Workshop background, including the key results of the relevant previous workshops, and expected outputs : ISA's approach for the REMP development

Jihyun Lee
Director of Office of Environmental Management and Mineral Resources, ISA

WORKSHOP ON THE REGIONAL ENVIRONMENTAL MANAGEMENT PLAN FOR THE AREA OF THE NORTHERN MID-ATLANTIC RIDGE
25-29 November 2019, Évora, Portugal

Part XI of the Convention, art 145

Necessary measures shall be taken […] to ensure effective protection for the marine environment from the harmful effects which may arise from such activities. To this end, the Authority shall adopt appropriate **rules, regulations and procedures for inter alia**:

(a) The **prevention, reduction and control of pollution and other hazards to the marine environment**, including the coastline, and of interference with the **ecological balance of the marine environment,** particular attention being paid to the need for protection from the harmful effects of such activities as drilling, dredging, excavating, disposal of waste, and construction and operation or maintenance of installations, pipelines and other devices related to such activities;

(b) The p**rotection and conservation of the natural resources of the Area, and the prevention of damage to the flora and fauna of the marine environment.**

Part XII of the Convention, art. 194 (5)

The measures taken in accordance with this Part shall include those necessary to **protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.**

ISA Strategic Plan (2019-2023)

Strategic Direction 3

Protect the marine environment

(ISBA/24/A/10)

Environmental Impact/Risk Assessment (SD 3.5)

- Inherent ecological and biological vulnerability of deep sea habitats; High level of uncertainty; Limited knowledge
- Loss of substrate and subsequent biodiversity loss
- Direct effects (operational plume and re-sedimentation, light and noise)
- Discharge plume and its effects on pelagic/benthic organisms

Adaptive, practical and technically feasible regulatory framework (SD 3.1)

Environmental monitoring, modelling, data management and information access (SD. 3.3, 3.4)

Regional Environmental Assessment and Management Plan (SD 3.2)

- Ecosystem-based and holistic approach (addressing cumulative impacts)
- Precautionary approach and adaptive management
- Area-based management tools (APEIs, VMEs, etc)
- Participatory & Transparent approach (data/information sharing/communication)
- Strategic approach: Goals/Objectives/Targets/Indicator
- Environmental Baseline and monitoring

- Development of REMP is an essential element of the **strategic plan** (2019-2023) adopted by the Assembly in 2018 (ISBA/24/A/10), which occupies a central part in the **high level action plan** endorsed by the Assembly in 2019 (ISBA/25/A/15).

- The Council also considered essential that the development of those plans be carried out under **the auspices of the Authority** through a **transparent and coordinated process** in light of its jurisdiction under the Convention and the Agreement relating to the Implementation of Part XI of the Convention (ISBA/24/C/8).

- Plans are established by a **decision of the Council, on recommendations of the Legal and Technical Commission**, and each **Contractor "undertakes […] to comply with […] the decisions of relevant organs of the Authority"**, including those establishing the REMP.

- Council encouraged the secretariat and the Commission to make progress on the development of regional environmental management plans, in particular where there are currently exploration contracts, while taking note of a report on the implementation of the strategy (ISBA/25/C/13), including a **programme of work to develop those plans through a series of workshops** planned during 2019-2020.

Guidance to facilitate the development of Regional Environmental Management Plans (REMPs)
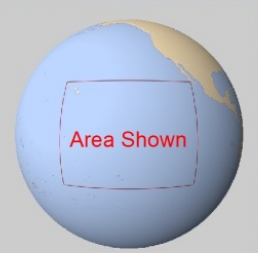
International Seabed Authority Secretariat

I. Purpose and scope of the document
II. ISA process of developing REMPs
III. REMPs and the draft regulations on exploitation of mineral resources in the Area and other relevant ISA rules, regulations & procedures
IV. Scientific and technical approaches for developing REMPs
V. Compilation of scientific data/information as inputs to the development of REMPs
VI. Indicative elements of REMPs
Annexes
References
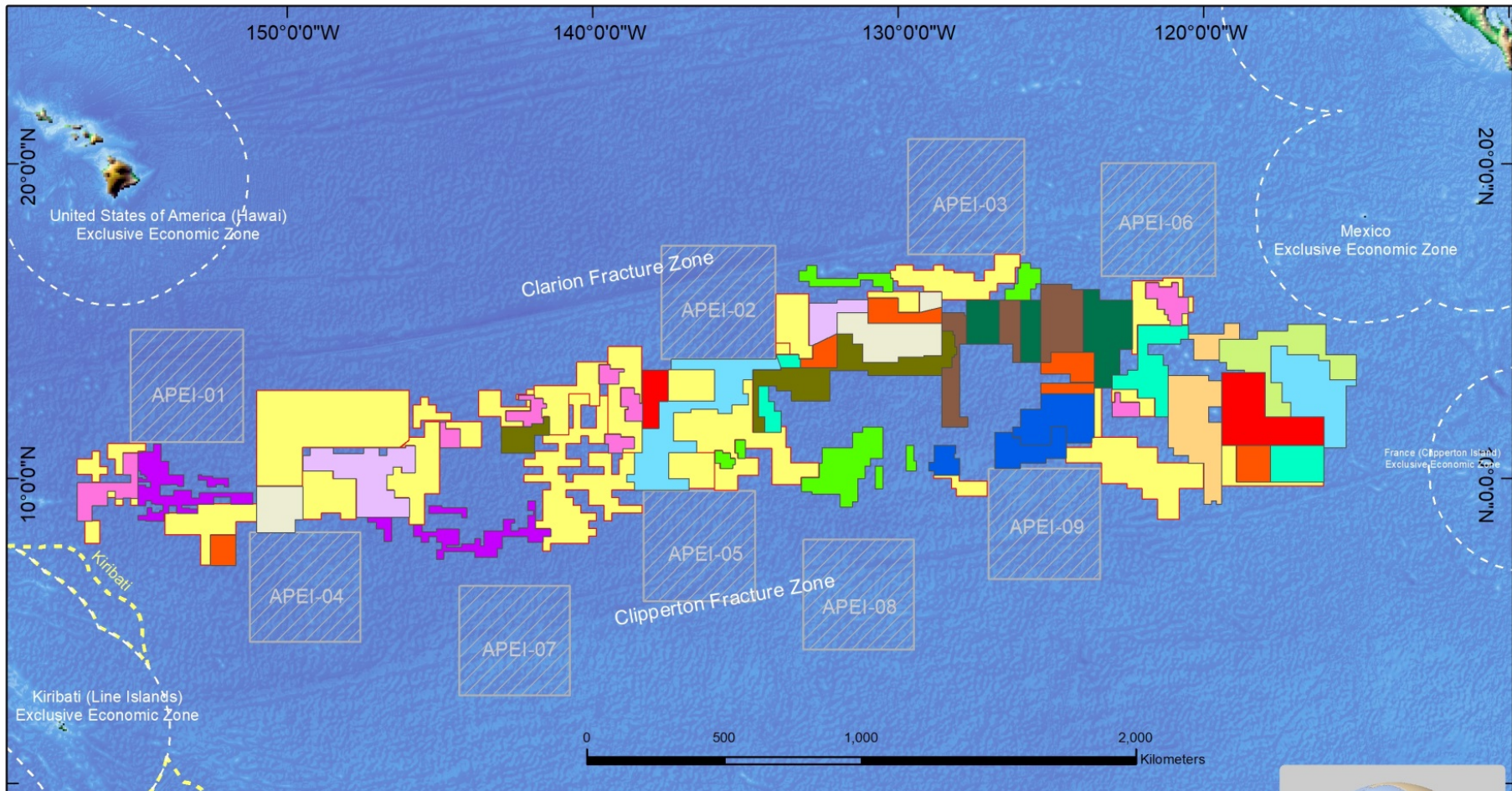
Clarion-Clipperton Fracture Zone Exploration Areas for Polymetallic Nodules

■ (red)	Federal Institute for Geosciences and Natural Resources of the Federal Republic of Germany (BGR; Germany)	■ (cream)	Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER; France)
■ (brown)	Cook Islands Investment Corporation (CIIC; Cook Islands)	■ (blue)	Marawa Reseach and Exploration Ltd (Kiribati)
■ (pink)	China Minmetals Corporation (CMC; China)	■ (teal)	Nauru Ocean Resources Inc. (NORI; Nauru)
■ (magenta)	China Ocean Mineral Resources Research and Development Association (COMRA; China)	■ (light green)	Ocean Mineral Singapore PTE Ltd. (OMS; Singapore)
■ (lavender)	Deep Ocean Resources Development Co. Ltd. (DORD; Japan)	■ (orange)	Tonga Offshore Mining Limited (TOML; Tonga)
■ (dark green)	Global Sea Mineral Resources NV (GSR; Belgium)	■ (light blue)	UK Seabed Resources Ltd. (UKSRL; UK-I, UK-II)
■ (green)	Government of the Republic of Korea	■ (olive)	Yuzhmorgeologiya (Russian Federation)
■ (tan)	Interoceanmetal Joint Organization (IOM; Bulgaria, Cuba, Czech Republic, Poland, Russian Federation and Slovakia)	■ (yellow)	Remaining Reserved Areas
▢ (dashed)	Exclusive Economic Zones (EEZ)	▢ (yellow dashed)	Submission to the Commision for the Limits of the Continental Shelf
		▨ (hatched)	Areas of Particular Environmental Interest (APEI)

Map Background Sources: Marineregions.org. Accessed at http://www.marineregions.org on 1 March 2018.Oset Garcia, P.; Souza Dias, F.; Claus, S.; De Hauwere, N.; Vanhoorne, B.; Hernandez, F.; Mees, J. (2017) A new version of the Maritime Boundaries Geodatabase (Flanders Marine Institute).

Area Shown

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(Mar. 2019)

Key Results of Szczecin Workshop, Poland, June 2018

- **Goals and objectives**
  - Applicable goals from CCZ EMP
  - Framework for data collection and compilation
  - Contributing to international goals and targets
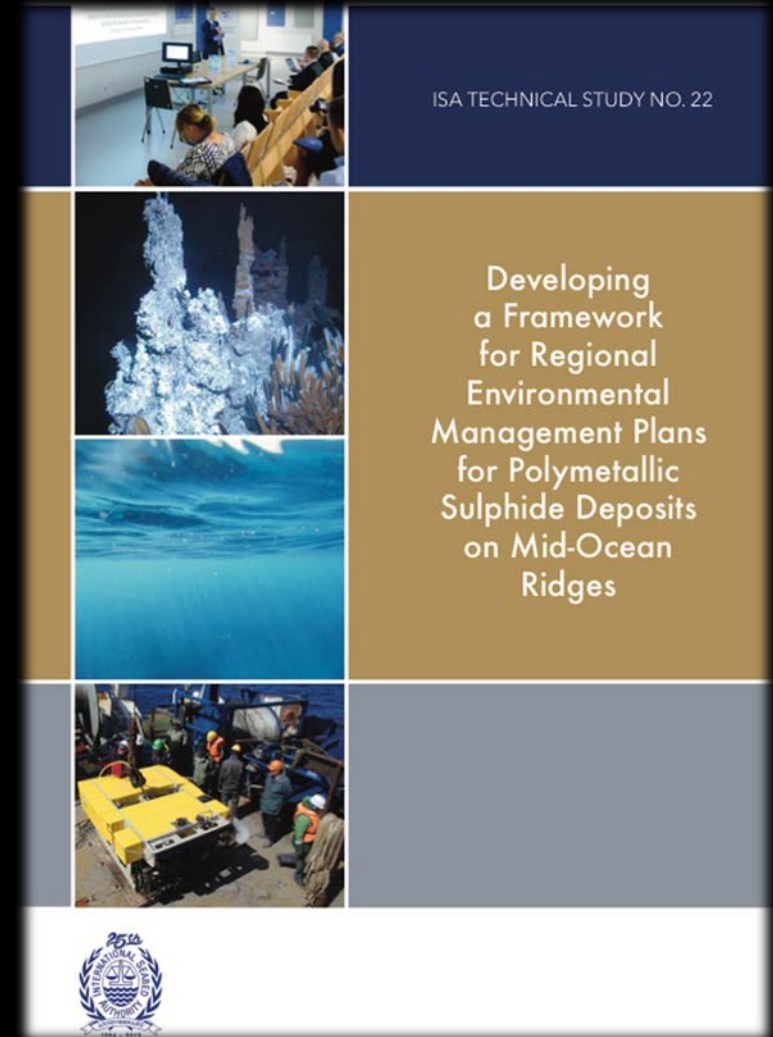- **Key considerations of REMP design**
  - Regional and site-scale conservation planning
  - REMPs in support of EIA (e.g. IRZ, PRZ)
- **Design principles for APEIs**
  - Flexibility, replication, assessment metrics
- **Knowledge Gaps**
  - Environmental baselines, mining technologies, stakeholder roles, terminology

ISA TECHNICAL STUDY NO. 22

Developing a Framework for Regional Environmental Management Plans for Polymetallic Sulphide Deposits on Mid-Ocean Ridges

Contracts for Polymetallic Nodules

75 cruises in 18 years

Contracts for Polymetallic Sulphides

26 cruises in 7 years

2012
2013
2014
2015
2016
2017
2018

Contracts for Cobalt-rich Ferromanganese Crusts

13 cruises in 5 years

2014
2015
2016
2017
2018

ISA DeepData
(http://data.isa.org.jm)

International Seabed Authority

DeepData

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Contractors - Mineral Type

- ALL
- China Minmetals Corporation – PMN
- China Ocean Mineral Resources Research and Development Association – CRFC
- China Ocean Mineral Resources Research and Development Association – PMN
- China Ocean Mineral Resources Research and Development Association – PMS
- Companhia de Pesquisa de Recursos Minerais S.A. – CRFC
- Cook Islands Investment Corporation – PMN
- Deep Ocean Resources Development Co. Ltd. – PMN
- Federal Institute for Geosciences and Natural Resources of Germany – PMN
- Federal Institute for Geosciences and Natural Resources of Germany –

Esri, GEBCO, DeLorme | Esri, GEBCO, IHO-IOC GEBCO, NGS

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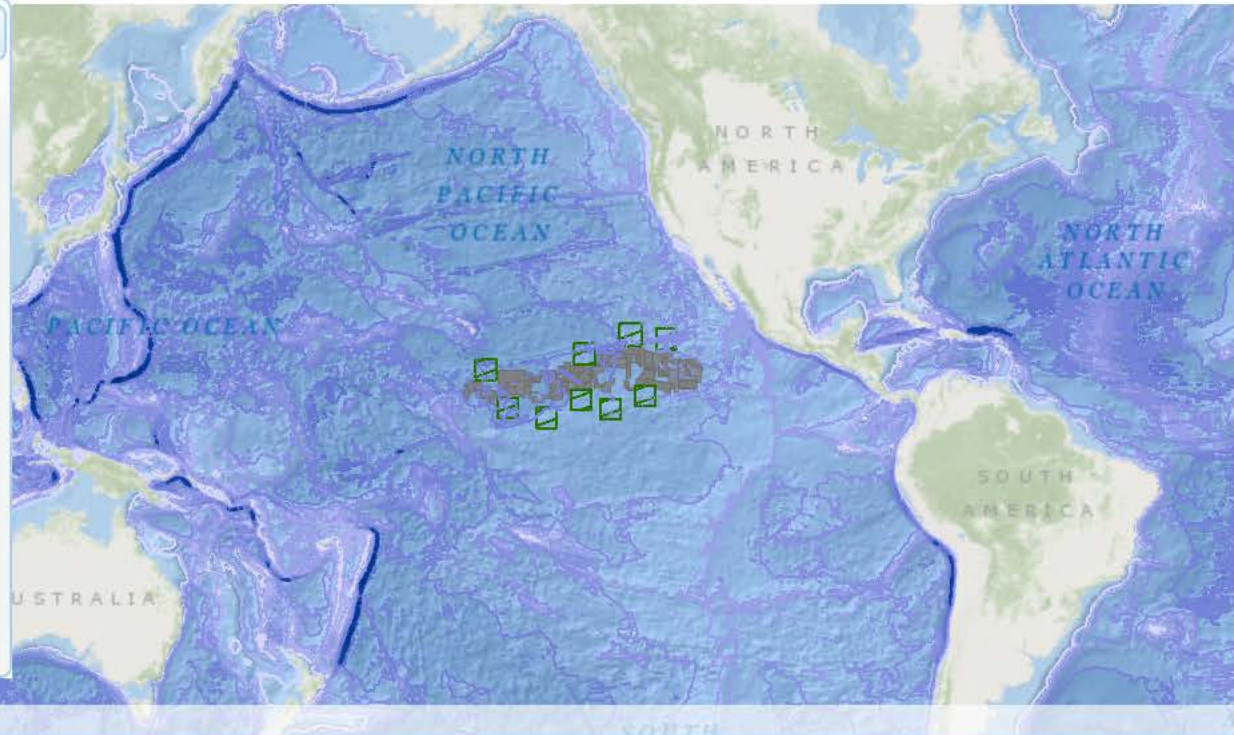
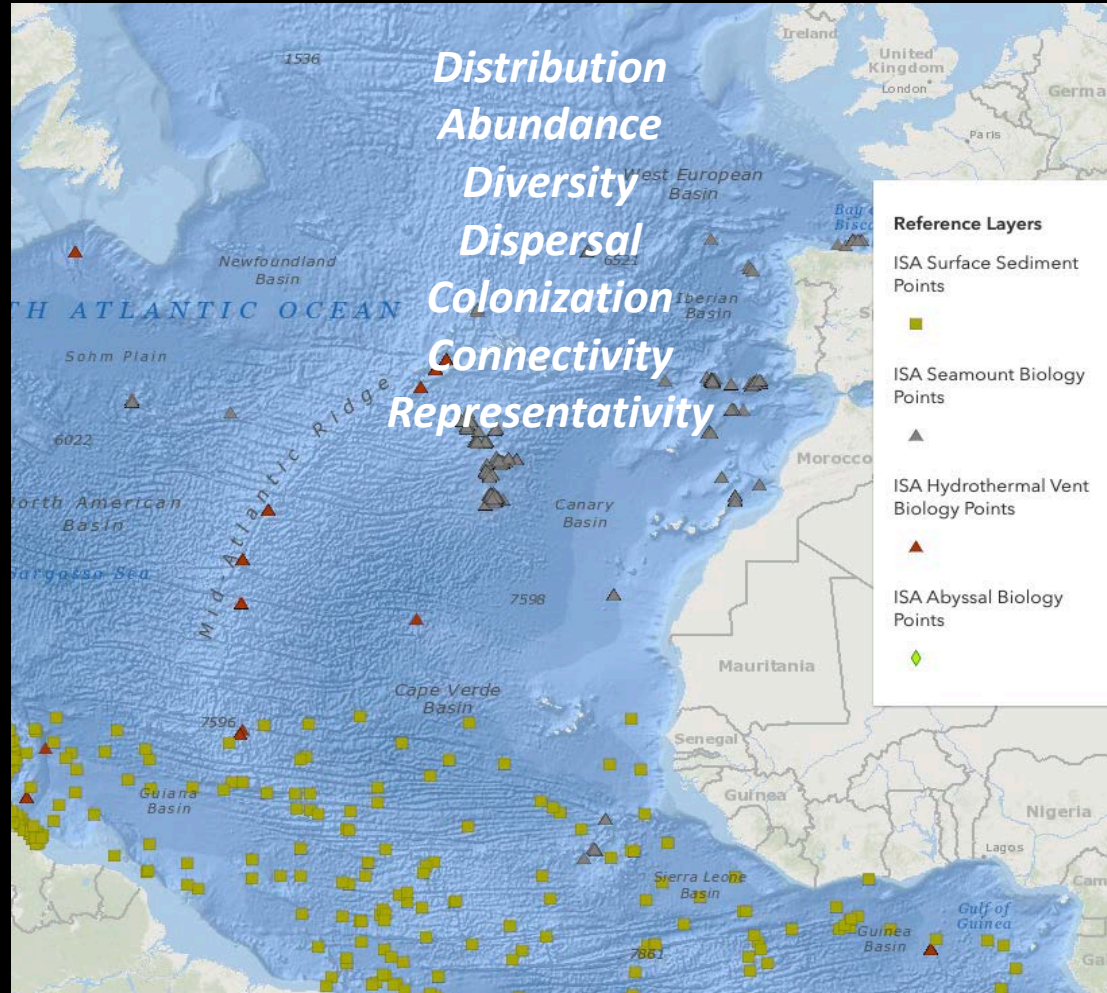| #																	
70	COMRAPMS1X_058	NA	NR		58	DY115-30_30	Da Yang Yi	30I-CTD04-1	30I-CTD04-1-201.188	Public	-37.6489	50.44434	12/29/2013 0:00	201.188	Ammonium (NH4-N)	-0.00061147	mg/L	Nutrients
71	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	2	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
72	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	10	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
73	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	30	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
74	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	50	Chlorophyll a	0.04	mg/m3	CTD Sensor Readi
75	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	75	Chlorophyll a	0.07	mg/m3	CTD Sensor Readi
76	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	100	Chlorophyll a	0.29	mg/m3	CTD Sensor Readi
77	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	110	Chlorophyll a	0.07	mg/m3	CTD Sensor Readi
78	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	125	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
79	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	150	Chlorophyll a	0.01	mg/m3	CTD Sensor Readi
80	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S009	30I-SWIR-S009CTD01-	Public	-33.5084	54.9053	12/23/2013 9:00	200	Chlorophyll a	0	mg/m3	CTD Sensor Readi
81	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	2	Chlorophyll a	0.04	mg/m3	CTD Sensor Readi
82	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	10	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
83	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	30	Chlorophyll a	0.03	mg/m3	CTD Sensor Readi
84	COMRAPMS1X_098	NA	NR		98	DY115-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	50	Chlorophyll a	0.22	mg/m3	CTD Sensor Readi
85	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	75	Chlorophyll a	0.13	mg/m3	CTD Sensor Readi
86	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	100	Chlorophyll a	0.02	mg/m3	CTD Sensor Readi
87	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	110	Chlorophyll a	0.01	mg/m3	CTD Sensor Readi
88	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	125	Chlorophyll a	0	mg/m3	CTD Sensor Readi
89	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	150	Chlorophyll a	0	mg/m3	CTD Sensor Readi
90	COMRAPMS1X_098	NA	NR		98	DY125-30_1	Da Yang Yi	30I-SWIR-S012	30I-SWIR-S012CTD02-	Public	-34.3871	55.4747	12/23/2013 22:22	200	Chlorophyll a	0	mg/m3	CTD Sensor Readi
91	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	2	Chlorophyll a	0.04	mg/m3	CTD Sensor Readi
92	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	10	Chlorophyll a	0.06	mg/m3	CTD Sensor Readi
93	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	30	Chlorophyll a	0.08	mg/m3	CTD Sensor Readi
94	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	50	Chlorophyll a	0.05	mg/m3	CTD Sensor Readi
95	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	75	Chlorophyll a	0.27	mg/m3	CTD Sensor Readi
96	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	90	Chlorophyll a	0.15	mg/m3	CTD Sensor Readi
97	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	100	Chlorophyll a	3.13	mg/m3	CTD Sensor Readi
98	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	110	Chlorophyll a	0.34	mg/m3	CTD Sensor Readi
99	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	125	Chlorophyll a	0.21	mg/m3	CTD Sensor Readi
100	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	150	Chlorophyll a	0.08	mg/m3	CTD Sensor Readi
101	COMRAPMS1_OA	OA	NA	OA	DY125-30_1	Da Yang Yi	30I-SWIR-S016	30I-SWIR-S016CTD03-	Public	-35.193	56.1676	12/24/2013 11:00	200	Chlorophyll a	0	mg/m3	CTD Sensor Readi
102	COMRAPMS1_OA	OA	NA	OA	DY125-26_26	Da Yang Yi	CTD1	CTD15	Public	-29.0218	61.57031	11/29/2012 0:00	5	Nitrate (NO3-N)	0.008484	mg/L	Nutrients
103	COMRAPMS1_OA	OA	NA	OA	DY125-26_26	Da Yang Yi	CTD1	CTD15	Public	-29.0218	61.57031	11/29/2012 0:00	5	Nitrite (NO2-N)	0.002352	mg/L	Nutrients
104	COMRAPMS1_OA	OA	NA	OA	DY125-26_26	Da Yang Yi	CTD1	CTD15	Public	-29.0218	61.57031	11/29/2012 0:00	5	Silicate (SiO3)	0.030184	mg/L	Nutrients
105	COMRAPMS1_OA	OA	NA	OA	DY125-26_26	Da Yang Yi	CTD1	CTD1100	Public	-29.0218	61.57031	11/29/2012 0:00	100	Phosphate (PO4-P)	0.002759	mg/L	Nutrients
106	COMRAPMS1_OA	OA	NA	OA	DY125-26_26	Da Yang Yi	CTD1	CTD1100	Public	-29.0218	61.57031	11/29/2012 0:00	100	Nitrate (NO3-N)	0.067452	mg/L	Nutrients
107	COMRAPMS1_OA	OA	NA	OA	DY125-26_26	Da Yang Yi	CTD1	CTD1100	Public	-29.0218	61.57031	11/29/2012 0:00	100	Nitrite (NO2-N)	0.000024	mg/L	Nutrients

DATA PRODUCTS

MULTIPLE USER-GROUPS

ISA Secretariat and LTC
Contractors
State Governments
Scientists
NGO'S
General Public

Distribution
Abundance
Diversity
Dispersal
Colonization
Connectivity
Representativity

Reference Layers

ISA Surface Sediment Points

ISA Seamount Biology Points

ISA Hydrothermal Vent Biology Points

ISA Abyssal Biology Points

✓ Data aggregation and synthesis
✓ Modeling and statistical analysis
✓ Spatial-temporal comparisons
✓ Data visualization and overlays
✓ Spatial planning tools

MULTIPLE PURPOSES

REMP
EIA
OUTREACH

ISA Workshop on the Regional Environmental Management Plan for the Area of the Northern Mid-Atlantic Ridge, in collaboration with the Gov of Russia and Atlantic REMP Project (15-19 June, 2020, St. Petersburg, Russian Federation)

Focus on identifying specific management measures and implementation framework for developing draft elements for inclusion in the REMP, including :

- management goals and objectives at regional scale

- area-based management measures ;

- application of environmental standards and guidelines

- development of environmental monitoring at the regional scale

- framework for assessment of cumulative impacts at the regional scale

- measures for enhancing ecosystem recovery, if applicable

- Technology development

- implementation measures including data gathering, analysis and synthesis; communication and reporting; monitoring, review and updating; knowledge gaps and priorities for future research; capacity building and technology transfer; collaboration and cooperation; financing mechanisms

Thank you

www.isa.org.jm