IHO S-100 Working Group

Demonstration of no-go area with S-102 and S-104 data sets

Presented by KHOA (Sewoong OH)

Background

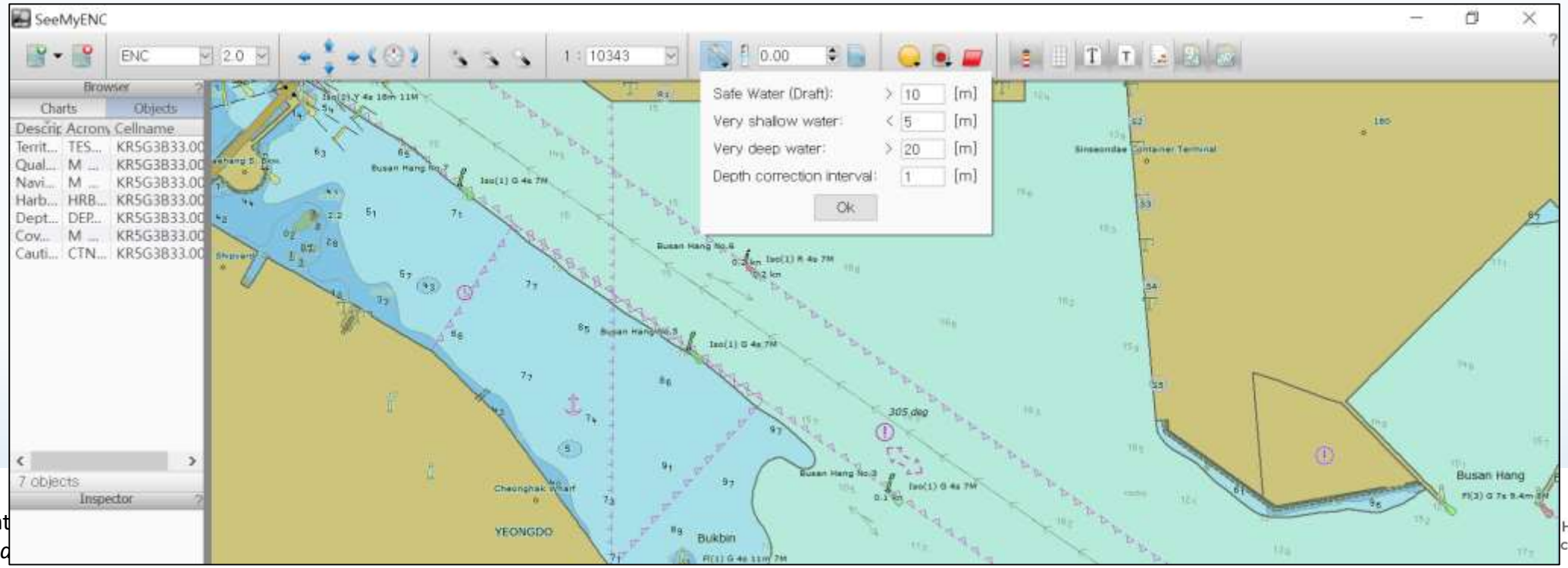
- **KHOA S-100 Test bed project**
  - producing S-10X Test Data Sets (TDS) and validating S-100 based Product Specification (PS) and services with S-100 Viewer/Testbed ECDIS
  - produced TDS for S-102 Bathymetric Surface and S-104 Water Level Information for Surface Navigation
  - developed the prototype of no-go area function on S-100 Testbed ECDIS
  - introduces the outcome of developing the prototype of no-go area display function using S-102 and S-104 data developed by KHOA

Overview of No-go Area

- **Definition of No-go area**
  - an area, especially in a town, where it is very dangerous to go, usually because a group of people who have weapons prevent the police, army, and other people from entering
  - when it comes to maritime traffic, it indicates an area where vessels may run aground or navigational risks are prevalent or where it is designated as marine protected area

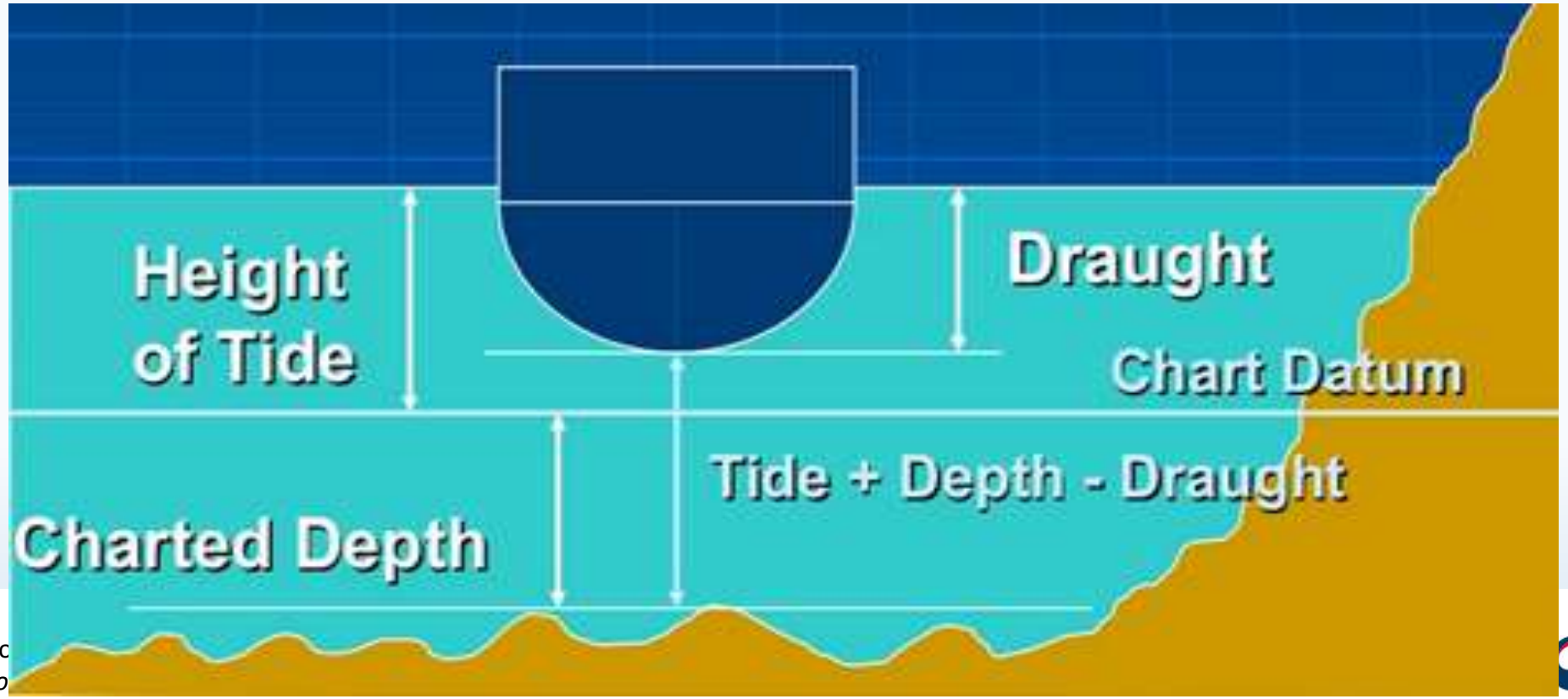
Overview of No-go Area

- Current ECDIS
  - has the following settings similar to no-go areas to prevent vessels from running aground:
    - Safety Sounding: Designate safety sounding and display the safety using ENC soundings
    - Safety Contour: Insert safety value and set safety depth contour



Overview of No-go Area

- Concept of Safety depth required
  - UKC : calculated as Tide + Charted Depth – Draught
  - Safety depth required : Safe depth value considering the Draught and safety margin



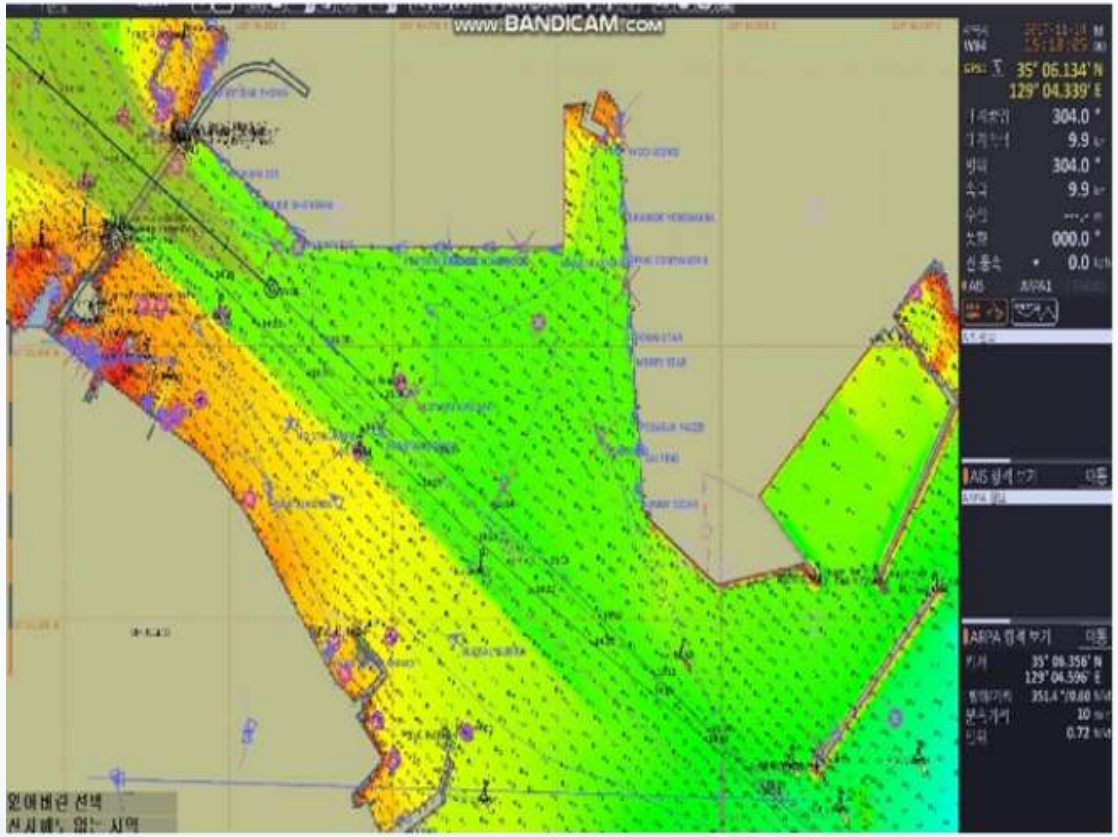
Creation of S-102 and S-104 TDS

- TDS for S-100 Testbed project
  - S-102 Bathymetric Surface and S-104 Water Level Information for Surface Navigation

No.	Product Specification	Tools and Procedures
1	S-102 Bathymetric Surface	- Tools: KHOA S-102 Editor (developed using open source application from the Open Navigation Surface Working Group). - Procedures: Survey data → Upload to DEM Database → Convert and edit using the S-102 editor (BAG).
2	S-104 Water Level Information for Surface Navigation	- Tools: KHOA S-104 Editor - Procedures: Water level in grid (sourced by KHOA Tidal system) → created by S-104 Editor

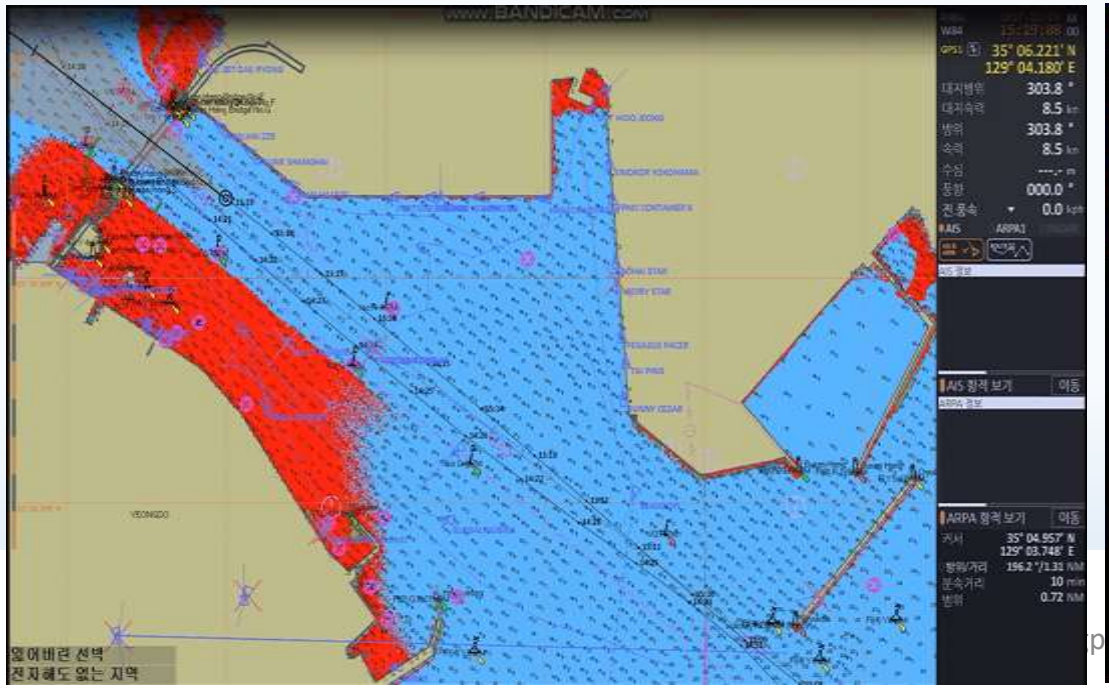
Demonstration of no-go area

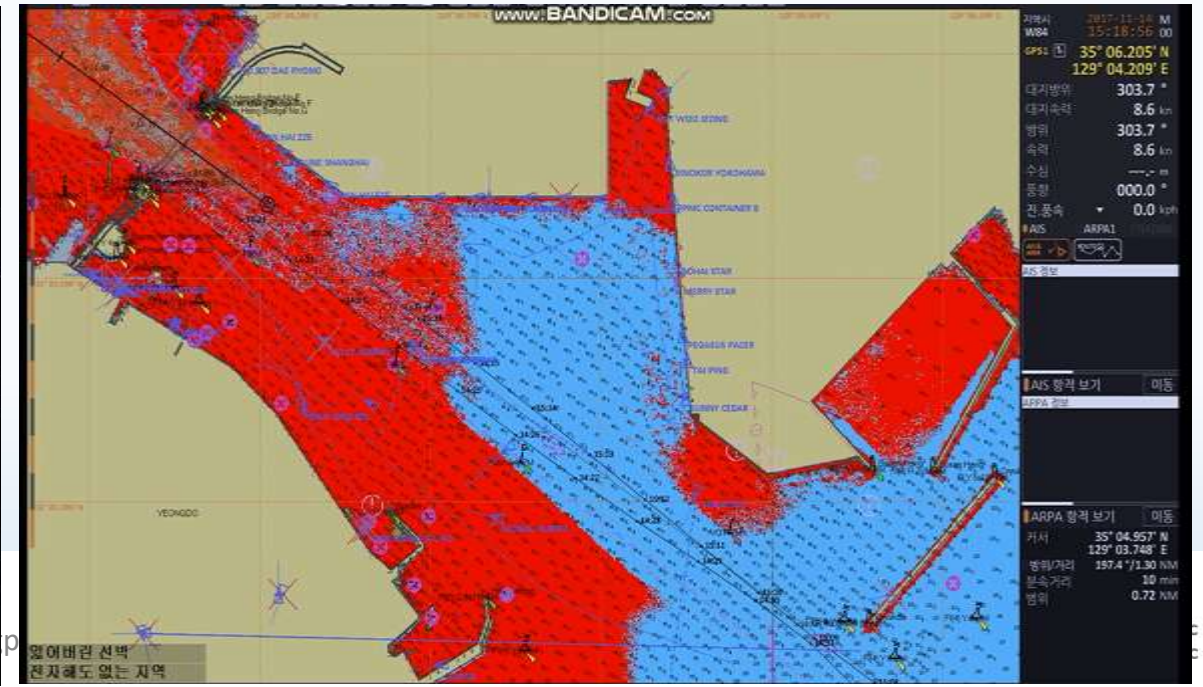
- Prototype of S-100 Testbed ECDIS



Demonstration of no-go area

- No-go area presentation methods
  - Safety depth required : Users type it in as parameter values
  - No-go area presentation method (1): if (Depth of S-102 Cell < Safety Depth) then display the cell in red
  - No-go area presentation method (2): if ((Depth of S-102 Cell + S-104 Water Level) < Safety Depth) then display the cell in red





Conclusions

- S-100 Testbed project
  - created S-102 and S-104 test data sets
  - applied them on S-100 ECDIS to test the no-go area function
- No-go area function
  - As maritime traffic increases and the size of vessels becomes larger
  - to run the no-go area function
  - by combining detailed S-102 Bathymetry and dynamic S-104 Water Level data

Recommendations

- PS development activities
  - S-102 PT is revising S-102 and TWCWG is developing S-104
  - S-129 PT is developing Under Keel Clearance Management (UKCM) PS
  - the Application Schema of UKCM includes NoGoArea as a feature type
- Portrayal
  - refer to this document when considering portrayal