WORKSHOP ON DEEP-SEA TAXONOMIC STANDARDIZATION: STRATEGIC APPROACHES FOR COLLABORATION

15-16 September 2020, Online

ANNOTATIONS TO THE PROVISIONAL AGENDA

INTRODUCTION

1.   In accordance with the UN Convention on the Law of the Sea ("the Convention") and 1994 Agreement relating to the implementation of Part XI of the Convention, the International Seabed Authority (ISA), on behalf of the States Parties to the Convention, is mandated to administer the mineral resources in the Area and to control and organize current exploration activities, as well as future mining activities, in the Area for the benefit of mankind as a whole. The Authority is also mandated to take necessary measures with respect to activities in the Area to ensure effective protection for the marine environment from harmful effects and to adopt appropriate rules, regulations and procedures for, *inter alia*, the prevention, reduction and control of pollution and other hazards to the marine environment, the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment[1].

2.   In addition, the Authority is required to promote and encourage the conduct of marine scientific research in the Area, and coordinate and disseminate the results of such research and analysis when available[2]. The importance of this mission was highlighted by the Strategic Plan of the ISA for the period 2019-2023, adopted by the Assembly at its twenty-fourth session in 2018[3]. Especially through the strategic direction 4 ("Promote and encourage marine scientific research in the Area"), the members of the ISA have established the vision in this regard, which is being implemented according to the High-level Action Plan for 2019-2023 adopted by the Assembly at its twenty-fifth session in 2019[4].

3.   In 2017, the United Nations Decade of Ocean Science for Sustainable Development from 2021 to 2030 was proclaimed by the United Nations General Assembly in its resolution 72/73. In July 2020, the ISA developed an action plan[5] to formalize and organize its contribution to the implementation of the United Nations Decade, building on the strategic directions, high-level actions and associated outputs set out in the abovementioned Strategic Plan and the High-level Action Plan. The ISA Assembly has been invited to consider, with a view to adoption, this action plan at its subsequent session.

4.   Among six strategic research priorities identified in the action plan, the following priorities highlight the importance of expanding deep-sea knowledge base and standardizing taxonomic information: 1) advancing scientific knowledge and understanding of deep-sea ecosystems, including biodiversity and

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[1] United Nations Convention on the Law of the Sea, art.145
[2] United Nations Convention on the Law of the Sea, art.143
[3] ISBA/24/A/10, annex, para. 29
[4] ISBA/25/A/15
[5] ISBA/26/A/4

ecosystems functions, in the Area; and 2) standardizing and innovating methodologies for deep-sea biodiversity assessment, including taxonomic identification and description, in the Area.

5.   In pursuance of the strategies and priorities identified above, the ISA, in collaboration with the Ministry of Oceans and Fisheries of the Republic of Korea (MOMAF) and the National Marine Institute of Korea (MABIK), is organizing an online workshop on Deep-sea Taxonomic Standardization: strategic approaches for collaboration, from 15-16 September 2020. The workshop will be delivered via the Microsoft Teams platform.

6.   The workshop aims to identify coherent, collaborative, and scientifically robust solutions to addressing taxonomic knowledge gaps in various stages from collection, preservation, and archiving of biological samples and taxonomic data to identification and description of species. Specifically, the workshop will focus on: (i) identifying specific needs and approaches to advance deep-sea taxonomic knowledge in various faunal groups (micro- to megafauna), including tools to be developed for targeting different types of uses and users; (ii) identifying existing institutions and initiatives that can provide taxonomic services, including molecular and morphological identifications, archiving facilities (online databases and curated museum collections), and training on taxonomic skills, as well as their contributions to advancing deep-sea taxonomic knowledge; and (iii) exploring possible mechanisms for enhancing collaboration among contractors, academic/scientific institutions, and other stakeholders, including through developing or strengthening deep-sea taxonomic knowledge platforms, building on existing mechanisms, as well as facilitating sharing of data and expertise and long-term capacity development.

7.   The expected outcomes of the workshop include: (i) network of deep-sea taxonomy experts to support the development and curation of taxonomic data and promote the development of toolkits for deep-sea species identification across faunal groups from different mineral provinces in the Area; (ii) strategic approaches for sustainable integration of taxonomic information, including through the ISA database (DeepData), linking morphological descriptions with online repositories of DNA sequences, coupled with archiving of specimens and tissue samples in museum collections; (iii) strategic approaches for promoting deep-sea taxonomic research and training programmes in collaboration with relevant scientific institutions and partner organizations, including capacity-building programmes in deep-sea taxonomic research for developing countries; and (iv) knowledge building for better understanding of the process and purpose of environmental assessment and monitoring in the Area, in light of the linkage between taxonomy and environmental management and protection.

8.   A list of documents for the workshop is contained in annex I.

9.   The ISA secretariat will issue an information note for participants containing logistics details to facilitate their participation, including information on how to join the online workshop and navigate different functions of the online meeting platform. The workshop will be conducted in English.

10.   The workshop will commence at 6:00 a.m. (Kingston, Jamaica; GMT-5) on Tuesday, 15 September 2020.

ITEM 1. OPENING OF THE WORKSHOP

11.   The Secretary General of the International Seabed Authority, the Deputy Minister of the Ministry of Ocean and Fisheries of the Republic of Korea the President of the National Marine Biodiversity Institute of Korea (MABIK), and the Executive Secretary of the Convention on Biological Diversity, will open the workshop at 6:00 a.m. (Kingston, Jamaica; GMT-5) on Tuesday, 15 September 2020.

ITEM 2. WORKSHOP BACKGROUND, SCOPE AND EXPECTED OUTPUTS

12.   Gordon Paterson (Member of Legal and Technical Commission of ISA) and Peter Ng (Lee Kong Chian Natural History Museum, Singapore) are invited as co-chairs to moderate the workshop deliberation.

13.   Under this item, participants will have before them following documents prepared by the ISA secretariat : (i) action plan of the International Seabed Authority in support of the United Nations Decade of Ocean Science for Sustainable Development; and (ii) draft background document to compile scientific information relating to the workshop objectives.

14.   ISA secretariat staff will provide a presentation on workshop background, scope and expected outputs.

15.   Participants will be invited to ask questions and exchange insights, views and suggestions on the workshop scope and outputs, in response to the presentation above.

ITEM 3. SETTING A CONTEXT FOR DEEP-SEA TAXONOMIC STANDARDIZATION

16.   Under this item, Gordon Paterson (member of the Legal and Technical Commission) will deliver a presentation on "Deep-sea taxonomy within the context of the ISA: challenges and opportunities".

17.   Participants will be invited to ask questions and exchange insights and views, in response to the presentation above.

ITEM 4. OVERVIEW OF NEEDS AND APPROACHES FOR ADVANCING DEEP-SEA TAXONOMIC KNOWLEDGE WITHIN THE CONTEXT OF ISA

18.   Under this item, selected experts will be invited to deliver presentations on two different themes, with a view to identifying needs and appropriate approaches for advancing deep-sea taxonomic knowledge within the context of the ISA:

- Theme 1: Building references databases, collections, and libraries: sharing and archiving of taxonomic information:
    - Tammy Horton (World Register of Marine Species)
    - Pedro Martinez Arbizu (Senckenberg Research Institute, Germany)
- Theme 2: Developing tools for biodiversity assessment and monitoring: automated image analysis and environmental DNA (eDNA)
    - Kerry Howell (Plymouth University, UK)
    - Masaki Miya (Natural history Museum and Institute, Japan)

19.   Participants will be invited to ask questions and exchange insights and views, in response to the presentations above.

20.   This will be followed by a breakout session with the following four discussion groups, each focusing on a major faunal group. Participations will discuss the two themes above, building on the ideas, examples, and experiences provided by the theme presentations.

- Microfauna / eDNA
    - Facilitated by: Xue-Wei Xu (Second Institute of Oceanography of the Ministry of Natural Resources, China)
- Meiofauna

- o Facilitated by: Daniela Zeppilli (French Research Institute for Exploration of the Sea -IFREMER, France)
- Macrofauna
  - o Facilitated by: Adrian Glover (Natural History Museum of London, UK)
- Megafauna
  - o Facilitated by: Erik Simon Lledo (National Oceanography Centre, UK)

21.   After the breakout session, participants will be invited to return to the plenary. Each facilitator will then be invited to deliver a brief presentation on the outcome of their respective breakout group discussion, including ways and means to promote effective integration of deep-sea taxonomic information into efforts towards sustainable development within the context of the ISA.

ITEM 5.   EXPLORE POSSIBLE MECHANISMS FOR COLLABORATION TO SUPPORT DEVELOPMENT OF A DEEP-SEA TAXONOMIC KNOWLEDGE PLATFORM, AND NECESSARY LONG-TERM CAPACITY DEVELOPMENT WITHIN THE CONTEXT OF ISA

22.   Under this agenda item, a panel discussion will be organized, and the following experts from various backgrounds and expertise will be invited to share their ideas and insights on ways and means to enhance collaboration and contribution to the development of a deep-sea taxonomic knowledge platform:

- Nicolas Puillandre (Museum of Natural History, France)
- Tim O'Hara (Natural History Museum Victoria, Australia)
- Chong Chen (Japan Agency for Marine-Earth Science and Technology-JAMSTEC, Japan)
- Samantha Smith (Global Sea Mineral Resources-GSR, Belgium)
- Koh-Siang Tan (Ocean Mineral Singapore-OMS, Singapore)
- Tina Molodtsova (P. P. Shirshov Institute of Marine Biology of Russian Academy of Sciences, Russia)
- Magdalena Błażewicz, (University of Lodz, Poland)
- Mauricio Shimabukuru (ISA Secretary-General Awardee, Brazil)
- Jinwook Back (National Marine Biodiversity Institute of Korea-MABIK, Republic of Korea)
- Ward Appeltans (Ocean Biodiversity Information System-OBIS)

23.   Following the panel discussion, participants will be invited to ask questions and exchange insight and views, in response to the ideas, examples, and experiences presented by the panelists.

ITEM 6.   SUMMARY AND CONCLUSION

24.   The workshop co-chairs will provide a summary of the workshop results, including suggested approaches to promote effective integration of deep-sea taxonomic information into efforts towards sustainable development within the context of the ISA.

25.   Participants will be invited to consider the workshop outputs and provide comments and suggestions.

ITEM 7. CLOSURE OF THE WORKSHOP

26.   The workshop is expected to close at 10:00 a.m. on Wednesday, 16 September 2020.

LIST OF DOCUMENTS FOR THE WORKSHOP

Prepared by	*Title*
ISA secretariat	Provisional agenda
ISA secretariat	Annotations to the provisional agenda
ISA secretariat	Action plan of the International Seabed Authority in support of the United Nations Decade of Ocean Science for Sustainable Development
ISA secretariat	Draft background document to compile scientific information relating to the workshop objectives.

PROPOSED ORGANIZATION OF WORK

Workshop Co-Chairs:
- **Gordon Paterson** (Member of Legal and Technical Commission of ISA)
- **Peter Ng** (Lee Kong Chian Natural History Museum, Singapore)

Day 1 - 15 September 2020 (Tuesday)

Time (Kingston, Jamaica; GMT-5)	Workshop activities
6.00 – 6.20 am	***Agenda item 1. Opening of the workshop*** • Secretary-General of the International Seabed Authority (ISA) • Deputy Minister of the Ministry of Ocean and Fisheries, Republic of Korea • President of the National Marine Biodiversity Institute of Korea • Executive Secretary of the Convention on Biological Diversity
6.20 – 6.40 am	***Agenda item 2. Workshop background, scope and expected outputs*** • Workshop background, scope and expected outputs o Jihyun Lee and Luciana Genio (ISA Secretariat) ***Q&A***
6.40 – 7.00 am	***Agenda item 3. Setting a context for deep-sea taxonomic standardization*** • Deep-sea taxonomy within the context of ISA: challenges and opportunities o Gordon Paterson (LTC member) ***Q&A***

7.00 – 8.00 am	***Agenda item 4. Overview of needs and approaches for advancing deep-sea taxonomic knowledge within the context of ISA***
	
	Theme I. Building reference databases, collections, and libraries: sharing and archiving of taxonomic information
	   o Tammy Horton (Chair, World Register of Marine Species Steering Committee, UK)
	   o Pedro Martinez Arbizu (Senckenberg Research Institute Germany)

	Theme II. Developing tools for biodiversity assessment and monitoring: automated image analysis and environmental DNA (eDNA)
	   o Kerry Howell (Plymouth University, UK)
	   o Masaki Miya (Natural History Museum and Institute, Chiba, Japan)
	
	Q/A

8:00 – 8:10 am	*Break*

8:10 – 10:00 am	*(Agenda item 4. continued)*
	
	Breakout discussion for Theme I and II.
	• Participants will be divided into four groups, each representing a major faunal component, and the discussion will be led by the following facilitators:
	
	  1. **Microfauna / eDNA**
	      ▪ Xue-Wei Xu, Second Institute of Oceanography, Ministry of Natural Resources, China (facilitator)
	  2. **Meiofauna**
	      ▪ Daniela Zeppilli, the Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER), France (facilitator)
	  3. **Macrofauna**
	      ▪ Adrian Glover, Natural History Museum of London, UK (facilitator)
	  4. **Megafauna**
	      ▪ Erik Simon Lledo, National Oceanography Centre, UK (facilitator)
	
	Guiding questions:
	
	Theme I
	
	• How can quality assurance/control of taxonomic data be ensured? e.g. the role of voucher specimens, sample, and data curators, and intercalibration exercises.
	• What are some actions/steps (short-term and long-term) needed to advance taxonomic knowledge in a standardized manner?
	
	Theme II
	• Which tools are required to improve species identification in different mineral provinces currently under exploration?
	• What initiatives, networks, and resources are available, desirable, and/or needed to support key taxonomic groups?

	Note: The above questions are subject to change by workshop co-chairs based on workshop deliberations.

Day 2 - 16 September 2020 (Wednesday)

Time (Kingston, Jamaica; GMT-5)	Workshop Activities
6.00 – 7.15 am	*(Agenda item 4. continued)* • Facilitators of each group will deliver a presentation on the results of their respective breakout discussion, including elements for a draft roadmap to promote effective integration of deep-sea taxonomic information into efforts towards sustainable development within the context of ISA. *Plenary discussion*
7.15 – 9.15 am	*Agenda item 5. Explore possible mechanisms for collaboration to support development of deep-sea taxonomic knowledge platform, and necessary long-term capacity development within the context of ISA* **Panel discussion:** • Nicolas Puillandre, Muséum National d'Histoire Naturelle France; • Tim O'Hara, Natural History Museum Victoria, Australia; • Chong Chen, Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan; • Samantha Smith, Global Sea Mineral Resources (GSR), Belgium; • Koh-Siang Tan Ocean Mineral Singapore (OMS), Singapore; • Tina Molodtsova, P. P. Shirshov Institute of Marine Biology of Russian Academy of Sciences, Russia; • Magdalena Błażewicz, (University of Lodz, Poland • Mauricio Shimabukuru, ISA Secretary-General Awardee, Brazil • Jinwook Back, National Marine Biodiversity Institute of Korea (MABIK) • Ward Appeltans, Ocean Biodiversity Information System (OBIS) *Guiding questions:*

	- What would be the key features for a platform to facilitate exchange of deep-sea taxonomic expertise and techniques? - Which training methodologies and activities could effectively enhance individual and institutional capacity related to deep-sea taxonomy? ***Plenary Discussion***
9.15 – 9.30 am	*Health break*
9.30 – 10.00 am	***Agenda item 6. Summary and conclusion by Co-Chairs*** ***Agenda item 7. Closing of the workshop***