MODULE ADSEA, LESSON 11

ISA MSR ACTION PLAN IN SUPPORT OF THE UN DECADE OF OCEANS FOR SUSTAINABLE DEVELOPMENT

LECTURE NOTES

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Marine Scientific Research is at the heart of the mandate of protecting the Marine Environment and Article 143 of UNCLOS specifies this.

It mentions the Authority shall

- promote and encourage the conduct of marine scientific research in the Area and
- coordinate and disseminating the results of such research is at the core of ISA's mission
- Encourage appropriate programmes

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The MSR Action plan was launched in 2020.

The fundament are embedded in two strategic ISA documents:

- The Strategic Plans of the Authority for the period 2019–2023 (ISBA/24/A/10) and
- High Level Action plan

Several strategic directions and actions and outputs have a direct relationship with the objectives of the MSR Action Plan.

What catalysed the creation of the MSR Action Plan was the decision of the UN General Assembly to declare the period of 2021-2030 to UN Decade of Ocean Science for Sustainable Development to foster scientific research and technological innovation in support of a healthier, more sustainable ocean.

This initiative is led by the Intergovernmental Oceanographic Commission of the UN Educational, Scientific and Cultural Organization (IOC-UNESCO).

The objectives of the Ocean Decade are at the core of ISA's mandates.

Recognizing these synergies, ISA committed through the inception of the MSR action plan to collaborate more intensely with IOC-UNESCO.

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The MSR Action Plan

- Adopted by the ISA Assembly in 2020
- It constitutes 6 research priorities
- Secretary-general yearly reports on the implementation of the Action Plan
    - For your reference in the mandatory reading
- The activities are funded by internal & external budget
- Action Plan acts as the framework to inform the global deep-sea research agenda
- Activities under the Action plan evolve

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- SRP I focuses on catalysing collaborative research to generate and synthesize scientific information for our enhanced understanding of deep-sea ecosystems, especially in the Area. For instance, ISA organized expert workshops and commissioned scientific assessments, with a view to facilitating scientific collaboration and compiling the best available science in support of various global ocean processes, including the development of ISA's regional environmental management plan (REMP).

- Ocean observation is key to the build-up of scientific knowledge and increasing the global understanding in terms of environmental protection under strategic research priority 1. The Secretariat will undertake an assessment of existing ocean observing capabilities and monitoring programmes with a view to launch a long term monitoring programme in CCZ focussed on APEI's.
- Topics that were launched since I took office to support global processes

- A study was performed to examine the ISA's potential contribution to assessing and monitoring the health of the ocean.
    - The majority of ocean health indicators currently refer to sea surface or mid-water column, which could be complemented by the data contained in DeepData for a more comprehensive assessment of the health of the ocean. This work contributes to SDG 14 and the positioning of ISA as custodian of a global common.
- In the framework of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects the Secretariat co-organized with the Division of the Law of Sea (DOALOS) two workshops informing the scoping process of the third Word Ocean Assessment (WOA III) in Kingston, Jamaica in September 2022 we welcomed Chinese experts. ISA stands committed to spearheading the deep-sea related topics including based on the analysis of the scientific parameters of the DeepData database.

- In addition an assessment of the distribution of microplastics in the deep-sea was carried out.
    - The systemic literature review evidenced that only 92 scientific papers report on plastic abundance in deep-sea waters and sediment, and only 48 papers used spectroscopic quantification methods, the most recent and scientifically reliable technique to assess respective concentrations.
    - The concentrations vary widely, yet no study assessed evolution over time.
    - In addition, plastic effect concentrations for deep-sea ecosystems are non-existent.
    - Risk assessment frameworks on microplastics would be a valuable tool to examine potential effects on deep-sea ecosystems.
    - They might also prove useful to inform the ongoing negotiations on the legally binding instrument on plastic pollution including in the marine environment.
    - Yet to ensure the accuracy of risk assessment frameworks, standardization of the research methods used is essential.

    - One ISA contractor (COMRA) reported plastics in 2019, from 1 location (9,8763 °N and 154,4212 °W, station 54IV-KW1-MP01) in the Clarion Clipperton Fracture Zone that has been sampled with a trawl net of 330µm.
- The ISA is uniquely positioned to promote and further facilitate the research of microplastics in the deep sea considering it is the gateway between the Member States, the contractors, and the wider scientific community. Most importantly this line of research contributes to the implementation of the Action Plan for Marine Scientific Research (MSR Action Plan) that was adopted by all its Member States and the EU as the global agenda for deep-sea research.
- In particular, it strengthens the delivery of the strategic research priority 4 of the MSR Action Plan "Enhancing scientific knowledge and understanding of potential impacts of activities in the Area" which provides the umbrella to carry forward a long-term project on microplastics.

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The Sustainable Seabed Knowledge Initiative (SsKi) focuses on advancing the knowledge of deep-sea ecosystems and biodiversity as a means to create the enabling conditions to ensure effective protection of the marine environment

The Initiative aims to enable ISA to strengthen cooperation with all interested stakeholders to obtain, assess and disseminate quantitative and qualitative biodiversity data and information in an open and transparent manner.

SSKI focuses on advancing the knowledge of deep-sea ecosystems and biodiversity as a means to create the enabling conditions for the effectively fulfilling ISA's environmental mandate, and in accordance with agreed international goals and objectives.

1. Generating new knowledge on deep-sea biodiversity and producing biogeographic and phylogeographic maps to assess evolutionary history, connectivity and resilience of deep-sea ecosystems

2. Unlocking biodiversity knowledge of the seabed through integrative and innovative tools that improves the consistency, efficiency and reusability of scientific information collected in the Area;
3. Building a global network of deep-sea taxonomists and centres of excellence;
4. Innovating the generation and flow of taxonomic data, including the enhanced data availability, accessibility and interoperability; and
5. Delivering data products that will strengthen scientific and technical capabilities of ISA and its stakeholders to support the implementation of the Mining Code including environmental planning, monitoring plan and risk/impact assessments.

We have set a target of increasing the number of species described by at least 1000 species by 2030 based on the recent rate of publications, but this number can be exceeded with greater cooperation and collaboration.

ISA sits on the advisory board of TRIDENT, a European project recently launched to create new technological tools for deep-sea impact assessment. These new tools will empower a shared responsibility to supervise and monitor deep sea activities, and simultaneously preserve and enhance marine habitats, supporting an environmentally sustainable blue economy.

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The purpose of this roadmap is take stock of current and future technologies and key actors in exploration and exploitation of deep-seabed mineral resources and in relation to monitoring of potential environmental impacts of future mining activities. Emerging areas include smart technologies (automation, artificial intelligence, etc.) and efforts towards achieving net-zero carbon emissions throughout the future deep-sea mining value chain.

To facilitate the necessary technological development and innovations to support the most sustainability pathway towards potential exploitation.

Cross-cutting this priority is also the need for capacity building and technology transfer.

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Strategic research priority 4: enhancing scientific knowledge and understanding of potential impacts of activities in the Area

- A comprehensive understanding of potential impacts of activities in the Area is the cornerstone of sound environmental management towards the development of adaptative management measures. A prerequisite to accurately assess impacts is the availability of sufficient baseline information and sound data synthesis.
- The Secretariat commissioned an analysis of the spatial interaction of deep-sea fisheries with activities in the Area, which will be published as a technical study in August 2023.
    - The results show a negligible overlap between the occurrence of fishing with gears that operate at or near the sea floor in ABNJ.
    - The findings also suggest that direct conflicts between fisheries and activities in the Area should be infrequent and readily managed. Discussions with the Food and Agriculture Organisation (FAO) to the United Nations have also progressed for the signing of an MoU to enhance the cross-sectoral collaboration on promoting scientific research and a coherent approach to management measures in ABNJ.
- The secretariat commissioned a technical study building addressing cumulative impacts, which will provide input to the identification of potential environmental management measures for the development of the REMP in the region.
    - A qualitative mathematical modelling approach based on expert knowledge was introduced to address cumulative impacts on MAR ecosystems from pressures associated with potential polymetallic sulphide (PMS) exploitation activities and other human and natural stressors in the region.
    - facilitated by the Marine Biodiversity Risk & Management team of the Commonwealth Scientific and Industrial Research Organisation (CSIRO)
    - the first step towards the development of a comprehensive conceptual framework for assessing potential impacts from future PMS exploitation activities, as well as multi-sector impacts, at a regional scale.
    - The current models provide a systematic ecosystem-based approach to identify pressures that are likely to have significant ecosystem impacts, both individually and

cumulatively. This information can be used to prioritize mitigation or avoidance measures to reduce the impacts of key pressures, reducing the overall cumulative impactS

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DeepData in figures.

- DeepData was launched at the 25th Session of ISA in 2019 (still a baby).
- the Authority has developed this repository to share all environmental data and information collected in the Area in an open and transparent manner.
- DeepData contains over 10 terabytes of data collected in the Area and had approximately 2.4 million hits from 57.209 visitors and users.
- Three countries make up for more than half of the total visitors: (i) the United States of America accounting for 32%, (ii) China with 10%, and (iii) Russia with 8% of the total visitors.
- Several strategic partnerships to enhance availability, accessibility, and interoperability of data and information contained in DeepData.
- Building on the partnership with IOC-UNESCO

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- Global mentoring progamme launched on World Oceans Days 2023
- Outcome S.H.E is the empowerment and enhanced leadership of women scientists in marine scientific research from developing states through the increase of their role & participation in deep-sea research.
- The programme is mentee-driven and the mentees need to put forward a action plan that the mentor and mentee pairs will advance jointly over 1 year of interactive sessions.
- The action plan has a personal (e.g. leadership skills) and professional development (e.g. network) component.
- It also needs to have a scientific goal associated to it, thus contributing the advancement of the MSR Action Plan

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- Advancing knowledge gaps identified through REMP's
- New research domains that are on the global agenda
    - Microplastics, ocean health, resilience
- Creating an even bigger impact
    - Further enhancing the science-policy interface
- Enhancing synergies with the contractors
- Enhanced opportunities through the ISA Partnership Fund

Key message

ISA is at pivotal stage for marine scientific research with exciting opportunities.

We stand ready to shape a new era to inform sustainable management of global commons.