Pilot Action

Ecological Aspects of Deep Sea Mining

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Background

Global interest in the exploration and exploitation of deep sea minerals is on the rise. Enabled by technological advances and driven by geopolitical, economic and scientific motivations, public and private alike are increasingly venturing to the edges of the continental shelves and into areas beyond national jurisdiction in search of new resources. However, deep sea ecosystems and the potential effects of mining activities on them are poorly understood. Therefore, member countries of JPI Oceans decided to launch a joint research activity in the field.

Objectives

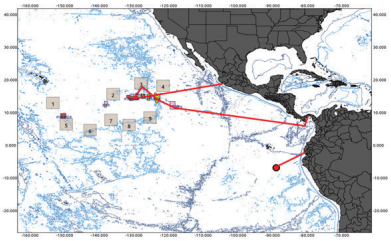
Jointly analyse the long-term ecological impacts of deep sea polymetallic nodule mining to inform the international regulation of deep sea mining activities by:

- Conducting a comparative ecological genetic baseline study as well as a comparative geochemical and hydrodynamic investigation.
- Predicting the ecological, biogeochemical and hydrodynamic consequences of a mining impact.
- Testing a range of modern rapid assessment methods and monitoring techniques for defining the ecosystem status.
- Communicating the results to stakeholders and policymakers.

*Images of the undisturbed seafloor in the DISCOL Experimental Area prior (**left**), with plough marks directly after disturbance (**middle**) and 7 years after (**right**) the experiment.*
Thiel et al. (2003) and Thiel and Schriever (1990)

Progress

The German Federal Ministry of Education and Research (BMBF) has provided 118 days of ship time for on-site research in the Pacific on the recently inaugurated RV Sonne. Over the course of three legs, researchers from 11 countries are mapping habitats, studying deep sea ecosystems and investigating their functioning as well as predicting and identifying the environmental implications of sediment plume dispersion and redeposition caused by mining activities. The project started in January 2015 and will run or 36 months with an overall budget of approximately €9.5m. The first leg of the cruise began on 11 March 2015 with two more legs planned for the summer of 2015.



On site research will take place to assess the environmental status of polymetallic nodule habitats in the DISCOL Experimental Area, SE Pacific, and to study implications for future nodule mining activities in the Clarion-Clipperton Zone, NE Pacific.

Next Steps

Following the cruise the evaluation of the collected data will continue on-shore in the participating labs. Subsequently, workshops with policymakers, stakeholders, contractors holding exploration licenses and interested industry planning offshore mining activities will be organised to communicate the project results and to initiate discussions with the industry aiming primarily at the development of low-impact mining gear. Project results will also be made available to the Legal and Technical Commission of the International Seabed Authority (ISA) to facilitate implementation into ISA regulations. Furthermore, international exchange with countries outside the EU planning offshore mining activities, such as Russia, China, South Korea, Japan, and India, is anticipated through international conferences on deep-sea mining.

Countries Involved

Lead

Belgium, France, Italy, Netherlands, Norway

Germany, Poland, Portugal, Romania, Sweden, United Kingdom

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