will share his experience gained from long-term engagement in leading the UK delegation to the London Convention/London Protocol, and how the LC/LP may provide some solutions applicable to deep-sea mining.

Take home messages

- After years of speculation, deep-sea mining is on the verge of becoming a reality in some areas of the world's oceans.
- The environmental implications of deep-sea mining pose a real threat to marine ecosystems.
- The latest science is demonstrating how little we know about the ecosystems that could be affected by this new industry, and the need for a precautionary approach.
- Policy-makers will need to appreciate the legal framework and socio-economic context of this new industry, as well as the environmental risks.

About our experts



Prof. Phil Weaver trained as a geologist and became Director of the NERC Strategic Research Division at the National Oceanography Centre, Southampton in 2006. He left NOC in 2010 to set up Seascope Consultants Ltd. Phil has coordinated five large European research projects investigating a range of marine topics. The latest, "Managing Impacts of Deep Sea Resource Exploitation" (MIDAS), is concerned with assessing the environmental impacts of deep-sea mining, bringing together academics, industry, social scientists and NGOs. Phil presented the results from MIDAS at the International Seabed Authority in Jamaica in 2015 and he has just completed a review of deep-sea mining for the Convention on Biological Diversity.



Dr Daniel Jones is a senior scientist in the Ocean Biogeochemistry Research Group at the National Oceanography Centre. He has 13 years' experience in deep-sea biology with interests in anthropogenic impacts on deep-water ecology, authoring 55 papers and participating in 30 deep-water cruises using both scientific and industry infrastructure, particularly ROVs and AUVs. Daniel has worked extensively with the nascent deep-sea mining and hydrocarbon industries, including a 6-month industrial secondment to BP's safety and operational risk group writing guidelines for global environmental operations.



Dr David Billett is a deep-sea biologist with over 36 years' experience of working on mid-ocean ridges, abyssal sediments, seamounts, coral mounds, submarine canyons and continental slopes in all the world's oceans. He has a particular interest in the effects of climate change on deep-sea ecosystems; distinguishing between natural and man-made change, and the environmental management of deep-sea resource exploitation. David is a member of the Legal and Technical Commission at the UN International Seabed Authority, Kingston, Jamaica. The ISA regulates the exploration for minerals in international waters. As part of this work David has set guidelines on environmental baseline studies for mining contractors and oversaw the set aside of 1.5 million km² of seabed in the Pacific Ocean for biodiversity conservation.



Dr Philomène Verlaan is an oceanographer and an attorney-at-law. Her scientific research addresses the formation, biogeochemistry and ecology of deep-sea ferro-manganese nodules and crusts. As a Law of the Sea specialist, she focuses on supporting the environmentally and commercially responsible use of marine resources under the auspices of UNCLOS. She has worked at the interface between science and law to assist international organisations with marine issues, including multi-lateral treaty development and implementation. The author of over 50 publications on marine topics, she is a Visiting Colleague at the University of Hawaii, a faculty member at the Rhodes Academy for Oceans Law and Policy, and an editor for the journal *Marine Georesources & Geotechnology* and the *International Journal of Marine and Coastal Law*.



Dr Chris Vivian has 29 years' experience in an advisory role to UK Government on issues relating to the environmental impacts of dredging, disposal, marine aggregate extraction and construction activities. From 1989 he became involved in international meetings under the Oslo (now OSPAR) and London Conventions dealing with waste disposal at sea. He was the Chairman of the Scientific Groups of the London Convention and London Protocol from 2008 to 2011 and was the Chairman of the OSPAR Convention's Biodiversity Committee that deals with species/habitat protection issues as well as the impacts of human activities from 2006 to 2010. Chris works for the Centre for Environment, Fisheries and Aquaculture Science (Cefas).

About the Advisory Committee on Protection of the Sea (ACOPS)

The mission of ACOPS is to promote strategies for sustainable global development relating to coastal and marine environment through scientific, legal and policy research and advisory and public awareness activities. Studying our seas and oceans both as indicators of pollution and as a threatened resource in their own right, ACOPS strives to identify cost-effective, long-term environmental solutions that can be effectively implemented across the world. For more information please visit www.acops.org.uk