Workshop on Enhancing Biological Data Sharing to Advance Deep-Sea Taxonomy

3-6 October 2023

Ho Chi Minh City, Vietnam

Terms of Reference

Background

The mandate of the International Seabed Authority (ISA) is to regulate and control the activities in the "Area" (international seabed area), including the exploration and future exploitation of mineral resources, and to take the measures necessary to ensure effective protection of the marine environment from potential harmful effects that may arise from seabed activities[1]. In addition, ISA is required to promote the conduct of marine scientific research in the Area, coordinate and disseminate the results, and to ensure capacity-development in deep-sea research[2].

Environmental baseline studies undertaken along with mineral exploration surveys in the Area have advanced remarkably our knowledge in deep-sea biodiversity, with more than 60,000 species occurrence records observed over the past two decades. These data are compiled in the ISA DeepData database, a data repository that centralizes environmental information generated for deep-sea areas where mineral exploration is currently taking place under the ISA regulations. The biological, physical and geochemical parameters of the seafloor and water column ecosystems are publicly available through the DeepData platform. In addition, species distribution and abundance data are also shared with the Ocean Biodiversity Information System (OBIS), contributing to the global knowledge of marine biodiversity.

To further enhance our understanding of deep-sea biodiversity, the ISA Sustainable Seabed Knowledge Initiative (SSKI) has designed several actions for improving deep-sea species cataloguing, promoting data sharing, and building capacity on deep-sea taxonomy. These actions will lead to the generation of an unprecedent amount of deep-sea biological data, including the description of at least 1,000 new deep-sea species by 2030. A major challenge in large scale collective research is the standardization and interoperability of data, with some initiatives, such as the Darwin Core making progress towards defining standards and vocabularies to facilitate biodiversity data sharing and integration. Standardizing and innovating methodologies for deep-sea biodiversity assessment, including taxonomic identification and description in the Area, is one of the six strategic research priorities

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[1] UNCLOS, Article 145

[2] UNCLOS, Article 143

identified in ISA Action Plan in support of the UN Decade of Ocean Science for Sustainable Development[3].

In this context and following the SSKI inception workshop held in Korea in December 2022, ISA, in collaboration with the Ministry of Oceans and Fisheries of the Republic of Korea (MOF), the National Marine Biodiversity Institute of Korea (MABIK) and the Institute of Tropical Biology of the Vietnam Academy of Science and Technology (VAST), is convening a workshop on enhancing biological data sharing to advance deep-sea taxonomy. This workshop builds on the outcomes of the previous editions of the ISA workshop series on deep-sea taxonomic standardization, organized in collaboration with MABIK. It will focus on best practices for deep-sea taxonomic research to generate FAIR (Findable, Accessible, Interoperable, and Reusable) data and enhance capacity in sharing deep-sea biological data. Under the umbrella of SSKI, the outcomes of this workshop will contribute to increasing the quality and availability of deep-sea biological data, enhancing the use of ISA DeepData and other public available biological databases, as well as facilitating access to best practices for collecting, processing, and reporting biological data.

Objectives

The workshop aims to achieve the following objectives:

- Provide knowledge and hands-on training on generating and sharing standardized biological data for advancing deep-sea taxonomy.
- Facilitate the development and implementation of best practices for collecting, processing, and reporting biological data.
- Promote the use of the ISA DeepData database by enhancing data quality and access to biological data collected in deep-sea habitats under mineral exploration.

Expected Outcomes

The workshop is expected to deliver the following outcomes:

- Increased standardization and interoperability of deep-sea biodiversity data generated for areas under mineral resources exploration.
- Enhanced capacity of ISA member States, particularly developing countries, to standardize, access, use, and share deep-sea biological data.
- Improved ability of ISA contractors and members of the scientific community to use DeepData functionalities.
- Enhanced knowledge on interconnecting taxonomic data using DeepData and other open-access databases.

Expected Outputs

The participants will gain knowledge and skills in the following areas:

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[3] ISBA/26/A/17

- Applying FAIR data principles to deep-sea research, including data annotation with controlled vocabularies, and formatting spreadsheet data for interoperability and reusability.
- Understanding metadata requirements for deep-sea biological data collection, including Darwin Core and Minimum Information about any (x) Sequence (MIxS) for genetic data.
- Exploring deep-sea biological data in major open access platforms.
- Navigating the DeepData database, including data submission and export.
- Linking taxonomic information for uploading data in databases such as DeepData and OBIS.

Expected Workshop Participants

Approximately 40 experts are expected to participate in the workshop, including:

- Representatives of ISA contractors responsible for biological data management.
- Members of the scientific community involved in deep-sea data generation and standardization.
- Participants from ISA member States and other stakeholders interested in deep-sea biological data standardization and exploration of the DeepData platform.
- Relevant UN/international/regional organizations/bodies/programmes/initiatives.