



IHO Standardization of Nautical Publications Working Group (SNPWG)

Progress of e-MIO project of EAHC

to 17th SNPWG Meeting

7 to 10 April 2014 - (Rostock, Germany)

Presentation by ROK on behalf of EAHC e-MIO WG

Introduction

- ❖ To contribute to the systematic research on various marine environmental matters and the effective response to maritime accidents such as oil spills,
- ❖ discussions took place on developing the marine environment MIO (Marine Information Overlay) which can be used together with the ENCs produced by HOs(hydrographic offices).



Introduction

- ♦ The development of marine environment MIO is not part of the usual work required for a hydrographic office.
- ♦ However, it was agreed that national hydrographic offices are the suitable organizations to perform the work so as there is a similarity between the ENCs and MIO information.
- ♦ Accordingly, the EAHC organized the e-MIO WG and agreed to conduct the e-MIO Test-bed Project. This agenda reports on the progress made in 2013 in the e-MIO Test-bed Project.



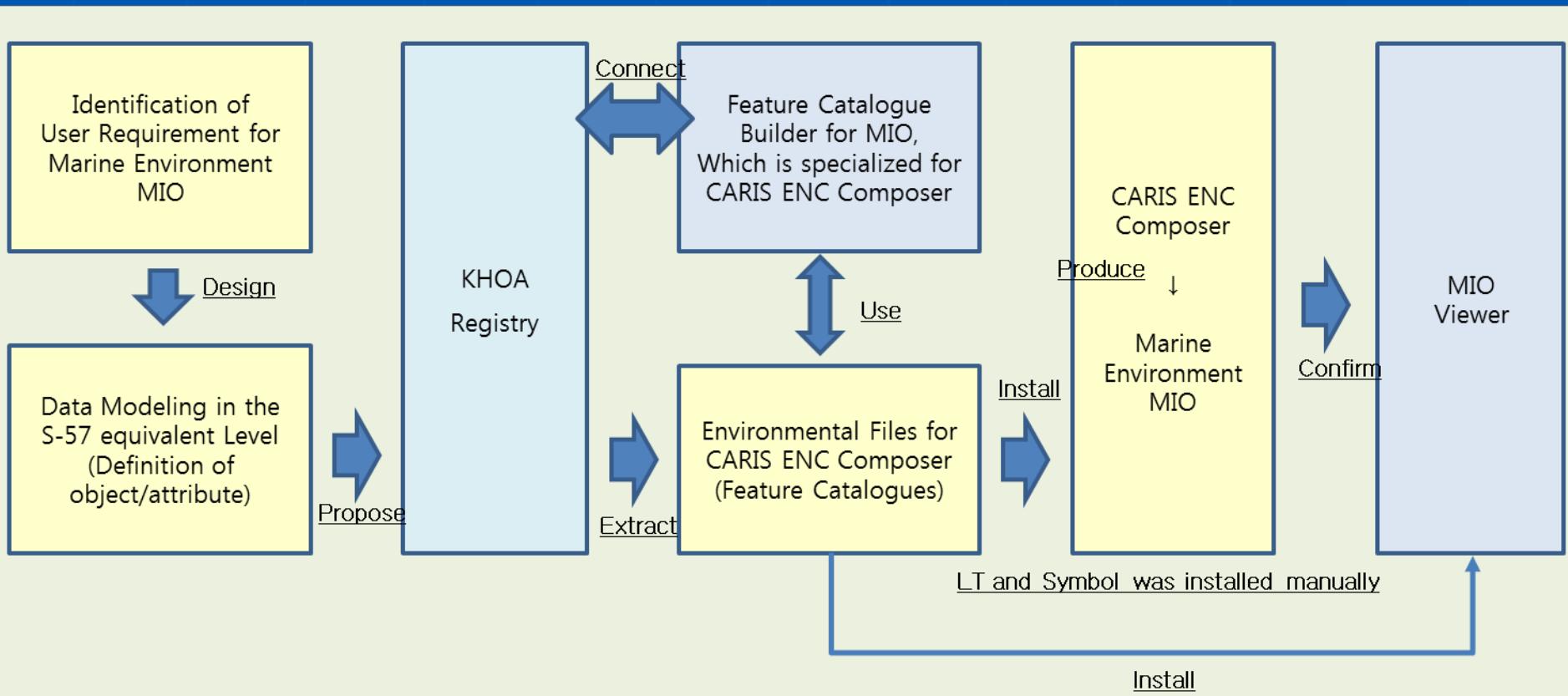
e-MIO Implementation Procedures and Key Information

- ♦ The following procedures were proposed for the development of e-MIO database:
 - (1) Phase 1 Test-bed Stage: Draft e-MIO product specifications for oil spills response in the level of S-57 Model, Produce test dataset for the e-MIOs, Develop an e-MIO viewer, Prepare and present a report on the results of the e-MIO test-bed project
 - (2) Phase 2 Actual Business Stage: Review the results of the pilot production for the e-MIOs, Establish a detailed schedule of the actual business stage
 - (3)Phase 3 S-100 Standard Application Stage: Develop S-10X standards regarding the e-MIOs, Establish an e-MIO S-10X dataset on a trial basis.



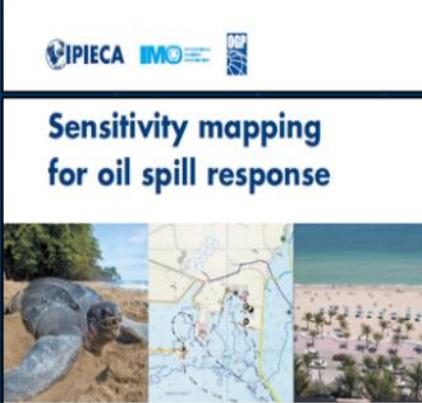
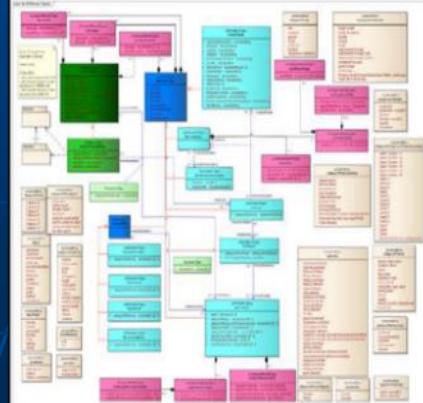
Development of e-MIO Test-Bed Model for EAHC

- To ensure successful implementation of the test-bed project and smooth transfer to S-10X dataset, the e-MIO WG developed the following e-MIO Test-Bed model



Draft e-MIO Product Specification for EAHC

- ➔ In developing the e-MIO product specifications, the e-MIO WG agreed to consider oil spills response and to use the relevant documents available at the IMO and NOAA as reference. The e-MIO WG reviewed the documents on oil spills response together with the HGMIO's General Content Specifications for MIO and IHO SNPWG's MPA specifications.

| | | | |
|--|--|---|---|
| <p>NOAA, Environmental Sensitivity Index Guidelines</p> <p>NOAA Technical Memorandum NOS OR&R 11</p> <p>Environmental Sensitivity Index Guidelines Version 3.0</p>  | <p>MPA and Coral Reef of HGMIO</p> <p>GEO OBJECT CLASSES</p> <p>Object Class: Coral Reef</p> <p>Acronym: crlf</p> <p>Code: 31400</p> <p>Set Attribute_A: crlf, crcov, stctr, COLOUR, NATSLR, NATOIJU, NOBLNM, OBNJAM</p> <p>Set Attribute_B: INFORM, NINFOM, NTXTD5, SCAMAX, SCAMIN, TXTDSC, RECDAT, RECIND, SORDAT, SORIND;</p> <p>Set Attribute_C:</p> <p>Definition:</p> <p>reef (general) - A mass of rock or coral which either reaches close to the sea surface or is exposed at low tide, posing a hazard to navigation. (IHO Dictionary, S-32, 5th Edition)</p> <p>Coral reef - A reef, often of large extent, composed chiefly of coral and its derivatives. (IHO Dictionary, S-32, 5th Edition)</p>  | <p>IMO/IPIECA, Sensitivity mapping for oil spill response</p> <p>IPIECA IMO</p> <p>Sensitivity mapping for oil spill response</p>  | <p>MPA of IHO, SNPWG</p>  |
|--|--|---|---|

Draft e-MIO Product Specification for EAHC

- ➔ As the HGMIO provides template documents for the production of MIO Product Specifications, these template documents can be used as a reference in developing the e-MIO Product Specifications.
- ➔ The table of contents of the MIO specifications consists of the following:
 - Contents (Introduction, General information, Objects and attributes, Cartographic framework, Provision of data, Application profiles)
 - Object / Attribute Catalogue, Symbol and Look-up Table



Draft e-MIO Product Specification for EAHC

♦ Object / Attribute Catalogue

| GEO OBJECT CALSSES | | |
|---|---|-------------|
| Object Class: Environmental Sensitivity Index | | |
| Acronym: | <u>esilne</u> | Code: 31300 |
| Set Attribute_A: | catesi; COLOUR; CONRAD; CONVIS; ELEVAT; NOBJNM; OBJNAM; | |
| Set Attribute_B: | INFORM; NINFOM; NTXTDS; SCAMAX; SCAMIN; TXTDSC; | |
| Set Attribute_C: | RECDAT; RECIND; SORDAT; SORIND; | |
| Geometric Primitives: | Line; Area; | |

| GEO OBJECT CALSSES | | |
|--|---|-------------|
| Object Class: Sensitive Biological Resources | | |
| Acronym: | <u>biores</u> | Code: 31100 |
| Set Attribute_A: | catbio; COLOUR; NATSUR; NATQUA; NOBJNM; OBJNAM; | |
| Set Attribute_B: | INFORM; NINFOM; NTXTDS; SCAMAX; SCAMIN; TXTDSC; | |
| Set Attribute_C: | RECDAT; RECIND; SORDAT; SORIND; | |
| Geometric Primitives: | Point; Area; | |

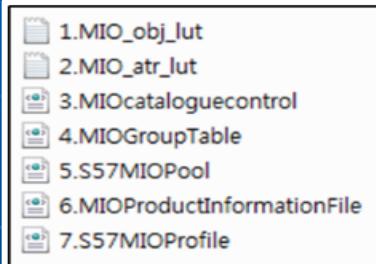
| GEO OBJECT CALSSES | | |
|-------------------------------------|---|-------------|
| Object Class: Marine Protected Area | | |
| Acronym: | <u>mpaaare</u> | Code: 30501 |
| Set Attribute_A: | catiuc; typmpa; consty; DATEND; DATSTA; DRVAL1; DRVAL2; | |
| | confcs; levprt; ecoscl; NOBJNM; OBJNAM; PEREND; | |
| | perman; PERSTA; RESTRN; STATUS; | |
| Set Attribute_B: | INFORM; NINFOM; NTXTDS; SCAMAX; SCAMIN; TXTDSC; | |
| Set Attribute_C: | RECDAT; RECIND; SORDAT; SORIND; | |
| Geometric Primitives: | Point; Area; | |

| GEO OBJECT CALSSES | | |
|---|---|-------------|
| Object Class: Socio economic human features | | |
| Acronym: | <u>humres</u> | Code: 31200 |
| Set Attribute_A: | cathum; DATEND; DATSTA; NOBJNM; OBINAM; PEREND; PERSTA; STATUS; | |
| Set Attribute_B: | INFORM; NINFOM; NTXTDS; SCAMAX; SCAMIN; TXTDSC; | |
| Set Attribute_C: | RECDAT; RECIND; SORDAT; SORIND; | |
| Geometric Primitives: | Point; Area; | |



Draft e-MIO Product Specification for EAHC

- Also, the e-MIO WG reviewed the symbols and look-up table in accordance with S-52 PL 3.4 in order to display e-MIO dataset on ENC as follows:



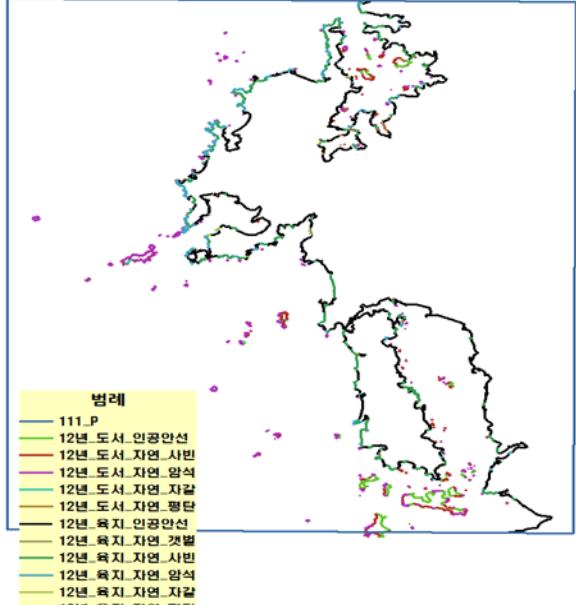
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Production of e-MIO test dataset and Viewer

- Source data has been collected to establish e-MIO test data for Tae-an region located in the west coast, ROK.

| Coastline Classification Data(DXF) | Marine Environment Data From Korean Coast Guard | Data regarding to Oil-spill response |
|---|---|---|
|  <p>범례</p> <ul style="list-style-type: none">111_P12년_도서_인공안선12년_도서_자연_사빈12년_도서_자연_암석12년_도서_자연_자갈12년_도서_자연_평단12년_육지_인공안선12년_육지_자연_갯벌12년_육지_자연_사빈12년_육지_자연_암석12년_육지_자연_자갈12년_육지_자연_평단 | <ul style="list-style-type: none">갯벌.dbf갯벌.prj갯벌갯벌.shx갯벌명칭.dbf갯벌명칭.prj갯벌명칭갯벌명칭.shx생태계보전지역.dbf생태계보전지역.prj생태계보전지역생태계보전지역.shx습지보호지역.dbf습지보호지역.prj습지보호지역습지보호지역.shx | <ul style="list-style-type: none">Facilities for HNSOrganization for oil-spill responseMaterials for oil-spill responseBiological dataFish farmBoundary for fisheryNatural monumentBeach |

established e-MIO test dataset which can be overlapped with ENC (Usage Band 4) for Tae-an region located in the west coast

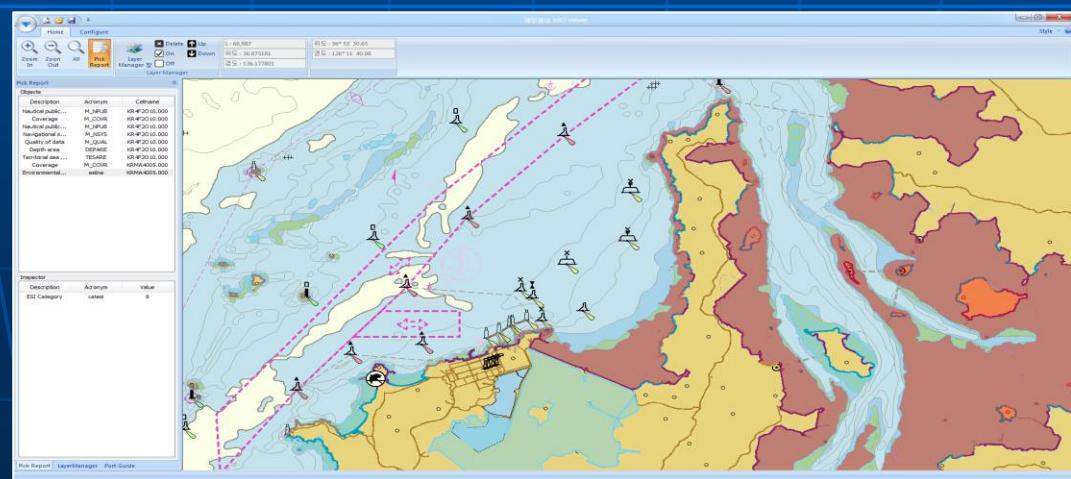
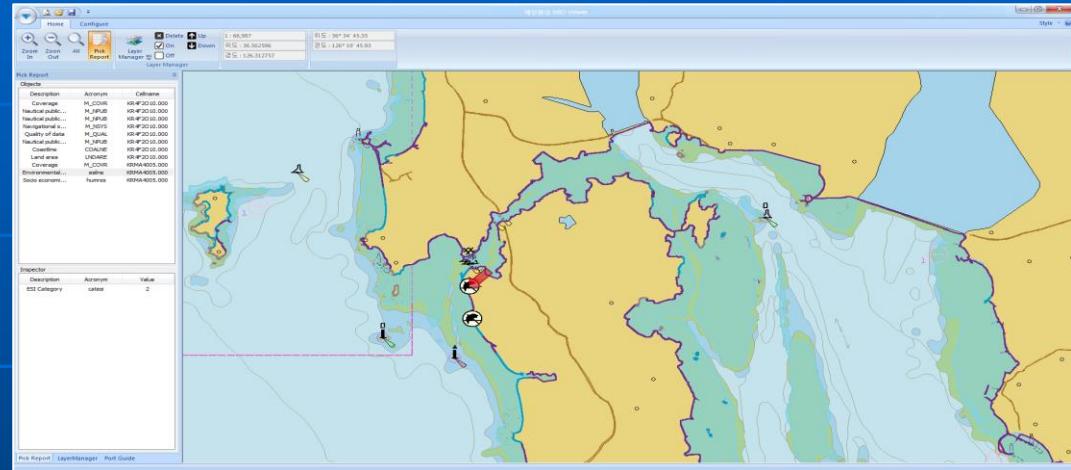
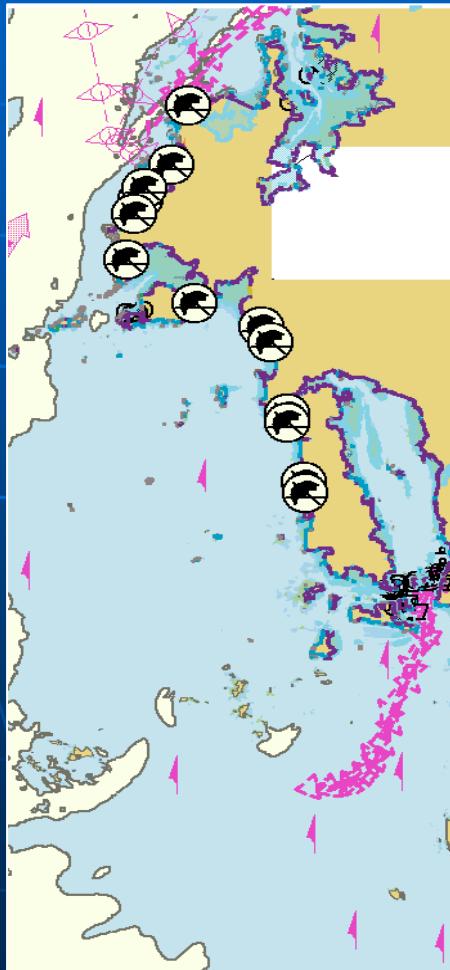
Production of e-MIO test dataset and Viewer

- ★ ROK has established e-MIO test dataset which can be overlapped with ENC (Usage Band 4) for Tae-an region located in the west coast
- ★ The e-MIO Viewer has functions such as loading and displaying of Shape and ENC file, GIS basic function, Layer On/Off, changing of layer display order, and pick report as a viewer not only for ENC but e-MIO data set
- ★ ROK tested the e-MIO test dataset with Tae-an MIO data established in this Test-Bed and two ROK ENC cells



Production of e-MIO test dataset and Viewer

♦ E-MIO Viewer



Recommendations

- ➔ When the e-MIO project of EAHC was introduced at the TSMAD Meeting, SNPWG chair recommend that the e-MIO data model have to be aligned with the MPA model of SNPWG.
- ➔ But, as the schedule of test bed project was too short, the MPA model was not considered sufficiently in the development of e-MIO product specification.
- ➔ Therefore ROK will try to redesign the e-MIO Model considering the MPA Model of SNPWG and seek to find a method to change from S-57 model to S-10X model in the future.



Action Required of SNPWG

- ★ The SNPWG is invited to:
 - Take note of this initiative.
 - Provide recommendations that may be helpful in developing S-10X standard for marine environmental protection in the future

