



# Technical Workshops

## • Purpose

Since 1998, the International Seabed Authority has been convening a series of annual workshops on scientific and technical issues relating to resources of the deep seabed. Each of these meetings bring together marine scientists and experts, representatives of seabed contractors, and members of the Authority's Legal and Technical Commission.

Their purpose is fourfold:

- To exchange information on the latest research findings and development efforts relating to the deep-sea environment, the nature of the mineral resources on and under the seabed, and the technology that may be used for seabed mining.
- To promote international cooperative research on issues where investigators and scientists will benefit from collaborative efforts that avoid duplication, and to identify topics on which research is most needed.
- To encourage the standardization of scientific and technical equipment and procedures used to investigate the seabed and the deep-sea environment, and to specify precisely which environmental characteristics should be monitored to keep track of any harmful consequences resulting from exploration and mining.
- To provide the Authority with advice and information that will help it to evaluate the seabed activities of contractors and assist it to develop new guidelines and recommendations as part of its task of administering the international seabed area.

The findings and recommendations of workshops were frequently cited in the preparatory work leading to the adoption by the Authority in 2000 of the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, and the adoption by the Legal and Technical Commission in 2001 of guidelines for contractors in assessing possible environmental impacts of their activities. They are also being used as the Authority grapples with its current major legislative initiative, exploration regulations for polymetallic sulphides and cobalt-rich crusts.

The proceedings of the workshops, including their reports, recommendations and the text of all papers submitted by participants, are published by the Authority for general distribution and are also downloadable from its website ([www.isa.org.jm](http://www.isa.org.jm)).

Of the five workshops held through 2002, two advised on the development of guidelines for environmental monitoring and one developed specific proposals for marine research projects. The others exchanged information on proposed technologies for deep-seabed mining and on seabed mineral resources other than polymetallic nodules. The 2003 workshop was on the process of establishing and developing a geologic model for the Clarion-Clipperton Fracture Zone, the main nodule-bearing region of the equatorial northern Pacific Ocean.

The first workshop was held at Sanya on Hainan Island, at the invitation of the Government of China. Subsequent workshops have been convened in Kingston, Jamaica, prior to the annual sessions of the Authority at its headquarters. At each weeklong meeting, participants invited by the Authority to submit papers, introduce their presentations, often enlivened by eyewitness descriptions, slides and videos and answer questions from the floor. The presenters answer questions posed by other participants. Most workshops have also held general discussions on specific topics and have set up working groups to elaborate proposals for their report. The 2002 workshop on research projects benefited from a short preparatory meeting of scientists that developed proposals earlier in the year.



*Member state representatives watch a presentation on the deep ocean environment and the protection of its biodiversity during the Council session at the Authority's 10th Session in Kingston.*

The important role of the workshops in helping to provide a solid scientific foundation for the regulatory activities of the Authority was cited by Secretary-General Satya N. Nandan in his opening remarks at the 2001 workshop on environmental guidelines. He commented that, “while lawyers and diplomats set the rules, we are now working within the framework of those rules to deal with the technical issues involved, a task for which these workshops have proven their value.” Workshops in 2002 and 2003 on prospects for international collaboration in scientific research and geological modelling respectively led directly to two major initiatives by the Authority: an international project to research gene flow and species endemism across the Clarion-Clipperton Zone (the Kaplan Project) and a project to establish a geologic model of the Clarion-Clipperton nodule province.

## ACCOMPLISHMENTS OF WORKSHOPS, 1998-2007

### Workshop on Deep-Seabed Polymetallic Nodule Exploration: Development of Environmental Guidelines (Sanya, China, 1-5 June 1998)

- Drafted guidelines suggesting the specific information to be gathered on natural conditions at potential mine sites (baseline data) and on the potential impacts from test mining.

### Workshop on Proposed Technologies of Deep-Seabed Mining of Polymetallic Nodules (Kingston, 3-6 August 1999)

- Exchanged information on the latest developments in exploration and mining technology, and examined scenarios for future developments.

### Workshop on Mineral Resources of the International Seabed Area (Kingston, Jamaica, 26-30 June 2000).

- Discussed prospects for exploiting polymetallic sulphides, cobalt-rich crusts and methane hydrates.

### Workshop on Standardization of Environmental Data and Information: Development of Guidelines (Kingston, 25-29 June 2001)

- Recommended specific procedures and techniques contractors should follow in gathering environmental information on an internationally comparable basis.

### Workshop on Prospects for International Collaboration in Marine Environmental Research to Enhance Understanding of the Deep-Sea Environment (Kingston, 29 July – 2 August 2002)

- Worked out proposals for four research projects on potential mining impacts and natural environmental variability.

### Workshop on the Establishment of a Geological Model of Polymetallic Nodule Resources in the Clarion-Clipperton Fracture Zone (CCZ) of the Equatorial North Pacific Ocean. (Nadi, Fiji 13-20 May 2003)

- Recommended a work programme for the development of a geological model for nodules in the Clarion-Clipperton Zone (CCZ).

The Workshop discussed a work programme to develop a geological model. The programme was divided into three phases – (1) data acquisition and processing; (2) analysis; and (3) production of a geological model and preparation of a Prospector’s Guide. The model would cover a broad range of factors of interest to both prospectors and scientists with input from various fields including seafloor topography, geology, biology with data sourced from contractors, public and private institutions.



### Workshop for the Establishment of Environmental Baselines at Deep Seafloor Cobalt-Rich Crusts and Deep Seabed Polymetallic Sulphide Mine Sites in the Area for the Purpose of Evaluating the Likely Effects of Exploration and Exploitation of the Marine Environment (Kingston, 16-20 September 2004)

- Discussed the potential impact of exploring for and mining these resources; requirements for baseline studies; the relevance of current or past research programmes and the design and development of a monitoring programme to be carried out during exploration and mining of these resources.

The Workshop’s recommendations identified the importance of protecting and preserving the marine environment during prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crust deposits, the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts in the Area (ISBA/10/C/WP.1) would require the International Seabed Authority, *inter alia*, to establish and keep under periodic review, environmental rules, regulations and procedures to ensure effective protection for the marine environment from harmful effects which may arise from activities in the Area, and together with sponsoring States, to apply a precautionary approach to such activities.

### Workshop on Cobalt-Rich Crusts and the Diversity of Distribution Patterns of Seamount Fauna. (Kingston, 27-31 March 2006)

- Assessed patterns of diversity and endemism of seamount fauna including the factors that drive these patterns; examined gaps in current knowledge of these patterns with a view to encouraging collaborative research and provided the Legal and Technical Commission with recommendations to assist it to develop environmental guidelines for future contractors.

The workshop assisted the Authority by providing a more detailed analysis on matters relating to the adoption of regulations on prospecting and exploration for these two types of mineral deposits.

### Workshop on Technical and Economic Considerations for Mining Cobalt-Rich Ferromanganese Crusts and Polymetallic Sulphide Resources of the International Seabed Area (The Area) (Kingston, 31 July - 4 August 2006)

- Discussed prospects for the development of cobalt-rich ferromanganese crusts and polymetallic sulphides deposits in the Area; their distribution potential and geological characteristics and technological issues associated with commercializing the deposits.

The workshop examined various mineral development prospects in the Area, and the processes through which occurrences of cobalt-rich ferromanganese crusts and polymetallic sulphides may be converted to commercially exploitable deposits; technological issues associated with commercializing deposits; economic and financial issues; and the market outlook for the base and precious metals to be found in these two potential ores.

In 2008, a workshop on Polymetallic Nodule Mining Technology - Current Status and Challenges Ahead was held in Chennai, India from 18-22 February. Another workshop is expected to be held in Brazil later in 2008.

*Participants at a Workshop on Polymetallic Nodule Mining Technology - Current Status and Challenges Ahead held February 18-22, 2008 in Chennai, India.*