



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 ENC's 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 ENC's 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.



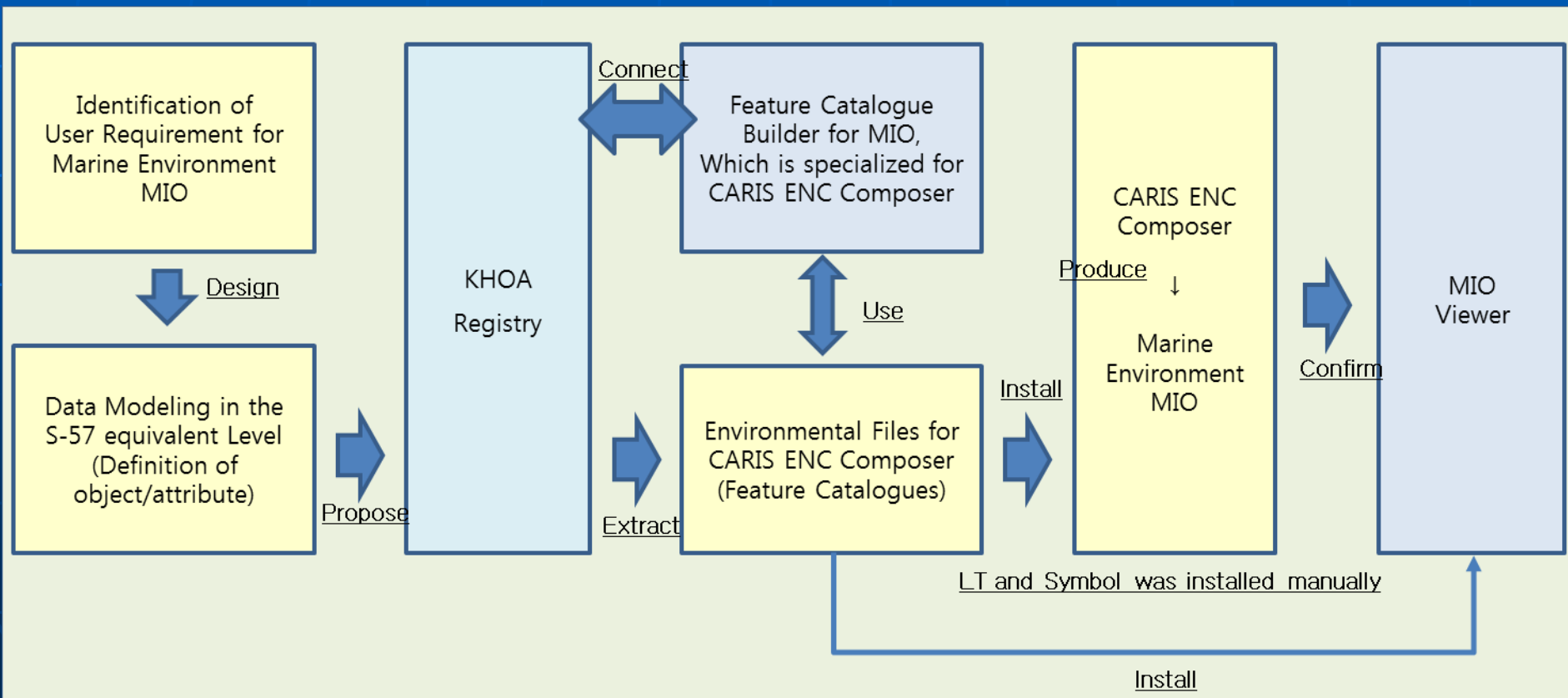
# e-MIO Implementation Procedures and Key Information

- ✦ 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

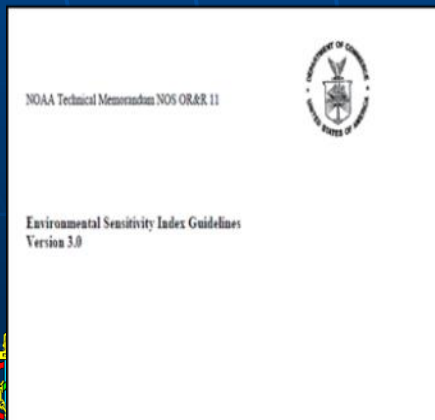




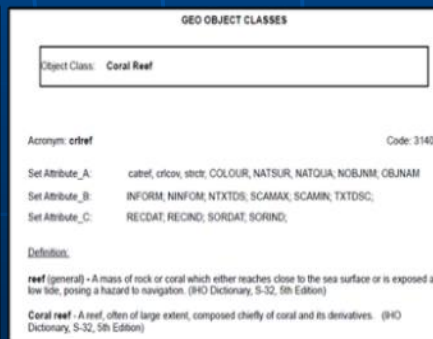
# Draft e-MIO Product Specification for EAHC

- ✦ 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 HGMI0's General Content Specifications for MIO and IHO SNPWG's MPA specifications.

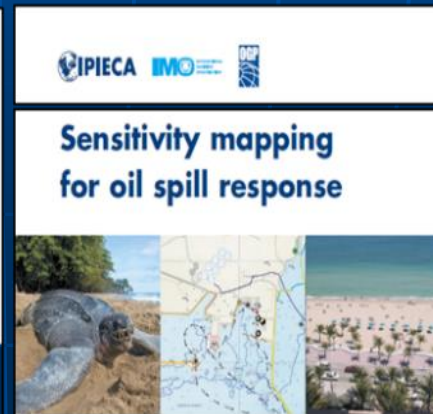
## NOAA, Environmental Sensitivity Index Guidelines



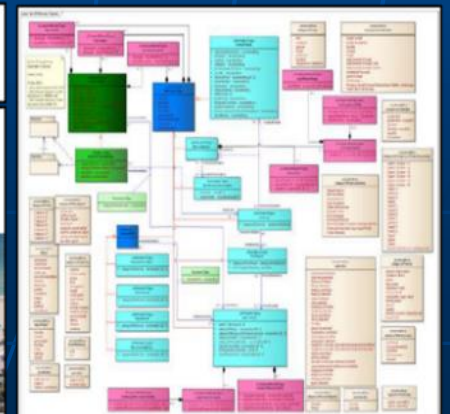
## MPA and Coral Reef of HGMI0



## IMO/IPIECA, Sensitivity mapping for oil spill response



## MPA of IHO, SNPWG



# 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 <u>Attribute_A</u> :	<u>cates</u> ; COLOUR; CONRAD; CONVIS; ELEVAT; NOBJNM; OBJNAM;
Set <u>Attribute_B</u> :	INFORM; NINFOM; NTXTDS; SCAMAX; SCAMIN; TXTDSC;
Set <u>Attribute_C</u> :	RECDAT; RECIND; SORDAT; SORIND;
Geometric Primitives:	Line; Area

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

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

GEO OBJECT CALSSES	
Object Class: Socio economic human features	
Acronym:	<u>humres</u> Code: 31200
Set <u>Attribute_A</u> :	<u>cathum</u> ; DATEND; DATSTA; NOBJNM; OBJNAM; PEREND; PERSTA; STATUS;
Set <u>Attribute_B</u> :	INFORM; NINFOM; NTXTDS; SCAMAX; SCAMIN; TXTDSC;
Set <u>Attribute_C</u> :	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:

- 1.MIO\_obj\_lut
- 2.MIO\_atr\_lut
- 3.MIOcataloguecontrol
- 4.MIOGroupTable
- 5.S57MIOPool
- 6.MIOProductInformationFile
- 7.S57MIOProfile

```

<?xml version="1.0" encoding="UTF-8" ?>
- <CatalogueControlFactory Version="1.0">
- <Product Name="MIO 1.0" Id="60" Version="1.0">
  <Profile Type="XML" Name="%S57Config%\system\S57MIOProfile.xml" />
  <Dictionary Type="XML" Name="%S57Config%\system\s5731Pool.xml" />
  <Dictionary Type="XML" Name="%S57Config%\system\S57MIOPool.xml" />
</Product>
</CatalogueControlFactory>

```





  

```




"esilne", "catesi1", "LS(SOLD,3,ESI01)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi2", "LS(SOLD,3,ESI01)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi3", "LS(SOLD,3,ESI01)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi4", "LS(SOLD,3,ESI02)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi5", "LS(SOLD,3,ESI02)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi6", "LS(SOLD,3,ESI03)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi7", "LS(SOLD,3,ESI03)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi8", "LS(SOLD,3,ESI04)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi9", "LS(SOLD,3,ESI05)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi10", "LS(SOLD,3,ESI06)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi11", "LS(SOLD,3,ESI07)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi12", "LS(SOLD,3,ESI08)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi13", "LS(SOLD,3,ESI09)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi14", "LS(SOLD,3,ESI10)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi15", "LS(SOLD,3,ESI11)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi16", "LS(SOLD,3,ESI11)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi17", "LS(SOLD,3,ESI11)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi18", "LS(SOLD,3,ESI12)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi19", "LS(SOLD,3,ESI12)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi20", "LS(SOLD,3,ESI12)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi21", "LS(SOLD,3,ESI13)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi22", "LS(SOLD,3,ESI14)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi23", "LS(SOLD,3,ESI15)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi24", "LS(SOLD,3,ESI16)", "8", "0", "DISPLAYBASE", "12010"
"esilne", "catesi25", "LS(SOLD,3,ESI16)", "8", "0", "DISPLAYBASE", "12010"

```

MPA

HNS

File Edit View Help 파싱


Test Color Table

HNS

Ready

File Edit View Help 파싱


Test Color Table



Ready

File Edit View Help 파싱

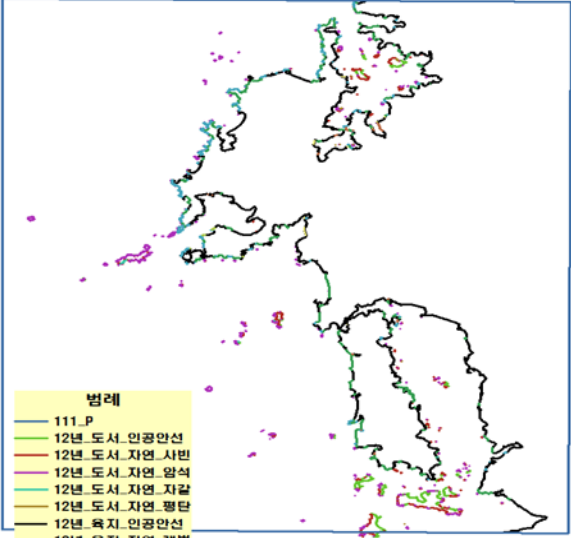
Test Color Table



Ready

# 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	established e-MIO test dataset which can be overlapped with ENC (Usage Band 4) for Tae-an region located in the west coast
 <p><b>범례</b></p> <ul style="list-style-type: none"><li>111_P</li><li>12년_도서_인공안선</li><li>12년_도서_자연_사빈</li><li>12년_도서_자연_암석</li><li>12년_도서_자연_자갈</li><li>12년_도서_자연_평탄</li><li>12년_육지_인공안선</li><li>12년_육지_자연_갯벌</li><li>12년_육지_자연_사빈</li><li>12년_육지_자연_암석</li><li>12년_육지_자연_자갈</li><li>12년_육지_자연_평탄</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> 갯벌.dbf</li><li><input type="checkbox"/> 갯벌.prj</li><li><input checked="" type="checkbox"/> 갯벌</li><li><input type="checkbox"/> 갯벌.shx</li><li><input type="checkbox"/> 갯벌명칭.dbf</li><li><input type="checkbox"/> 갯벌명칭.prj</li><li><input checked="" type="checkbox"/> 갯벌명칭</li><li><input type="checkbox"/> 갯벌명칭.shx</li><li><input type="checkbox"/> 생태계보전지역.dbf</li><li><input type="checkbox"/> 생태계보전지역.prj</li><li><input checked="" type="checkbox"/> 생태계보전지역</li><li><input type="checkbox"/> 생태계보전지역.shx</li><li><input type="checkbox"/> 습지보호지역.dbf</li><li><input type="checkbox"/> 습지보호지역.prj</li><li><input checked="" type="checkbox"/> 습지보호지역</li><li><input type="checkbox"/> 습지보호지역.shx</li></ul>	<ul style="list-style-type: none"><li>Facilities for HNS</li><li>Organization for oil-spill response</li><li>Materials for oil-spill response</li><li>Biological data</li><li>Fish farm</li><li>Boundary for fishery</li><li>Natural monument</li><li>Beach</li></ul>	



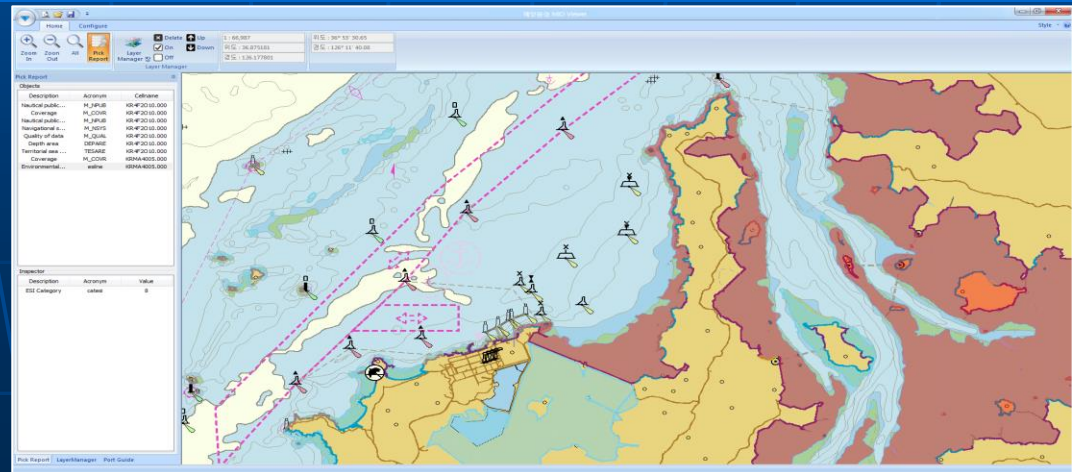
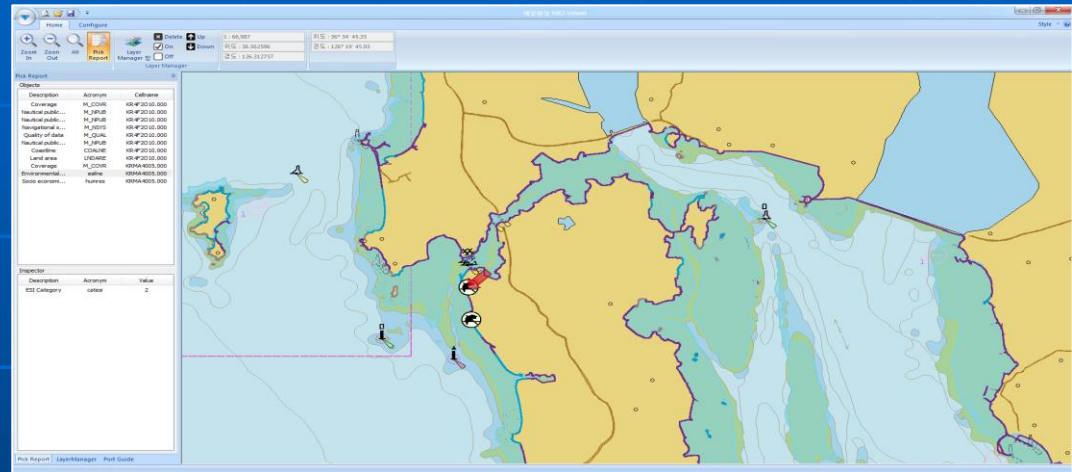
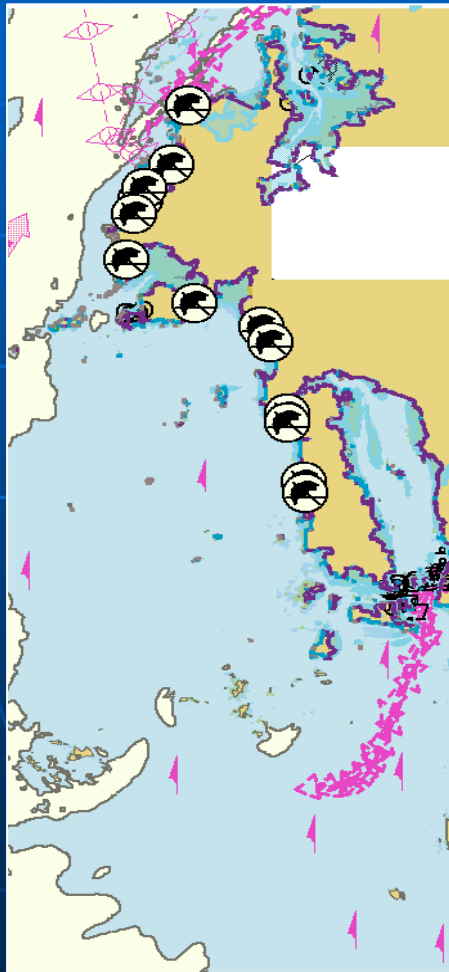
# Production of e-MIO test dataset and Viewer

- ✦ 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

