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# **PRIMAR S-100 development**

**Svein Skjaeveland**

# PRIMAR S-100 Projects

1. Research project: S-102 Demonstrator (S-102 in an operational environment and PRIMAR S-102 Distribution Service).
2. S-102 Bathymetry Data Service in the Cloud (From survey to use within 24 hours)
3. Research project: S-100 Demonstrator (S-101, S-102, S-104, S-111, S-129).
4. PRIMAR S-57/S-101 Dual-Fuel Service Distribution



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# S-102 Demonstrator

Demonstrator for distribution and use of bathymetric data (S-102) in an operational environment.

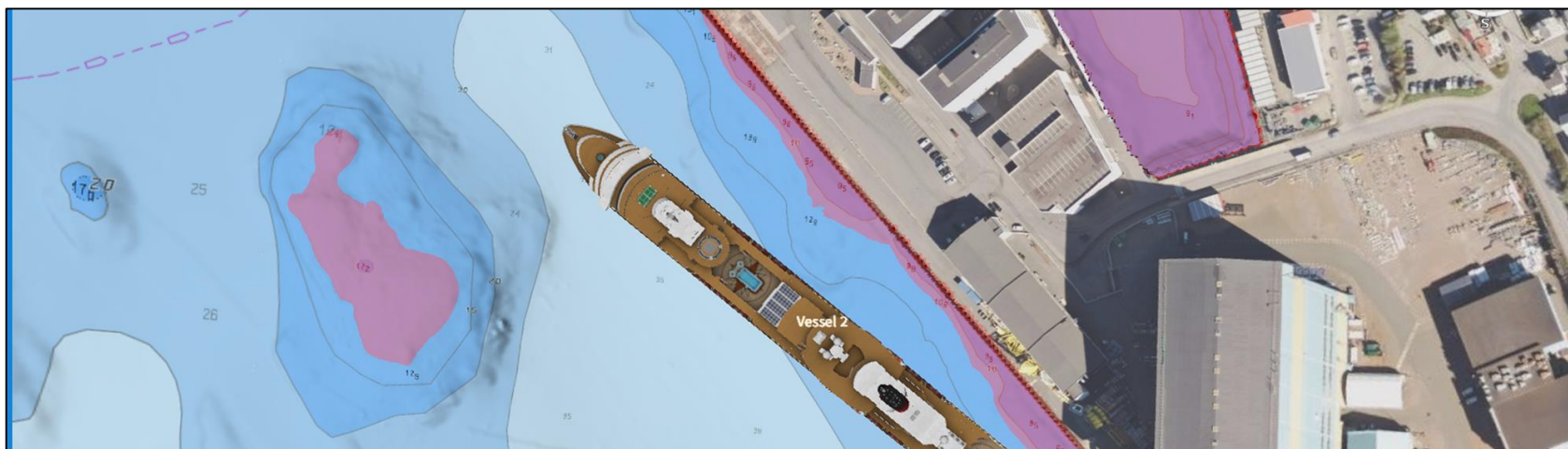
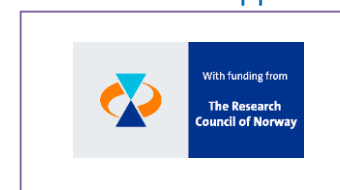
## The Project Team



## Partners & Operational Test Team

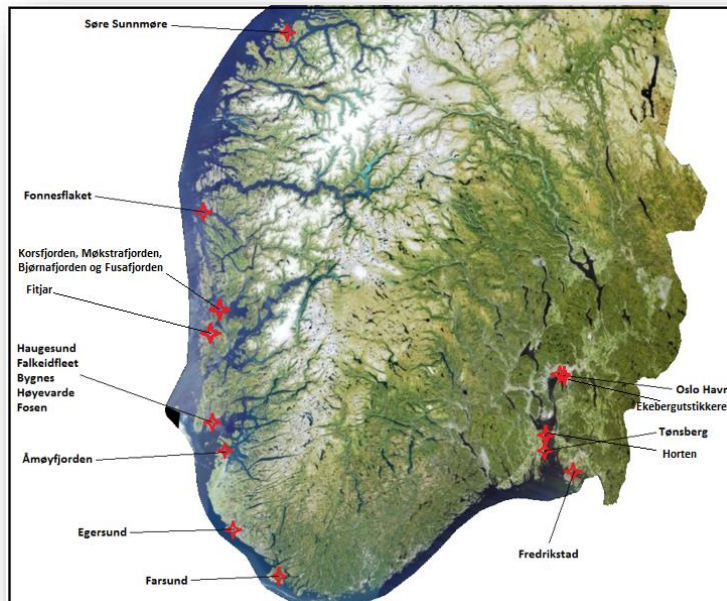


## Financial Support

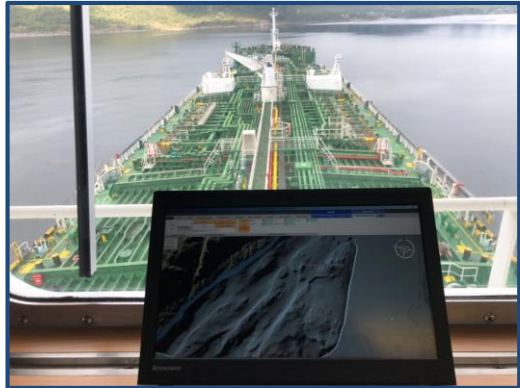
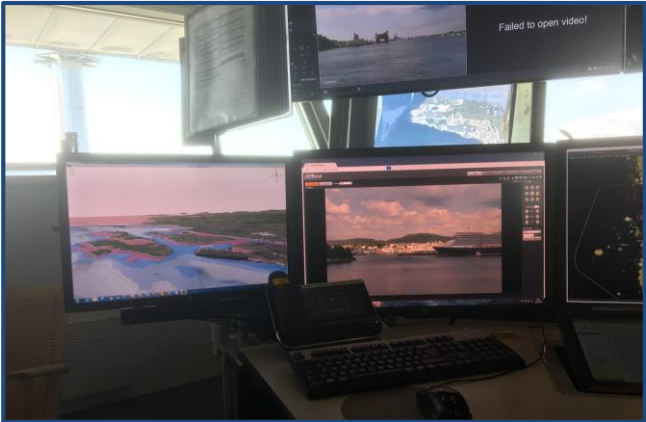
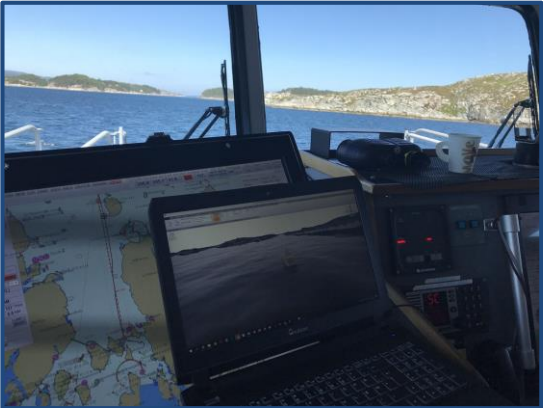
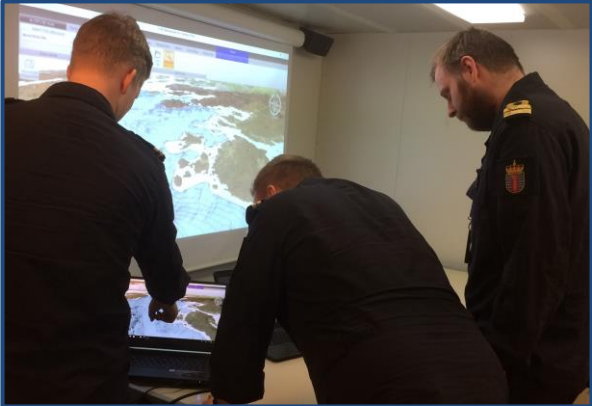


# Main objectives

1. Identify distribution model.
2. Data production
3. Identify specific use cases and geographical locations.
4. Operational use through operational tests.
5. Develop a demonstrator.
6. Input IHO S-102 standardization.

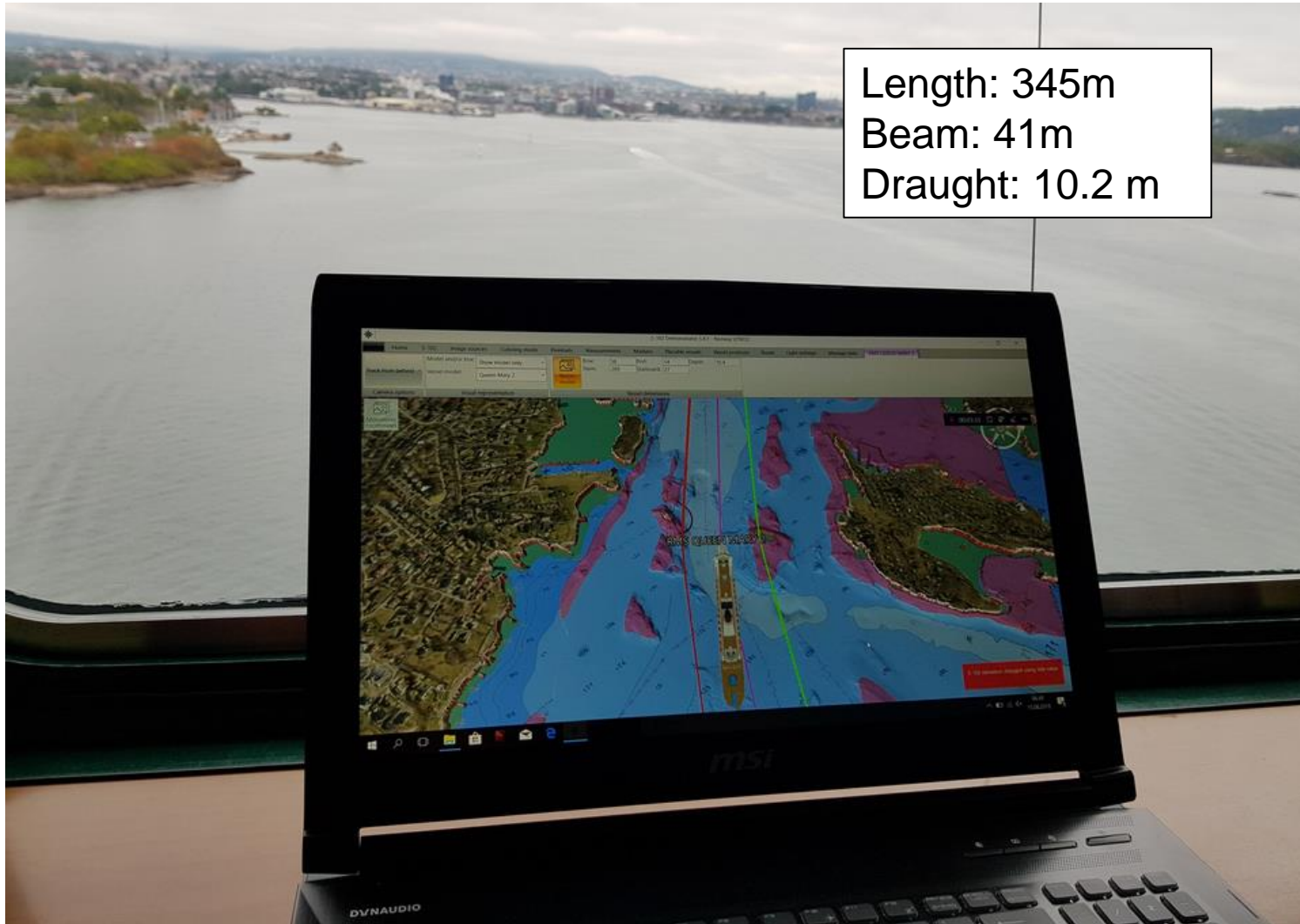


# Operational tests



# Operational test 3

## 3. Pilot assignment – Approach of MS Queen Mary 2 to Oslo Harbour.



# Operational test 3

S-102 Demonstrator 5.23 - Norway UTM32



**In online mode** | Home | S-102 | Image sources | **Coloring mode** | Pointsets | Measurements | Markers | Light settings | Manage data | **Vessels** | Placeable vessels | Vessels | Route

**Color mode**: Default | Blue | Palette | Uncertainty | **Safe/Unsafe**

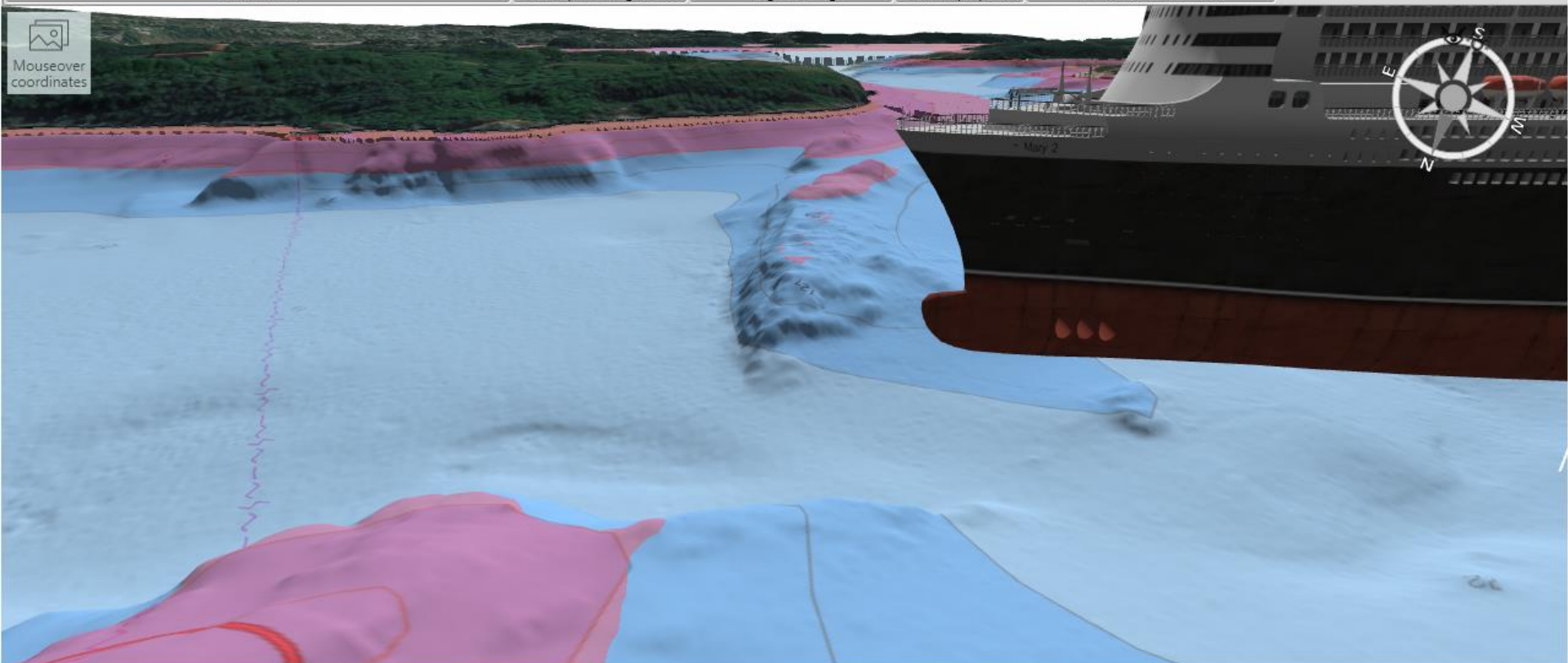
**Safe depth configuration**: Depth Max: 0, Min: -50, Transparency

**Height scaling**: Height multiplier: 1. Change the value of the multiplier to exaggerate the terrain height values.

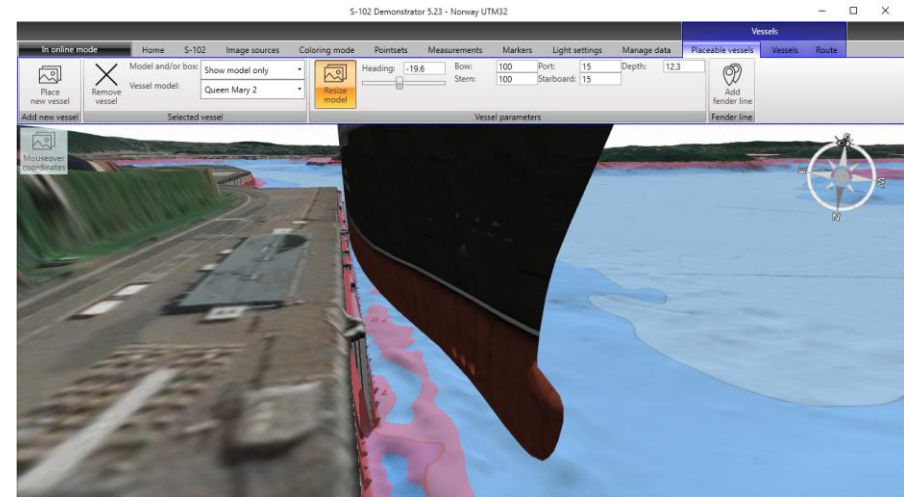
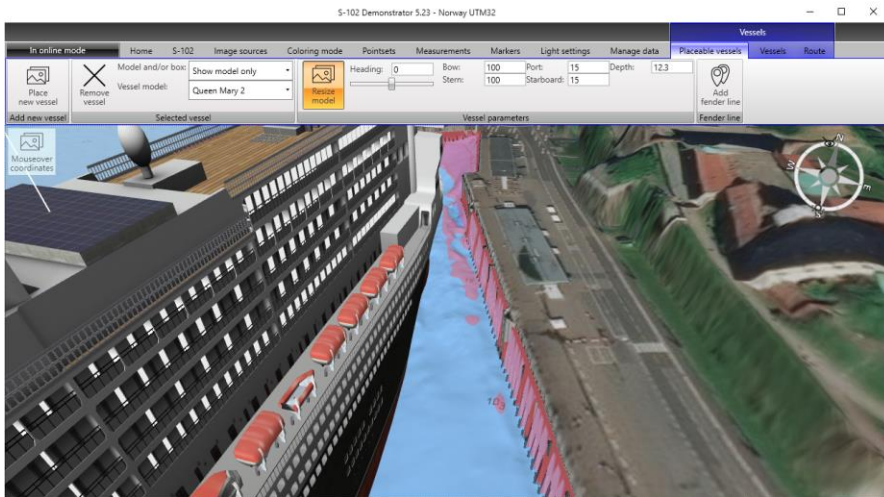
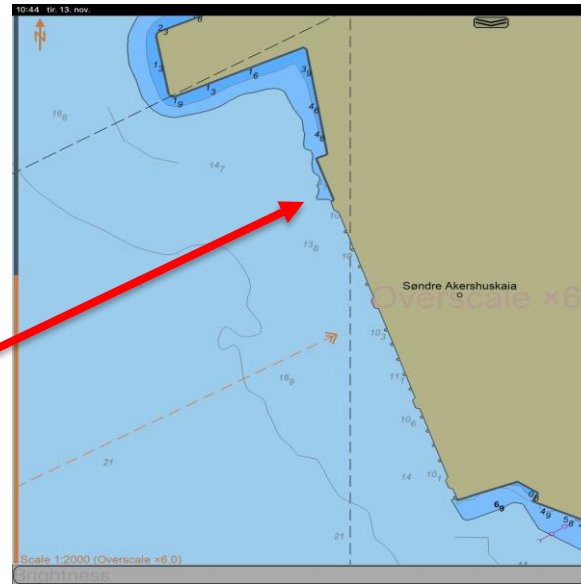
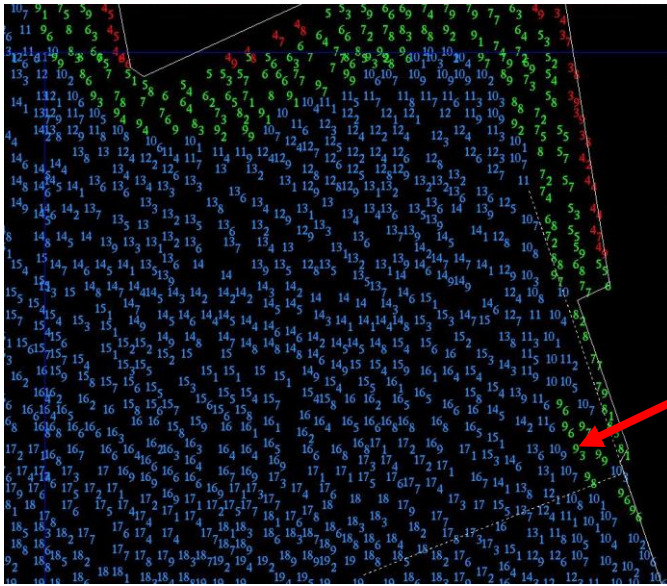
**Colormap options**: Interpolate colors

**Grid and contour lines**: Show grid lines | Show contour lines

Mouseover coordinates



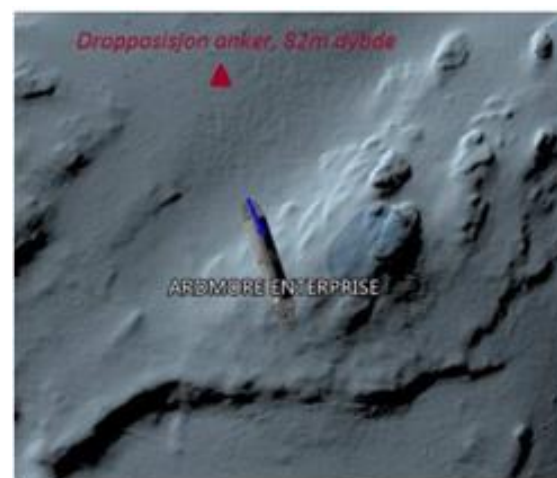
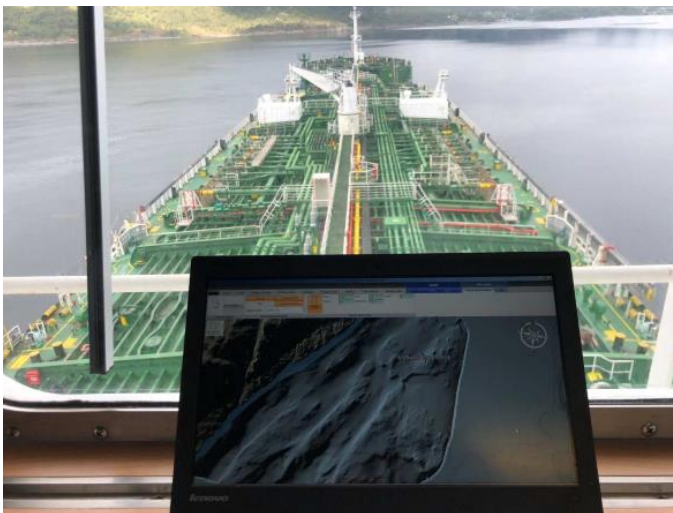
# Operational test 3





# Operational test 4

## 4. Pilotage assignment – Anchoring operations.



# Operational tests - lessons learned

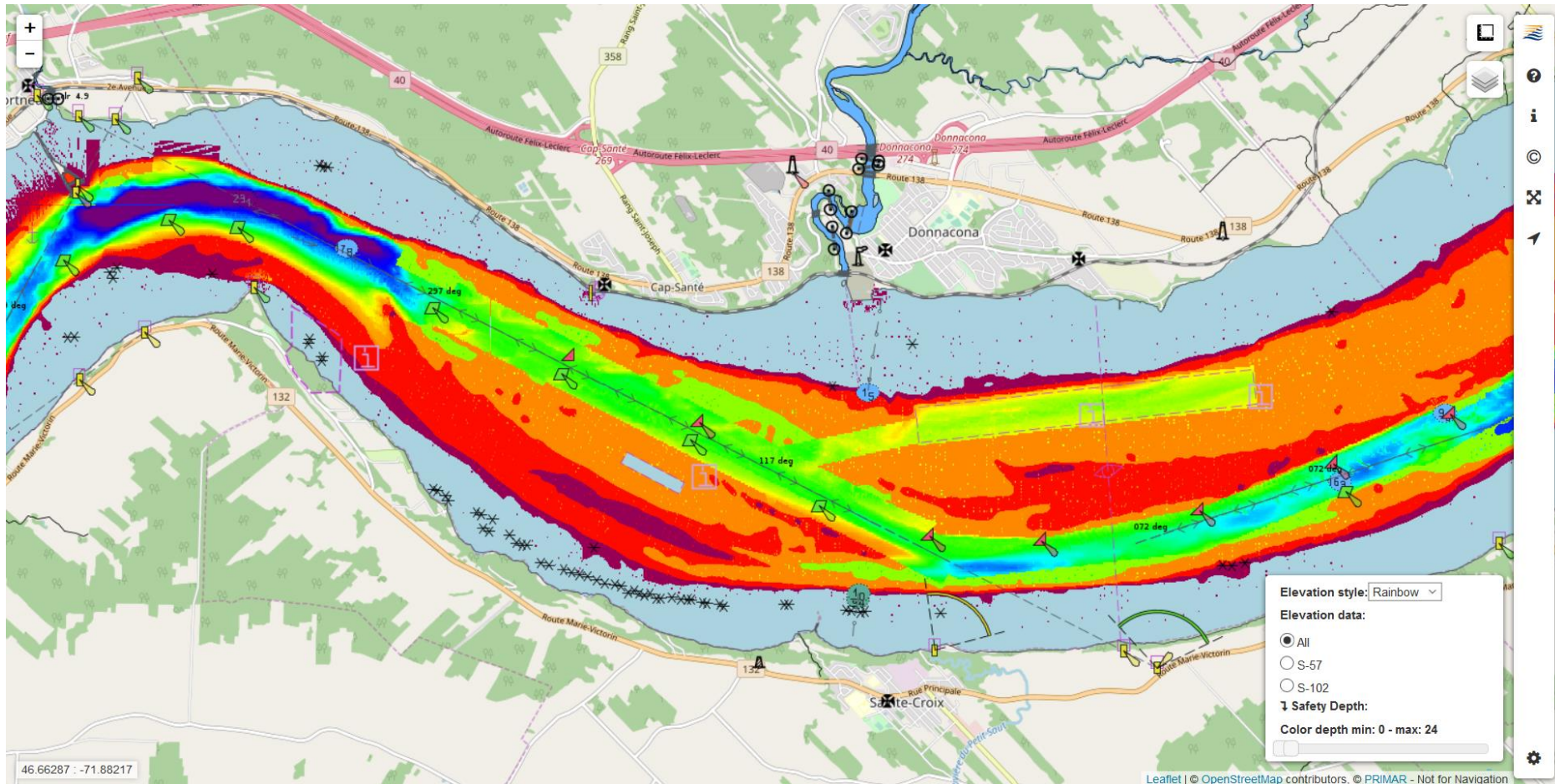
1. A visualization tool is a necessity to demonstrate data usage and to gain understanding of use and see possibilities.
2. A valuable tool presenting real time information for remote operations.
3. Adds value to planning processes.
4. Adds value to piloting operations – especially during initial pilot walkthrough.
5. Discovered interesting gaps between mariners «mental 3D picture» and reality as presented in the tool.
6. Data quality remains issue for end user.
7. A valuable planning, decision making and risk assessment tool.



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# S-100 Data as a service

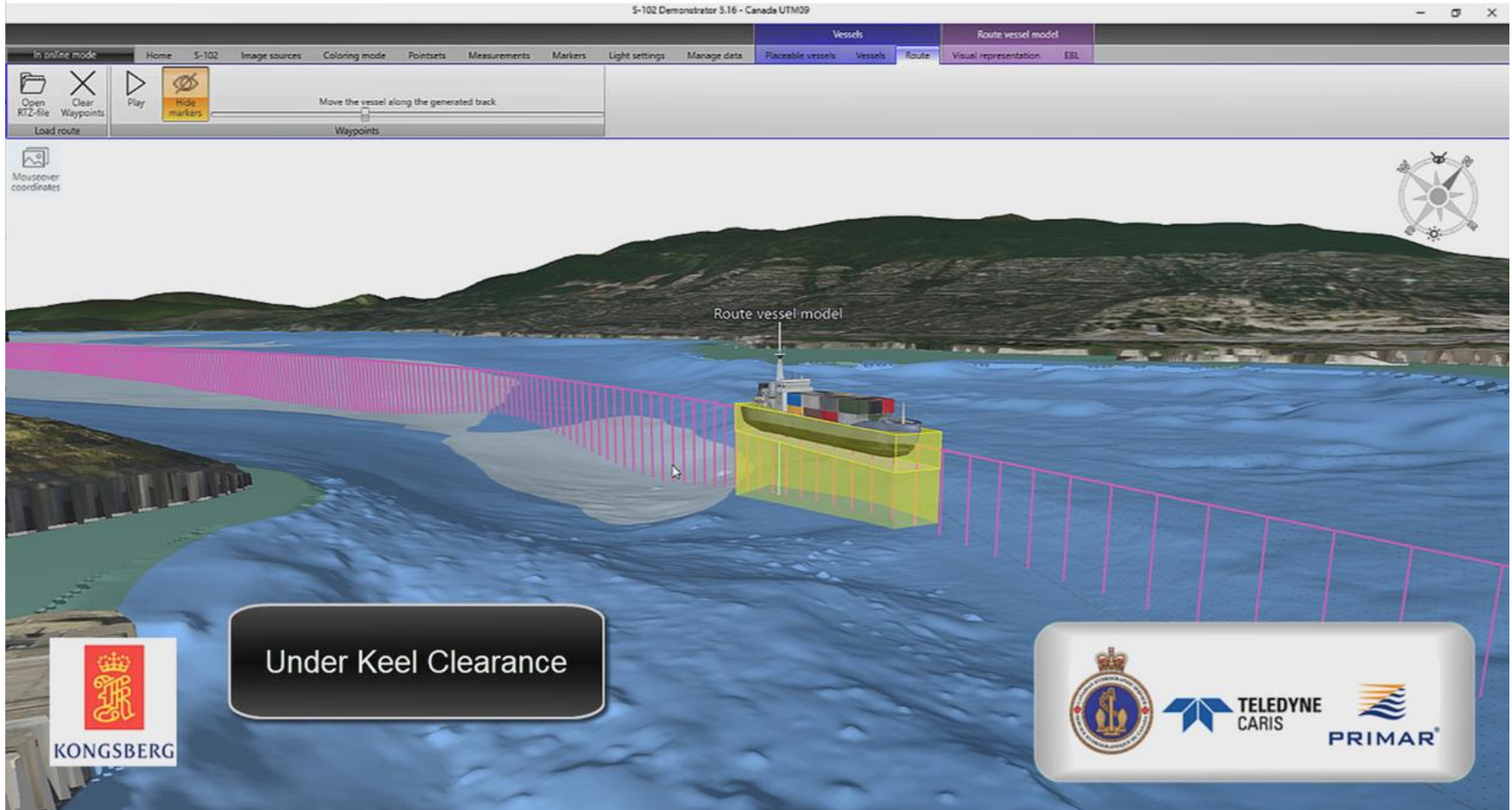
Canadian S-102 data in PRIMAR service:



St. Lawrence River

# S-100 Data as a service

Canadian S-102 data in PRIMAR service:



Vancouver

# PRIMAR Scope



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S-102  
Production

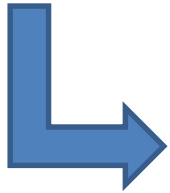
Standardization

S-100

S-101

S-102

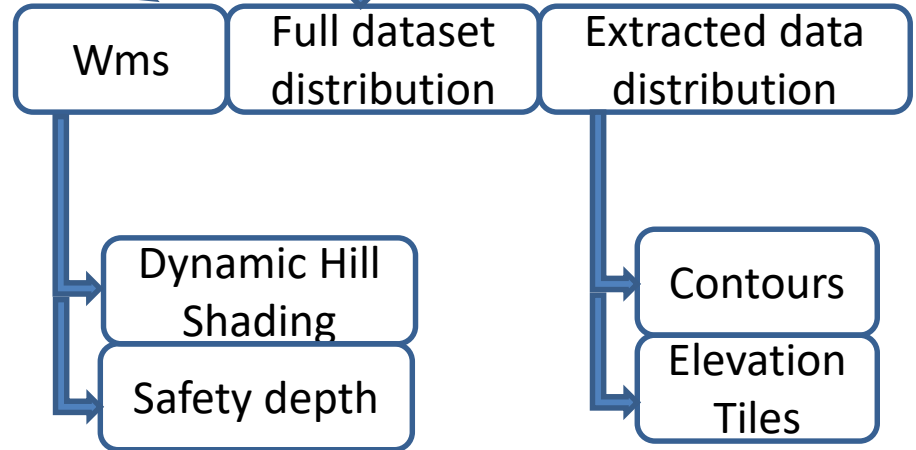
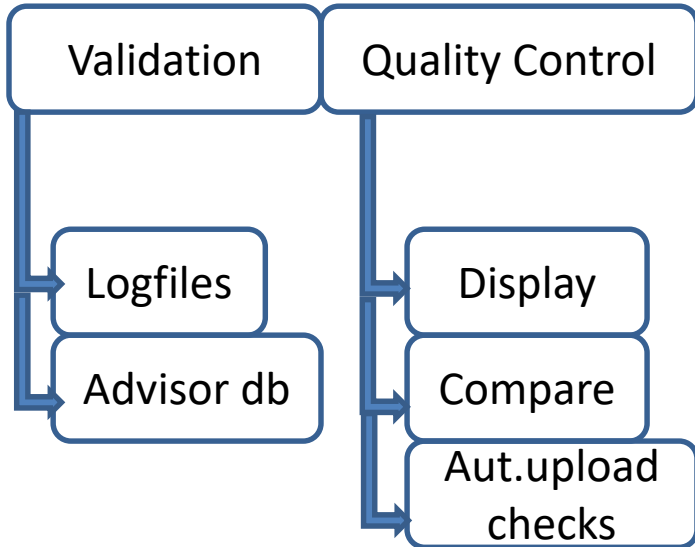
S-129



PRIMAR



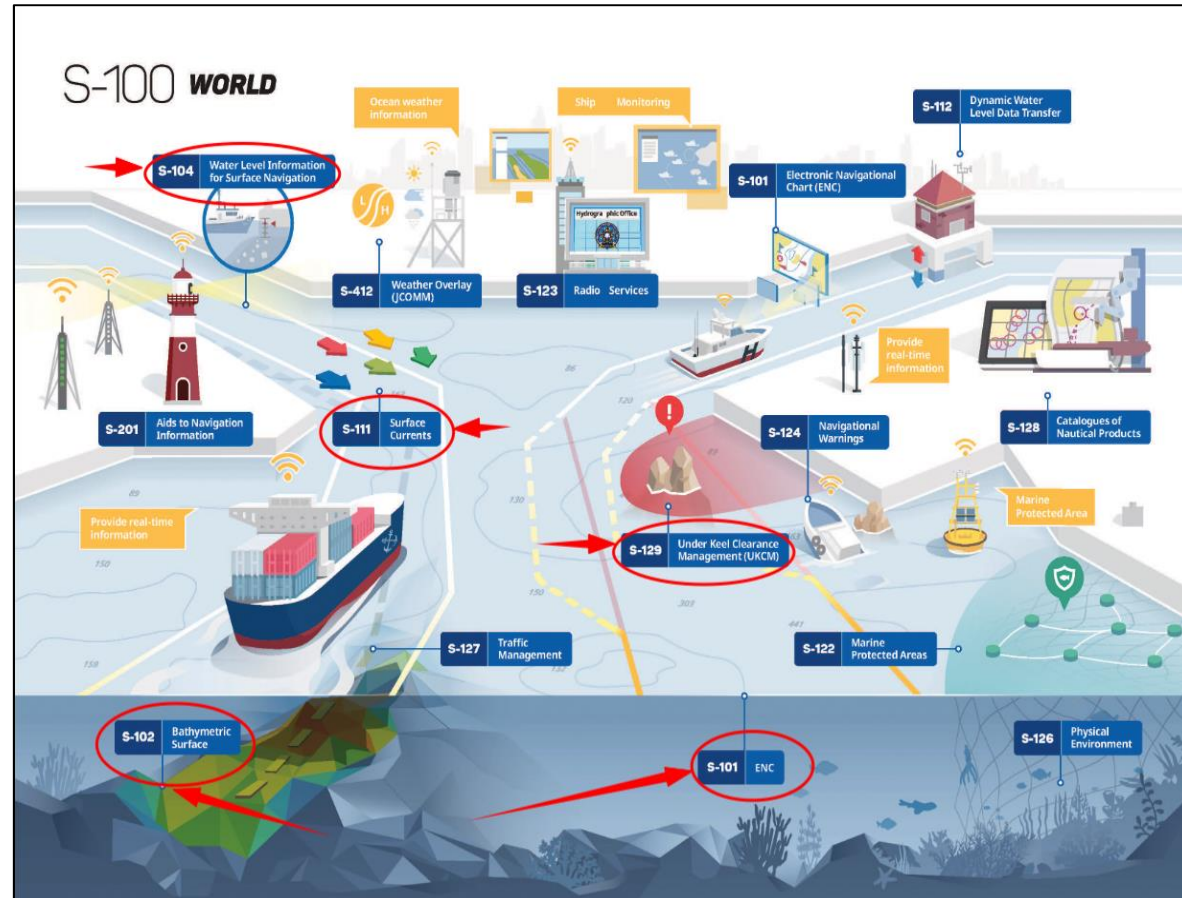
Distribution



# S-100 Demonstrator

- S-101 (ENC)
- S-102 (Bathymetri)
- S-104 (Tidal)
- S-111 (Surface Currents)
- S-129 (UKCM)

Project objectives:  
 To define **how** the new standards, **combined**, can improve **safe** and **effective navigation** and how new & improved products and business **opportunities** can be designed & developed **based on the new standards.**



# PRIMAR S-101 Implementation

- PRIMAR Member States have agreed to fund project to develop dual-fuel S-57 and S-101 ENC distribution service
- Offer PRIMAR Member States training and operational experience with S-101 services and Quality Control (PRIMAR TEWG, Oct 2019)
- Provide feedback to IHO and their WGs on standards
- Promote IHO S-100 based standards and provision of testdata and services to stakeholders
- Dual-fuel ENC service operational when first HOs datasets commercially available
- Meets IMO e-Navigation developments and MSPs
- Developed IHO S-100 Data Protection Scheme Administrator (SA) application



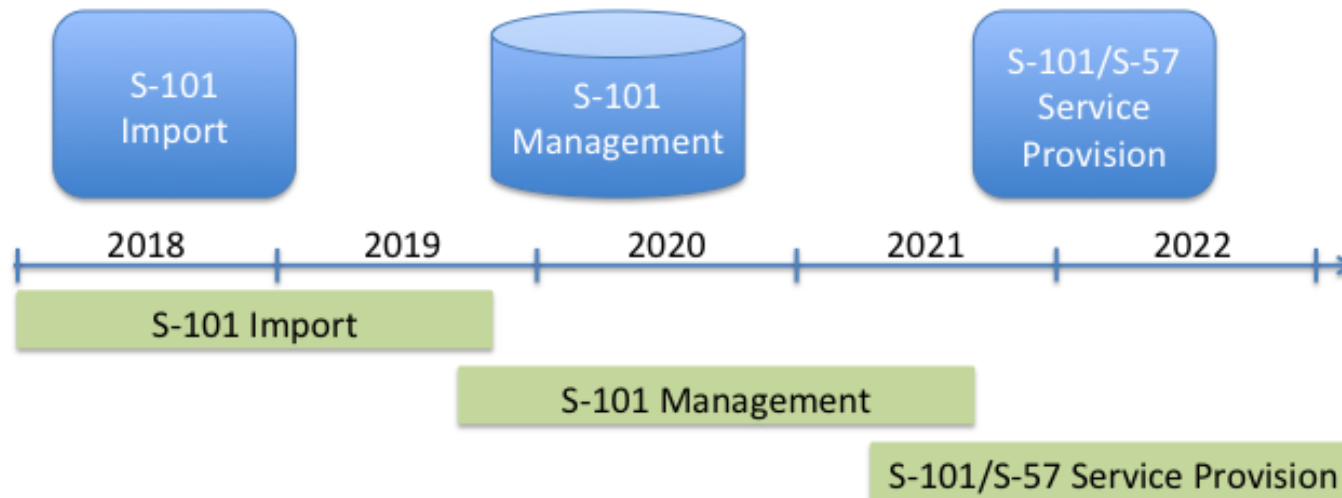
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# S-101: Development Plan

S-101 Feature Catalogue mgmt  
S-101 ENC version mgmt  
S-101 Import/release/delete (file)  
S-58 validation checks S-101  
S-101 Coverage viewer  
S-101 text file viewer  
S-101 Advisor DB

S-101 Data Import (Exchange set)  
S-101 WMS Viewer  
S-101 More S-101 functionality  
S-101 Overlap Checker  
S-58 validation checks S-101  
S-101 status reports  
S-63e2.0 Data Protection  
VRC validation of S-101

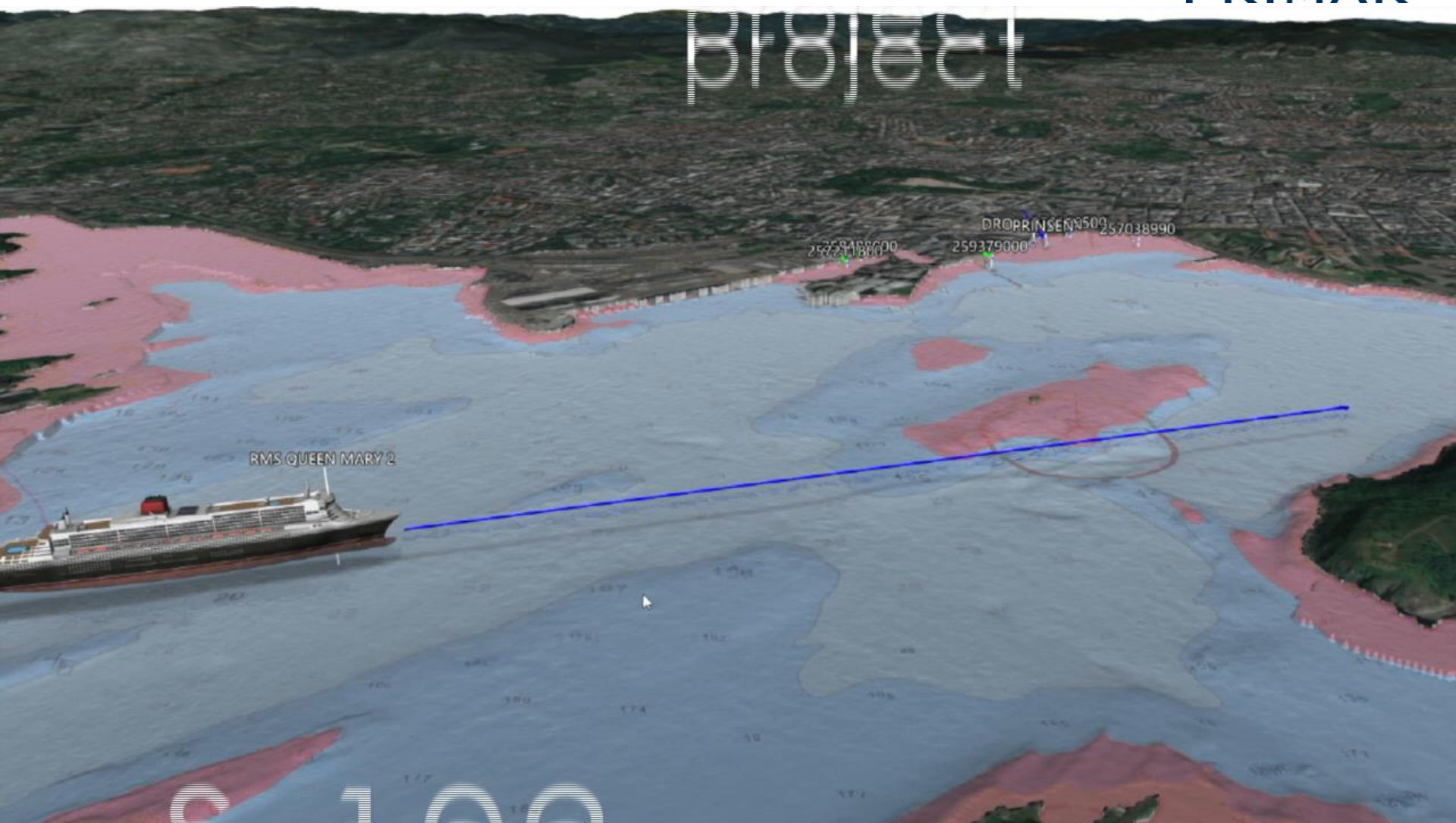
B2B support for S-101 ENC  
S-101 products Chart Catalogue  
S-101 Exchange Set generation  
Dual-fuel service generation  
Weekly S-101 CD/DVD images  
S-58 validation checks S-101  
PRIMAR permit generator S-101  
HO sales reports  
S-101 support in PUT



- Completed first version upload and QC of S-101 datasets
- Completed management and release of S-101 datasets
- Completed export of S-101 exchange sets
- Completed encryption and digital signing of S-101 datasets



# S-102 Demonstrator Project summary



<https://s102.no/>

FREEDOM TO CHOOSE

**Thank you for your attention**  
**Questions?**

**[www.primar.org](http://www.primar.org)**